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**UNIVERSITÄT  
BERN**

**ILLEGITIMATE TASKS, ILLEGITIMATE STRESSORS:  
TESTING A NEW STRESSOR-STRAIN CONCEPT**

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## ABSTRACT

There is widespread agreement that maintaining a positive image of oneself, both in terms of self-regard and in terms of respect from others, is an important human need. Surprisingly, research on stress at work has not given due attention to this issue. More recently, such aspects have increasingly been focused upon, sometimes directly and sometimes in the context of models that emphasize equity and reciprocity concerns (e.g., the Effort-Reward Imbalance model by Siegrist or recent developments in the concept of burnout by Schaufeli). Nevertheless, a systematic investigation into the role of ego-threats in occupational stress is still missing. It is argued that these aspects are important components of stress appraisal with regard to many job demands and working conditions, which are evaluated with regard to their reasonableness. Demands or circumstances that are considered to be lacking legitimacy, or as being unnecessary or unreasonable, will be perceived as ego-threatening. Important aspects of this process are social comparisons and the definition of one's core role. In this work, the concept of illegitimate tasks -an inherent part of the "Stress as Offence to Self" concept (SOS) developed by Norbert K. Semmer and his group at the University of Bern - was tested. All in all, 11 different studies with an overall of more than 3000 individuals were pursued or utilized to test the hypotheses. Frequencies of illegitimate tasks at work were analyzed to prove that illegitimate tasks exist beyond negligibility. A scale construed to measure illegitimate tasks was tested in terms of psychometric requirements and factorial structure, its association to different indicators of psychological strain and well-being was examined, its discriminant as well as incremental validity was put to the test in cross-sectional and longitudinal analyses with regard to other stressors and resources, and its presumed closeness to the concept of effort-reward imbalance was scrutinized. In an additional effort which included a change of methods, the illegitimacy of stressful situations (illegitimate stressors) at work was tested as a stress factor for situational well-being. Most results were replicated in several samples to limit false rejection or approval of hypotheses, and to repeatedly prove the point. Results are encouraging for the concept of illegitimate tasks and illegitimate stressors as independent predictors of psychological well-being and strain, and implications relevant for researchers and practitioners are discussed.

Key words: illegitimate tasks, stress as offense to self, stress as disrespect, stress at work, threat to self-esteem, psychological strain, fairness, meta-analysis, multilevel analysis.

## PREFACE

This work was challenging from start to finish. I would not have managed to complete it without the support and advice of my supervisor, colleagues, business partners, project teams, master students, friends, and my family. Social support truly is a valuable resource with the strong power to elicit desirable results.

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## TABLE OF CONTENTS

Abstract	2
Preface	3
Table of Contents	5
List of Tables and Figures	8
1. Introduction	10
1.1. Overview of the Thesis	11
1.2. Author Note	12
2. Theoretical Background	13
2.1. Stress at Work: Definitions, Models, Methodological Issues	13
2.1.1. Stress at Work: Definitions and Models	13
2.1.2. Some Methodological Issues in Stress Research	15
2.1.3. Implications	18
2.2. Stressors at Work	19
2.2.1. Task-Related Stressors	19
2.2.2. Social Stressors	20
2.2.3. Emotional Dissonance	21
2.2.4. Work-Family Conflict	22
2.2.5. Implications	23
2.3. Resources at Work	24
2.3.1. External Resources – Social Support and Job Control	24
2.3.2. Internal Resources – Self-Efficacy	26
2.3.3. Implications	27
2.4. Psychological and Physiological Well-Being and Strain	28
2.4.1. Negative Emotions, Resentment, and Work-Related Depression	28
2.4.2. Irritation	29
2.4.3. Burnout	30
2.4.4. Job Satisfaction	31
2.4.5. Physiological Stress Responses	32
2.4.6. Implications	33
2.5. Fairness, Effort-Reward Imbalance, and Stress at Work	34

2.5.1.	Fairness and Stress	34
2.5.2.	Equity and Effort-Reward Imbalance	35
2.5.3.	Implications	36
2.6.	Self-Esteem and Stress	37
2.6.1	Self-Esteem	37
2.6.2.	Threat to Self-Esteem	38
2.6.3.	Organization-Based Self-esteem	40
2.6.4.	Implications	41
2.7.	Stress as Offence to Self (SOS)	42
2.7.1.	Stress as Disrespect (SAD) and Illegitimate Tasks	42
2.7.2.	Implications	44
2.8.	Hypotheses	46
3.	Methods	53
3.1.	Samples, Procedure, Method: Pilot Studies	53
3.1.1.	Samples and Procedure	53
3.1.2.	Method: Interview	54
3.2.	Samples, Procedure, Method: Main Studies	55
3.2.1.	Samples and Procedure	56
3.2.2.	Method: Questionnaires and Diaries	58
3.2.2.1	Measurement of Stressors	59
3.2.2.2	Measurement of Resources	62
3.2.2.3	Measurement of Psychological Well-Being / Strain	63
3.2.2.4	Measurement of the Situational Approach (Event-Sampling)	65
3.3.	Plan of Analysis	66
4.	Results	68
4.1.	Pilot Interview Studies: Frequencies of Illegitimate Tasks	68
4.2.	The Bern Illegitimate Tasks Scale (BITS)	72
4.2.1.	Psychometric Values of BITS	72
4.2.2.	Factorial Structure	74
4.3.	Illegitimate Tasks as a Stressor	79
4.3.1.	Illegitimate Tasks and Psychological Well-Being / Strain	79
4.3.2.	Illegitimate Tasks and Other Stressors and Resources and Well-Being / Strain	83
4.4.	Illegitimate Tasks over Time	100

4.5.	Illegitimate Tasks and Effort-Reward Imbalance	107
4.6.	Illegitimate Stressors and Situational Well-Being	113
5.	Discussion	123
5.1.	Summary and Conclusions	123
5.1.1.	Pilot Studies	123
5.1.2.	The Bern Illegitimate Tasks Scale (BITS)	124
5.1.3.	Illegitimate Tasks Predicting Well-Being Strain – Cross-Sectional Analysis	126
5.1.4.	Illegitimate Tasks Predicting Well-Being Strain – Longitudinal Analysis	128
5.1.5.	Illegitimate Tasks and Effort-Reward Imbalance	130
5.1.6.	Illegitimacy of Stress Situations	131
5.2.	Limitations and Strengths	132
5.3.	Implications and Outlook	134
6.	References	136



## LIST OF TABLES AND FIGURES

Table 1	Questions to Detect Unnecessary and Unreasonable Tasks.	55
Table 2	Differences of Scales in Eight Studies.	61
Table 3	Means, Standard Deviations, and Range of Tasks in Three Interview Studies.	69
Table 4	Number of Illegitimate Tasks among Core and Ancillary Tasks in Pilot Study 1.	70
Table 5	Number of Illegitimate Tasks among Core and Ancillary Tasks in Pilot Study 2.	70
Table 6	Number of Illegitimate Tasks among Core and Ancillary Tasks in Pilot Study 3.	71
Table 7	Number of Illegitimate Tasks among Core and Ancillary Tasks in all Pilot Studies.	71
Table 8	Scale Indicators of BITS in Eight Studies.	73
Table 9	Exploratory Factor Analysis of the Berne Illegitimate Tasks Scale of the Total Sample.	75
Table 10	Fit-Indices of the Examined Factor Structures of the Bern Illegitimate Tasks Scale.	77
Table 11	Correlations between Illegitimate Tasks and Psychological Well-Being / Strain.	81
Table 12	Meta-Analytic Results for the Relationships among BITS and Psychological Well-Being / Strain.	82
Table 13	Range of Correlations between Illegitimate Tasks and other Stressors in Studies I to IV.	84
Table 14	Range of Correlations between Illegitimate Tasks and Internal and External Resources in Studies I to IV.	86
Table 15	Overview of the Significant Effects regressing Well-Being / Strain onto Illegitimate Tasks under control of Age, Sex, Uncertainty, Interruptions at Work, Concentration Demands, Time Pressure, and Problems of Work-Organization in Six Cross-Sectional Samples.	88
Table 16	Overview of the Significant Effects regressing Well-Being / Strain onto Illegitimate Tasks under control of Age, Sex, Task-Related Stressors, Social Stressors, Effort-Reward-Imbalance, Emotional Dissonance, and Work-Family-Conflict in Six Cross-Sectional Samples.	90
Table 17	Overview of the Significant Effects regressing Well-Being / Strain onto Illegitimate Tasks under control of Age, Sex, Internal and External Resources in Six Cross-Sectional Samples.	92
Table 18	Regressing Well-Being / Strain onto Illegitimate Tasks under Control of Age, Sex, Four Stressors and Three Resources in Study I.	95
Table 19	Regressing Well-Being / Strain onto Illegitimate Tasks under Control of Age, Sex, Five Stressors and Three Resources in Study IV.	96
Table 20	Regressing Well-Being / Strain onto Illegitimate Tasks under Control of Age, Sex, Five Stressors and Three Resources in Study V.	97
Table 21	Regressing Well-Being / Strain onto Illegitimate Tasks under Control of Age, Sex, Five Stressors and Three Resources in Study VI.	98
Table 22	Overview of The Significance of Standardized Regression Weights (Expected Direction) of the Predictors in the End Model in Four Studies.	99
Table 23	Descriptive Statistics and Correlations for BITS and the Depending Variables in Study I with Three Measurement Points (Different Sample Sizes).	101

Table 24	Overview of the Significant Effects regressing Well-Being / Strain onto Illegitimate Tasks under control of Age, Sex, and the Respective Dependent Variable to Different Measurement Points in Study I.	103
Table 25	Descriptive Statistics and Correlations for BITS and the Depending Variables in Study II with Two Measurement Points (Time Lag Two Years).	105
Table 26	Overview of the Significant Effects Regressing Well-Being / Strain onto Illegitimate Tasks under Control of Age, Sex, and the Respective Dependent Variable in Study II.	106
Table 27	Overview of Effort-Reward-Imbalance Acting as Potential Mediator between Illegitimate Tasks and Well-Being / Strain under Control of Age and Sex.	108
Table 28	Overview of Effort-Reward-Imbalance Acting as Potential Mediator between Illegitimate Tasks and Well-Being / Strain in Study I under Control of Age and Sex.	110
Table 29	Overview of Effort-Reward-Imbalance Acting as Potential Mediator between Illegitimate Tasks and Well-Being / Strain in Study II under Control of Age and Sex.	112
Table 30	Means, Standard Deviations, and Correlations among Event-Related Well-Being / Strain and Situational and Chronic Stressors (Task-related Stressors).	115
Table 31	Multilevel Analyses Regressing Event-Related Well-Being / Strain onto Situational and Chronic (Task-related Stressors) Predictor Variables.	116
Table 32	Means, Standard Deviations, and Correlations among Event-Related Well-Being / Strain and Situational and a Group of Chronic Stressors and Resources.	118
Table 33	Multilevel Analyses Regressing Event-Related Well-Being / Strain onto Situational and Chronic (Stressors from Several Domains) Predictor Variables.	119
Table 34	Multilevel Analyses Regressing Event-Related Well-Being / Strain onto Situational and Chronic (Resources) Predictor Variables.	120
Table 35	Multilevel Analyses Regressing Event-Related Well-Being / Strain onto Situational and Chronic (Different Stressors and Resources) Predictor Variables.	121
Figure 1	Theoretical Framework for the Study of Stress in Organizations.	14
Figure 2	Two potential Measurement Models of the Berne Illegitimate Tasks Scale.	76
Figure 3	Two Factor Structure of the Bern Illegitimate Tasks Scale (ML-Estimation).	78

### 1. Introduction

Stress has been studied for almost a century, and its relevance in occupational stress research<sup>1</sup> has intensified in the last three decades. Stress imposes a high cost on individual health and well-being as well as organizational productivity (Sutherland & Cooper, 1990; Zapf & Semmer, 2004). Annual direct costs incurred because of a) loss of production and days of absence at work due to strain, b) fees of general physicians dealing with stress reactions of individuals, and c) pharmaceuticals to soothe strain, were estimated at 4.2 billion Swiss Francs in Switzerland in 2000 (Ramaciotti & Perriard, 2000). Adding indirect cost, expenses due to causalities and industrial diseases, the final charge is estimated to be 7.8 billion Swiss Francs. So, every year stress at work causes national economic costs, managerial costs, and a financial burden for every individual struggling with raised premiums of health insurance. After citing economic issues, all the afflictions impaired individuals suffer from should be mentioned as well with regard to psychological (e.g., irritation), physiological (e.g., psychosomatic complaints) and behavioral components of well-being (e.g., turnover intentions or behavior detrimental to healthiness as in substance abuse) (cf. Jex & Beehr, 1991; Kahn & Byosiére, 1992; Semmer, McGrath & Beehr, 2005; Zapf & Semmer, 2004).

Occupational stress research is concerned with the work context in which stressors arise and responses occur (Kahn & Byosiére, 1992). Even though a bulk of research exists about what causes strain, all the conditions at work responsible for triggering strain might not be complete. In this thesis a new stressor-strain concept was developed and tested. The idea that besides all the known stressor concepts - for instance task-related stressors, physical stressors, and social stressors - others might exist in our work life is intriguing and worrisome at the same time. The concept of illegitimate tasks - an inherent part of the “Stress as Offence to Self” concept developed by Norbert K. Semmer and his group at the University of Bern - is at the center of this work. The concept is not introduced (cf. Semmer et al., 2005; Semmer & Jacobshagen, 2003), but developed and tested. In brief, illegitimate tasks describe mostly work tasks that usually are not subjectively perceived as a part of one’s core role and, therefore, annoying to deal with. They also pose a threat to self-esteem, because ordering someone to execute these tasks might be interpreted as a lack of appreciation. Theoretically, a distinction is made between unnecessary tasks and the stronger type of unreasonable tasks, collectively amounting to illegitimate tasks. It follows that if illegitimate tasks are a stressor in their own right, they should

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<sup>1</sup> The terms “occupational” and “organizational” are used as synonyms.

a) be associated with psychological well-being and strain, and b) explain variance over and above other stressors and resources. Otherwise, they might just be a copy for another construct, for instance tasks-related stressors or lack of self-efficacy. Coping behavior was not an issue in this work due to the wealth of other research questions. Also, the effect of illegitimate tasks on strain should be observable over time. A conceptual proximity is postulated between effort-reward imbalance and illegitimate tasks as they both stem from a perception of unfair treatment that evokes a threat to self-esteem. The difference between the two concepts lies in the generality: effort-reward imbalance represents a rather general evaluation, whereas illegitimate tasks are a much more specific concept. It seems theoretically plausible that more specific stressors, like illegitimate tasks, imply deterioration in psychological well-being to the extent that they result in a more generalized feeling of being treated in an unfair manner. Therefore, effort-reward imbalance should act as a mediator between illegitimate tasks and psychological strain. In addition, the legitimacy of stressful situations at work is another way to look at perceived illegitimacy at work. If an angering or annoying situation at work is also perceived as illegitimate, subjective well-being should be influenced.

### **1.1. Overview of the Thesis**

The theoretical part of the thesis includes eight subchapters in chapter 2. The first subchapter contains a brief summary about stress at work and relevant stress models as well as a brief overview about methodological problems of organizational stress research. Subchapter 2 and 3 provide a description of stressors and resources at work relevant for this work. Subchapter 4 is concerned with the relationship between stressors and indicators of psychological and physiological well-being and strain. Next, stress in relation to fairness literature is presented in subchapter 5, as feelings of unfairness are linked to the perception of illegitimate tasks. Self-esteem and threats to it play a major role in this new stressor-strain concept, so a subchapter about self-esteem and stress follows. A detailed description of the “Stress as Offence to Self” concept with a special focus of attention to illegitimate tasks is then presented, and implications deduced. Hypotheses of this work are described in the last subchapter and end the theoretical part.

The empirical part is divided into three chapters. The first chapter describes the samples and methods applied in all 11 studies gathered for this work. The chapter containing the empirical results is split into six subchapters with regard to the course of building this research: conducting three interview studies (analyzing frequency of occurrence of illegitimate tasks); testing a scale

measuring illegitimate tasks (psychometric results and factor analyses in eight studies); testing the relationships of illegitimate tasks with several indicators of psychological strain and well-being (correlation, regression and meta-analysis in eight studies); proving incremental validity of illegitimate tasks over and above other stressors and resources (regression analyses with four to six studies); focusing on two longitudinal samples to observe impact of illegitimate tasks over time; and revising the proposed mediation effect of effort-reward imbalance. Last but not least, an additional effort is presented in analyzing the perceived legitimacy of stress situations with a situational diary approach, to facilitate further evidence for the importance of perceived illegitimacy at work and its effect. A discussion of the results as well as strengths and limitations of this work and further implication ends this work. Statistical programs used were SPSS for WINDWOS 13.1, AMOS 5.0, and MLWIN.

### **1.2. Author Note**

Part of this research was supported by a grant from the Swiss National Science Foundation and one grant from the Swiss State Secretariat for Economic Affairs (seco). Data collection for this thesis took four years and, during that time, several proposals, interim reports, and final reports were written to receive and justify the grants. In addition, numerous convention abstracts and presentations as well as manuscripts for book chapters and articles were prepared and sent out to raise awareness about the SOS concept and its value in the scientific community during the course of this work. Therefore, some of the descriptions and deductions relevant for the SOS concept and this thesis are akin to some other works I co-authored, as it does not make sense to reformulate elaborated and developed aspects just for the sake of rewriting. This happened in consent of Norbert K. Semmer. The special value of this work lies in bringing all the endeavors together to prove that the concept of illegitimate tasks is sound and has a right to be called a new stressor concept. Also, not all 11 samples obtained were funded by research grants - some of them were either mandates from corporations or implemented without financial aid. Thus, these studies reflect their purposes and not all relevant variables were assessed in all studies or assessed exactly the same, as some studies had to be shorter or had to answer other research questions in addition. As a consequence, not all analyses are exactly the same for all studies.

## **2. Theoretical Background**

The aim of this chapter is not to provide a review of all concepts and research findings on occupational stress research, but to briefly summarize concepts and findings relevant for the concept of illegitimate tasks and the framework of this work. As many constructs are discussed, the summaries had to be rather short, but the cited literature enables further reading.

### **2.1. Stress at Work: Definitions, Models, Methodological Issues**

#### **2.1.1. Stress at Work – Definition and Models**

There has been considerable debate and discussion as to what is really meant by stress. Wide discrepancies exist in the way stress is defined and operationalized (Kahn & Byosiére, 1992). The concept of stress has variously been defined as an independent (stimulus-based model) as well as dependent variable (response-based model) or as the result of an interaction (Semmer et al., 2005; Sonnentag & Frese, 2003). The approach taken seems to be dictated by the objectives of the research (Kahn & Byosiére, 1992). Stimulus concepts define stress as manifestation of stimuli which trigger stress responses and, on the contrary, response concepts define stress as the response of an individual. For instance, Hans Selye, a Canadian endocrinologist and a major force in early physiological stress research, defines stress as the result of any demand put upon the body. Both kinds of concepts have been criticized as they do not take into account the variability of individual differences and the peculiarities of situations (not all stressors lead to a stress reaction in all individuals and not all bodily responses are due to stress). The transactional approach avoids these intricatenesses as it credits an interaction between stimuli and properties of the individual. Lazarus and Folkmann define stress as “a relationship with the environment that the person appraises as significant for his or her well-being and in which the demands tax or exceed available coping resources” (1986, p.63). Semmer et al. (2005) criticize that this definition is multi-layered and, therefore, corresponds rather to a model than to a definition. Carver (1995) defines stress as the experienced discrepancy between demands of the environment and (stressors) and capacities of the individual. It is not clear, though, what is meant by discrepancy. Semmer (1984) defines stress as a subjectively experienced psychological state of displeasing tensions, which emerge from the fear of not being able to cope sufficiently with an aversive situation. He, therefore, pinpoints the negative quality of stress as a psychological state.

Occupational stress and health research has been guided by theoretical models (Cooper, Dewe, & Driscoll, 2001). Work stress models are useful, as they help to identify particular job

characteristics important for employee well-being. They make assumptions about mechanisms and relationships (Semmer et al., 2005), and these assumptions are the subject of empirical research. The theoretical framework for the study of stress in organizations by Kahn & Byosiére (1992) had a pioneering and ground-breaking impact on the field and triggered (and still triggers) plenty of research (see Figure 1). The foundation of the framework is the Model of Social Environment and Mental Health (French and Kahn, 1962), also noted as the ISR or Michigan model, and accommodates a general conspectus for organizational stress research. The substantial causal sequences of relationships of the model are that stressors may lead to distinct responses, whereas third variables (properties of the individual and the situation) impact this relationship as mediators. The (environmental) stimulus-side of the concept also includes organizational characteristics (e.g., size of the organization and work schedule) leading to stressors, which can be physical (e.g., noise, light, vibration, heat) or psychosocial (e.g., role ambiguity, role conflict, role overload). On the response-side, psychological (e.g., depression, anxiety, and job satisfaction), behavioral (e.g., turnover, absenteeism) and physiological (e.g., cardiovascular, biochemical, gastrointestinal, musculoskeletal) responses to stress may be caused by stressors that precede individual (health and illness and performance in other life roles) and organizational (effectiveness) long-term consequences of stress.

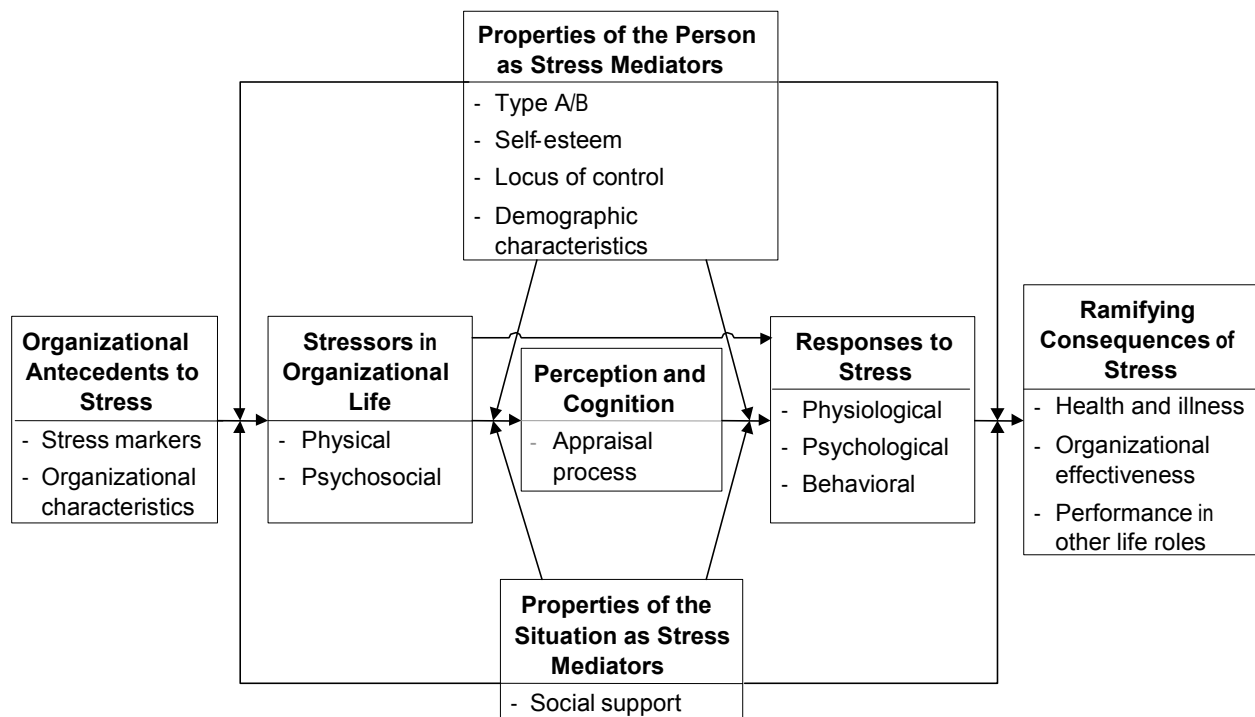


Figure 1. Theoretical Framework for the Study of Stress in Organizations (Kahn & Byosiére, 1992, p.592).

The mediator-side of the model states that properties of the person (e.g., self-esteem and demographic characteristics) and properties of the situation (e.g., social support of supervisors and co-workers) have the potential to mediate the relationship between stimulus and response at any point. As part of the coping concept (the attempt to avoid, minimize, or handle potential consequences of stressors – cf. Lazarus & Folkmann, 1984), the appraisal process (perception and cognition of the individual) is also conceptualized as mediator between environmental stressors (stimuli) and stress responses, though stressors may also affect responses without prior activation. Lately, the stated mediations are not considered to be mediators in all causal relationships, but may also be moderators (cf. Kälén, 2004; for the statistical difference see Kenny & Baron, 1986).

Another important model in occupational stress research is the Job Demand-Control Model (Karasek, 1979, Karasek & Theorell, 1990). The model predicts that the most adverse health effects of psychological strain occur when job demands are high and decision latitude is low; the model will be explained in details embedded in the literature on job control in chapter 2.3. Another important model is the Model of Effort-Reward Imbalance (Siegrist, 1996, 2002). The model assumes that adverse health effects occur when an imbalance between efforts invested and occupational rewards received arises. This model will also be depicted later in the chapter on stress and fairness (chapter 2.5.). Central to both models is an interaction between a demand and a resource. Other models are, for instance, the Vitamin-Model of Warr (1987; distinguishing between two types of work characteristics: desirable work characteristics which should be available to a great extent and others considered optimal in a mean extent) or, for the area of physiological stress responses, the Model of Allostatic Load (McEwen, 1998, 2000) and the Biopsychosocial Model of Frankenhaeuser (1986, 1989).

### **2.1.2. Some Methodological Issues in Stress Research**

Besides debating what is meant by the term stress, research on stress shows a divergence between methodological precept and empirical practice with regard to how stress should be measured (Kahn & Byosiére, 1992; Semmer, Grebner, & Elfering, 2004). Beyond self-report (e.g., questionnaires, interviews, diaries, event sampling), rating of others (e.g., work analyses), physical measures (e.g., measuring noise), physiological measures (e.g., cortisol or heart rate), and non-reactive measures (day of absence at work or accident reports) are discussed (cf. Semmer et al., 2004; Semmer, Grebner, & Jacobshagen, 2006). The majority of studies in occupational stress research use self-reports (usually questionnaires) for measures of both independent (stressors) and dependent variables (strain) (cf. Zapf, Dormann, & Frese, 1996; Semmer et al., 2004). This may lead to spurious stressor-strain



relationships due to inflated correlations due to common method variance (cf. Kahn & Byosiére, 1992; Semmer, Zapf, & Greif, 1996; Spector, 1992; Spector, Zapf, Chen & Frese, 2000; Zapf et al., 1996). Also, the ratings of individuals about their own conditions at work and their well-being might reflect their subjectively perceived situational conditions as it is rather difficult to objectively state chronic conditions (Semmer et al., 2004). Therefore, common method variance and the situational subjectivity in answering both ends of the variables with questionnaires may explain why questionnaire-based measures of working conditions often show closer associations than studies using alternatives (Semmer et al., 2004). However, empirical findings suggest that underestimation also may occur with this approach (e.g., Williams & Brown, 1994) and, thus, common method variance may distort true associations in both directions. To speak in favor of self-report, it has to be said that self-report is an economic, time-saving, and valuable tool to cover the whole stress process, including relevant third variables as mentioned by Kahn & Byosiére (1992) in large samples, especially if the scales employed are construed carefully in terms of reliability and validity (Semmer, 2003a; Semmer et al., 2004, Semmer et al., 2006).

Situational measures (e.g., self-observation with either time or event sampling) are self-reported measures as well, but it is argued that this approach is less subject to retrospective biases (Perrez & Reicherts, 1996; Semmer et al., 2004, Grebner, Elfering, Semmer, Kaiser-Probst, & Schlapbach, 2004). Ratings by others (trained observers) require careful training and a sophisticated rating system (e.g., Instrument for Stress Oriented Task Analysis ISTA – Semmer, Zapf, & Dunckel, 1995), but ratings are also subject to measurement error, often leading to an underestimation of relations (Grebner, Semmer, & Elfering, 2005; Spector, 1992; Spector et al., 2000). Physical measures are considered to be more objective as they underlay physical laws, but they just cover a small part of the stressor-strain relationship. Physiological methods are also considered more objective than self-report (e.g., Steptoe, 1991), but also suffer from measurement errors, and are time-consuming and expensive, and, therefore, usually just smaller samples can be obtained which may lead to the fact that the results of the studies lack power (Maxwell, 2000, 2004). Lastly, non-reactive measures are difficult to obtain (due to confidentiality) and often lack completeness (e.g., minor accidents might not get reported in accident statistics – Semmer et al., 2006). In general, a multi-method approach is recommended, combining several methods into one study if possible.

A fundamental issue of occupational stress research is to examine causal relationships between job characteristics and well-being / strain (Kahn & Byosiére, 1992). Cross-sectional studies do not allow for the drawing of conclusions about causal effects of stressors on

indicators of strain (cf. Zapf et al., 1996), because plausible alternative explanations as reverse causation cannot be precluded. Therefore, longitudinal studies are needed to measure true relationships (cf. Frese & Zapf, 1988; Kahn & Byosiene, 1992; Zapf et al., 1996). However, longitudinal designs are time-consuming and face other methodological issues even if implemented: for example, the amount of explained variance in stressor-strain correlations is usually small (Frese & Zapf, 1988; Zapf et al., 1996). Zapf et al. (1996) argue that that should be expected as many factors influence well-being. Reverse causation (cf. Kasl, 1982) means, for instance, that a stressor does not lead to impaired well-being, but that impaired well-being leads to a stressor. Several types of possible reverse causations are discussed (cf. Zapf et al., 1996: de Lange, Taris, Kompier, Houman, Bongers, 2005), for instance the drift effect (cf. Frese, 1982). The drift effect posits that healthier people may get better jobs over time with more resources at their availability (positive drift), whereas individuals with initially poor health may have to stay with poor work characteristics (negative drift). Therefore, drift-effects may lead to an overestimation of stressor-strain relationships. Others point out, to the contrary, that individuals with poor health may not be subjected to stressful conditions (anymore) or leave the job, which would lead to an underestimation of the relationships (Semmer & Mohr, 2001; Zapf et al., 1996). Also, reciprocal relationships are discussed in addition to the unidirectional approach (e.g., Edwards, 1998; De Jonge, Dormann, Janssen, Dollard, Langeweerd, & Nijhuis, 2001). To preclude potential reverse causation, it is recommended to use hierarchical regression analysis (two-wave panel design with lagged effects, with control of the dependent variable to t1), and to calculate the coefficients: if the coefficients of the reversed causation are smaller than the coefficients of the proposed stressor-strain relationship, reverse causation might be the smaller (but still relevant) issue (Zapf et al., 1996).

Also, third variables may affect the relationship between stressors and strain: occasion factors, for instance the mood of participants on the day the study started; stable background factors, which continuously influence the stressor-strain relationship like sociodemographic variables and personality traits; nonconstant variables, which show some stability, but vary and may affect stressors and strain differentially over time (Zapf et al., 1996). For instance, men and women differ with regard to their perception and appraisal of stressors and their stress responses (e.g., Frankenhaeuser, 1991; Folkman & Lazarus, 1980; Folkman, Lazarus, Pimley, & Novacek, 1987; Sonnentag, 1996). Likewise, age has an influence on stress perception and well-being (Mayes, Barton, & Ganster, 1991; Warr, 1992). Well-being is also closely associated with negative affectivity (McCrae & Costa, 1987; Parkes, 1994). Negative affectivity is defined as a stable tendency to experience negative emotions across situations and time (Watson & Clark, 1984). Individuals with high values tend to be insecure

and anxious in new situations and overly sensitive (Pervin, 2000). The role of negative affectivity in stress research is still under debate. Some argue that negative affectivity biases self-reports in stress research as individuals high in negative affectivity tend to report distress and negative emotions (e.g., Brief, Burke, George, Robinson, & Webster, 1988; Watson, Pennebaker, & Folger, 1986). Others question this bias and suggest a substantive role in which negative affectivity is de facto related to underlying constructs frequently studied in the work domain (e.g., Spector et al., 2000; Spector, Fox, Van Katwyk, 1999). The common method to deal with a potential influence of background factors in longitudinal analysis is to partial out the effect of strain from the first measurement point. However, other third variables are often not assessed if a situational approach is not applied (occasion factors) and the wide array of potential effects of third variables (e.g., main effects, moderating effects, mediating effects) leads to numerous statistical analyses, which either can lead to Type I or II errors and to the “curse of multiplicities” (testing multiple hypotheses in a single study - Maxwell, 2004). Large samples are needed to obtain enough statistical power, which are difficult to come by if any incentives are not available to compensate for the time of the participants. Often, a (high) drop-out rate accompanies longitudinal sampling, and it is often not clear why participants leave the study. Another issue is the multicollinearity of variables in multivariate analysis. Even though stressor concepts differ, they usually share variance. Therefore, a closer look at the issue of multicollinearity follows in the method section (chapter 3.3.).

### **2.1.3. Implications**

The theoretical framework for the study of stress in organizations by Kahn & Byosiére (1992) and the definition of stress by Semmer (1984) were used as guidelines for this work. Interview studies were initiated to test for the frequency of illegitimate tasks. The Bern Illegitimate Tasks Scale (BITS) was construed to measure illegitimate tasks at work with the help of self-report questionnaires to obtain information of large samples. As the measure had to be reliable, hypotheses were formulated in terms of its psychometric values and factorial structure, which is rather unusual. Naturally, scales with a high reputation in terms of validity and reliability were used to obtain all other measures. Also, a situational diary approach was applied as a third method to measure illegitimacy of stressful situations at work. As the scale for the diary approach had to be developed as well, it was also the subject of psychometric and factoranalytic scrutiny. Also, longitudinal studies were initiated or utilized and tested for reverse causation. As potential influencing background variables, age and sex were controlled for in all analyses. Negative affectivity could not be obtained in most studies and was, therefore, left out. The drop-out rate was severe in the first unfunded study, and was able to be slightly minimized in the second study, which had some funding. However, in the

second longitudinal study over 20% of the employees did not work for the company anymore by the time of the second measurement point two years later, and could not be reached for comment.

### **2.2. Stressors at Work**

Two sets of variables can be distinguished in any kind of job: job demands and job resources. Schaufeli and Bakker (2004) describe job demands as physical, psychological, social, or organizational aspects of the job that require sustained physical and / or psychological effort. Therefore they are associated with certain physiological and / or psychological costs. Although job demands are not necessarily negative, they may turn into stressors when meeting those demands requires great effort and are, therefore, associated with high costs that elicit negative responses such as depression, anxiety, or burnout (Schaufeli and Bakker, 2004). Stressors can be defined as aspects of a task or a situation that raise the probability of stress reactions (Semmer & Mohr, 2001; Zapf & Semmer, 2004). Semmer and Udris (2004) differentiate between (a) task specific conditions, (b) work organization conditions, (c) physical environment, (d) social conditions, and (e) organizational conditions, although they point out that not all stressors are easily segmented into these categories. Also, stressors are located at different levels: a) on the macro-level (between work and other life domains as in work-family or family-work conflict), b) on the meso-level (organizational aspects like social stressors and job security), and c) on the micro-level (specific work tasks and conditions surrounding them) (Semmer & Udris, 2004). Also, distinction are made with regard to duration (chronic stressors versus situational stressors), intensity (mild versus traumatic events), and familiarity (unknown versus familiar) (Zapf & Semmer, 2004). In the following, the concepts of task-related stressors, social stressors, emotional dissonance, and work-family conflict are presented. Effort-reward imbalance, another powerful stressor at work, is illustrated in chapter 2.6.

#### **2.2.1. Task-related Stressors**

The action regulation theory, a cognitive theory of (work) behavior, provides a classification of task characteristics (e.g., Frese & Zapf, 1994; Hacker, 2005; Oesterreich & Volpert, 1986). Accordingly, task characteristics can be classified as a) quality of the work task (regulation requirements and regulation possibilities), and b) regulation problems (Frese & Zapf, 1994). The latter hinder the action process and endanger the fulfillment of task-related goals in affecting goal setting, planning, and levels of regulation, and this causes strain (Semmer, 1996, 1998; Greif, Bamberg, & Semmer, 1991). Regulation problems can either be regulation obstacles (e.g., unforeseen task difficulties, interruptions, and technical or organizational problems), or regulation uncertainty (e.g., lack of knowledge due to high complexity of tasks

or spurious feedback, or role ambiguity and role conflict), and overtaxing regulations (e.g., fast pace, time pressure, high intensity or concentration demands) (cf. Frese & Zapf, 1994; Leitner, Volpert, Greiner, Weber, & Hennes, 1987; Semmer, 1984; Zapf & Semmer, 2004). Also, physical conditions (e.g., noise or dust) and unbalanced posture (sitting or standing for a long time or the need for awkward body positions at work) are discussed as task-related stressors (cf. Semmer and Mohr, 2001). A bulk of evidence - applying different methods and procedures - demonstrate the detrimental effect of task-related stressors on psychological and physiological health (e.g., Beehr, 1995; Frese, 1995; Grebner, 2001; Grebner, Semmer, & Elfering, 2005; Isic, Dormann, & Zapf, 1999; Kälin, 2004; Semmer & Mohr, 2001; Semmer & Udris, 2004; Semmer et al., 1996; Sonnentag & Frese, 2003; Zapf & Frese, 1991; Zapf & Semmer, 2004). Task-related stressors have been the focus of occupational stress research for a long time (Zapf & Semmer, 2004), but other concepts have recently emerged and provide relevant empirical results and debates.

### **2.2.2. Social Stressors**

Accessorily to task-related stressors, social stressors are considered as important causes for strain. Social stressors consist of social animosities, conflicts with co-workers and supervisors, unfair behavior, and a negative group climate (Dormann & Zapf, 2002; Frese & Zapf, 1987). Social stressors are positively associated to regulation problems as mentioned above (e.g., Kälin, Semmer, Elfering, Tschan, Dauwalder, Heunert, & Crettaz von Roten, 2000). Compared with task-related stressors, social stressors have not received that much attention yet, although evidence suggests that they do constitute an important stress factor (De Dreu, van Dierendonck, & Best-Waldhober, 2003; Dormann & Zapf, 2002; Frese & Zapf, 1987; Grebner, 2001; Grebner, Semmer, Lo Faso, Gut, Kälin, & Elfering, 2003; Spector & Jex, 1998; Zapf & Frese, 1991; Zapf, Seifert, Schmutte, Mertini & Holz, 2001). Social stressors are stressful because they are capable of threatening self-esteem (Dormann & Zapf, 2004) if positive self-evaluations are questioned by negative external evaluations (e.g., Leary & Kowalsky, 1999) or if attributions of blame are involved (Reicherts & Pihet, 2000). Social stressors are not just the opposite of social support, as a simple lack of support does not imply that one is treated stressfully at work (Dormann & Zapf, 1999).

Antisocial behaviors can be classified into (a) psychological and physical, (b) direct and indirect forms of harmful behaviors, and (c) intended and unintended behaviors (cf. Baron & Neumann, 1996). Studied phenomena are, for example, aggression (Baron & Neuman, 1996), emotional abuse (Keashly, 1998), social incivility (Andersson & Pearson, 1999), bullying (Einarsen, Hoel, Zapf, & Cooper, 2003), and mobbing (Zapf, 1999; Zapf, Knorz, & Kulla, 1996). A more recent approach identifies customers as social stressors, if they have

disproportionate or ambiguous expectations or are verbally aggressive or are otherwise disliked, and that leads to burnout (Dormann & Zapf, 2004). Another new approach distinguishes between colleagues, supervisors, and associates as sources of social stressors while taking different dimensions into account (e.g., disrespect or lack of reliance - Grebner, Galliker, Emch, Elfering, & Semmer, in prep.). Last but not least, it is interesting to note that the concept of organizational constraints (constraints represent situations or things that prevent employees from translating ability and effort into high levels of job performance) contains both task-related and social stressors as well as inadequate training as a potential source of strain (Peters & O'Connor, 1980; Spector & Jex, 1998).

### **2.2.3. Emotional Dissonance**

Emotions are omnipresent in an individual's life and, therefore, found all over the workplace, too. Fitness (2000) points out that studying causes and consequences of emotions at work has been neglected. Emotions are triggered by an individual's interpretation of an event and elicit reactions in many bodily systems, which have signal functions (Giardini & Frese, 2004). But emotions are adaptive, and to adapt emotions or hide emotions as a work requirement in certain jobs led to the concept of emotion work. As a result of the rising service sector in Western economies, demands due to emotion work became another important category (next to physical and cognitive demands - Nerdinger, 1994). Morris and Feldman (1996, p. 987) define emotional labor as the "effort, planning, and control needed to express organizationally desired emotions during interpersonal transactions." Emotional dissonance is one important component of the multidimensional concept of emotion work (Zapf, Vogt, Seifert, Mertini, & Isic, 1999).

Emotional dissonance is defined as an intra-personal conflict between genuinely felt emotions and emotions expressed to conform to display rules (Zapf et al., 1999). Display rules are developed by organizations and imply that one has to show certain emotions toward customers (Dormann & Zapf, 2004). Emotions can be faked, but there is a price to pay for that. Research on emotion work and its effect on strain has increased lately (e.g., Abraham, 1998; Dormann & Zapf, 2004; Dormann, Zapf, & Isic, 2002; Grandey, 2000, 2003; Morris & Feldman, 1996; Schaubroeck & Jones, 2000; Zapf et al, 1999). Zapf (2002) found an average correlation of  $r = .32$  between emotional dissonance and the burnout parameter emotional exhaustion in his review. Whether emotional dissonance leads to diminished well-being depends on the frequency and intensity of emotional dissonance, which depends on three antecedent variables (Dormann & Zapf, 2004; Zapf, 2002): (a) the existence of display rules, (b) the frequency (and duration) of interactions in which display rules have to be applied, and (c) the absolute and relative frequency of negative social interactions. In

addition, Grandey (2003) differentiates between surface and deep acting. In contrast to deep acting, surface acting does not involve taking the perspective of the customer and should, therefore, be a lesser demand than deep acting. Research confirms that emotional dissonance is a stressor on its own right, as it explains variance over and above other working conditions (e.g., Dormann et al., 2002; Grebner et al., 2003; Zapf, 2002).

### **2.2.4. Work-Family Conflict**

The interaction of different life domains as work and family received broad attention over the past two decades (cf. Eby, Casper, Lockwood, Bordeaux & Brinley, 2005; Frone, 2003; Geurts & Demerouti, 2003). The inter-role conflict between work and family is defined by Greenhaus and Beutell (1985) as “[...] a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect. That is, participation in the work (family) role is made more difficult by virtue of participation in the family (work) role” (p.77). It appears that work demands interfering with family demands (work-to-family conflict) constitutes the principle inter-role conflict studied (Kossek & Ozeki, 1998; Netemeyer, McMurrian, & Boles, 1996). Researchers agree on the fact that a distinction between the direction of the conflict between two life areas is necessary (Frone, 2003). Work boundaries are less permeable than family boundaries, so family demands are less likely to intrude into the work domain than vice versa (Frone, Russell, & Cooper, 1992a; Eagle, Miles & Icenogle, 1997).

Several studies highlight that work-to-family conflict is more prevalent than family-to-work conflict (e.g., Gutek, Searl & Klepa, 1991; Frone, Russel & Cooper, 1992b; Eagle et al., 1997). Domain-specific antecedents appear to be the best predictors for either work-to-family conflict or family-to-work conflict (Eby et al., 2005; Byron, 2005). Besides other antecedents, time spent in the specific domain (Frone et al., 1992b; Aryee, Field & Luk, 1999), domain-specific involvement (Adams, King & King, 1996; Frone et al., 1992a; Carlson & Frone, 2003) and domain-specific stress (Greenhaus & Parasuraman, 2002; Fox & Dwyer, 1999) are important. Both kinds of conflicts have negative effects on well-being (for meta-analyses see Allen, Herst, Bruck, & Sutton, 2000; Kossek & Ozeki, 1998), for example, on work-related outcomes such as job satisfaction (Kossek & Ozeki, 1998), organisational commitment (Lyness & Thompson, 1997), and job performance (Netemeyer et al., 1996; Frone, Yardley & Markel, 1997); or on non-work related outcomes such as life satisfaction (Kossek et al., 1998) and marital satisfaction / functioning (Aryee et al., 1999; Greenglass, Pantony & Burke, 1988); or on more general well-being concepts like general psychological strain (Grandey & Cropanzano, 1999; Parasuraman & Simmers, 2001), somatic / physical symptoms (Kinnunen & Mauno, 1998), and depression (Frone et al., 1992b; Netemeyer et al., 1996; Schieman,

McBrier & Van Gundy, 2003). The distinction between the different directions of the inter-role conflict is also necessary, because they partially have different types of outcome. Frone, Russell and Cooper (1997) reveal that work-to-family conflict induced alcohol abuse, whereas family-to-work conflict elicited poor physical health (see also for a national survey in the United States – Frone, 2000). Mediating effects of other causes or consequences occurring in the relationship between stressor and well-being were postulated for work-to-family conflict in some studies, (Jacobshagen, Amstad, Semmer & Kuster, 2005; Geurts, Kompier, Roxburgh & Houtman, 2003; Demerouti, Bakker & Bulters, 2004). Furthermore, potential sex differences in relation to work-family conflicts generated empirical research. However, the results are still controversial (for reviews see Barnett & Hyde, 2001; Eby et al., 2005; Frone, 2003; Geurts & Demerouti, 2003; Greenhaus & Parasuraman, 1999; Grzywacz & Marks, 2000; Nelson & Burke, 2002).

### **2.2.5. Implications**

A number of stressor concepts at work exist and their empirical results suggest including them in organizational stress research. Whereas many task-related stressors hinder individuals in attaining desired goals at work, social stressors and emotional dissonance focus on straining social interactions at work. Work-family conflict and family-work conflict respectively, emerge if circumstances hinder individuals in reconciling demands from several life domains. Altogether, this leads to a long list of scales in self-report questionnaires, especially if resources, coping, individual characteristics, demographics, and indicators of psychological strain are assessed as well to represent the whole stress process. Usually, this leads to a selection of stressors and other concepts in terms of relevance for the prominent research questions or the organizational environment studied, as not all stressors are relevant for all work environments (e.g., emotional dissonance is not present if display rules are not forced upon employees, or social stressors are not existent if someone works alone without any colleagues or supervisors). In this work, illegitimate tasks have to be proven as stressors in their own right, and this was studied in several samples with different work environments. Hence, whenever possible, all stressors stated in this chapter were included in the surveys save for family-work conflict. As task-related stressors, time pressure, problems with the organization of work, insecurities (about how to proceed with a task), concentration demands, and interruptions at work were included. Another important stressor which has not been mentioned yet is effort-reward imbalance. Its theoretical background is explained in chapter 2.5 and effort-reward imbalance as a potent stressor was also included in all studies of this work.



## **2.3. Resources at Work**

According to the salutogenetic approach (Antonovsky, 1988), not just the absence of disease constitutes well-being, but also the presence of resources. Job resources refer to physical, psychological, social, or organizational aspects of the job or the person that either / or a) reduce job demands and associated strain, b) are functional in achieving work goals, c) elate personal growth, learning, and development (Schaufeli & Bakker, 2004). Hence, resources are not only necessary to deal with job demands but also important in their own right (Hobfoll, 2001). Resources are defined as conditions within the work situation (external resources, e.g., job control and social support) or individual characteristics (internal resources, e.g., self-efficacy and self-esteem). The role played by resources in the relationship between stressors and strain is still under discussion, and suggests that they account for main effects alongside moderating and mediating effects. Key resources discussed by Hobfoll (2001) are self-efficacy, optimism, self-esteem, degree of goal pursuit, and social support. Resources described in the following are social support and job control as well as self-efficacy. Self-esteem and threat to it are important notions in the SOS concept and, therefore, described in a chapter on its own (see chapter 2.6).

### **2.3.1. External Resources - Social Support and Job Control**

Social support plays a prominent role among potential risk and protective factors for many health-related variables (e.g., Beehr, 1995; Leppin & Schwarzer, 1990; Sarason, Sarason, Brock, & Pierce, 1996; Schwarzer & Leppin, 1992; Stroebe & Stroebe, 1996; Viswesvaran, Sanchez, & Fisher, 1999). Besides positive and, of late, negative effects of social support, source and types of social support are discussed in the literature. Sources of social support are supervisors and colleagues in the domain of work, and friends, relatives, spouses, or significant others in the private domain (cf. Elfering, Semmer, Schade, Grund, & Boos, 2002). The importance of distinguishing between different sources of support are supported by their differential associations with stressors and strain (Dorman & Zapf, 1999; Frese, 1999; Viswesvaran et al., 1999) and with regard to who can offer what type of support, and if it is helpful (e.g., Elfering et al., 2002).

Prior research and theoretical literature propose several types of social support, such as emotional, instrumental, informational, or appraisal support (cf. Behr, 1995; House, 1981; Cohen & Wills, 1985; House & Kahn, 1985). The number of dimensions varies, but two categories referring to instrumental help on the one side, and emotional behavior on the other, are typical (cf. Buunk, 1990; Cutrona & Suhr, 1994; Wills & Shinar, 2000). Supportive people can pay attention to another individual's emotions (e.g., by expressions of empathy) or they can try to help the other individual more tangibly (e.g., by helping to solve a problem

or undertaking a difficult task). Emotional support often is regarded to be the most important type as it implies the feeling that one is a valued member of a group of individuals (Berkman, 1995; Buunk, 1990; Sarason et al., 1996; Thoits, 1995). The distinction between types of support is not without problems though. Different types of support usually are highly correlated, especially when they stem from the same source (Fenlason & Beehr, 1994; Peeters, Buunk, & Schaufeli, 1995). But empirical results show differential effects of various types of support, for example, instrumental support is the strongest predictor of physical health (Leppin & Schwarzer, 1990). Also, detrimental effects of social support are discussed, for example, due to a mismatch as emotional support is expected and instrumental support is given (Beehr, 1995; Buunk, 1990; Elfering et al., 2002; Rook, 1992) or due to the beneficiary's perception of given support as unsupportive as stated the concept of dysfunctional support (Ingram, 2001).

Speaking in general, Semmer (2000, p. 555) refers to job control as "the possibility of making decision about one's own activities and the conditions under which they are to be performed." Usually, a distinction is made between method control (individual influence about how to get tasks done) and time control (individual influence on work pace and schedule) (e.g., Elfering, Grebner, Semmer, Kaiser-Freiburghaus, Lauper-Del Ponte, Witschi, 2005; Jackson, Wall, Martin, & Davis, 1993; Wall, Jackson, & Mullarkey, 1995). The two are related, but not redundant as a job can offer method control and at the same limited time control (e.g., the job of a journalist at a daily paper) and vice versa (e.g., the job of a government bookkeeper). Time pressure can be considered an antipode of time control. Possessing control and freedom at work is one of the major dimensions of work preferences (Frese, 1989b; Pryor, 1987). Spector's (1986) meta-analysis on autonomy and participation at work shows that a high level of perceived job control is associated with lower levels of strain and higher levels of job satisfaction, performance, commitment, and motivation.

So, job control is considered a valuable resource at work (despite inconsistent findings – cf. Semmer, 2000), which has a prominent role in the Job Demand-Control Model, which has given the field a new impetus and stimulated a tremendous amount of research (Karasek, 1979; Karasek & Theorell, 1990). The model contains two basic predictions: (a) job demands increase job strain, and (b) the ability to cope actively with these demands (due to high job control) facilitates an effective channeling of arousal. Therefore, the model proposes two main ways in which job control and job demands influence strain. The strain hypothesis proposes that high-strain jobs (high job demands and low job control) lead to greater strain than low-strain jobs (e.g., low job demands and high job control) as the lack of control to manage the demands properly take their toll on employee well-being. The active learning

hypothesis suggests that in contrast to jobs with low demands and low control (passive jobs), jobs with high demands and high control (active jobs) are challenging and intrinsically motivating and allow the opportunity to learn new skills to meet these challenges.

Just moderate support for the strain hypothesis exists (e.g., de Lange, Taris, Kompier, Houtman, & Bongers, 2003; Terry & Jimmieson, 1999; Semmer, 2000; van der Doef & Maes, 1999), especially for the interaction of demands and control instead of mere main effects (Ganster & Fusilier, 1989). Several reasons are proposed (cf. Meier, Semmer, Elfering, & Jacobshagen, under review): the measure of job control (e.g., Ganster & Fusilier, 1989), the lack of congruence between measured demands and control opportunities (e.g., Kasl, 1996), a conceptual overlap between measures of demands and the outcome (e.g., Kawakami, Haratani, & Araki, 1992), an excessively homogenous sampling and, therefore, insufficient variance (e.g., Carayon, 1993), specificity of the demand-control effect only to particular outcomes (e.g., Dwyer & Ganster, 1991), or only in specific occupational groups (e.g., de Jonge, Dollard, Dormann, Le Blanc, & Houtman, 2000). Also, higher-order interactions show that control is dependant on other types of resources, for example, social support (as in the demand-control-support approach; Johnson & Hall, 1988) or personal resources (e.g., de Rijk, Le Blanc, Schaufeli, & de Jonge, 1998; Ippolito, Adler, Thomas, Litz, & Holzl, 2005; Parker & Sprigg, 1999; Parkes, 1991; Rodriguez, Bravo, Peiro, & Schaufeli, 2001; Schaubroeck, Jones, & Xie, 2001; Schaubroeck & Merritt, 1997; Totterdell, Wood, & Wall, 2006). The active learning hypothesis has not been studied much, but, for instance, Taris, Kompier, de Lange, Schaufeli, and Schreurs (2003) found a beneficial effect of high job control on learning motivation, but also a detrimental effect of high job demands on these.

### **2.3.2. Internal Resources – Self-Efficacy**

A variety of individual characteristics (e.g., demographic characteristics like age and gender; personality traits like negative affectivity, self-esteem, conscientiousness; beliefs about the world and abilities to deal with it like self-efficacy, locus of control, hardiness, and optimism) have an impact on the stress process (Semmer, 2003a). Individual characteristics can lead to more vulnerability (e.g., negative affectivity) or more resilience (e.g., self-efficacy and self-esteem) in the stress process and need to be assessed in organizational stress research (Semmer, 2003a; Steptoe, 1991). Self-efficacy refers to the belief in one's ability to react adequately to specific situations (Bandura, 1986), but can also refer to a more general belief in one's potency in the face of difficulties (Jerusalem & Schwarzer, 1992; Shelton, 1990; Judge & Bono, 2001ab).

With regard to organizational psychology, the concept of self-efficacy expectations was first applied to career psychology and counseling (Hackett & Betz, 1981), but has extended from there and is studied now in most domains of (organizational) psychology. General self-efficacy is proposed to be a rather stable attribute (Schwarzer, 1994) and is expected to play a central role in motivation - a prerequisite for initiating action. Research supports propositions that self-efficacy influences the choice of whether or not to engage in a task, to expend the effort in performing it, and to show the persistence in accomplishing it (e.g., Campbell & Hackett, 1986; Colquitt, LePine, & Noe, 2000; Gist, 1987; Hackett & Betz, 1981; Lent & Hackett, 1987). Whereas there seems to be a consensus about the main effect of self-efficacy, the interaction effect is still under debate, as some authors claim moderating (e.g., Jerusalem & Schwarzer, 1992) and others mediating effects (e.g., Lent & Hackett, 1987). Self-efficacy can be seen as a crucial resource in the developing stage of adolescence (cf. Rosenberg, 1965; Jerusalem & Schwarzer, 1992), which points to the advancement of self-efficacy as an important educational goal also in vocational school and the first years on the work force. Self-efficacy beliefs can be enabled and enhanced when appropriate tasks and attainable goals are issued and when progress is evaluated in regular intervals (e.g., Bandura, 1986).

One personality attribute that predictably and consistently enhances understanding of organizational behavior is self-esteem, as it is an important personality trait accounting for differences between employees (Brockner, 1988). Self-esteem and threats to it will be at the core of chapter 2.5. Although both self-esteem and self-efficacy involve an evaluation of success or failure, self-efficacy, in contrast to self-esteem, does not include an evaluation of the person (Locke, McClellan, & Knight, 1996). And, although self-esteem and self-efficacy are expected to correlate with each other, the relationship is far from consummate: people with high self-efficacy can still be low in self-esteem if they do not rate the accomplished demands as high in value (Judge & Bono, 2001b).

### **2.3.3. Implications**

Resources are not just valuable in conquering stressors and soothing strain, but they also accompany personal growth and initiate behavior. Many resources show main effects on well-being or psychological strain as well as interactions between stressors and strain, resulting often in a buffering effect of stressors on well-being. Social support at work - even though negative consequences have been discussed - is in general considered to be a valuable resource at work as it helps to deal with many task-related stressors as well as social and other stressors, although sources of social support can also be sources of conflict. Job control facilitates method and time control and, therefore, options, which help on tackling

tasks and the sometimes unfavorable conditions that surround them. Self-efficacy governs motivations and actions and enables individuals to a) trust in their abilities to manage difficult situations and b) initiates exploring with regard to new tasks or ambitions. In this work, the main effects of these four resources were of importance. Social support at work as well as time and method control and source-specific self-efficacy (self-efficacy beliefs with regard to the job) were included to test if illegitimate tasks are capable of impacting psychological well-being and strain over and above potent resources. Self-esteem was also included, which will be elaborated upon in chapter 2.5.

### **2.4. Psychological and Physiological Well-Being and Strain**

In psychological research, a prevailing tripartite division distinguishes between psychological (e.g., irritation), physical e.g., psychosomatic complaints), and behavioral components of well-being (e.g., turnover intentions) (Jex & Beehr, 1991). Another way to distinguish different indicators of stress would be a classification of psychological well-being and strain versus physiological well-being and strain (Kahn & Byosiére, 1992). Many studies and reviews show that individuals facing stressful work situations experience poor psychological well-being and often suffer from health problems (Cooper & Cartwright, 1994; DeLange, Taris, Kompier, Houtman, & Bongers, 2003; Kahn & Byosiére, 1992; Zapf & Semmer, 2004; Sonnentag & Frese, 2003). In this work, psychological well-being and strain are studied as dependent variables. A brief description of the concepts underlying these indicators of well-being is presented in the following section, and physiological well-being is mentioned briefly at the end to underscore its importance in organizational stress research.

#### **2.4.1 Negative Emotions, Resentment, and Work-Related Depression**

When examining one particular domain such as work it is important to distinguish between more general feelings about life and specific forms of well-being, for example, individuals feelings about themselves in relation to their jobs (Warr, 1999). Well-being can be viewed along a single dimension – from feeling bad to feeling good. But numerous studies point to the importance of two independent dimensions of feelings in terms of their content and intensity, which define the space of the circumplex model (Russell, 1980): pleasure (pleasant-unpleasant) and arousal (calm-aroused) (e.g., Matthews, Jones, & Chamberlain, 1990; Warr, 1999; Warr, 1987; Watson, Clark, & Tellegen, 1988). Pleasure-displeasure is represented on the horizontal dimension and arousal on the vertical axis. Each affective state can be identified and differentiated from other affective states by where it lies in the two-dimensional space. Negative affect reflects the degree to which someone feels tense and uncomfortable (Van Katwyk, Fox, Spector, Kelloway, 2000).

Lately, organizational stress researchers pay more attention to the role of emotions as indicators of strain and well-being at work (e.g., Daley & Parfitt, 1996; Daniels, Brough, Guppy, Peters-Bean, & Weatherstone, 1997; Fitness, 2000; Gisler, 2006; Sevastos, Smith, & Cordery, 1992; Van Katwyk et al., 2000; Wright & Doherty, 1998). The core component of stress is characterized by negative affect and high arousal (Russell & Feldmann Barrett, 1999) as found in anxiety, fear, anger, and nervousness (Watson & Tellegen, 1985; Zapf & Semmer, 2004). Negative emotions at work, especially if experienced continuously, are negatively related to well-being (Cohen & Rodriguez, 1995). Job-related affective well-being is related to job stressors as well as job satisfaction and physical symptoms (Van Katwyk et al, 2000). If the organization is blamed for disproportional stress, feelings of resentment against the organization develop (Geurts et al.,1999).

Feelings of resentment are a set of negative emotions relevant in the context of injustice and threat to self-esteem (e.g., Barclay, Skarlicki, & Pugh, 2005; Fox, Spector, & Miles, 2001; Perrewé & Zellars, 1999; Skarlicki & Folger, 1997; Weiss, Suckow, & Cropanzo, 1999). Justice theories assume that perceptions of injustice lead to behavioral or psychological reactions via state negative affect (e.g., Adams, 1965 – see chapter 2.5). Skarlicki and Folger (1997, p. 435) mention that, “The anger and resentment associated with perceptions of unfair procedures may energize individuals to engage in retaliation.” Another set of emotions, characterized by low arousal and negative affect, characterize work-related depression. Warr (1999) differentiates between three main axes with regard to job-related well-being situated in the circumplex: displeasure-pleasure, anxiety-comfort, and depression-enthusiasm. Individuals in higher-level jobs or who are self-employed report more enthusiasm than depression, but also more anxiety than contentment (Mullarkey, Wall, Warr, Clegg, & Stride, 1999). Also, clinical depression as stress outcome is studied (e.g., Brown, 2002; Gruen, 1993).

### **2.4.2 Irritation**

Mohr (1986, 1991) developed the concept of irritation as an indicator of psychological strain, and the corresponding scale has been used in numerous studies in work and organizational psychology (cf. Mohr, Müller & Rigotti, 2005; Mohr, Rigotti & Müller, 2005; Müller, Mohr & Rigotti, 2004). Irritation is defined as a state of psychological impairment caused by the perceived thwarting of goals (cf. Semmer, 2003b), resulting in rumination as an intensified effort to reach goals (cognitive irritation) and an irritable mood as a defense of goals (emotional irritation; cf. Mohr, Müller, Rigotti, Aycan & Tschan, 2006). Cognitive irritation assesses spillover of strain from work into private life or, in other words, poor unwinding (cf. Frankenhaeuser, 1986; McEwen, 1998; Meijman & Mulder, 1998). It is related to reduced

self-regulatory processes (e.g., Kuhl, 1997), and it is assumed that adequate coping is diminished in the context of new or complex demands and that the need for recovery is impaired (cf. Sonnentag, 2001; Sonnentag & Zijlstra, 2006). If exhaustion cumulates and finds its expression in emotional irritation, it may lead to a decrease in social support when potential partners (sources of support) withdraw (cf. Silver, Wortman, & Crofton, 1990). Research has shown convincingly that irritation has positive correlations with various task-related stressors (Grebner et al., 2005; Leitner, 1993) and social stressors (Frese & Zapf, 1987). Irritation has also been reported to be a precursor of more severe impairments: Dormann and Zapf (2002) conducted a longitudinal study in which they were able to show the mediating role of irritation in the relationship between stressors at work and depressive symptoms.

### **2.4.3. Burnout**

Burnout is a metaphor used to describe a state or process of mental exhaustion (Schaufeli & Buunk, 1996). Although the name of Maslach is closely associated with the concept and its development, Freudenberg (1974) is considered the founding father of burnout as his influential paper on staff burnout introduced the concept in psychology (Schaufeli & Enzmann, 1998). Maslach and Jackson (1986, p.1) define it as a “syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do ‘people work’ of some kind.” Leiter and Maslach (1988) suggest that emotional exhaustion represents strain directly affected by stressors. Furthermore, emotional exhaustion is supposed to mediate effects of stressors on depersonalization (a defensive coping style) and on personal accomplishment (a form of self-evaluation). However, contrary evidence shows that stressors can account for more explained variance of depersonalization than emotional exhaustion (Dormann & Zapf, 2004). Another modification states that while stressors may raise exhaustion, resources may hinder depersonalization (Leitner, 1993) and contribute to personal accomplishment. Demerouti, Bakker, Nachreiner and Schaufeli (2001) successfully tested the so-called Job Demand-Resources Model (JD-R). The model states that job demands are associated with exhaustion, whereas lacking job resources are associated with disengagement.

Burnout was first investigated in the helping professions as it followed the assumption that social interactions with patients are especially demanding and that burnout is an indication that employees are not able to cope with these interaction demands anymore (Dorman & Zapf, 2004; Leiter & Maslach, 1988; Maslach, 1982; Schaufeli & Enzmann, 1998; Schaufeli, Maslach, & Marek, 1993). Later on, research was extended to other (service) professions (Schaufeli, Leiter, Maslach, & Jackson, 1996) and is now believed to be able to occur in

every type of job but not outside the occupational context (Schaufeli & Buunk, 1996). Brill (1984, p.15) defines Burnout as “an expectationally mediated, job-related, dysphoric and dysfunctional state in an individual without major psychopathology who has (1) functioned for a time at adequate performance and affective levels in the same job situation and who (2) will not recover to previous levels without outside help or environmental rearrangements.” Individuals exposed to high work demands have an increased likelihood of developing burnout and other symptoms (Demerouti et al., 2004; Grebner et al., 2005). Perceived workload and time pressures are strongly and consistently related to burnout (Houkes, Janssen, de Jonge, & Nijhuis, 2001; Lee and Ashforth, 1996). In addition, lack of social support at work has been found to increase levels of burnout (Houkes et al., 2001; Peeters and Le Blanc, 2001), depression (Frone, 2000), and emotion work (Schaubroeck & Jones, 2000; Zapf, 2002; Dormann & Zapf, 2004).

### **2.4.4. Job Satisfaction**

The correlation between job satisfaction and life satisfaction on average found is below  $r = .45$  (Tait, Padgett, & Baldwin, 1989), and the impact of life satisfaction on job satisfaction appears to be greater than vice versa (Judge & Watanabe, 1993; Judge & Locke, 1993). Therefore, evidence suggests again that context-free indicators of well-being differ from domain-specific measures (cf. chapter 2.4.1). In general, job satisfaction paraphrases the degree to which individuals like their jobs or feel about different aspects of their jobs, whereas life satisfaction is the degree to which individuals like their lives (Locke, 1976; Spector, 1997). The facet approach provides a more complete picture than the global approach, and different facets are discussed (e.g., pay, appreciation, fringe benefits, promotion opportunities, job conditions, coworkers). Individuals differ in their satisfaction across facets and the facets are modestly correlated with each other (Spector, 1985). Next to job satisfaction, a resigned attitude toward one's job is also discussed, suggesting a defensive or resentful adaptation to less desired working conditions (Bruggemann, 1974; Grebner et al., 2005; Semmer, 2003b). It is interesting to note that the positive relation between job satisfaction and job performance is relatively low (for a meta-analysis see Iaffaldano & Muchinsky, 1985), suggesting that job satisfaction and performances are impacted by other factors.

Antecedents of job satisfaction are the job environment itself and factors associated with the job (including organizational treatment of the individual in the job, nature of job tasks, social climate, rewards) and individual factors (personality and prior experiences). Job characteristics as stated in Hackman & Oldham's job characteristics model (skill variety, task identity, task significance, autonomy, job feedback – 1975, 1976, 1980) show moderate



relations with job satisfaction (Loher, Noe, Moeller, Fitzgerald, 1985). Furthermore, job satisfaction is negatively related to organizational constraints (Peters, O'Conner, & Rudolf, 1980; Spector & Jex, 1998), work-family conflict (e.g., Lewis & Cooper, 1987; Rice, Frone, & McFarlin, 1992), and stress at work (e.g., Davidson & Cooper, 1986; Grebner et al., 2005), and positively related to job control (e.g., Spector, 1986) and pay fairness (e.g., Rice, Phillips, & McFarlin, 1990), and, rather inconsistently, with work load (cf. Jex & Beehr, 1991; Dwyer & Ganster, 1991). In terms of personality, research suggests that the traits self-esteem, self-efficacy, locus of control, and emotional stability are among the best dispositional predictors of job satisfaction and job performance (Judge & Bono, 2001b; Spector, 1997).

### **2.4.5. Physiological Stress Responses**

Although physiological stress responses, besides psychosomatic complaints, were not studied in this work, a brief summary shall underscore their importance in occupational stress research. In order for the organism to respond efficiently to threats or stressors, physiological systems producing additional energy sources (e.g., glucose) are activated, and less important systems are suppressed while dealing with the situation (e.g., processes promoting growth and reproduction or digestion - Kemeny, 2003). The hypothalamic-pituitary-adrenal (HPA) axis is part of the neuroendocrine system and plays a primary role in the body's reactions to stress by executing hormone releases from the adrenaline-producing adrenal medulla (sympathic-adrenal medullar system) and from the corticosteroid-producing adrenal cortex (cf. Kirschbaum and Hellhammer, 1994).

The body reacts to stress by releasing the catecholamine hormones, epinephrine and norepinephrine (accomplished by the activity of the autonomic nervous system), and the glucocorticoid hormones, cortisol and cortisone. The elevated level of adrenaline in the body increases, for instance, the heart rate, respiration, and blood pressure. Also, it promotes muscular activity due to an increased sensitivity of the synapses, which can lead to increased muscular tension and, therefore, muscular pain and disorders (Elfering, Grebner, Semmer, & Gerber, 2002; Bongers, de Winter, Kompier, & Hildebrandt, 1993). Cortisol, for example, increases the production of cytokines and suppresses a variety of immune functions, for example, promoting inflammation, which is at the root of a host of diseases like rheumatoid arthritis and cardiovascular disease (cf. Kemeny, 2003). Activation of these physiological systems during stressor onset is adaptive in the short run, but can become maladaptive if the systems are repeatedly activated or fail to shut down when the stressor is absent or dealt with, and lead to allostatic load (cumulative toll of overactivation of physiological systems designed to respond to environmental perturbations - McEwen, 1998;

2000). Therefore, long-term stress not only triggers psychological strain, but also contributes to psychosomatic complaints (e.g., Creed, 1993), heart disease and high blood pressure (e.g., Hemingway & Marmot, 1999; Marmot, Siegrist, Theorell, & Feeney, 1999; Siegrist, 2002), enlargement of the adrenal glands (e.g., Kemeny, 2003), back pain (e.g., Bongers et al., 1993; Schade, Semmer, Main, Hora, & Boos, 1999; Elfering et al., 2002; Staerkle, Mannion, Elfering, Junge, Semmer, Jacobshagen, Grob, Dvorak, & Boos, 2004), ulcers (e.g., Levenstein, 1998; Levenstein, Ackermann, Kiecolt-Glaser, & Dubois, 1999), and other physical illnesses.

In occupational stress research, biological markers are obtained and analyzed. Whereas heart rate and blood pressure are assessed with the appropriate apparatus, cortisol can be obtained by salivary sampling and is analyzed in the laboratory (Kirschbaum & Hellhammer, 1989). (Nor)adrenaline usually is obtained by urine samples, which does not advance the motivation of individuals outside medical or psychological professions to participate in a study. A newer approach features salivary alpha amylase as a marker for the activity of the sympatho-adrenal medullar system (cf. van Stegeren, Rohleder, Everaerd, & Wolf, 2006). An overview of stress and physiological stress responses are offered by Frankenhaeuser (1986, 1991) and Steptoe (1991).

### **2.4.6. Implications**

Individuals have several dimensions of well-being and if one wants to study well-being with regard to a certain life domain, life-domain-specific indicators should be considered. For stress at work these indicators exist (e.g., feelings of resentment toward the organization, irritation, burnout, work-related depression, job satisfaction) and others are not clearly assignable (e.g., psychosomatic complaints). As important as physiological indicators are in organizational stress research, they are not without flaw as physiological arousal or inhibition is influenced by many factors outside of work as well (e.g., medication, alcohol and caffeine intake, sleep quality, pregnancy, general fitness, medical illnesses, or individual characteristics as in non-responders). These result in a long list of control variables, and participants have to concede to, in some instances, sensitive information. In this work, the aforementioned indicators of psychological well-being and strain were assessed and others left out. This may lead to the assumption of a one-sided approach. However, this work is concerned with a new stressor, which has been theoretically developed and now needs to be empirically studied in more detail. To launch into time-consuming and expensive research designs without prior evidence of the assumptions might be a waste of time. However, if it may be the case that illegitimate tasks exist, and influence several indicators of psychological

well-being and strain, this evidence then suggests broadening the horizon and including physiological and behavioral indicators in other work.

### **2.5. Fairness, Effort-Reward Imbalance, and Stress at Work**

#### **2.5.1. Fairness and Stress**

The concept of justice or fairness and the implied perception of getting what one deserves in terms of outcome (distributive justice), procedure (procedural justice), and interpersonal treatment (interactional justice – e.g., Cropanzano & Greenberg, 1997; Tyler, 1994; Greenberg & Colquitt, 2005) has an important link to the proposed “Stress as Offence to Self” concept, since it follows that not getting what one deserves implies a treatment that does not acknowledge one’s worth. Not surprisingly, perceptions of justice have been shown to be related to feelings of pride and self-esteem as well as, in negative cases, to frustration and anger (Tyler, 1994; Tyler & Degoe, 1995). Laboratory as well as field studies show that procedural and interactional injustice is associated with diminished self-esteem (e.g., De Cremer, van Knippenberg, van Knippenberg, Mullenders, & Stinglhamber, 2005; Koper, van Knippenberg, Bouhuijs, Vermunt & Wilke, 1993, Tyler, Degoe & Smith, 1996). On the other hand, distributive justice communicates respect and appreciation and enhances self-esteem (e.g., De Cremer, 2002). Therefore, it has been agreed upon that fairness, justice, and reciprocity have a direct association with self-esteem (Miller, 2001; Taylor, 2001).

The relationship between organizational stress research and justice research has just recently come to the fore. For example, negative emotions like anger - which can be signs of stress linked to adverse health as shown before - connect to various forms of injustice (e.g., Barclay, Skarlicki, & Pugh, 2000; Harlos & Pinder, 2000; Weiss et al., 1999). Also, studies show that unfair treatment is related to dissatisfaction and that unfair supervisor behavior is related to anxiety, depression, and emotional exhaustion (Donovan, Drasgow, & Munson, 1998; Tepper, 2000). Also, work-family conflict mediates the effect of procedural and interpersonal justice on stress (Judge & Colquitt, 2004). Zohar (1995) proposes adding the concept of role justice to the classical role stressors of role conflict, ambiguity, and overload. His results show that these are highly correlated with each other as well as with social support and decision latitude (between  $r = .50$  – and  $.54$ ), suggesting that perceptions of unfairness may be a common element in these work characteristics. Furthermore, among these variables, role justice showed the highest correlation with well-being ( $r = .43$ ), again supporting the importance of this element. Zohar’s concept of role justice, however, refers to a very specific, and rather narrow, aspect of justice, namely the fairness of a role sender’s reaction to a failure of the focal person to meet his or her expectations, due to role stress of the focal person. In a more general context, Elovainio, Kivimäki, and Helkama (2001) have

shown that perceptions of procedural justice mediate the effects of control at work on strain (see also Rutte & Messick, 1995). Greenberg (2006) demonstrates that interactional fair treatment, due to training, buffers the effect of unfair treatment on insomnia. In recent years, issues of equity and reciprocity have taken an increasingly prominent role in concepts of burnout (e.g., van Dierendonck, Schaufeli, & Buunk, 2001; van Horn, Schaufeli, & Taris, 2001; Taris, Peeters, Le Blanc, Schreurs, & Schaufeli, 2001), showing that inequity in exchange is directly related to measures of burnout and stress (see also Schaufeli & Enzmann, 1998).

### **2.5.2. Equity and Effort-Reward Imbalance**

The equity theory of Adams predicts that people pursue a balance between their investments in and the rewards gained from their work (Adams, 1963; 1965). As typical investments, time, skills, attention, and effort are considered, whereas typical rewards are pay, status, appreciation, and gratitude. At the core lies distributive justice. Adams (1965) addresses the fact that inputs and outputs in social interactions should be balanced. According to Adam (1965), receiving too much as well as receiving too little could result in negative work outcomes. Research generally supports the prediction generated by equity theory, in that inequity in work relationships is associated with lower job satisfaction (Perry, 1993), lack of organizational commitment (Schaufeli, Van Dierendonck, & Van Gorp, 1996), absenteeism and turnover (Geurts, Schaufeli, & DeJonge, 1998; VanYperen, Hagedorn, & Geurts, 1996), and burnout (Van Dierendonck et al., 2001; Van Dierendonck, Schaufeli, and Sixma, 1994; VanYperen, 1998). Bakker, Schaufeli, Demerouti, Janssen, Van der Hulst & Brouwer (2000) and Schaufeli et al. (1996) present similar effects with regard to customer-related reciprocity. They show that high demands of patients lead to a perceived lack of patient-related reciprocity (e.g., little appreciation for the effort and time invested), which was associated with burnout. Also, Schaufeli et al. (1996) point out that nonreciprocal situations are usually experienced as unfair and that a lack of organizational reciprocity contributed to burnout.

Such issues are also prominent in an approach that has gained quite some influence in recent years: the model of Effort-Reward Imbalance (cf. Siegrist, 1996; 2002). Siegrist (1998) describes as a core assumption of the model “that the work role in adult life defines a crucial link between self-regulatory functions such as self-esteem and self-efficacy and the social opportunity structure.” Concepts of reciprocity and equity are also at the core of this model, which postulates that high efforts (as determined both by external demands and by self-imposed demands as in overcommitment) will be stressful to the extent that they are not matched by appropriate rewards. Money, esteem, and status-control are the most important rewards considered, and in both esteem and status the connection to ego-involvement is

apparent. A perceived lack of reciprocity may lead to dysfunctional self-regulatory processes (also because strong emotions like anger are involved and, therefore, an activation of the automatic-nervous system – cf. Steptoe, Siegrist, Kirschbaum, & Marmot, 2004) and might pose additional threats to self-esteem. The model differs from equity theory as it is more concerned with individuals' internal evaluation of efforts invested and rewards received at work than with social comparison. The model is well supported empirically, and effort-reward imbalance has been shown to be predictive of a variety of outcomes, for instance for feelings of resentment (Geurts et al., 1999; Smith, Roman, Dollard, Winefield, & Siegrist), depression (e.g., Pikhart, Bobak, Paja, Malyutina, Kubinova, Topor, 2004), reduced subjective health (e.g., De Jonge, Bosma, Peter, & Siegrist, 2000; Niedhammer, Tek, Starke, & Siegrist, 2004), and cardiovascular disorders and risk factors (e.g., Siegrist, 2002). The threshold for negative outcomes, resulting from investing too much in relation to one's rewards appears to be higher than that for receiving too little (Siegrist, 2002). The bulk of research concerning effort-reward imbalance as a stressor and its impact on psychological and physiological strain is summarized in extensive reviews (cf. Siegrist, 2002; Tsutsumi & Kawakami, 2004; van Vegchel, de Jonge, Bosma, & Schaufeli, 2005).

### **2.5.3. Implications**

Unfair treatment is associated with strain, but further research is needed, and it would be adjuvant if the two research domains of stress and justice at work would cooperate more often. However, the SOS concept will build another bridge between these two important fields in terms of understanding employees' perceptions of unfairness at work and their related stress responses. A perceived effort-reward imbalance is a powerful stressor and was included as a stressor in this work. The original measure of Siegrist (1996) was used (the scale measuring overcommitment was excluded, though) as well as a measure by van Yperen (1996), which has the advantage of being much shorter as it measures the imbalance instead of efforts and rewards separately. Also, a conceptual closeness, as postulated in the introduction of this work, between effort-reward imbalance and illegitimate tasks of the SOS concept exists, and this and its implications are discussed in chapter 2.7.

## **2.6. Self-Esteem and Stress**

### **2.6.1. Self-Esteem**

Self-esteem refers to an individual's overall self-evaluation of his or her competencies (Rosenberg, 1965). It is paraphrased as the descriptive conceptualization and self-evaluation that individuals make and maintain with regard to themselves (Asendorpf, 1999). The construct is conceptualized as a hierarchical phenomenon, so different levels of specificity exist (e.g., general self-esteem; role-based self-esteem - worth derived from incumbency in a particular position; task-based self-esteem - worth based on task-specific self-efficacy). Self-esteem also develops around a number of other dimensions, e.g., the social, physical, and moral self. In general, the level and the stability of global self-esteem are two important factors discussed in the literature (cf. Stake, Huff & Zand, 1995). As global self-esteem appears to be stable over time and shapes many aspects of an individual's behavior, it is considered to be a personality trait (Brockner, 1988; Chen, Gully, & Eden, 2001; Ganster & Schaubroeck, 1991; Rosenberg, 1965). Trzesniewski, Donnellan, and Robins (2003) report in a meta-analysis of 50 published articles substantial continuity over time (disattenuated correlations ranged from the .50s to .70s).

In general, a high level of self-esteem is associated with better well-being and more achievements, but contradicting results are reported as well (for a review see DuBois & Tevendale, 1999 or Kernis, 2005). Stability of self-esteem refers to the magnitude of short-term fluctuations that people experience in their contextually-based feelings of self-worth (Kernis, 1993, 2005). The potential combinations (high level, high stability; high level, low stability; low level, high stability; low level, low stability) might account for the fact that inconsistent findings plague global self-esteem research (Kernis, 2005). For example, individuals with unstable high self-esteem possess implicit self-doubt (Seery, Blascovich, Weisbuch, & Vick, 2004), show higher values in hostility (Kernis, Grannemann, & Barclay, 1989) and more depressive symptoms when confronted with daily hassles (Kernis, Whisenhunt, Waschull, Greenier, Berry, & Herlocker, 1998). A core characteristic of people with fragile self-esteem is that they are highly responsive to events that have potential relevance to their feelings of self-worth (cf. Greenier, Kernis, & Waschull, 1995). Research also suggests for example that a stable, well-consolidated low self-esteem is associated with prolonged depression and a poor response to psychosocial interventions (Roberts, Shapiro, Gamble, 1999). The findings indicate that a full understanding of self-esteem processes will require taking multiple components of self-esteem into consideration (Kernis, 2005). Self-esteem can be influenced by social interactions (Carnevale, Gainer & Meltzer, 1990) and positive stable interactions lead to less apprehension about one's self-esteem (Leary & Baumeister, 2000).

In occupational health psychology, self-esteem is usually investigated either as a resource that may alleviate stress or as an outcome (e.g., Ganster & Schaubroeck, 1991; Hobfoll, 2001; Jex & Elacqua, 1999; Kahn & Byosiére, 1992; Locke et al., 1996; Mohr, 1991; Semmer et al. 2005). Self-esteem is reported to have direct effects on perceived stress (e.g., Cohen & Edwards, 1989; Locke et al., 1996), moderating effects (e.g., Jex & Elacqua, 1999), and mediating effects (e.g., Brockner, Derr, & Laing, 1987) – and, therefore, results are often inconsistent (e.g., Ganster & Schaubroeck, 1991; Mossholder, Bedeian, & Armenakis, 1982; Pierce, Gardner, Cummings, & Dunham, 1989; Semmer, 2003). Self-esteem interacts with characteristics of the work environment, which in turn influences well-being, and studying self-esteem as a moderator has its roots in the plasticity hypothesis (Brockner, 1983; Brockner, 1988). It suggests that low self-esteem individuals are generally more susceptible to environmental events than those with high self-esteem. Thus, low self-esteem employees are more prone to regard social cues as guides for appropriate action. This assumption is supported by several studies reporting that low self-esteem employees are more strongly influenced by role conflict, role ambiguity, role overload, peer group interaction, and supervisory support than are high self-esteem employees (Elangovan and Xie, 1999; Ganster and Schaubroeck, 1991, Jex and Elacqua, 1999; Pierce, Gardner, Cummings, & Dunham, 1993).

### **2.6.2. Threat to Self-Esteem**

Thoits (1991, p.101) writes with regard to her concept of “identity-relevant stressors” that “Identities refer to individuals’ conceptions of themselves in terms of the social roles that they enact [...]. An identity-relevant experience is one that threatens or alternatively, enhances an identity that the individual values highly.” This concept indicates for research on self-esteem and stress that the impact of a potential stressor depends on its identity-relevance. The need for self-esteem plays an important role in theories of personality (Epstein, 1998), and ways to enhance, or protect it, have been the focus of a vast amount of research (cf. Baumeister, 1996; Crocker & Park, 2004; Hoyle, Kernis, Leary, & Baldwin, 1999; Morf & Rhodewalt, 2001). “The sociometer theory proposes that the self-esteem system evolved as a monitor of social acceptance, and that the so-called self-esteem system motive functions not to maintain self-esteem per se but rather to avoid social devaluation and rejection” (Leary, 1999, p.32). So, enhancing the self or protecting it from harm is a powerful motive (Sedikides and Strube, 1997). This refers both to self-regard (Baumeister, 1996) and to how one is regarded by others (e.g., Banaji & Prentice, 1994; Leary & Baumeister, 2000; Tesser & Martin, 1996).

One of the most potent instigators of anger and aggression is ego threat (Baumeister, Smart & Boden, 1996; Bond, Ruaro, Wingrove, 2006). These authors deduce that hurt feelings caused by ego-threat are avoided in the externalization of these feelings and are exhibited as anger toward the perpetrator (this defense mechanism is known as self-serving bias - Beck, 1999). Anger is thought to be a frequently experienced emotion at the workplace (Fitness, 2000; Giardini & Frese, 2004). Given the importance of self-esteem and the motive to conserve it, it is astonishing that this concept does not occupy a more central role in research on stress at work. Threats to self are mentioned, for instance, by Folkman, Lazarus, Dunkel-Schetter, DeLongis, and Gruen (1986) as an important aspect of stress appraisal (cf. Lazarus, 1999). Social anxiety, which is basically the fear of negative evaluation (and thus a threat to (self-) regard), is studied (Leary & Baumeister, 2000). Self-esteem is seldom focused on as a core element of the stress experience itself, based on the notion that people strive to protect or enhance their self-esteem (Crocker & Park, 2004; Sedikides and Strube, 1997) and that a threat to it is, therefore, a likely source of stress. The Conservation of Resources approach (Hobfoll, 2001) is an exception in that stress is conceived as a threat to, or loss of, resources, and self-esteem is considered a key resource. However, the concept concentrates on discussing the role of losses and gains of resources in general, and although self-esteem is seen as one of these resources, the specific implications of threats to self-esteem are not outlined in detail.

So, most authors concentrate on its role as a resource for alleviating stress or as an outcome, but not as an essential ingredient of experiencing stress in the first place. One exception, though, is the research on social support, in which enhancement of self-esteem - as well as threats to it - has been prominent for a long time (cf. Beehr & Glazer, 2001; Deelstra, Peeters, Schaufeli, Stroebe, Zijlstra, van Doornen, 2003). As mentioned before, the feeling of being valued and cared for is seen as the central element of social support by many (e.g., Sarason et al., 1996). Conversely, negative effects of self-esteem are discussed in terms of conveying an image of incompetence, weakness, or dependency (Buunk, 1990; Elfering et al., 2002; Nadler & Fisher, 1986; Peeters, 1994). The Threat-to-Self-Esteem-Model states that seeking help may be avoided to preserve self-esteem (Fisher, Nadler, & Whitcher-Alagna, 1982; Nadler & Fisher, 1986). The basic tenet of the model is that seeking help might induce psychological strain (as in reduced self-esteem) and, therefore, individuals with high self-esteem generally seek help less often as they have more to lose than others with low self-esteem. It is important to note that the degrees of self-threat and, simultaneously, self-support determine the reaction of the one in need (Fisher et al, 1982). This research does not fully take into account the stability of global self-esteem and it may be suggested that individuals high in self-esteem but low in stability are the primary victims of



the threat-to-self-esteem-model-mechanisms in terms of seeking social support. The stress field in general has not, however, incorporated these aspects in the way in which stressors are being conceptualized.

Some recent developments move closer to the issue of self-esteem. Thus, concepts of equity and reciprocity have received more attention in recent years. This is reflected in the Effort-Reward Imbalance Model (Siegrist, 2002), and the Equity-Model of Burnout by Schaufeli and associates (e.g., Taris et al., 2001; van Dierendonck et al., 2001). Since there is broad consensus that issues of fairness, equity, or reciprocity are intimately related to issues of self-worth (e.g., Cropanzano, Byrne, Bobocel, & Rupp, 2001; Tyler, Boeckmann, Smith, & Huo, 1997; Siegrist, 2002; Taylor, 2001), these models, and the research associated with them, represent an important step in moving closer to investigating processes of how the self is affected in states of stress. However, although these authors do acknowledge the implications of fairness for the self (cf. Siegrist, 2002), it is fairness, equity, and reciprocity that they focus on. They do not have threat to self-esteem as point of origin, and the SOS concept proposes that the threat to self-esteem is a core element of the stress experience.

### **2.6.3. Organization-Based Self-Esteem**

Most of the understanding of self-esteem in general and self-esteem at work stems from research focused on global (chronic) self-esteem (Brockner, 1988). Researchers have distinguished among several types of work self-esteem, as in employee-esteem (Tharenou, 1979; Tharenou & Harker, 1982) or organization-based self-esteem (OBSE; for an overview Pierce & Gardner, 2004; for the importance of work-specific job-evaluations with regard to OBSE see Chen, Goddard, Casper, 2004) which have been studied as well. OBSE is supposed to be a construct-validated measure of role self-esteem anchored in an organizational frame of references (Pierce et al., 1989). It is defined as “the degree to which organizational members believe that they can satisfy their needs by participating in roles within the context of an organization” (Pierce et al., 1989, p. 625). Therefore, it reflects the value that individuals have of themselves as members of an organization and acting within its context. Individuals with high OBSE perceive themselves as trusted, valued, and contributing members of the organization (Pierce & Gardner, 2004). The appraisal stemming from an employee’s organizational treatment provides the base upon which employee beliefs about self-worth and OBSE develop (McAllister & Bigley, 2001). Pierce et al. (1993) argue that OBSE will be most strongly related to other variables that similarly possess an organization-level focus (e.g., organizational commitment). For example, findings reveal that OBSE is related positively to perceived organization support (global beliefs about how much the organization values their contributions and cares about their well-being - Eisenberger,

Huntington, Hutchison, & Sowa, 1986). However, OBSE is diminished by interpersonal factors (e.g., lack of managerial consideration) and design factors (e.g., inducing role-conflict and ambiguity) (Pierce et al., 1993). Also, demands that induce stress will diminish OBSE (Tang & Gilbert, 1994).

Though results underscore the construct and incremental validity of the organization-based self-esteem scale developed by Pierce and colleagues (e.g., Kanning & Schnitker, 2004), the question remains whether self-esteem or appreciation and self-efficacy at work are measured with this approach. A close inspection of the items reveals that seven out of ten items seem to measure appreciation, whereas the remaining three appear to measure self-efficacy at work.

### **2.6.4. Implications**

The importance of self-esteem and the strong motive to protect or enhance self-esteem lead to several implications: a) threat to self-esteem should be an identity-relevant stressor, b) mechanisms to protect it are quickly activated if potential ego-threat is detected, and c), if protection is unsuccessful, intense strain reactions may occur. Also, a high level of self-esteem is a valuable resource in the stress process, as it enables trust in one's own abilities to deal with the stress situation (especially if combined with stability of self-esteem and self-efficacy). As explained in the next chapter, the level of self-esteem is not a very potent dependent variable in this work, as threat to it caused by illegitimate tasks can lead to strain reactions while dealing with it, but not necessarily harm the level of self-esteem itself. It was included in this work as a powerful resource to challenge the concept of illegitimate tasks once again. In terms of organization-based self-esteem the reasoning changes: if it reflects the degree to which employees perceive themselves as important, meaningful, and worthwhile within an organization, or how much an employee feels appreciated by the organization, and if this organization approves of or ignores the fact that illegitimate tasks are delegated to its employees, these kind of tasks might be interpreted as a lack of appreciation, resulting in diminished organization-based self-esteem regardless of whether the task was tackled successfully or not. Therefore, organization-based self-esteem was included as a dependent variable. Stability of self-esteem was not included as, to date, no reliable measurement exists which measures it without the necessity of repeated measurement.

## **2.7. Stress as Offense to Self (SOS)**

If self-esteem is indeed a central element in an individual's daily functioning, characteristics of a situation that imply a threat to self-esteem should have a strong potential to evoke stress. Self-esteem may refer (a) to self-evaluation or (b) to evaluations made by others. With regard to self-evaluations, the triggering condition is failure. Failure may relate to achievement (failing in a task) or to moral virtues (betraying a friend). The experience of failure implies an internal attribution and the typical emotions discussed in this context are shame and guilt (Lazarus, 1999; Pekrun & Frese, 1992). In the "Stress as Offense to Self" concept (cf. Semmer & Jacobshagen, 2003; Semmer et al., 2005), failure, and stress as a result of it, are referred to as Stress through Insufficiency (SIN). Although this is an important part of the SOS concept, it is not the focus of this work. In terms of external evaluations the triggering condition is lack of respect: being treated in a demeaning, arrogant, or controlling way (cf. Miller, 2001). This condition is referred to as Stress as Disrespect (SAD).

### **2.7.1. Stress as Disrespect (SAD) and Illegitimate Tasks**

Stress as Disrespect (SAD) may be expressed (1) directly, (2) indirectly by being responsible for stressful conditions, and (3) indirectly by assigning illegitimate tasks. The direct expression refers to disrespectful social conduct, such as attacking people, belittling them, taking credit for their successes, or blaming them inappropriately for failures. Such conduct characterizes many forms of socially inappropriate behaviors, such as inconsiderate feedback (Baron, 1988), and social conflict (e.g., De Dreu et al., 2003; van de Vliert, 1998), including extreme forms such as mobbing (or bullying – e.g., Hoel, Zapf, & Cooper, 2002). Lack of respect implies external attribution as the behavior of others must be perceived as violating norms of fairness, politeness, and respect (Folger & Cropanzano, 2001). In other words, it could be said that this behavior is perceived as illegitimate.

With social stressors, the offending aspect to self lies in the very nature of the stressor and its potential to evoke a threat to self-esteem. Another possibility refers to the attribution of stressors that may not appear to be social at first sight. Repeated failure of equipment may be seen as (a) inherent in the nature of the tool ("computers do break down from time to time"), (b) due to unfortunate circumstances, such as a difficult economic situation of the company that prohibits investments in better equipment, or (c) due to neglect by management ("they don't bother to equip us with decent computers"). In the last case, the stressor is less legitimate than in the first two. Therefore, it might have a stronger impact (cf. Folger & Cropanzano, 2001). The third category of SAD refers to the legitimacy of tasks themselves. Some tasks are outside one's core role requirements. This may refer to tasks that are way below, or above, one's capabilities or expertise - a skilled person is given very

easy tasks or a newcomer is left alone with difficult situations. It also may refer to the meaning of a task with regard to one's working role. Nurses may find it acceptable to invest additional effort in making patients with lesser abilities feel comfortable and well taken care of. They might find the very same demand offending when they perceive the patients as pretending to be weak, but actually quite capable of doing some of the tasks that they ask the nurses to do. In the first case, the activities involved are defined as caring, and this is an essential part of the nurses' core role. In the second case, the same activities are defined as serving, which is regarded as a "non-nursing activity" (Sabo, 1990) and may provoke anger and frustration (Semmer, 2000). In line with this reasoning, some authors have found stressors to have less impact when they are perceived as part of the core role (Gorissen & Zapf, 1999; Peeters, Buunk, & Schaufeli, 1995). All three categories refer to legitimacy – legitimacy of (a) social behavior, (b) stressors, and (c) task assignments. Thus, they are inherently of a social nature and are based on social norms and conventions.

The basic definition of illegitimate tasks resides in the name: task assignments are illegitimate if they violate rules or norms. Two levels of illegitimacy are theoretically deduced. The first, and stronger version, refers to tasks that imply an active violation, and which are perceived as unreasonable. They may imply a breach of psychological contract (cf. Deery, Iverson, Walsh, 2006). The second, and somewhat weaker version, refers to tasks that are perceived as unnecessary. A task is defined as unreasonable if it meets one or more of the following prerequisites: (1) it should be carried out by someone else (for instance, by somebody with different training or different status); (2) it cannot be expected that the focal employee carries out this task because it is outside the defined responsibilities (e.g., having to prepare coffee) or because it does not correspond to the person's experience (e.g., assigning a difficult task to an inexperienced employee); (3) it puts the employee into an awkward position (like having to take responsibility for somebody else's mistake when interacting with customers or delivering negative feedback to a colleague); (4) the assignment is perceived as unfair (for instance, having too high a share of those tasks that nobody likes to do). A task is considered unnecessary if it meets one or more of the following prerequisites: (1) it should not have to be carried out at all (e.g., reporting minutious daily attendance at work, but the system does not allow for indicating overtime or work activities partaken of at home); (2) it does not make sense (e.g., archiving newspaper articles that no one ever reads); (3) it would not have to be carried out, or could be carried out with less effort, if the work were organized more efficiently (e.g., searching for files that somebody took from the cabinet but failed to return); (4) it would not have to be carried out, or could be carried out with less effort, if others would make fewer mistakes (e.g., loss of documents or inadequate handling of important gadgets); (5) it reflects idiosyncratic preferences of a

supervisor rather than task necessities (e.g., the supervisor who demands a “clean desk” even from employees that do not have customer contact).

It is important to note that the subjective perception of tasks as illegitimate may result in strain and deteriorated well-being, and not in the objective evaluation of all individuals involved. Employers and employees, or supervisors and their associates, will not always agree about whether a task is illegitimate or not. Also, individual and situational characteristics may play a role in the perception of illegitimate tasks: one individual may feel downgraded by a task (e.g., having to water all the plants in the open-plan office), while another individual enjoys the same task (e.g., someone with a green thumb); and maybe the first individual would not perceive that task as illegitimate anymore if the colleague, who usually takes care of the plants, had a serious accident. Therefore, the individual's perception with regard to his or her own tasks is the focus, and not the perception of someone giving the orders for the tasks to be done.

### **2.7.2. Implications**

The SAD-concept and the conceptualization of illegitimate tasks have a number of implications. They imply, for example, that social stressors should be powerful stressors in themselves. Social interactions characterize the work environment of many individuals and there are ample possibilities for a threat to self-esteem due to negative interactions. This implication is not the focus of this work, though. Another implication is that illegitimate tasks have to exist in work life. If they are negligible - either because they do not exist or seldom exist or just exist in very few workplaces or just with regard to certain occupations - the value of studying them as a stressor might be negligible as well. It implies also that task assignments that are perceived as illegitimate are stressors in their own right. This is a core assumption of this work and will be followed up in detail. Illegitimate tasks should a) show relations to indicators of psychological well-being and strain, and b) keep these relations if the effects of other stressors, resources, and individual characteristics are controlled for. However, moderate relations to other stressor concepts or concepts of resources are expected as they are not completely independent from each other (e.g., due to slight overlaps of concepts, or that one condition, e.g., a high level of social stressors favors the emergence of others, e.g., illegitimate tasks). Also, attributing stressors to illegitimate causes should magnify their negative impact.

Another implication concerns potential dependent variables. If violations of legitimacy represent a stressor, it should be associated with indicators of psychological well-being and strain. The feelings most likely to be triggered by violations of legitimacy are anger, feeling

offended, and the like. Also, other consequences are expected as enduring illegitimate tasks at a chronic level can trigger irritation, burnout, psychosomatic complaints and others, and in addition could reduce job satisfaction and feelings of appreciation. Trait self-esteem is not an especially pertinent dependent variable for illegitimate tasks or illegitimate stressors as a perceived threat to self-esteem does not necessarily result in lower self-esteem. It may be discounted or refuted, resulting in resentment against others and the organization rather than in a lower evaluation of one's own qualities. Insofar as esteem by others and self-esteem are not independent from one another, self-esteem may eventually be affected on the long run. With regard to the concept of organization-based self-esteem mentioned before, an adjustment might be more prominent.

The effort-reward imbalance is conceptually close to the concept of illegitimate tasks as both violate expectations of what an individual feels entitled to and what is considered as being fair. The difference between the two concepts lies in their generality. Effort-reward imbalance represents a rather general evaluation about the individual's internal evaluation of being treated fairly at work, in terms of efforts invested and rewards received. Illegitimate tasks is a much more specific concept as these tasks pose a threat to self-esteem because they express a lack of appreciation. It seems theoretically plausible that more specific stressors, like illegitimate tasks, imply deterioration

Another implication is that stress situations at work, which are perceived as illegitimate, should also have an impact on situational well-being. Stress situations occur in everyday work life due to different prerequisites and situational characteristics, but if they are attributed as being unnecessary or unreasonable, they should diminish situational well-being as well as trigger situational feelings of resentment.

These implications are the subject of the hypotheses, which follow in the next section.

### 2.8. Hypotheses

The central research questions guiding this work were that a) illegitimate tasks exist, b) they are measurable, c) they behave like stressors, d) they have an impact over time, e) they have a special relationship to effort-reward imbalance, and that e) illegitimacy of stressful situations have a negative bearing on situational well-being. The hypotheses summarize the assumptions toward this new stressor-strain relationship or were derived from the literature described before. Testing these hypotheses involved several steps, studies, methods, and constructs. All in all, 11 different studies with more than 3000 individuals participating were pursued or utilized to test the hypotheses.

Analyzing several studies with regard to the same hypotheses facilitates instant replication of findings, and replication provides verification functions. As many studies in psychological research have relatively small sample sizes and are underpowered (cf. Maxwell, 2000, 2004), replication is helpful for extending the generalization of the results. Sample characteristics or other influences may soil or elevate part of the presumed associations and effects. The psychological literature does not agree about how many effects have to be replicated to speak of successful replication. As a rule of thumb, the majority (at least 60%) was used in this work to declare a replicated hypothesis verified or dismissed. In addition, a meta-analysis was conducted to test for the generalization of effects with regard to a very central presumption of this work, in that illegitimate tasks relate to psychological well-being / strain.

Three pilot interview studies were conducted in order to establish that employees mention illegitimate tasks to a degree that is beyond negligibility and to investigate their frequency. The threshold for considering something negligible is difficult to specify. It was pragmatically decided to regard this hypothesis as confirmed if at least 10% of all tasks would constitute illegitimate tasks, and if at least 75% of the participants would report a minimum of one illegitimate task.

#### *Hypothesis 1.1.*

*Employees do report task assignments they consider as illegitimate. That is, 10% of all tasks assigned are perceived as illegitimate and 75% of all people interviewed mention at least one illegitimate task.*

If the legitimacy of task assignments is related to one's core role identity, illegitimate tasks should be found more often among ancillary tasks than among core tasks. Ancillary tasks sometimes support core tasks but are not a defining part of the latter. Core tasks define core

## Hypotheses

activities (e.g., guaranteeing safety or finding evidence in the case of police officers; preventing / healing illness for physicians; teaching for teachers). It is the core role that is related to one's identity (cf. Ashforth, 2001; Katz & Kahn, 1978; Stets & Burke, 2000), so ancillary tasks should be less likely to support one's identity, and thus have a higher chance of being perceived as illegitimate.

### *Hypothesis 1.2.*

*Illegitimate tasks are more likely to be found among ancillary than among core tasks.*

Based on the results of the three pilot studies, a scale was developed to measure illegitimate tasks. The scale is called Bern Illegitimate Tasks Scale (BITS) and its nine items can be categorized into two subscales: unnecessary (five items) and unreasonable (four items) tasks. Scale development is a process, guided by exploratory empirical research and adaptation after studying the results. A reliable and valid measure was pursued for the use in different populations, nations, and study designs. Therefore, it is important to analyze the psychometric values of the developed scale and its presumed factorial structure. The psychometric cut-off values mentioned in the hypothesis are derived from statistical literature (cf. Bortz, 1993; Field, 2005; Fisseni, 1997). Eight cross-sectional studies were used to test the following assumptions:

### *Hypothesis 2.1.*

*The Bern Illegitimate Tasks Scale (BITS) indicates satisfactory psychometric values in all eight studies. That is, corrected item total correlations of each item are above  $r_{itt} = .30$  (subscales as well as total scale) and internal consistencies are above  $\alpha = .75$  for the nine-item scale and above  $\alpha = .70$  for the proposed four-item subscale or the five-item subscale in all studies.*

### *Hypothesis 2.2.*

*The proposed two-factor structure of the Bern Illegitimate Tasks Scale (BITS) will be confirmed in exploratory as well as confirmatory factor analyses.*

In the next step, the relationship between illegitimate tasks and several indicators of psychological well-being / strain was the issue, which was tested cross-sectional in the first attempt. As argued before, the strongest associations are expected for feelings of resentment, as illegitimate tasks nurture negative emotions against the employer or supervisor. But, to put the concept and its association to a firm test, several other indicators



## Hypotheses

of psychological well-being / strain were selected. Six of the eight studies mentioned before were used to test the following assumptions:

### *Hypothesis 3.1.*

*Illegitimate tasks are positively related to feelings of resentment. Illegitimate tasks are also positively related to other indicators of psychological strain and negatively to psychological well-being. Other psychological well-being / strain indicators are irritation, emotional exhaustion, disengagement, psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

Construct validity refers to the degree to which inferences can legitimately be made from the operationalizations in the study to the theoretical constructs on which those were based. Convergent and discriminant validity are both considered subcategories of construct validity. To establish convergent validity, measures that should be related are in reality related, and to establish discriminant validity, measures that should not be related are in reality not related. The assumptions of a conceptual closeness of illegitimate tasks and effort-reward imbalance as well as the fact that negative social interactions are partly responsible for illegitimate tasks were argued before in this work. Albeit, the proposed correlation should not reach two-thirds of another construct, as then the proposed measure of illegitimate tasks would just measure one of the other constructs (Bortz, 1993). Task may become a stressor if they are perceived as illegitimate. Therefore, task-related stressors may even show a bigger impact if they - and the tasks involved - are perceived as illegitimate. Therefore, a positive relationship between task-related stressors and illegitimate tasks is expected. Also, smaller relations to other stressor concepts investigated are expected (work-family conflict and emotional dissonance).

### *Hypothesis 3.2.*

*Illegitimate tasks are positively related to other stressors. Other stressors are social stressors, effort-reward imbalance, task-related stressors (index as well as uncertainty, time pressure, concentration demands, problems with the organization of work, and interruptions at work), work-family conflict, and emotional dissonance.*

Resources alleviate the influence of stressors on psychological well-being / strain. It could be proposed that a high amount of job control and social support at work (external resources) characterize the work situation and climate as positive and, therefore, have negative associations to illegitimate tasks. This assumption was established in the next hypothesis. At this point it is rather unclear how internal resources like self-efficacy and the level of global self-esteem relate to illegitimate tasks. Even though illegitimate tasks imply self-worth threat,

## Hypotheses

the general level of global self-esteem is not necessarily related or affected as threat to self-esteem can be managed, avoided, or otherwise dealt with. Self-efficacy in general is a valuable resource to deal with any task. A positive effect of internal resources in the stress process has been demonstrated quite often and, as illegitimate tasks should behave like a stressor, a negative relationship to illegitimate tasks is expected. Please note that in this work, interactions between the resources and stressors studied is not an issue due to the wealth of other research questions. But patterns found in this work may give rise to future research question with regard to illegitimate tasks and resources.

### *Hypothesis 3.3.*

*Illegitimate tasks are negatively related to the external resources job control and social support at work and the internal resources self-efficacy and global self-esteem.*

The next step is for the concept of illegitimate tasks to prove incremental validity. A new stressor-strain concept is not very efficient if the proposed stressor cannot explain psychological well-being / strain over and above other known concepts of stressors and resources. Four tests were conducted to test for incremental validity: illegitimate task predict psychological well-being / strain over and above several task-related stressors, over and above a group of other stressors, over and above several internal and external resources, and - lastly - over and above the combination of other stressors and resources. Four to six studies (based on sample size due to the number of predictors) were used to test the following assumptions:

### *Hypothesis 3.4.*

*Illegitimate tasks predict psychological well-being / strain, even after controlling for age, sex, and several task-related stressors. The tasks stressors are uncertainty, time pressure, concentration demands, problems with the organization of work, and interruptions at work. Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

### *Hypothesis 3.5.*

*Illegitimate tasks predict psychological well-being / strain, even after controlling for age, sex, and a group of other stressors. The group of other stressors contains social stressors, effort-reward imbalance, work-family conflict, emotional dissonance, and task-related stressors (index of the five stressors mentioned in hypothesis 3.4.). Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement,*

## Hypotheses

*psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

### *Hypothesis 3.6.*

*Illegitimate tasks predict psychological well-being / strain, even after controlling for age, sex, and internal and external resources. The internal and external resources are time control, method control, social support at work, self esteem, and self-efficacy. Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

### *Hypothesis 3.7.*

*Illegitimate tasks predict psychological well-being / strain, even after controlling for age, sex, other stressors and internal and external resources. The other stressors and resources are social stressors, effort-reward imbalance, work-family conflict, emotional dissonance, task-related stressors (index of the five stressors mentioned in hypothesis 3.3.), job control, social support at work, self esteem, and self-efficacy. Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

All assumptions tested up to now were cross-sectional. Longitudinal analyses are needed to prove 'causality'. Difficulties with longitudinal analyses were discussed in chapter 2.1.3. and the recommendations followed (controlling for the dependent to t1 and individual characteristics). Synchronous as well as longitudinal effects were of interest. Two longitudinal studies (study I and study II of the main studies), one with two measurement points (time lag two years) and one with three (time lag six months), were conducted to test the following assumptions:

### *Hypothesis 4.1. (for both studies – longitudinal analyses)*

*Illegitimate tasks at t1 (or t2) predict psychological well-being / strain at t2 (or t3), even after controlling for age, sex, and the psychological well-being / strain indicator in question at t1. Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, job satisfaction, and organization-based self-esteem.*

## Hypotheses

### *Hypothesis 4.2. (for both studies – synchronous analyses)*

*Illegitimate tasks at t2 (or t3) predict psychological well-being / strain at t2 (or t3), even after controlling for age, sex, and the psychological well-being / strain indicator in question at t1 (or t2). Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, job satisfaction, and organization-based self-esteem.*

Effort-reward imbalance is conceptually close to the concept of illegitimate tasks, as both violate expectations of what one feels entitled to and considers being fair. It seems theoretically plausible that more specific stressors like illegitimate tasks imply deterioration in psychological well-being to the extent that they result in a more generalized feeling of being treated in an unfair manner. Methodologically, this would imply that effort-reward imbalance acts as a mediator between illegitimate tasks and indicators of psychological well-being / strain. This presumption was tested in six cross-sectional studies and two longitudinal studies.

### *Hypothesis 5.1.*

*Effort-reward imbalance partially mediates the relationship between illegitimate tasks and psychological well-being / strain (controlling for age and sex). Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

Last but not least, perceived illegitimacy may play a fundamental role in a situational context. One of the implications of the SOS concept is that stressors or stressful situations will have a stronger impact if they are perceived as illegitimate. Therefore, a diary study was conducted to test if stressful, annoying, or otherwise straining situations are more hazardous for situational psychological well-being if the situation was perceived as illegitimate. The same methodology as in hypotheses 3.4. to 3.7. in terms of stressors and resources was applied in testing effects over and above other chronic and situational stressors and resources. The following assumptions were tested in one study:

### *Hypothesis 6.1.*

*Perceived illegitimacy of stressful events at work predicts situational psychological well-being and situational resentments, even after controlling for several chronic task-related stressors, illegitimate tasks, age, and sex at the person level and stressfulness of the situation at the*

## Hypotheses

*situational level. The task-related stressors are uncertainty, time pressure, concentration demands, problems with the organization of work, and interruptions at work.*

### *Hypothesis 6.2.*

*Perceived illegitimacy of stressful events at work predicts situational psychological well-being and situational resentments, even after controlling for a group of other chronic stressors from different contexts, illegitimate tasks, age, and sex at the person level and stressfulness of the situation at the situational level. The other stressors are social stressors, effort-reward imbalance, work-family conflict, emotional dissonance, and task-related stressors (index).*

### *Hypothesis 6.3.*

*Perceived illegitimacy of stressful events at work predicts situational psychological well-being and situational resentments, even after controlling for internal and external resources, age, and sex at the person level and stressfulness of the situation at the situational level. The resources are time control, method control, social support at work, self-efficacy, and self-esteem.*

The last, and most challenging, test was conducted in assuming that illegitimacy of the situations still predicts situational psychological well-being and resentments, if all stressors and resources were entered in the same model (task-related stressors and job control entered as indexes again).

### *Hypothesis 6.4.*

*Perceived illegitimacy of stressful events at work predicts situational psychological well-being and situational resentments, even after controlling for other stressors, internal and external resources, illegitimate tasks, age, and sex at the person level and stressfulness of the situation at the situational level. Resources entered are job control (time control and method control in one measure), social support at work, self-efficacy, and self-esteem. Other stressors entered are social stressors, effort-reward imbalance, work-family conflict, emotional dissonance, task-related stressors (index), and illegitimate tasks.*

Results are presented in chapter 4 and discussed in chapter 5. Beforehand, the methods, the studies, and plan of analyses are described in chapter 3.

### 3. Methods

In this section, the different studies and methods to obtain the results are described. Pilot studies (1 to 3) are described first and the main studies (I to VIII) follow. The chapter concludes with the plan of analysis.

#### 3.1. Samples, Procedure, Method: Pilot Studies

##### 3.1.1. Samples und Procedure

Three pilot studies were conducted to investigate three different samples: a miscellaneous sample with employees from different professions and different employers, a sample with employees from the same employer, and a sample of employees from different workplaces, but working in the same trade (as teachers). All participants worked at least two days per week.

For pilot study 1, 50 interviews (52% female) were conducted. Those interviewed represented a variety of occupations and had a mean age of 34.08 years ( $SD = 5.59$ ). They were recruited by two graduate students on the basis of personal acquaintance. All participants worked at least three days a week. The broad variety of occupations was intended to collect information about illegitimate tasks in different jobs and, therefore, be as diverse as possible (data was collected, for example, from graphic designers, psychologists, financial accountants, secretaries, nurses, lawyers, controllers, dental assistants, scientists). For more information see Hagen and Schirmer (2002).

For pilot study 2, two graduate students interviewed 59 Swiss employees from an American international operating IT-company with a branch in Switzerland. 16 were female (27%), and the mean age was 39.15 years ( $SD = 7.91$ ). Most of them were employed as IT-specialists, working in consulting and implementation. For more information see Dérier and Guyan (2005).

For pilot study 3, 50 teachers were recruited and interviewed. There were 31 who worked in a private school in which organizational development was implemented based on a detailed stress analysis which included interviews. The other 19 teachers worked in different schools and were recruited from the Canton of Bern during a questionnaire study concerning stress. All participants were asked if they were willing to participate in an additional interview study, and 19 concurred. Altogether, 32 women and 17 men participated (one value not recorded due to a privacy issue) and the mean age was 41.67 ( $SD = 9.65$ ). The teachers taught at

different school levels, including high school, middle school, and elementary school. For more information see Schäfer (2006).

### **3.1.2. Method: Interview**

The standardized interview guidelines were developed at the Chair of Work and Organizational Psychology of the University of Bern during the course of this work. The guidelines for the interview and the specific questions developed to detect illegitimate tasks were tested in five cycles of revision (interviews with up to seven participants was followed by a debate between interviewers about intricatenesses which was followed by a revision of the guidelines and questions and then another round of interviews) before starting data collection with pilot study 1 (cf. Hagen & Schirmer, 2002). The interviews commenced with a task analysis with the aim of decomposing an individual's work into tasks and subtasks (Kirwan und Ainsworth, 1992). Participants were first asked to list their core work tasks and the corresponding subtasks. For example, teaching is a core task for a teacher, and typical subtasks to pursue this core assignment include preparation for class, teaching, creating exams, grading exams, and so on. In a second part, ancillary tasks were tackled, such as filing, writing reports, reviewing, organizing special events and so on. Ancillary tasks might support core tasks, but they also can be tasks of their own. In a third part, potentially unnecessary and unreasonable tasks were the subject. The terms "illegitimate", "unreasonable", or "unnecessary" were not mentioned to disguise the research question and hinder threat to self-esteem. Rather, the concept was circumscribed indirectly with the eleven questions in Table 1. If the participants referred to a task already mentioned, this task was marked as either unnecessary or unreasonable. If a new task was described, it was also marked and, in addition, the participant questioned if this task is part of a core task or an ancillary task. The interviews were recorded and the assignation of a task to illegitimate tasks revised twice. Inter-rater reliability was not required with this kind of proceeding. The interviews were rather detailed and took between 60 and 100 minutes to complete. In pilot study 3 some of the 31 teachers from the private school used free lecture time for interviews. Including breaks before and after the free lecture, the time frame for these interviews was just about 60 minutes and some had to be hurried in the end. This could have led to a lack of information in some interviews.

Table 1. Questions to Detect Unnecessary and Unreasonable Tasks.

Questions for Unnecessary Tasks:
----------------------------------

Do you have work tasks to take care of which you already mentioned or cross your mind now which keep you wondering if ...

- 
- a) they have to be done at all
  - b) they could be done by someone else?
  - c) they would not be done at all if re-organization would take place?
  - d) they could be done with less effort if re-organization would take place?
  - e) they just exist because of a special orientation towards certain people?

---

Additional question:

Do situations at work exist, which triggers thoughts like “This is not necessary” or “Why do I have to do this”? What kind of situation or task is that?

Questions for Unreasonable Tasks
----------------------------------

Do you have work tasks to take care of which you already mentioned or cross your mind now which you believe ...

- 
- a) should be done by someone else
  - b) should not be expected from you, which are reaching too far?
  - c) put you into an awkward position?
  - d) are not tasks you should be bothered with?
  - e) are not fair that you have to deal with them?
- 

### 3.2. Samples, Procedure, Method: Main Studies

After the first pilot study, a scale was developed to measure illegitimate tasks. The aim was to test if illegitimate tasks can be measured with this approach as a chronic stressor while obtaining satisfying psychometric values (reliability) and the proposed factorial structure with two factors (unnecessary and unreasonable). Besides this scale, another scale was developed to test if an annoying, angering, or otherwise stressful situation had an influence on situational resentment and temporal well-being, and if that situation was perceived as either unnecessary or unreasonable, and therefore illegitimate. Both scales are described in chapter 3.2.2.



### 3.2.1. Samples und Procedure

All in all, eight main studies were conducted to test the hypotheses. As some of the studies either had to answer additional research questions or were limited with regard to the number of items (mainly due to a limitation set by companies involved), the content of questionnaires varied. Therefore, not all eight samples were feasible for all analyses. Differences are described in chapter 3.2.2. and summarized in Table 2.

#### *Study I – Miscellaneous Professions*

Study I consisted of 190 participants of which 88 (46%) were female. Mean age of the individuals was 37.9 years ( $SD = 10.95$ ), ranging from 18 to 65 years. The sample included a wide range of occupations, such as teachers, mechanical workers, clerks, and university professors. Participants completed a questionnaire and were recruited by me and graduate students in the context of a seminar on psychology of work and organizations at the Psychology Department of the University of Bern in 2003. Participants indicated in the questionnaire if they were willing to fill out a shortened questionnaire a second time six months later. Six months later, 116 questionnaires were sent out and 98 were returned. Due to missing data, six questionnaires had to be eliminated from the data set. Therefore, the sample of time 2 comprised of 92 individuals, of which 44 were women (48%) with a mean age of 40.01 ( $SD = 10.93$ ). They indicated again if they were willing to fill in a last questionnaire six months later. At the third and last measurement point, 61 questionnaires were sent out and 48 were returned. The sample of time 3 consisted of 22 women (46%) and the mean age was 41.52 ( $SD = 11.05$ ). Six of the participants participated at t1 and t3, but not t2. Therefore, the longitudinal data set was comprised of 42 participants (19 women (45%), mean age = 42.05,  $SD = 11.22$ ). As no financial aid supported this study, the individuals received individual feedback as an incentive. Participants filled in the questionnaires in German.

#### *Study II – Public Service*

The sample of the second study was obtained from a large Swiss public service institution, which has branches throughout Switzerland. Participants were recruited from four different branches - including part of the top management - in the German-speaking area of Switzerland. A total of 147 participants took part in the multi-method study, which was carried out in 2003 in the context of a research project, for which the Swiss National Science Foundation approved a grant. Besides the questionnaire, participants also recorded and elaborated on stressful events they experienced during two work days. Of those participating, 45 were women (31%) and the mean age of the sample was 40.50 years ( $SD = 10.09$ ), ranging from 16 to 61 years. In this study, salivary samples were also obtained, but not

analyzed for this work. As a grant from the State Secretariat for Economic Affairs in Switzerland was possible for 2005, a follow-up study was planned. Of the 147 participants at time 1, there were 114 who still worked for their company approximately two years later. All of these were contacted and 76 employees (67%) decided to participate again. Of these, 20 were women (26%) and the mean age was 44.30 ( $SD = 9.24$ ). The questionnaires were sent and returned by mail and the data collection and handling was finished in April of 2006. As incentives, the participants received two free tickets to a movie theatre of their choice, participated in a lottery with cash prizes, and received individual feedback. Participants filled in the questionnaires in German.

### *Study III – Vocational Counselors*

The sample of study III was recruited in the context of a post-graduate program in vocational counseling (Master of Advanced Studies in Psychology of Career Counseling and Human Resources Management MASP-CC&HRM) in 2003. Most participants had a master's degree in psychology. Alumni of the program were sent a questionnaire by mail and their participation was kindly requested. In total, 80 complied to the request, and of those 60 (75%) were female. Mean age of the sample was 42.01 years ( $SD = 9.29$ ), ranging from 26 to 60 years. This study was not funded and the participants filled in the questionnaires in German.

### *Study IV – Junior Managers I*

The sample of study IV contained 884 junior managers of a Swiss corporation operating in the industry, who had participated in an online survey conducted on behalf of the employer in 2004. This online survey was a commercial project between the corporation and the University of Bern. Managers had three months to complete the questionnaire. As soon as they finished the questionnaire, they received individual feedback created by programmed algorithms. Of those participating, 302 managers were female (34%). Mean age of the sample was 41.64 years ( $SD = 8.51$ ), ranging from 23 to 63 years. Participants had the choice whether to fill in the questionnaire in German or English.

### *Study V – Associates I*

The sample of study V consisted of 187 participants working in miscellaneous occupations in a Swiss corporation operating in the industry. Of all individuals who completed the questionnaire in 2005, 36 (19%) were female. The participants did not have any leadership responsibilities and their mean age was 42.47 years ( $SD = 10.87$ ), ranging from 20 to 63 years. They were able to obtain the stress questionnaire at work in German, English, or

French and sent them to the University of Bern. They received in return elaborate individual feedback. This was a commercial project between the company and the University of Bern.

### *Study VI - Associates II*

The sample of study VI comprised 1256 individuals working in miscellaneous occupations in a Swiss corporation operating in the industry. In 2005, an online survey was conducted on behalf of the company. As in study IV and V, this survey was a commercial project between the corporation and the University of Bern. Individuals had three months to complete the questionnaire. As soon as they had finished the questionnaire, they received individual feedback created by programmed algorithms. Of those participating, 677 participants were female (54%). The individuals did not have any leadership responsibilities and mean age of the sample was 40.10 years ( $SD = 10.85$ ), ranging from 17 to 64 years.

### *Study VII – IT-Specialists*

The sample of study VII consisted of 64 participants from seven departments of a renowned information technology enterprise, which was recruited in the context of a master's thesis in 2004. This was a subgroup of pilot study 2. The questionnaire was completed in German by 18 women (28%) and 27% of all subjects had leadership responsibilities. Mean age of the sample was 39.72 years ( $SD = 8.05$ ), ranging from 27 to 57 years. As this sample was already used for in-depth studies with regard to illegitimate tasks and other stressors and resources (cf. Dérier & Guyan, 2005), it was not used for in-depth studies in this work.

### *Study VIII – Junior Managers II*

The sample of study VIII consisted of junior managers of a Swiss multinational corporation who attended an internal training course in 2002/2003. At the request of the training manager of the company, the university handed out a brief stress questionnaire for use during training. If participants agreed, their data was sent back to the university. A total of 171 junior managers completed and returned the very brief questionnaire. Of those participating, 47 individuals were female (28%). The mean age of the sample was 42.23 years ( $SD = 8.96$ ), ranging from 25 to 64 years. The briefness of the questionnaire did not allow for the use of this sample for in-depth-studies with regard to other stressors and resources. This study was not funded and the participants could fill in the questionnaire either in German or English.

### **3.2.2. Method: Questionnaire and Diaries**

All scales are displayed in English in Appendix A. Most of the scales were already translated professionally before the studies commenced. Otherwise, professional back-to-back translations were initiated (translated by a bilingual speaker into the other language followed

up by back translation into the original language by a native speaker). Not all measures could be employed in all studies, and in some cases the measure used in one study was different from those in all the other studies. The differences are listed in Table 2. All measures applied (besides those for illegitimate tasks and illegitimacy of stress situations) were already used numerous times before in other work and organizational studies. Internal consistencies of these scales in this work are depicted in the brief description below.

### 3.2.2.1 Measurement of Stressors

#### *Illegitimate Tasks (BITS)*

The questions used in the interview approach were used to build the Bern Illegitimate Tasks Scale BITS. The questions were reformulated and eleven items emerged. Two pre-studies were initiated with students of the University of Bern who worked part-time. The items were tested with regard to comprehension and clearness of wording. After these tests, ten items remained of which nine were used in this work. The tenth item was excluded due to several missing values in the first main study of this work, in which the scale was tested for the first time with a population outside the university. Five items asked about unnecessary tasks and they start with the introduction “Do you have work tasks to take care of, which keep you wondering if .....” followed by a statement like “they have to be done at all?” Four items referred to unreasonable tasks and they start with the introduction “Do you have work tasks to take care of, which you believe ....” followed by statements like “are going too far, which should not be expected from you?” Answers were in a Likert-type format, ranging from 1 (*never*) to 5 (*frequently*). All items, as well as psychometric values and the factor structure, are shown in chapter 4.2.

#### *Task-Related Stressors*

Task-related stressors were assessed using the German instrument for stress-oriented job analysis ISTA (Semmer, Zapf, & Dunckel, 1995, 1999), which is a validated and well-established measure. Altogether, seven scales and one additional item were taken from the ISTA instrument: five measured task-related stressors, two job control, and one item emotional dissonance (see below). *Concentration demands* were measured with four items (e.g., “Do you have to remember information for short periods of time that is hard to keep in mind?”), which required a response on a 5-point scale that ranged from 1 (*very seldom / never*) to 5 (*very often*). The scale yielded Cronbach's alphas from  $\alpha = .54$  to  $.72$  (five studies). *Time pressure* was measured with four items (e.g., “How often are you under time pressure?”), which required a response on a 5-point scale that ranged from 1 (*very seldom / never*) to 5 (*very often*). The scale yielded Cronbach's alphas from  $\alpha = .71$  to  $.82$  (six studies). *Problems with the organization of work* were measured with four items (e.g., “A’

has documents and information that are always correct and up-to-date - 'B' has documents and information that are often incomplete and out of date. What is your job like?"). All items used the "A versus B" format with responses ranging from 1 (*exactly like 'A'*) to 5 (*exactly like 'B'*). The scale yielded Cronbach's alphas from  $\alpha = .62$  to  $.76$  (six studies). *Uncertainty* was also measured with four items (e.g., "How often do you receive contradictory instructions from different supervisors?"), which required a response on a 5-point scale that ranged from 1 (*very seldom / never*) to 5 (*very often*). The scale yielded Cronbach's alphas from  $\alpha = .67$  to  $.73$  (six studies). *Interruptions at work* were also measured with four items (e.g., "How often are you interrupted by other colleagues at work?") requiring a response on a 5-point scale that ranged from 1 (*very seldom / never*) to 5 (*very often*). The scale yielded Cronbach's alphas from  $\alpha = .71$  to  $.79$  (six studies). The five single stressors can be combined into an index by adding the means of the scales and dividing them by five (task-related stressors). That scale yielded Cronbach's alphas from  $\alpha = .62$  to  $.80$  (six studies, and in study III four scale means were used instead of five).

### *Social Stressors*

Social stressors about negative interactions with colleagues were measured with a shortened version of a social stressor scale by Frese and Zapf (1987). The validity of this scale has been established in several previous studies (cf. Dormann & Zapf, 2002). The shortened scale comprised of four items (e.g., "With some colleagues one often quarrels."), which required a response on a 5-point scale that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The scale yielded Cronbach's alphas from  $\alpha = .67$  to  $.77$  (six studies).

### *Effort-Reward Imbalance*

Effort-Reward Imbalance was measured with the often-used six-item scale of van Yperen (1996). The scale referred to a perceived imbalance between efforts invested and rewards received (e.g., "The rewards I receive are not proportional to my investments."), which required a response on a 7-point scale that ranged from 1 (*totally disagree*) to 7 (*totally agree*). The scale yielded Cronbach's alphas from  $\alpha = .90$  to  $.93$  (five studies). Solely in study IV, another instrument was used. Participants completed two of the three psychometric scales of Siegrist's (1996) validated Effort-Reward Imbalance measure. Effort was measured by five items referring to demanding aspects of the work environment (e.g., "I am often pressured to work overtime." - in this study  $\alpha = .76$ ) and the reward scale consisted of eleven items (e.g., "Considering all my efforts and achievements, my salary / income is adequate." - in this study  $\alpha = .86$ ). Items were responded to in two steps: participants indicated whether they disagreed or agreed with the statement and indicated also to what extent they usually felt distressed by this specific experience. The scale ranged from 2 (*I am not at all*

*distressed*) to 5 (*I am very distressed*). An effort-reward ratio was computed for every individual: (e/r\*c). Values below 1 are seen as a favorable result, whereas a ratio above 1 indicates that an imbalance exists.

Table 2. Differences of Scales in Eight Studies.

Study	Stressors									Resources I	
	UN	CON	POW	IW	TP	ERI	SS	ED	WFC	SEE	SEF
I	4	4	4	4	4	6 <sup>a</sup>	4	1 <sup>c</sup>	n.a.	10	3
II	4	4	4	4	4	6 <sup>a</sup>	4	5 <sup>d</sup>	4	10	3
III	4	n.a.	4	4	4	6 <sup>a</sup>	4	5 <sup>d</sup>	n.a.	10	3
IV	4	4	4	4	4	16 <sup>b</sup>	4	1 <sup>d</sup>	4	n.a.	3
V	4	4	4	4	4	6 <sup>a</sup>	4	1 <sup>d</sup>	4	n.a.	3
VI	4	4	4	4	4	6 <sup>a</sup>	4	1 <sup>d</sup>	4	n.a.	3
Study	Psychological Well-Being / Strain								Resources II		
	RES	IRR	EXH	DIS	PC	WRD	JS	OBSE	TC	MC	SSW
I	7	8	8	8	16	n.a.	4	7	3	3	n.a.
II	7	8	8	8	16	n.a.	4	7	3	3	3
III	7	8	n.a.	n.a.	16	n.a.	4	7	3	3	3
IV	7	8	n.a.	n.a.	8	6	1	1	3	3	3
V	7	8	n.a.	n.a.	8	6	1	1	3	3	3
VI	7	8	n.a.	n.a.	8	6	1	1	3	3	3
VII	7	8	8	8	16	n.a.	4	7			
VIII	7	8	n.a.	n.a.	n.a.	n.a.	n.a.	7			

Note. <sup>a</sup>Mesasure of VanYperen, <sup>b</sup>measure of Siegrist, <sup>c</sup>measure of ISTA, <sup>d</sup>measure of FEWS, UN=uncertainty, CD=concentration demands, POW=problems with the organization of work, IW=interruptions at work, TP=time pressure, ERI=effort-reward imbalance, SS=social stressors, ED=emotional dissonance, WFC=work-family conflict, SEE=self-esteem, SEF=self-efficacy, RES=feeling of resentment, IRR=Irritation, EXH=emotional exhaustion, DIS=Disengagement, PC=psychosomatic complaints, WRD=work-related depression, JS=job satisfaction, OBSE=organization-based self-esteem, MC=method control, TC=time control, SSW=social support at work, n.a. = not assessed.

### *Emotional Dissonance*

In study I a single item was used from ISTA to measure emotional dissonance. The item wording was “How often do your duties at work require you to suppress your own feelings (e.g., anger, dislike) when dealing with others?” A similar item is also part of the emotional

dissonance scale of the Frankfurt Emotion Work Scales (Zapf et al., 1999), which was used in all other studies. Originally, the scale features five items (Cronbach's alphas  $\alpha = .74$  and  $\alpha = .81$  in two studies) and measures the dissonance between genuine felt emotions and emotions expressed due to display rules, but mostly just one item was used (studies IV-VI).

### *Work-Family Conflict*

Work-to-family conflict was assessed using a four-item scale from Kopelman, Greenhaus, and Connolly (1983), with a 5-point Likert-scale response format ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). An example item is "My family / friends dislike how often I am preoccupied with my work while I am at home." The scale yielded Cronbach's alphas from  $\alpha = .71$  to  $.80$  (four studies).

### *3.2.2.2 Measurement of Resources*

#### *Time, Method, and Job Control*

The two measures of job control also stemmed from the ISTA. Method control was measured by three items (e.g., "Is it possible for you to organize your work tasks independently?") and time control also (e.g., "Can you decide on your own as to how long you work on a particular task?"). The items required a response on a 5-point scale that ranged from 1 (*very little / not at all*) to 5 (*very much*). It is common to build a combined scale, in which the item values are added and divided by six. This scale is called job control. The scale method control yielded Cronbach's alphas from  $\alpha = .66$  to  $.88$  (six studies), the scale time control from  $\alpha = .68$  to  $.86$  (six studies), and the scale job control from  $\alpha = .76$  to  $.92$  (six studies).

### *Social Support at Work*

Social support at work (by supervisors, close colleagues, and other colleagues) was measured using Frese's (1989a) German adaptation of the social support scales developed by House and Caplan (cf. Caplan, Cobb, French, Harrison, & Pinneau, 1975). Only one out of the five original items was used. The question ("How much can each of these people be relied upon when things get tough at work?" had to be rated on a 5-point scale ranging from 1 (*not at all*) to 5 (*a lot*) with respect to a) supervisors, b) the closest colleague and c) other colleagues. The scale yielded Cronbach's alphas from  $\alpha = .51$  to  $.67$  (five studies).

### *Self-Efficacy at Work*

Domain-specific self-efficacy was assessed using a shortened scale of Krampen (1991). The introduction states "We are interested in your opinion about the following statements. Please indicate how much you agree or disagree with the following statements with regard to your

work". It consists of three items (e.g., "Even in difficult situations I can always think of several possibilities to do something.") with a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), and a high score indicates high self-efficacy. The scale yielded Cronbach's alphas from  $\alpha = .65$  to  $.86$  (six studies).

### *Global Self-Esteem*

To measure the level of global self-esteem, the widely used German adaptation of the Rosenberg Self-Esteem Scale was used (Rosenberg, 1965; translated by Klingenspor, 1984). The scale consisted of two subscales: five statements measuring self-esteem (e.g., "I have a positive attitude toward myself.") and five items measuring depression or depressive mood (e.g., "All in all, I am inclined to feel that I am a failure."), and the last five were recoded. Responses were indicated on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The scale yielded Cronbach's alphas from  $\alpha = .81$  to  $\alpha = .82$  in three studies.

### *3.2.2.3 Measurement of Psychological Well-Being / Strain*

#### *Feelings of Resentment*

Seven items concerning individuals' negative feelings toward their own company (e.g., indignation, anger) were used to measure resentments (Geurts et al., 1999). On a 7-point Likert scale with the two anchors 1 (*not at all*) and 7 (*very strongly*), participants indicated to what extent they experienced the listed negative feelings. The scale yielded Cronbach's alphas from  $\alpha = .84$  to  $.93$  (eight studies).

#### *Irritation*

The original eight items of the irritation scale were developed from interviews with employees, and thus reflect the mental model of psychological exhaustion of employees (Mohr, 1986). They focus on problems with unwinding after work (e.g., "I have difficulty relaxing after work.") as the cognitive aspect of irritation (three items) and on irritated reactions (e.g., "I get irritated easily, although I don't want this to happen.") as the emotional aspect of the construct (five items). The scale comprises eight items ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The scale yielded Cronbach's alphas from  $\alpha = .80$  to  $.92$  (eight studies).

#### *Burnout*

The Oldenburg Burnout Inventory (OLBI) was used to measure two aspects of burnout (Demerouti et al., 2001). Emotional exhaustion questions about the general feeling of emptiness, overtaxing from work, a strong need for rest, and a state of physical exhaustion



with eight items (e.g., “After my work, I usually feel totally fit for my leisure activities.” (recoded). The scale yielded Cronbach's alphas from  $\alpha = .73$  to  $.79$  (three studies). Disengagement refers to distancing oneself from the content and the object of one's work and to negative, cynical attitudes and behaviors toward one's work in general and was measured with eight items as well (an example item is “I usually talk about my work in a derogatory way.”). The response format of both scales was a 4-point Likert-scale ranging from 1 (*totally disagree*) 4 (*totally agree*). The scale yielded Cronbach's alphas from  $\alpha = .73$  to  $.80$  (three studies). In the longitudinal study II, abbreviated scales were used to limit the number of items. The two scales with four items each yielded satisfying internal consistencies (emotional exhaustion  $\alpha = .73$  at t1 and  $\alpha = .74$  at t2, disengagement  $\alpha = .69$  at t1 and  $\alpha = .84$  at t2).

### *Work-Related Depression*

Warr's (1990) work-related depression scale is concerned with one axis of an employee's affective, context-specific well-being. Participants were asked to think of the past few weeks and to rate on a Likert-scale from 1 (*never*) to 5 (*all of the time*) how often their job elicited feelings ranging from depressed to enthusiastic like “miserable” or “cheerful” (recoded). The scale yielded Cronbach's alphas from  $\alpha = .81$  to  $.86$  (three studies).

### *Psychosomatic Complaints*

Psychosomatic complaints over the last twelve months were assessed with 16 items, or 8 items respectively, from the 20-item psychosomatic complaints index by Mohr (1986, 1991), which was originally adapted from Fahrenberg (1975). The scale is a widely used instrument in occupational psychology research in German-speaking areas. The items referred, for example, to headaches, sleep problems, tiredness, and back pain. Responses were given on a 5-point scale ranging from 1 (*never / almost never*) to 5 (*almost daily*). The scale yielded Cronbach's alphas from  $\alpha = .82$  to  $.85$  (four studies with 16 items) and from  $\alpha = .82$  to  $.84$  (three studies with eight items). Again, an abbreviated scale (nine items) was used in the longitudinal study II, to limit the number of items. The scale yielded internal consistencies of  $\alpha = .74$  at t1 and  $\alpha = .87$  at t2.

### *Job Satisfaction*

To measure job satisfaction another widely used scale was used (Baillod & Semmer, 1994). In three studies, job satisfaction was measured with a Kunin Face scale asking about general satisfaction with the situation at work, which required a response on a 7-point scale ranging from 1 (*extremely unsatisfied*) to 7 (*extremely satisfied*). In the other four studies, three items (e.g., “Hopefully my work situation stays as good as it is right now.”) developed by Oegerli

(1984) were added. The introduction read “Please indicate how you think lately about your work”, which also required a response on a 7-point scale ranging from 1 (*never*) to 7 (*always*). The scale yielded Cronbach's alphas from  $\alpha = .65$  to  $.79$  (four studies).

### *Organization-based Self-Esteem*

Seven items from a scale with ten items developed by Pierce et al. (1989) were used to measure organization-based self-esteem in five studies. The introduction asked the participant to reflect on the feedback he has been getting lately at work from colleagues and supervisors. Seven statements follow referring to appreciation one may or may not get (e.g., “I am appreciated around here.”, “I count around here.” and “I am taken seriously around here.”). Three items referring more or less to self-efficacy at work (e.g., “I am helpful around here.”) were not employed. Response options ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). The scale yielded Cronbach's alphas from  $\alpha = .90$  to  $.93$  (five studies), and in the other three just one item was used an indicator (“I feel appreciated around here.”).

### *Control Variables*

The demographics of age and sex were controlled in all regression analyses.

#### *3.2.2.4 Measurement of the Situational Approach (Event-Sampling)*

Stressful events were measured by event sampling, using a paper-and-pencil version (pocket diary) of the COMES (computer assisted self-observation system; Perrez and Reicherts, 1996; see also Reicherts & Pihet, 2000; Grebner et al., 2004, for studies using this instrument). Participants were instructed to document every stressful situation they experienced at work, both minor and major, over two working days. Altogether, 147 participants reported 428 episodes. Whenever they experienced a stressful episode, they briefly described the circumstances and were asked to judge the stressfulness of the event on a 6-point Likert scale ranging from 1 (*none*) to 6 (*very strong*). The stressfulness itself is a very powerful situational stressor (Grebner et al., 2004). Also, they indicated the perceived illegitimacy of each situation using eight adjectives (unnecessary, improper, avoidable, intolerable, gratuitous, illegitimate, meaningless, and incorrect) on a 5-point Likert scale ranging from 1 (*does not apply at all*) to 5 (*strongly applies*). This scale was especially developed for this approach. During development, 14 adjectives implying a meaning of either unnecessary or unreasonable were taken from the dictionary. The pool was tested with a vignette approach with 33 scientists of the University of Bern who were given an unnecessary (the story ran that, in the future, they would have to fill in several forms before receiving a pencil) and an unreasonable (the story ran that, in the future, they would have to pay for each hour spent on the internet as well as a hefty monthly payment for the modem –

as the internet is a valuable research tool, this story was believed to be unreasonable) story. They were asked to indicate their feelings about both situations on a list with 25 adjectives, in which the 14 adjectives of the dictionary were included. Of these, the best items for indicating the unnecessary and illegitimate situation (factor analysis) were used for this scale. The participants of study II also indicated their well-being during each situation with four bipolar adjectives (nervous-calm, sad-cheerful, angry-peaceable, and anxious-confident) on a 6-point Likert-scale as proposed by Perez and Reicherts (1996), and rated the extent to which they experienced the same seven negative feelings as listed in the resentment scale by Geurts et al. (1999). Psychometric results are presented in chapter 4.6.

### **3.3. Plan of Analysis**

This section provides some information about the methods of the analysis. As the methods change several times, more details are offered in the results section to inform the reader. Frequencies were enumerated to explore the occurrence and nature of illegitimate tasks. Factor-analyses were conducted to test the newly-developed scale BITS and illegitimacy of stress situations at work. These were performed exploratory and confirmative. Confirmatory factor analysis (CFA) was employed to examine the distinctiveness of the variables used to measure illegitimate tasks. AMOS 5.0. (Arbuckle, 2003) was used to perform the CFA, and, to indicate model fit, the Tucker–Lewis Index (TLI, Tucker & Lewis, 1973), the Goodness-of-Fit Index (GFI/AGFI), the Comparative-Fit Index (CFI, Bentler, 1990), and the Root-Mean-Square-Error-of-Approximation (RMSEA, Browne & Cudeck, 1993) were performed next to others. A description of the coefficients and methods follows in chapter 4.2. Also, internal consistencies were analyzed for all scales in this work to ensure that a solid standardized body of scales was in use. Most of the measures selected were used in numerous work and organizational studies before. Bivariate Pearson correlations were performed in order to test interrelations between variables involved in all but the first section of the results chapter. In general, it should be remarked that testing multiple hypotheses in a single study affects the Type I error rate (the probability that, according to some null hypothesis, a statistical test will generate a false-positive error - “curse of multiplicities”, cf. Maxwell, 2004). Effects of chance account for up to five percent (Bortz, 1993). So, meta-analyses were performed to consolidate - for this work central – the findings about the relations of illegitimate tasks and psychological well-being / strain. The advantage of using meta-analysis is that the meta-analytic results provide a more accurate estimate of the correlations between variables. Therefore, they help to guard against Type I error and provide information about how well results generalize across different working populations (Spector & Jex, 1998). The procedures of Hunter and Schmidt’s (1990) random effect model were followed in conducting the meta-analyses. In rare occasions, analyses of covariance (ANCOVA) were conducted in

order to examine potential differences between studies or groups. Differences between studies were expected but not relevant as the proposed mechanisms were the focus of this work, and those should apply in all studies despite differences in value.

Also, linear hierarchical regression analysis was put into use manifold, predicting a dependent (Y) variable from two or more independent (X) variables. If the model fits the data well, the overall  $R^2$  value will be high, and the corresponding p-value low. The individual p-value for each independent variable indicates its significance for the model. Sometimes, though, the overall p-value is low, but all of the individual p-values are high. The model fits the data well, even though none of the X variables has a statistically significant impact on predicting Y. When two X variables are highly correlated, they both convey essentially the same information. In this case, neither may contribute significantly to the model after the other one is included, but together they contribute a lot. Multicollinearity is a problem, as a) the individual p-values can be misleading, and b) the confidence intervals on the regression coefficients will be wide. Removing a collinear variable or combining two variables sharing a substantial part of variance can reduce or eliminate multicollinearity. Also, increasing sample size, which results in narrower confidence intervals, can reduce the impact of multicollinearity. The reasoning was derived from Tacq (1997). In this work, collinear variables were not removed as they were a focus of interest in the assumption that illegitimate tasks predict psychological well-being and strain over and above other stressors and resources, even though they are related. However, sample size became an issue and is described in the results section.

Multilevel models offer a valid alternative to conventional statistical analyses as the degree of non-independence is modeled and controlled for in the analysis (Hox, 2000). Statistical procedures that assume independence may lead to an underestimation of the size of standard errors and hence increase the likelihood of rejecting the null hypothesis (Snijders & Bosker, 1999). The multilevel analyses in use and detailed explanations about it follow in chapter 4.6. The program used for most inference statistics (correlations, regression, meta-analysis) was SPSS 13.0.1. In addition, MLWIN (Rasbash, Browne, Goldstein, Yang, Plewis, Healy, Woodhouse, Draper, Langford & Lewis, 2000) was used to perform multilevel-analyses, and AMOS 5.0. (Arbuckle, 2003) to model confirmatory factor analyses.

## 4. Results

The result section is divided in six parts. First, the pilot studies are reported, which served to detect frequencies of illegitimate tasks at work. In a second part, psychometric values of the scale measuring illegitimate tasks are reported. In a third part, illegitimate task are put in relation with psychological well-being and strain: if illegitimate tasks serve as a stressor, its relationship and impact on well-being and strain must be a given. It was also tested whether or not illegitimate tasks fulfill eligibility requirements of a new concept at all: are illegitimate tasks able to explain additional variance of well-being and strain, even if other well-known and widely tested stressors and resources had already entered the model? The impact of illegitimate tasks over time on well-being and strain is explored in part four. The exceptional relationship between illegitimate tasks and effort-reward imbalance is subject of part five. Last but not least, a situational approach was tested: will a stressful situation be even more damaging for psychological well-being if the situation is perceived as illegitimate?

### 4.1. Pilot Interview Studies: Frequencies of Illegitimate Tasks

*Hypothesis 1.1.*

*Employees do report task assignments they consider as illegitimate. That is, 10% of all tasks assigned are perceived as illegitimate and 75% of all people interviewed mention at least one illegitimate task.*

*Hypothesis 1.2.*

*Illegitimate tasks are more likely to be found among ancillary than among core tasks.*

In Table 3 descriptive results of the three pilot studies are presented. Mean number of the core tasks (all subtasks described as part of the core tasks) reported was across studies about 12 to 13, while mean number of the ancillary tasks varied. Unnecessary tasks ranged from 0 - 16 tasks across all individuals and almost all reported at least one unnecessary task in their work life. Unreasonable tasks, which may breach the psychological contract between employer and employee and, therefore, were assumed to exist but to a lesser extent than unnecessary tasks, ranged from 0 – 12, but with clearly lower means in all three studies than unnecessary tasks. In general, individuals reported a mean number between 4 and 13 illegitimate tasks, the compound of unnecessary and unreasonable tasks. Only 5 out of 159 (3.1%) individuals reported neither an unnecessary nor an unreasonable task, which supported one assertion of hypothesis 1.1.

## Results

Table 3. Means, Standard Deviations, and Range of Tasks in Three Interview Studies.

Pilot Study		Core Tasks	Ancillary Tasks	Unnecessary Tasks	Unreasonable Tasks	Illegitimate tasks
Study 1 N = 50	Mean	11.96	5.82	3.52	1.66	4.66
	SD	3.82	3.31	1.74	1.90	2.48
	Minimum	6	1	1	0	1
	Maximum	22	15	8	9	12
Study 2 N = 59	Mean	13.05	14.49	7.90	5.12	13.03
	SD	4.99	4.10	3.03	2.83	4.45
	Minimum	5	7	3	0	7
	Maximum	29	25	16	12	28
Study 3 N = 50	Mean	13.12	8.50	2.18	1.76	3.94
	SD	5.07	4.01	1.63	2.08	2.98
	Minimum	4	1	0	0	0
	Maximum	24	18	7	7	12

Note. Study 1 = miscellaneous professions, study 2 = employees IT-company, study 3 = teachers.

Study 1 and 3 were more or less comparable, but it's interesting to note that in study 2 (almost) twice as many ancillary, unnecessary, and unreasonable tasks and more than three times as many illegitimate tasks were reported than in study 1 and 3.

In a next step, the number of illegitimate tasks in both groups (core vs. ancillary tasks) was taken into account. This was done for all studies separately and combined. Of 887 tasks in pilot study 1, 67.4 percent were core tasks (see Table 4). Almost 30 percent of all tasks mentioned were reported as either unnecessary and / or unreasonable. Illegitimate tasks were found more frequently among ancillary tasks (roughly two thirds) than among core tasks (10%). These results supported hypotheses 1.1. and 1.2.

## Results

Table 4. Number of Illegitimate Tasks among Core and Ancillary Tasks in Pilot Study 1.

	Core Tasks	Ancillary Tasks	Total
No. of subtasks mentioned	598	289	887
Perceived as “unnecessary”	45 (7.5%)	131 (45.3%)	176 (19.8%)
Perceived as “unreasonable”	15 (2.5%)	68 (23.5%)	83 (9.4%)
*Perceived as “illegitimate”	60 (10%)	199 (68.8%)	259 (29.2%)

Note. \* = sum of unnecessary and unreasonable tasks, 887 tasks reported by 50 subjects

In pilot study 2, the ancillary tasks mentioned exceeded the core tasks (see Table 5). Just 47.3% of all tasks reported were apprehended as core tasks, and 16.7% of these core tasks were categorized as illegitimate. Of the remaining 52.7% ancillary tasks, the high number of 75% was perceived as illegitimate. Putting it in other words: three out of four ancillary tasks were reported as illegitimate. All in all, 47.4% of all tasks mentioned were either believed to be unnecessary or unreasonable. These results supported hypotheses 1.1. and 1.2.

Table 5. Number of Illegitimate Tasks among Core and Ancillary Tasks in Pilot Study 2.

	Core Tasks	Ancillary Tasks	Total
No. of subtasks mentioned	743	829	1572
Perceived as “unnecessary”	89 (12.0%)	361 (43.5%)	450 (28.6%)
Perceived as “unreasonable”	35 (4.7%)	261 (31.5%)	296 (18.8%)
*Perceived as “illegitimate”	124 (16.7%)	622 (75.0%)	746 (47.4%)

Note. \* = sum of “unnecessary” and “unreasonable” tasks, 1572 tasks reported by 59 individuals.

Both hypotheses were also supported by the results of pilot study 3 (see Table 6). From 648 core tasks (59.5% of all tasks) reported, only 3% were perceived as illegitimate, in comparison to 181 from 441 (41%) ancillary tasks.

## Results

Table 6. Number of Illegitimate Tasks among Core and Ancillary Tasks in Pilot Study 3.

	Core Tasks	Ancillary Tasks	Total
No. of subtasks mentioned	648	441	1089
Perceived as “unnecessary”	11 (1.7%)	99 (22.4%)	110 (10.1%)
Perceived as “unreasonable”	6 (0.9%)	82 (18.6%)	88 (8.1%)
*Perceived as “illegitimate”	17 (2.6%)	181 (41.0%)	198 (18.2%)

Note. \* = sum of “unnecessary” and “unreasonable” tasks, 1089 tasks reported by 50 individuals.

Combined results showed that the 159 participants of the pilot studies mentioned over 3500 tasks altogether. Roughly a third of these were categorized as illegitimate. Tasks were perceived more often as unnecessary than as unreasonable (20.7% versus 13.2% of all tasks mentioned), whereas more illegitimate tasks originated from the group of ancillary tasks (almost two thirds).

Table 7. Number of Illegitimate Tasks among Core and Ancillary Tasks in all Pilot Studies.

	Core Tasks	Ancillary Tasks	Total
No. of subtasks mentioned	1989	1559	3548 (100%)
Perceived as “unnecessary”	145 (7.3%)	591 (37.9%)	736 (20.7%)
Perceived as “unreasonable”	56 (2.8%)	411 (26.4%)	467 (13.2)
*Perceived as “illegitimate”	201 (10.1%)	1002 (64.3%)	1203 (33.9%)

Note. \* = sum of “unnecessary” and “unreasonable” tasks, 3548 tasks reported by 159 individuals.

The results of the pilot studies by themselves or combined pointed out that tasks perceived as illegitimate exist and take up between 18% and 47% of all the works tasks individuals had. Especially ancillary tasks were prone to be perceived as illegitimate which is in agreement with hypothesis 1.2.



## 4.2. The Bern Illegitimate Tasks Scale (BITS)

The development of the scale was described in the method section in chapter 3.2. The pre-studies resulted in a nine-item scale, in which five items measured unnecessary tasks and four items measured unreasonable tasks. It was expected that the two subscales correlate with each other as both scales measure different forms (weaker and stronger) of illegitimate tasks.

### 4.2.1. Psychometric Values of BITS

#### *Hypothesis 2.1.*

*The Bern Illegitimate Tasks Scale (BITS) indicates satisfactory psychometric values in all eight studies. That is, corrected item total correlations of each item are above  $r_{it} = .30$  (subscales as well as total scale) and internal consistencies are above  $\alpha = .75$  for the nine-item scale and above  $\alpha = .70$  for the proposed four-item subscale or the five-item subscale in all studies.*

To test the hypothesis, the eight main studies were analyzed separately. Furthermore, a data set was built containing the items of the eight studies to test for the total sample. In Table 8 means, standard deviation, and psychometric results (internal consistencies and corrected item total correlations) of all eight studies and the total sample ( $N=2975$ ) are presented. The response format, ranging from 1-5, was fully available. Details of the analyses (e.g., corrected-item total correlations) for the separate studies are provided in Appendix B2. The results indicated high internal consistencies for the subscales (unnecessary tasks  $\alpha = .76$  - .86, unreasonable tasks  $\alpha = .73$  - .82) and the total scale (BITS  $\alpha = .79$  - .87). Almost all corrected item-total correlations, subscales or total scale, were above  $r_{it} = .30$ , with two exceptions: item 4 of the subscale unnecessary and item 9 in the total scale in study VII narrowly missed the criterion with  $r_{it} = .29$ . That is two out of 162 corrected item-total correlations performed for the subscales and the total scale. So, evidence was gathered to support hypothesis 2.1. Correlations between subscales ranged from  $r = .34$  - .60 in all eight studies (see Appendix B2). Also, ANCOVA results for the comparison of illegitimate tasks across the eight studies, adjusted for the two covariates age and sex, showed significant differences ( $F(7, 2959) = 24.247, p < .001$ , analysis presented in Appendix B2). In a nutshell – in the first three studies less illegitimate tasks were reported than in the other five. However, differences were expected across samples as the natures of job environments differ. Subject of the hypotheses in chapter 4.3. and 4.4. were mechanisms of illegitimate tasks (illegitimate tasks bear on psychological well-being), which were expected to be the same across all studies.

## Results

Table 8. Scale Indicators of BITS in Eight Studies.

Study	Sample	N			Unnecessary Tasks				Unreasonable Tasks				BITS			
		Total	Female	Male	M	SD	r <sub>it</sub>	Alpha	M	SD	r <sub>it</sub>	Alpha	M	SD	r <sub>it</sub>	Alpha
I	Miscellaneous Professions	190	88	102	2.58	0.71	.43-.70	.82	1.98	0.59	.50-.63	.75	2.31	0.59	.46-.68	.86
II	Public Service	147	45	102	2.68	0.77	.49-.72	.83	2.05	0.65	.45-.64	.78	2.40	0.64	.51-.66	.87
III	Vocational Counselors	76 <sup>c</sup>	58	17	2.58	0.70	.53-.72	.86	1.76	0.62	.51-.60	.73 <sup>a</sup>	2.26	0.60	.50-.68	.86 <sup>b</sup>
IV	Junior Managers I	884	302	582	3.02	0.69	.33-.71	.81	2.36	0.69	.49-.71	.81	2.73	0.60	.43-.62	.85
V	Associates I	187 <sup>c</sup>	36	150	2.98	0.77	.49-.72	.85	2.25	0.65	.58-.70	.81	2.66	0.59	.43-.63	.83
VI	Associates II	1256	677	579	2.78	0.75	.49-.71	.84	2.13	0.72	.61-.73	.84	2.49	0.65	.55-.65	.88
VII	IT-Specialists	64	18	46	3.04	0.67	.29-.79	.78	2.18	0.51	.42-.59	.74	2.66	0.49	.29-.67	.78
VIII	Junior Managers II	171 <sup>c</sup>	47	123	2.92	0.66	.35-.60	.76	2.40	0.65	.48-.66	.77	2.70	0.54	.42-.53	.79
<b>Total</b>		<b>2975<sup>c</sup></b>	<b>1271</b>	<b>1701</b>	<b>2.85</b>	<b>0.74</b>	<b>.44-.70</b>	<b>.83</b>	<b>2.21</b>	<b>0.70</b>	<b>.56-.69</b>	<b>.82</b>	<b>2.57</b>	<b>0.64</b>	<b>.51-.63</b>	<b>.87</b>

Note. <sup>a</sup>3 instead of 4 items, <sup>b</sup>8 instead of 9 items, <sup>c</sup>discrepancies between N in total and sum of N female/male due to missing values in sex, mean age of the total sample M=40.75 (SD=10.03), M=mean, SD=standard deviation, Alpha=Cronbach's Alpha, r<sub>it</sub>=corrected item-total correlations, BITS=Bern Illegitimate Tasks Scale.

## Results

Gender differences were not found in the whole sample (illegitimate tasks:  $t(2970) = -.45$ ,  $p = .651$ ; unreasonable tasks:  $t(2970) = -.64$ ,  $p = .520$ ; unnecessary tasks:  $t(2976) = -.32$ ,  $p = .750$ ) and when testing the studies separately, gender differences were only found in study III (unreasonable tasks:  $t(75) = -2.29$ ,  $p = .025$ ) and study VI (illegitimate tasks:  $t(1254) = 2.38$ ,  $p = .017$ ; unreasonable tasks:  $t(1254) = 2.09$ ,  $p = .037$ ; unnecessary tasks:  $t(1254) = 2.13$ ,  $p = .034$ ). Age differences (median split) were found in the total sample and indicated that older individuals reported less illegitimate and unnecessary tasks than younger individuals (illegitimate tasks:  $M(\text{below } 40) = 2.59$ ,  $SD = .65$ ,  $M(40 \text{ and older}) = 2.53$ ,  $SD = .62$ ,  $t(2958) = 2.56$ ,  $p = .011$ ; unnecessary tasks:  $M(\text{below } 40) = 2.89$ ,  $SD = .74$ ,  $M(40 \text{ and older}) = 2.81$ ,  $SD = .72$ ,  $t(1254) = 2.94$ ,  $p = .003$ ), and these results were significant and in the same direction for studies I, V, and VI. The factorial structure of the construed scale follows in the next chapter.

### 4.2.2. Factorial Structure

#### *Hypothesis 2.2.*

*The proposed two-factor structure of the Bern Illegitimate Tasks Scale (BITS) will be confirmed in exploratory as well as confirmatory factor analyses.*

Explorative factor analyses (eigenvalues $>1$ , principal component analyses with oblique rotation as the factors were supposed to be correlated) yielded two factors implying the assumed subscales of unnecessary and unreasonable tasks in seven out of eight studies (see Appendix B2). The only exemption proposed three factors in sample VII. A confirmatory factor analysis with two factors forced yielded satisfactory results for this sample as well (see Appendix B2). Variance accounted for by both factors varied between 56.36% and 66.18%. The correlations between the two factors ranged from  $r = .24$  to  $r = .54$ . Seven of the nine items always loaded on the presumed factor in all studies. The first unreasonable item ("should be done by someone else") loaded three out of eight times on both factors. In seven out of eight studies unnecessary item four ("people would make less mistakes") loaded on both factors. And in study IV, it loaded on the factor not presumed (unreasonable). In addition, an exploratory factor analysis was run for the total sample and is presented in Table 9.

Exploratory factor analysis of the total sample (eigenvalues $>1$ , principal component analyses with oblique rotation) yielded a two-factor structure of the Berne Illegitimate Tasks Scale. The two components with Eigenvalues  $> 1$  (4.33 and 1.39) accounted for 63.61% of the variance, with factor 1 explaining 48.13% and factor 2 explaining 15.48% of the variance.

## Results

Table 9. Exploratory Factor Analysis of the Berne Illegitimate Tasks Scale of the Total Sample.

Item	M	SD	Skewness	Kurtosis	$h^2$	F1*	F2*	$r_{it}$
<b>Do you have work tasks to take care of, which keep you wondering if ...</b>								
they have to be done at all?	2.77	0.88	.26	.26	.73	.89		.61
they make sense at all?	2.84	0.90	.29	.17	.77	.91		.63
they would not exist (or could be done with less effort), if it were organized differently?	3.07	0.95	.17	-.26	.65	.77		.63
they would not exist (or could be done with less effort), if some other people made less mistakes?	2.75	0.96	.33	-.29	.38	.30	.40	.51
they just exist because some people simply demand it this way?	2.87	1.07	.20	-.56	.61	.72		.63
<b>Do you have work tasks to take care of, which you believe ...</b>								
should be done by someone else?	2.66	0.87	.24	.14	.53		.66	.57
are going too far, which should not be expected from you?	2.21	0.85	.64	.54	.69		.86	.58
put you into an awkward position?	2.02	0.88	.75	.47	.68		.85	.58
are unfair that you have to deal with them?	1.96	0.88	.88	.78	.70		.85	.61

Note. N = 2892. 5-point Likert scale: (1) "never" to (5) "frequently". \*Factor loadings of the exploratory factor analysis (principal component analysis, promax rotation), factor loadings below .20 not shown.

## Results

The two factors correlated with  $r = .49$ . The factor loadings displayed in Table 9 showed that, except for unnecessary item 4, all items could clearly be assigned to the respective factor. All items displayed a substantial positive skewness and, thus, significantly deviate from a normal distribution ( $p < .01$ , Kolmogorov-Smirnov). However, the test is rather conservative and literature suggests that in big samples values between  $-.50$  and  $+.50$  are still acceptable for the assumed normal curve of distribution (Linert & Raatz, 1998). Communalities after extraction showed that the items generally share a lot of variance. Inter-item correlations are shown in Appendix B2 and indicated that items of one subscale correlated more with each other than with items of the other scale. Highest correlation found was between unnecessary items 1 and 2 ( $r = .75$ ) and all correlations were significant.

In addition, confirmatory factor analyses were performed over the total sample. Two models were tested as both seem theoretically plausible: a one-factor solution in which all items relate to one factor and a two-factor solution giving credit for a stronger and a weaker version of illegitimate tasks (see Figure 2).

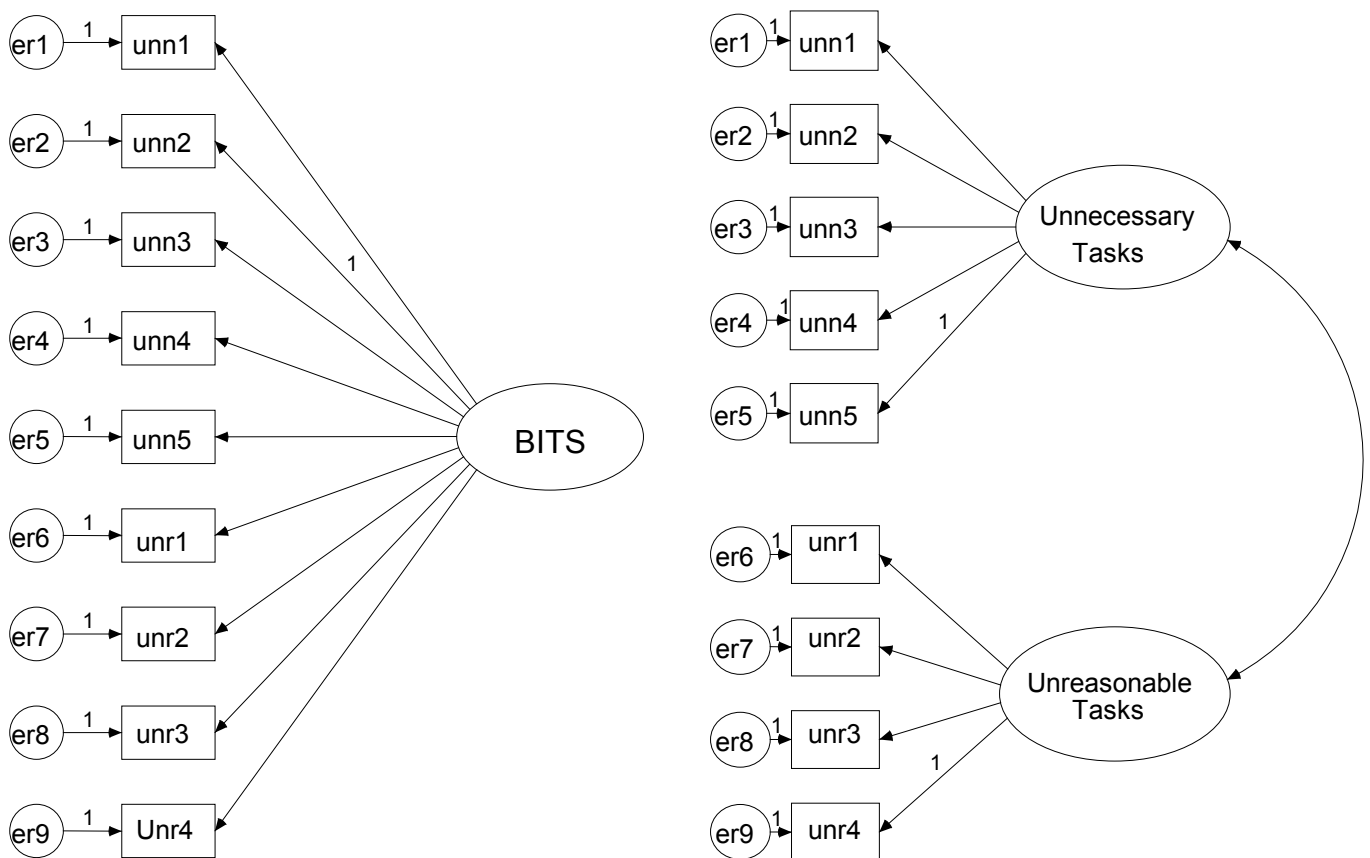


Figure 2. Two Potential Measurement Models of the Berne Illegitimate Tasks Scale.

## Results

The two models were tested against each other and the model calculations were conducted with AMOS 5.0 (Arbuckle, 2003). In both measurement models, inter-correlation of error variances was not permitted. Estimation method chosen was the maximum likelihood method as it is robust against moderate deviations from normality assumptions with bigger samples (cf. Byrne, 2001). Test statistics of the examined models can be found in Table 10. For both models the  $\chi^2$ -Value indicated a substantial deviation of the theoretical model from the empirical data ( $p < .001$ ). However, because of its strong positive relationship with the sample size this indicator should rather not be considered in the evaluation of the model-fit (cf. Hu & Bentler, 1998). The same authors advise against the use of GFI and AGFI (goodness of fit index and adjusted index, as a rule of thumb should be above .90), as they are influenced by sample size and insensitive against misspecifications of the model. The standardized root mean square residual (SRMR) describes the average residual between the implied model and the found covariance matrices and should be smaller than .08 (Hu & Bentler, 1999). The root mean square error of approximation (RMSEA) and its 90% confidence interval should not be above .08 (Hu & Bentler, 1999). Both models did not meet this criterion. On the other hand, the CFI = (comparative fit index) and TLI (Tucker-Lewis coefficient), both recommended fit indices by Hu and Bentler (1998; 1999), should be above .90. As hypothesized the one-factorial model is inferior to the two-dimensional model and had to be rejected on the basis of all evaluated fit-indices. The overall fit to the empirical data of the two-factor model 2 can be described as adequate, but not highly satisfactory. The two primary factors correlate with  $r = .57$ . All factor loadings were significant ( $p < .001$ ) and the model comparison yielded the following coefficients:  $\Delta\chi^2(1, N = 2892) = 2070.01, p < .001$ .

Table 10. Fit-Indices of the Examined Factor Structures of the Bern Illegitimate Tasks Scale.

Model	$\chi^2$	df	p	$\chi^2/df$	SRMR	RMSEA	CI (90%) RMSEA	GFI	AGFI	CFI	TLI
2-Factor Solution	1008.67	26	.000	38.80	.07	.11	.11 - .12	.92	.86	.91	.88
1-Factor Solution	3078.68	27	.000	114.03	.10	.20	.19 - .20	.76	.60	.73	.64

Note. N=2892, SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; CI = confidence interval with lower and upper boundary; GFI = goodness of fit index; AGFI = adjusted goodness of fit index; CFI = comparative fit index; TLI = Tucker-Lewis coefficient.

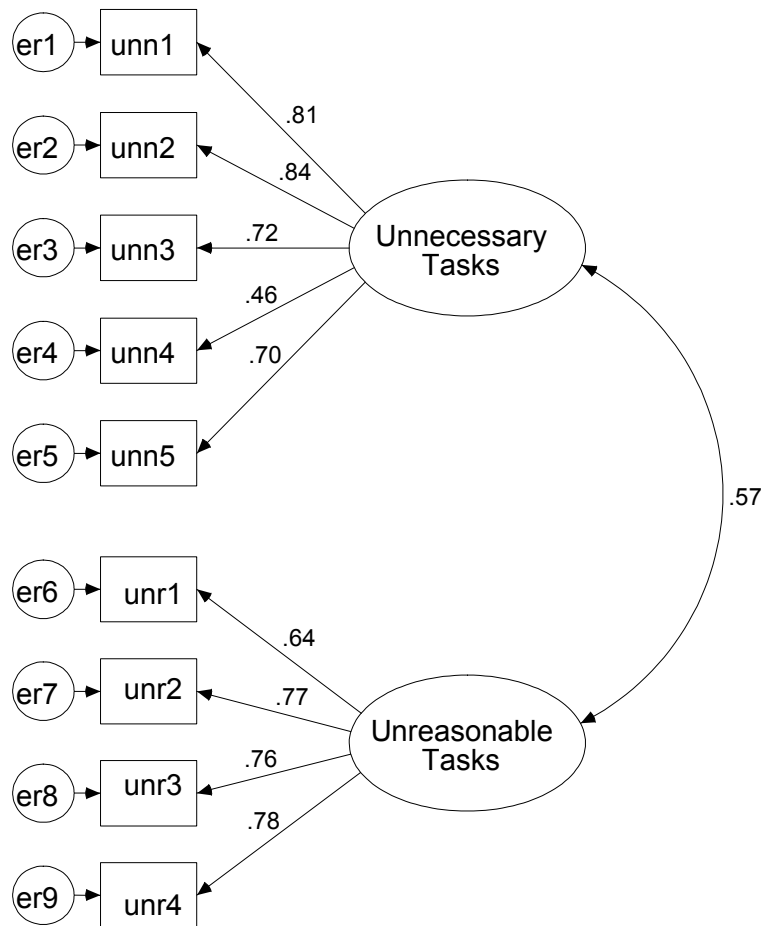


Figure 3. Two Factor Structure of the Bern Illegitimate Tasks Scale (ML-Estimation).

The lower factor loading of item unnecessary tasks 4, which often also loaded on both factors in the exploratory factor analyses, led to an additional set of analyses: firstly, the item was assigned to unreasonable instead of unnecessary tasks, and secondly excluded from the analyses at all. The first analysis resulted in inferior model-fit indices apart from RMSEA and SRMR ( $\chi^2 = 547.90$ ,  $df = 26$ ,  $p < .001$ ,  $\chi^2/df = 21.07$ ,  $SRMR = .067$ ,  $RMSEA = .09$ ,  $CI (90\%) RMSEA = .08 - .09$ ,  $GFI = .92$ ,  $AGFI = .85$ ,  $CFI = .71$ ,  $TLI = .60$ , inter-correlation between factors = .66). If the item was excluded, slightly improved model-fit indices could be found, but not for CFI and TLI ( $\chi^2 = .312.30$ ,  $df = 19$ ,  $p < .000$ ,  $\chi^2/df = 16.44$ ,  $SRMR = .05$ ,  $RMSEA CI (90\%) = .07-.08$ ,  $RMSEA=.07$ ,  $GFI = .95$ ,  $AGFI = .90$ ,  $CFI = .83$ ,  $TLI = .75$ , inter-correlation between factors = .59). Both analyses are provided in Appendix B2. An additional second-order CFA model (illegitimate task above unreasonable and unnecessary tasks)

could not be tested, as that model would be unidentified without further constraints between first and second order (cf. Byrne, 2001). If the constraints were set, the results were the same as for the two-factor model due to the number of factors (cf. Kline, 1998). All in all, enough evidence was found to support hypothesis 2.2. In all further analyses, item unnecessary tasks 4 was kept in the total scale as its removal did not result in an overall better fit of the model. This decision is subject to debate in the discussion.

### **4.3. Illegitimate Tasks as a Stressor**

Henceforth, overview charts are displayed to minimize the number of tables. Detailed analyses are always presented in the respective Appendix. Tables including means, standard deviations, correlations between constructs and internal consistencies of all scales in all studies are displayed in Appendix B1. All scales showed acceptable internal consistencies in almost all studies, so not any scale had to be forsaken or otherwise adapted. Correlations are reported in the following if relevant for testing one or more of the hypotheses. The first hypothesis was tested with all eight studies. The next six hypotheses, which involved other stressors and resources not obtained in all samples or already reported in other work, were tested in six studies with one exception. The last one was tested in four instead of six studies as two studies did not meet the requirements of sample size, and this will be explained in chapter 4.3.4.

#### **4.3.1. Illegitimate Tasks and Psychological Well-Being / Strain**

##### *Hypothesis 3.1.*

*Illegitimate tasks are positively related to feelings of resentment. Illegitimate tasks are also positively related to other indicators of psychological strain and negatively to psychological well-being. Other psychological well-being / strain indicators are irritation, emotional exhaustion, disengagement, psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

Feelings of resentment, irritation, and organization-based self-esteem were assessed in all studies, psychosomatic complaints and job satisfaction in seven, and exhaustion, disengagement, and work-related depression in three respectively. The bivariate correlations presented in Table 11 were all in the expected direction and almost all significant, which was evidence of concurrent validity of BITS. The correlation between feelings of resentment and illegitimate tasks were significant in all studies ( $r = .43 - .63, p < .001$ ). In terms of other well-being / strain indicators, just 3 out of 41 correlations (7.32%) did not become significant (one with disengagement, one with psychosomatic complaints and one with organization-based self-esteem). The criterion of majority for replication was accomplished in all cases and



## Results

verified hypothesis 3.1. In comparison to the total scale of illegitimate tasks, the subscales unreasonable and unnecessary tasks displayed smaller relationships with psychological well-being and strain in the majority of cases. Exceptions were found in study I, II, IV and VII in terms of stronger relationships of unreasonable tasks than illegitimate tasks, but not any systematic pattern emerged besides for emotional exhaustion (based on three correlations). And it is interesting to note that the one non-significant correlation between disengagement and illegitimate tasks in study VII became significant with unreasonable tasks. However, of interest in this work was the total scale, so henceforth the total scale was used for further analyses. This decision is also subject to debate in the discussion.

In addition, a meta-analysis was performed to consolidate these findings (see Table 12 and Appendix B3 for meta-analytic results of the subscales). Meta-analysis consists of a host of techniques used for quantitatively summarizing findings from a large body of empirical research. In conducting the meta-analysis, the procedures of Hunter and Schmidt's (1990) random effect model were followed. To obtain sample weighted population effect sizes ( $r_c$ ), the observed correlations from  $k$ -studies were entered into a syntax (see Appendix B3) based on formulas from Field (2001). Following a rather conservative analysis strategy (cf. Rosenthal, 1994), effect size estimates were corrected for sampling error only. Also reported are the 95% confidence intervals for each population correlation, which provide information on the accuracy of the estimated population correlation. If a confidence interval does not include zero, the population correlation is judged to be statistically significant. Following recommendations by Whitener (1990), confidence intervals were generated with the standard error of the sample-size weighted mean effect size ( $\sqrt{\text{var.-obs.}}$ ). Also presented is the amount of variance in the population correlation that can be explained by sampling error ( $\text{var.-err.}$ ). According to Hunter and Schmidt (1990), in a homogeneous population the proportion of the error variance should account for 75% of the observed variance. As a further indicator of homogeneity, 95% credibility intervals, based on the corrected population variances  $((\text{var.-obs.}) - (\text{var.-err.}))$  (Whitener, 1990) are presented.

## Results

Table 11. Correlations between Illegitimate Tasks and Psychological Well-Being / Strain in Eight Studies.

Study	N	RES	N	IRR	N	EXH	N	DIS	N	WRD	N	PC	N	JS	N	OBSE
BITS																
I	190	.55***	190	.36***	190	.43***	190	.50***			190	.34***	189	-.47***	190	-.41***
II	147	.60***	147	.36***	146	.47***	146	.30***			146	.26**	143	-.39***	147	-.28***
III	76	.63***	76	.48***							76	.26*	73	-.56***	75	-.27*
IV	884	.47***	884	.41***					884	.45***	884	.32***	884	-.45***	884	-.37***
V	82	.53***	185	.34***					187	.45***	183	.26***	185	-.41***	185	-.31***
VI	1250	.51***	1247	.45***					1256	.53***	1247	.36***	1254	-.45***	1254	-.37***
VII	63	.43***	64	.26*	64	.30**	63	.16			64	.10	64	-.25*	64	-.06
VIII	167	.44***	171	.47***											169	-.39***
Unreasonable Tasks																
I	190	.50***	190	.40***	190	.48***	190	.34***			190	.36***	189	-.35***	190	-.30***
II	147	.59***	147	.40***	146	.53***	146	.25**			146	.33***	143	-.32***	147	-.31***
III	78	.52***	78	.46***							76	.19	75	-.41***	75	-.22 <sup>†</sup>
IV	884	.42***	884	.40***					884	.40***	884	.32***	884	-.38***	884	-.37***
V	182	.46***	185	.32***					186	.41***	183	.26***	185	-.37***	185	-.31***
VI	1250	.48***	1247	.42***					1256	.48***	1247	.34***	1254	-.40***	1254	-.33***
VII	63	.54***	64	.21 <sup>†</sup>	64	.52**	63	.40***			64	.11	64	-.40***	64	-.18
VIII	165	.40***	169	.44***											167	-.23**
Unnecessary Tasks																
I	190	.49***	190	.28***	190	.33***	190	.52***			190	.28***	189	-.47***	190	-.42***
II	147	.51***	147	.27***	146	.35***	146	.28***			146	.17*	143	-.38***	147	-.21*
III	80	.57***	80	.42***							80	.24*	77	-.54***	79	-.26*
IV	884	.41***	884	.32***					884	.39***	884	.26***	884	-.40***	884	-.29***
V	183	.42***	187	.25***					189	.34***	185	.19***	187	-.31***	185	-.23***
VI	1250	.44***	1247	.38***					1256	.47***	1247	.30***	1254	-.39***	1254	-.32***
VII	63	.24 <sup>†</sup>	64	.22 <sup>†</sup>	64	.08	63	.03			64	.07	64	-.09	64	.03
VIII	167	.31***	171	.34***											169	-.41***

Note. <sup>†</sup>p≤.10, \*p≤.05, \*\*p≤.01, \*\*\*p≤.001, N=sample size, Pearson correlations two-tailed, BITS=Bern Illegitimate Tasks Scale, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBSE=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction.

## Results

Table 12. Meta-Analytic Results for the Relationships among BITS and Well-Being / Strain.

Criterion	k	N	r	r <sub>c</sub>	CI-	CI+	Var.-obs.	Var.-err.	%Var.-expl.	Cred.Int+	Cred.Int-
Feelings of Resentment	8	2959	.52	.51***	.48	.54	.0018	.0015	84.97	.54	.47
Irritation	8	2964	.39	.42***	.39	.45	.0021	.0018	89.29	.45	.39
Emotional Exhaustion	3	400	.40	.42***	.36	.49	.0034	.0051	100.00		
Disengagement	3	399	.32	.37***	.22	.52	.0170	.0057	33.18	.58	.16
Work-related Depression	3	2327	.46	.49***	.44	.54	.0018	.0007	40.32	.56	.43
Psychosomatic Complaints	7	2790	.27	.33***	.29	.36	.0022	.0020	90.59	.35	.30
Job Satisfaction	7	2792	-.43	-.44***	-.47	-.41	.0014	.0016	100.00		
Organisation-based Self-Esteem	8	2968	-.31	-.36***	-.39	-.32	.0030	.0021	69.88	-.30	-.41

Note. <sup>†</sup>p<.10, \*p<.05, \*\*p<.01, \*\*\*p<.001 (two-tailed), k=number of studies, N=total sample size for k studies, r=unweighted mean correlation, r<sub>c</sub>=weighted mean correlation, CI+=95% confidence interval for r<sub>c</sub>: upper bound, CI-=95% confidence interval for r<sub>c</sub>: lower bound, Var.-obs. = observed variance across studies, Var.-err.=variance due to sampling error, %Var.-expl.=observed variance accounted for by sampling error, Cred.Int+=95% credibility interval for r<sub>c</sub>: upper bound, Cred.Int-= 95% credibility interval for r<sub>c</sub>: lower bound

The weighted mean correlation were convincing, the observed confidence intervals as well. The accounted variances due to sampling error were above 75% in five out of eight cases (62.5%), and, therefore, met the Hunter & Schmidt criterion (1990), and one almost reached 70 percent (organization-based self-esteem). However, in two cases a hundred percent was accomplished, which appears to be overconfident. The accounted variance due to sampling error for disengagement and work-related depression was dissatisfactory, which could be caused by potential moderators (e.g. demographics as age and sex, or organizational indicators like management function).

### 4.3.2. Illegitimate Tasks and Other Stressors and Resources and Well-Being / Strain

#### *Hypothesis 3.2.*

*Illegitimate tasks are positively related to other stressors. Other stressors are social stressors, effort-reward imbalance, task-related stressors (index as well as uncertainty, time pressure, concentration demands, problems with the organization of work, and interruptions at work), work-family conflict, and emotional dissonance.*

The correlations displayed were performed two-tailed as the follow-up regression analyses uses two-tailed by default. Furthermore, it was an ambitious test as almost all variables tested were one-sided. In Table 13 the range of correlation in six studies between the stressors are presented. As expected, illegitimate tasks correlated positively with all other stressors. The highest correlation of illegitimate tasks was found with effort-reward imbalance (study II) and all correlations between the two constructs were significant ( $p \leq .001$ ). This was also the case for the relations between illegitimate tasks and task-related stressors (index), insecurity, problems of work organization, social stressors, and work-family conflict. The only two correlations not significant ( $p \leq .05$ ) between illegitimate tasks and other stressors were two with time pressure (study I:  $r = .12$ ,  $p = .117$ ; study II:  $r = .14$ ,  $p = .108$ ), which would have a tendency if tested one-tailed. Sex did not show coherences with illegitimate tasks as just one correlation was significant (study VI:  $r = -.07$ ,  $p = .017$ ) whereas age was related to the stressor in half of the cases (study IV:  $r = -.07$ ,  $p = .048$ ; study V:  $r = -.24$ ,  $p = .001$ , study VI:  $r = -.08$ ,  $p = .003$ ), leading again to the assumption that elder people report less illegitimate tasks. It is interesting to note that none of the 301 correlations between the stressors in six studies went in the reverse than assumed direction (negatively related).

## Results

Table 13. Range of Correlations between Illegitimate Tasks and other Stressors in Studies I to VI.

	1	2	3	4	5**	6	7	8	9	10*	11	12
<b>1 BITS</b>												
<b>2 TS</b>	.48-.60											
<b>3 UN</b>	.33-.61	.58-.80										
<b>4 IW</b>	.18-.43	.65-.81	.21-.46									
<b>5 CD**</b>	.22-.36	.61-.73	.18-.38	.29-.52								
<b>6 TP</b>	.12-.48	.64-.82	.04-.53	.38-.67	.36-.54							
<b>7 POW</b>	.37-.51	.57-.67	.42-.54	.08-.36	.15-.30	.07-.36						
<b>8 SS</b>	.41-.54	.40-.54	.33-.57	.14-.37	.17-.31	.09-.38	.16-.52					
<b>9 ERI</b>	.48-.66	.37-.54	.33-.52	.15-.38	.18-.34	.11-.54	.18-.58	.46-.57				
<b>10 WFC*</b>	.31-.44	.44-.57	.26-.35	.33-.41	.23-.37	.43-.62	.20-.38	.24-.39	.28-.49			
<b>11 ED</b>	.23-.49	.24-.52	.14-.45	.13-.40	.17-.38	.16-.42	.18-.38	.19-.54	.21-.52	.22-.44		
<b>12 Age</b>	-.24-.01	-.08-.19	-.17-.11	-.03-.24	-.08-.16	-.08-.21	-.09-.08	-.12-.00	-.19-.09	-.08-.10	-.36-.18	
<b>13 Sex</b>	-.07-.16	-.10-.06	-.06-.14	-.17-.13	-.06-.12	-.10-.07	-.11-.10	-.05-.11	-.03-.07	-.21-.04	-.21-.04	-.17-.27

Note. Pearson Correlations (2-tailed), \*\*= five correlations without study III, \*= four correlations without studies I&III, BITS=Bern Illegitimate Tasks Scale, TS=task stressors (index), UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work SS=social stressors, ERI=effort-reward imbalance, WFC=work-family conflict, ED=emotional dissonance, sex=dummy-coded male=1, female=0.

## Results

The strong relations between the five task-related stressors and the task stressor index were not surprising as the index comprised of the five scale means. However, in further analyses either the index or the single tasks stressors were used to avoid obvious problems of multicollinearity. Other than that, the highest correlation found between all stressors was between time pressure and interruptions at work (study IIII:  $r = .67, p < .001$ ).

### *Hypothesis 3.3.*

*Illegitimate tasks are negatively related to the external resources job control and social support at work and the internal resources self-efficacy and global self-esteem.*

The relationships between illegitimate tasks and resources were not as distinct as between illegitimate tasks and other stressors and are presented in Table 14. All 32 correlations between illegitimate tasks and resources were negative, which was in line with the hypothesis. Strongest correlation found for illegitimate tasks was with social support at work (study III:  $r = -.48, p < .001$ ). Consistently related were illegitimate tasks and self-esteem at the 5% level (three out of three cases). Also on that level, illegitimate tasks were related to job, time, and method control in five out of six cases (83%), to social support at work in four out of five (80%), and self-efficacy three out of six (50%). So, evidence supporting hypothesis 3.2. was detected outside the relatedness between the stressor and self-efficacy. Self-efficacy was consistently, but moderately related to self-esteem. The high correlations between the control measures was caused by their interdependency as the items of method and time control also built the scale job control. Therefore, the measures were never used as predictors at the same time in the following analyses.

Correlation analyses showed close associations between illegitimate tasks and psychological well-being / strain as well as to other stressors and resources. In a next step, illegitimate tasks were supposed to predict well-being strain over and above other stressors and resources and demographic variables to proof incremental validity. Four squads of analyses were conducted to test the next four hypotheses.

## Results

Table 14. Range of Correlations between Illegitimate Tasks and Internal and External Resources in Studies I to VI.

	1	2	3	4	5*	6	7**	8
<b>1 BITS</b>								
<b>2 JC</b>	-.16- -.38							
<b>3 MC</b>	-.11- -.37	.84-.94						
<b>4 TC</b>	-.15 - -.32	.89-.96	.51-.81					
<b>5 SSW*</b>	-.14 - -.48	.18-.35	.22-.36	.11-.21				
<b>6 SEF</b>	-.03 - -.18	.03-.38	.04-.35	-.05-.37	.09-.27			
<b>7 SEE**</b>	-.24 - -.33	.12-.28	.19-.27	.01-.26	.12-.33	.37-.47		
<b>8 Age</b>	-.24 - .01	.02-.16	.01-.11	.02-.21	-.18-.03	.01-.27	-.06-.10	
<b>9 Sex</b>	-.07 - .16	.00-.30	-.11-.26	.03-.32	-.08-.21	-.13-.23	-.15-.09	-.17-.27

Note. Pearson Correlations (2-tailed), \*= five correlations without study I, \*\*=three correlations without studies IV-VI and just two correlations with social support at work. BITS=Bern Illegitimate Tasks Scale, JC=job control (index), MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, sex=dummy-coded male=1, female=0.

### *Hypothesis 3.4.*

*Illegitimate tasks predict psychological well-being / strain, even after controlling for age, sex, and several task-related stressors. The tasks stressors are uncertainty, time pressure, concentration demands, problems with the organization of work, and interruptions at work. Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

In Table 15 the significance level of beta-weights regressing psychological well-being strain onto illegitimate tasks under control of age, sex, and five task-related stressors are presented, and the significant effects of illegitimate tasks highlighted. All coefficients of all regression analyses are listed in Appendix B3.

In six out of six cases illegitimate tasks predicted feelings of resentment over and above task-related stressors and age and sex on the significant level of  $p \leq .001$ . The probability of finding this effect in six different studies can be calculated by the multiplication of significance levels, which would be  $.001 \times .001 \times .001 \times .001 \times .001 \times .001 = 1^{-18}$ . Therefore, it can be considered as sturdy evidence for this effect. Also, the six relationships between illegitimate tasks and job satisfaction were 100% significant as well as illegitimate tasks and irritation (one tendency). Organization-based self-esteem was predicted significantly by illegitimate tasks in five out of six cases (83%). Work-related depression was assessed in three studies and predicted by illegitimate tasks in all three cases on the one percent level or better (100%). Lastly, emotional exhaustion and disengagement were predicted in two out of two cases (100%). Altogether, illegitimate tasks predicted psychological well-being / strain in 34 out of 37 cases (92%). All beta-weights of illegitimate tasks, significant or not, were in the proposed direction. Additional variance explained by BITS ranged from 2 - 20 percent. These results spoke for the incremental validity of illegitimate tasks over and above powerful task-related stressors. Therefore, hypothesis 3.4. was confirmed.



## Results

Table 15. Overview of the Significant Effects regressing Well-Being / Strain onto Illegitimate Tasks under control of Age, Sex, Uncertainty, Interruptions at Work, Concentration Demands, Time Pressure, and Problems of Work-Organization in Six Cross-Sectional Samples.

Study																			
Step 2	I (N=179-184)							II (N=131-141)							III (N=68-72)				
Dependent V.	RE	IR	EX	DIS	PC	JS	OB	RE	IR	EX	DIS	PC	JS	OB	RE	IR	PC	JS	OB
Age				†				*			*		**						
Sex										†		*		**			*		
UN				*		†	***	*		†			*	*					
IW		†	†	†															
CD		*													n.a.	n.a.	n.a.	n.a.	n.a.
TP				*			*	†		†	***			**					
POW	***	†	*					†			***	†							
<b>BITS</b>	***	***	***	***	***	***	**	***	*	**	*		***	*	***	*	*	***	
R <sup>2</sup> first step	.26	.19	.22	.24	.08	.19	.27	.33	.12	.23	.34	.16	.23	.21	.17	.13	.11	.16	.06
ΔR <sup>2</sup> for BITS	.11	.05	.07	.09	.08	.08	.03	.12	.04	.06	.03	.01	.07	.04	.20	.07	.06	.18	.04

Table 15.continued.

Study																		
	IV (N=884)						V (N=167-174)						VI (N=1229-1245)					
Dependent V.	RE	IR	WD	PC	JS	OB	RE	IR	WD	PC	JS	OB	RE	IR	WD	PC	JS	OB
Age	***		**	*	†	**							*	***	*	**		
Sex	**	*	**	***	***	*		**		***				**	*	***	**	*
UN	**		***		**	***	*		**	†	*	**	***	†	***		***	***
IW	*		*		***	***		*					*		†		**	***
CD															**	†	**	
TP		***		***		†	***							***	***	***		
POW	***	***	***	***	***	***							***	***	***	***	***	***
BITS	***	***	***	***	***	***	***	†	**		**	*	***	***	***	***	***	***
R <sup>2</sup> first step	.17	.22	.21	.17	.20	.18	.29	.24	.22	.24	.23	.15	.21	.26	.27	.19	.19	.17
ΔR <sup>2</sup> for BITS	.11	.04	.06	.02	.07	.05	.07	.02	.04	.00	.04	.03	.09	.04	.08	.02	.09	.04

Note. \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, regression analyses, enter method with two steps, significance of beta-weights of the second step are shown, n.a.=not assessed, BITS=Bern Illegitimate Tasks Scale, UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work RE=feelings of resentment, IR=irritation, EX=emotional exhaustion, DIS=disengagement, WD=work-related depression, PC=psychosomatic complaints, JS=job satisfaction, OB=organization-based self-esteem.

## Results

In a next step, illegitimate tasks were supposed to predict the same indicators of psychological well-being / strain while a set of other stressors were controlled for and results are presented in Table 16. The significant effects of illegitimate tasks highlighted.

### *Hypothesis 3.5.*

*Illegitimate tasks predict psychological well-being / strain, even after controlling for age, sex, and a group of other stressors. The group of other stressors contains social stressors, effort-reward imbalance, work-family conflict, emotional dissonance, and task-related stressors (index of the five stressors mentioned in hypothesis 3.4.). Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

The results were not as convincing as in the former analyses due to the results of studies II and V, yet supported partially the hypothesis. Once again, feelings of resentment were predicted by illegitimate tasks in six out of six cases over and above all other stressors. Job satisfaction was predicted in four out of six cases (67%), irritation in three out of six (50%), emotional exhaustion and disengagement in one out of two (50%), work-related depression in two out of three (67%), psychosomatic complaints just in one out of six (17%), and organization-based self-esteem in three out of six (50%). All in all, illegitimate tasks were a valuable predictor over and above the group of other stressors in 21 of 37 (57%) analyses. Additional variance explained by BITS ranged from 1 - 11 percent. Please note that also all non-significant beta weights of illegitimate tasks were all in the predicted direction (positive for strain, negative for well-being). Hypothesis 3.5. was confirmed for feelings of resentment, job satisfaction and work-related depression and had to be rejected for the other dependent variables.

Another aspect is noteworthy in these data. In the regression models, effort-reward imbalance, which is assumed to share variance with illegitimate tasks, was a significant predictor in 11 out of the 16 cases, in which statistical significance of illegitimate tasks was not retained.

## Results

Table 16. Overview of the Significant Effects regressing Well-Being / Strain onto Illegitimate Tasks under control of Age, Sex, Task Stressors, Social Stressors, Effort-Reward Imbalance, Emotional Dissonance, And Work-Family Conflict in Six Cross-Sectional Samples.

Study																			
Step 2	I (N=179-185)							II (N=132-142)							III (N=68-73)				
Dependent V.	RE	IR	EX	DIS	PC	JS	OB	RE	IR	EX	DIS	PC	JS	OB	RE	IR	PC	JS	OB
Age				†		*							*						
Sex				†								*	†	†			*		
TS		**	***								***		*	**					*
SS	***						**	***		**		*		**					
ERI	***			***		***	***	***		*	***	**	***	***	*	*		**	***
ED								**	**		*		*		†				
WFC	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		***	***	*	*			n.a.	n.a.	n.a.	n.a.	n.a.
<b>BITS</b>	***	†	*	***	**	***	†	**							**			*	
R <sup>2</sup> first step	.45	.21	.24	.32	.10	.35	.37	.64	.29	.46	.42	.30	.41	.36	.37	.28	.21	.37	.25
ΔR <sup>2</sup> for BITS	.05	.01	.03	.07	.05	.05	.01	.02	.01	.01	.00	.00	.01	.00	.09	.00	.01	.06	.00

Table 16 continued.

Study																		
Step 2	IV (N=884)						V (N=166-174)						VI (N=1131-1244)					
Dependent V.	RE	IR	WD	PC	JS	OB	RE	IR	WD	PC	JS	OB	RE	IR	WD	PC	JS	OB
Age	**							†		†			†	***	*	***		†
Sex	**	**	**	***	**					*				*		***	**	
TS	***		***		***	***				†			***		**	*	***	***
SS	***	*	***		***	***					*		***	***	***	**	***	***
ERI	***		***	***	***	***	***	†			*	**	***		***		***	***
ED	***	***	***	***	***	***	***	**	***	†	***	†	***	***	***	***	***	***
WFC		***	***	***		**	**	***	***	***	**		**	***	***	***	*	
BITS	***	**	***		***	***	*						***	***	***		***	*
R <sup>2</sup> first step	.34	.41	.42	.32	.33	.28	.51	.46	.45	.41	.44	.26	.46	.45	.47	.32	.34	.36
ΔR <sup>2</sup> for BITS	.05	.11	.02	.01	.03	.02	.01	.01	.01	.00	.01	.00	.01	.01	.02	.01	.01	.01

Note. \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, regression analyses, enter method with two steps, significance of beta-weights of the second step are shown, n.a. = not assessed, BITS = Bern Illegitimate Tasks Scale, TS=task stressors (index), SS=social stressors, ERI=effort-reward imbalance, WFC=work-family conflict, ED=emotional dissonance, RE=feelings of resentment, IR=irritation, EX=emotional exhaustion, DIS=disengagement, WD=work-related depression, PC=psychosomatic complaints, JS=job satisfaction, OB=organization-based self-esteem.

## Results

In a next step, illegitimate tasks were supposed to predict the same psychological well-being / strain indicators while internal and external resources were controlled for and results are presented in Table 17, and the significant effects of illegitimate tasks highlighted.

### *Hypothesis 3.6.*

*Illegitimate tasks predict psychological well-being / strain, even after controlling for age, sex, and internal and external resources. The internal and external resources are time control, method control, social support at work, self esteem, and self-efficacy. Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

Illegitimate tasks predicted psychological well-being / strain in 35 out of 37 cases over and above internal and external resources. None other predictor achieved this frequency. The results were replicated to the full extend for feelings of resentment and irritation (six out of six cases) as well as work-related depression (three out of three cases, and emotional exhaustion and disengagement (two out of two cases). The other two indicators psychosomatic complaints and organization-based self-esteem were predicted by illegitimate tasks in five out of six cases; just in study III two effects became non-significant while pointing in the proposed direction. Additional variance explained by BITS ranged from 2 - 21 percent. Hypothesis 3.6 was authenticated.

### *Hypothesis 3.7.*

*Illegitimate tasks predict psychological well-being / strain, even after controlling for age, sex, other stressors and internal and external resources. The other stressors and resources are social stressors, effort-reward imbalance, work-family conflict, emotional dissonance, task-related stressors (index of the five stressors mentioned in hypothesis 3.3.), job control, social support at work, self esteem, and self-efficacy. Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

## Results

Table 17. Overview of the Significant Effects regressing Well-Being / Strain onto Illegitimate Tasks under control of Age, Sex, Internal and External Resources in Six Cross-Sectional Samples.

Study																			
Step 2	I (N=179-184)							II (N=132-141)							III (N=69-72)				
Dependent V.	RE	IR	EX	DIS	PC	JS	OB	RE	IR	EX	DIS	PC	JS	OB	RE	IR	PC	JS	OB
Age			†	*		*		*		†	**		***						
Sex						†				†		†	†		*	†	*		
TC								*	*					*					
MC				*		**	***				***		***	***					
SSW	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	**					†	***	†				
SEF				**	*				†	*			*	*		†			
SEE	*	***	***		***	†	**	*	***		***				*	*		†	*
<b>BITS</b>	***	***	***	***	***	***	***	***	***	***	†	*	***	*	***	**		***	
R <sup>2</sup> first step	.15	.25	.26	.27	.20	.20	.26	.27	.22	.23	.43	.24	.31	.38	.32	.30	.13	.22	.16
ΔR <sup>2</sup> for BITS	.19	.05	.08	.13	.05	.12	.07	.21	.06	.14	.02	.03	.08	.03	.14	.08	.04	.15	.00

Table 17 continued.

Study																			
Step 2	IV (N=884)						V (N=166-170)						VI (N=1231-1244)						
Dependent V.	RE	IR	WD	PC	JS	OB	RE	IR	WD	PC	JS	OB	RE	IR	WD	PC	JS	OB	
Age	***		*	†		*		†			†			***		*	†	*	
Sex	**	*	†	***	*			*		**				*		***		†	
TC				†					†		*				*				
MC	**		***	**	***	***				**		*	***		***		***	***	
SSW	***	**	***	**	***	***			**		**		***	***	***	**	***	***	
SEF	*	***	***	***	***	***	**	*	**			**	*	***	***	***	***	***	
SEE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
BITS	***	***	***	***	***	***	***	***	***	**	***	**	***	***	***	***	***	***	
R <sup>2</sup> first step	.21	.16	.34	.16	.33	.29	.13	.10	.22	.17	.18	.23	.17	.12	.26	.09	.22	.29	
ΔR <sup>2</sup> for BITS	.11	.09	.06	.04	.06	.03	.21	.11	.12	.05	.12	.04	.16	.14	.11	.08	.09	.04	

Note. \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, regression analyses, enter method with two steps, significance of beta-weights of the second step are shown, n.a. = not assessed, BITS = Bern Illegitimate Tasks Scale, MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RE=feelings of resentment, IR=irritation, EX=emotional exhaustion, DIS=disengagement, WD=work-related depression, PC=psychosomatic complaints, JS=job satisfaction, OB=organization-based self-esteem.

## Results

In the last step, a combination of all of these predictors were used to test if illegitimate tasks still explain variance after the best predictors for each strain parameter were already entered in the model. So, besides illegitimate tasks, eleven other predictors were offered for analyses. Besides age and sex, five stressors were selected: task-related stressors (the index measure of the five work stressors used in the second analyses), social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict. In addition, the four resources job control (the combined measure of time and method control) and social support at work as external resources, and general self-efficacy and self-esteem as internal resources were entered.

In selecting so many predictors, multicollinearity becomes an issue (Taq, 1997). As demonstrated before, illegitimate tasks correlated positively with other stressors, and negatively with resources. Entering correlated measures into a regression model as independent variables means that predictors convey parts of the same information. To reduce this problem without forsaking interesting predictors, the following method was applied. A first regression analyses was conducted to calculate and select the most important *other* predictors for each dependent variable in every study using the stepwise backward method. This stepwise method is preferable because of possible suppressor effects: the forward method is more likely than the backward method to exclude predictors involved in suppressor effects (Field, 2005). The indicated predictors were then entered in a second regression analyses in the first step employing the enter method, and in the second step illegitimate tasks were forced into the model with the enter method as well. Therefore, illegitimate tasks needed to prove that they were capable of explaining additional variance of psychological well-being / strain, even if the most important predictors from a range of well-developed concepts of stressors and resources as well as demographics were already entered in the model.

The estimate of R from the regression is dependent on the number of predictors and the sample size. When bringing to mind the sample sizes of the six studies, two caused a problem, as they did not meet the criterion to employ this strategy of analysis (study II N=129-130 and study III N=65-67 for these analyses - cf. Maxwell, 2000). A common rule of thumb is that 15 cases of data per predictor is needed (Field, 2005), so when taking twelve predictors into account, a minimum sample size of 180 should be acquired. Green (1991) recommended for testing the overall fit of the model a minimum sample size of  $50+8k$ , where k is the number of predictors (e.g.,  $50+88=146$  with regard to 12 predictors). And he suggested for testing the individual predictors a minimum sample size of  $104 + k$  (e.g.,  $104+12=116$  with regard to 12 predictors). Finally, if interested in both in the overall fit and in

## Results

the contribution of individual predictors, Green recommended calculating both of the minimum sample size and use the one that has a larger value. Both studies mentioned were too small in sample size to follow these recommendations. And they would also not suffice with regard to the fact that the sample size required depends on the size of the effect and its statistical power (Field, 2005). Therefore, results of these two studies were not presented or included in testing the hypothesis (the analyses were performed nonetheless, but conclusions should be drawn with care - see Appendix B3). In the following, four tables displaying the significant beta-weights and the amount of explained variance of the second step are presented.

In study I, illegitimate tasks predicted five out of seven psychological well-being / strain indicators and explained up to 5 percent additional variance, while the coefficients for organization-based self-esteem and irritation displayed the proposed direction, but did not become significant. Also, effort-reward imbalance was a significant predictor in five out of seven cases in the second step (not selected for psychosomatic complaints), and for both dependent variables not predicted by illegitimate tasks. And it is interesting to note that self-esteem was an important predictor in this study (in six from seven analyses). Unfortunately, this result could not be replicated as self-esteem was not assessed in the remaining three studies. Sex and emotional dissonance did not carry any weight in any of the analyses conducted for this study. Job control had a positive effect on irritation, which is not what one would assume (bivariate correlation  $r = -.019$ ).

In the next study (study IV), significant effects of illegitimate tasks were detected for organization-based self-esteem and irritation, but not for psychosomatic complaints. Nonetheless, illegitimate tasks predicted psychological well-being / strain in five out of six cases and explained up to 5 percent additional variance. In opposition to study I, emotional dissonance (six out of six cases) and sex (four out of six) showed an influence on psychological well-being / strain. Social support at work also became significant in four out of six cases and social stressors in five out of six. Unexpected effects surfaced for task-related stressors on work-related depression (bivariate correlation  $r = .35$ ,  $p < .001$ ) and also for work-family-conflict on organization-based self-esteem (bivariate correlation  $r = -.15$ ,  $p < .001$ ) und might be caused by multicollinearity. Again, effort-reward imbalance became a significant predictor in five out of six cases, showing off its stressor potential. However, self-efficacy, the only internal resource in this study, was a significant predictor in all cases.

## Results

Table 18. Regressing Well-Being / Strain onto Illegitimate Tasks under Control of Age, Sex, Four Stressors, and Three Resources in Study I.

Study I (N = 179 - 180)							
DV	RES	IRR	EXH	DIS	PC	JS	OBSE
Age			.11†	-.13**		.12*	
Sex							
TS		.24***	.26***		.06		
SS	.21***						-.16*
ERI	.35***	.13†	.09	.30***		-.39***	-.37***
ED							
JC		.11†		-.22***		.12*	.16**
SEF				-.18**	-.17*	.	
SEE	-.10†	-.40***	-.38***	-.07	-.27***	.13*	.21***
BITS	.27***	.06	.13†	.26***	.20*	-.22**	-.08
R <sup>2</sup> 1 <sup>st</sup> step	.45***	.35***	.38***	.44***	.23***	.40***	.45***
ΔR <sup>2</sup> for BITS	.05***	.00	.01†	.05***	.03*	.03**	.04

Note.\*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, backward regression analyses selecting important other predictors in a first regression analysis (not shown), then entering these in another analysis with enter method in a first step, then entering illegitimate tasks with enter method in a second step, results of the last step are displayed. BITS=Bern Illegitimate Tasks Scale, TS=task stressors, SS=social stressors, ERI=effort-reward imbalance, ED=emotional dissonance, JC=job control, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=Disengagement PC=psychosomatic complaints, JS=job satisfaction, OBSE=organization-based self-esteem.



## Results

Table 19. Regressing Well-Being / Strain onto Illegitimate Tasks under Control of Age, Sex, Five Stressors, and Three Resources in Study IV.

Study IV (N = 884)						
DV	RES	IRR	WRD	PC	JS	OBSE
Age	10***					
Sex	-.06*	-.05*		-.09**	.05†	
TS		.03	-.12***			
SS	.09**	.09**	.08*		-.12***	-.16***
ERI	.29***		.28***	.17***	-.17***	-.18***
ED	.08*	.18***	.19***	.13***	-.09**	-.10**
WFC		.40***	.08**	.32***		.17***
JC			-.10***	-.05	.13***	.11***
SSW	-.12***		-.14***		.19***	.25***
SEF	-.07**	-.20***	-.19***	-.13***	.15***	.13***
<b>BITS</b>	<b>.22***</b>	<b>.08*</b>	<b>.12***</b>	<b>.03</b>	<b>-.14***</b>	<b>-.10**</b>
R <sup>2</sup> 1 <sup>st</sup> step	.37***	.45***	.48***	.35***	.40***	.36***
ΔR <sup>2</sup> for BITS	.03***	.01*	.01***	.00	.01***	.01**

Note.\*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, beta-weights of the second step are displayed, backward regression analyses selecting important other predictors in a first regression analysis (not shown), then entering these in another analysis with enter method in a first step, then entering illegitimate tasks with enter method in a second step, results of the last step are displayed. BITS=Bern Illegitimate Tasks Scale, TS=task stressors, SS=social stressors, ERI=effort-reward imbalance, ED=emotional dissonance, JC=job control, SEF=self-efficacy, SSW=social support at work, RES=feelings of resentment, IRR=irritation, WRD=work-related depression, PC=psychosomatic complaints, JS=job satisfaction, OBSE=organization-based self-esteem.

Results of study V were the most opposed with regard to the hypothesis. Neither significant effects of illegitimate tasks were discovered for organization-based self-esteem and psychosomatic complaints (the beta-weight of the latter even went in the wrong direction, bivariate correlation  $r = .262$ ), nor for job satisfaction. The other three significant effects were on the 5% significance level or even less. Evidence of the main effects of self-efficacy was found again as well as for and emotional dissonance, work-family conflict and effort-reward imbalance. However, one effect of effort-reward imbalance went in the wrong direction (irritation, bivariate correlation  $r = .31$ ,  $p < .001$ ).

## Results

Table 20. Regressing Well-Being / Strain onto Illegitimate Tasks under Control of Age, Sex, Five Stressors, and Three Resources in Study V.

Study V (N = 166 - 169)						
DV	RES	IRR	WRD	PC	JS	OBSE
Age		.14*			.09	
Sex			.17**	-.13†		
TS				.18*		
SS					-.13†	
ERI	.30***	-.14†	.08		-.16†	-.28***
ED	.27***	.20**	.32***		-.27***	-.17*
WFC	.15***	.53***	.21**	.48***	-.14*	
JC			-.16**		.15*	.25***
SSW			-.14*			
SEF	-.15**	-.15**	-.16**	-.12†		.21**
BITS	.17*	.17*	.12†	-.03	-.08	-.02
R <sup>2</sup> 1 <sup>st</sup> step	.52***	.46***	.52***	.40***	.46	.35***
ΔR <sup>2</sup> for BITS	.02*	.02*	.01†	.00	.00	.00

Note.\*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, beta-weights of the second step are displayed, backward regression analyses selecting important other predictors in a first regression analysis (not shown), then entering these in another analysis with enter method in a first step, then entering illegitimate tasks with enter method in a second step, results of the last step are displayed. BITS = Bern Illegitimate Tasks Scale, TS=task stressors, SS=social stressors, ERI=effort-reward imbalance, ED=emotional dissonance, JC=job control, SEF=self-efficacy, SSW=social support at work, RES=feelings of resentment, IRR=irritation, WRD=work-related depression, PC=psychosomatic complaints, JS=job satisfaction, OBSE=organization-based self-esteem.

Last but not least, study VI provided afresh evidence in support of the hypothesis as illegitimate tasks predicted all but psychosomatic complaints and organization-based self-esteem. Two positive effects of other stressors were not plausible: work-family-conflict on organization-based self-esteem (bivariate correlation  $r = -.26$ ,  $p < .001$ ) and task-related stressors on job satisfaction (bivariate correlation  $r = -.31$ ,  $p < .001$ ). Time and again, self-efficacy was a constant predictor as was emotional dissonance and social stressors. Effort-reward imbalance followed close and predicted all but psychosomatic complaints and irritation.

## Results

Table 21. Regressing Well-Being / Strain onto Illegitimate Tasks under Control of Age, Sex, Five Stressors, and Three Resources in Study VI.

Study VI (N = 1229)						
DV	RES	IRR	WRD	PC	JS	OBSE
Age		.10***		.09***	.03	.05*
Sex				.11***	-.05*	
TS		.07*		.10**	.09**	.13***
SS	.08**	.10***	.08**	.08**	-.14***	-.10***
ERI	.40***		.24***		-.28***	-.41***
ED	.12***	.17***	.20***	.16***	-.10***	-.11***
WFC	.04	.39***	.11***	.31***		.05†
JC	-.05*		-.13***		.13***	.08***
SSW	-.05*	-.06**	-.09***		.08**	.16***
SEF	-.06**	-.09***	-.12***	-.10***	.11***	.23***
BITS	.12***	.09**	.13***	.04	-.14***	-.03
R <sup>2</sup> 1 <sup>st</sup> step	.47***	.46***	.52***	.33***	.38***	.45***
ΔR <sup>2</sup> for BITS	.01***	.01**	.01***	.00	.01***	.00

Note.\*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, beta-weights of the second step are displayed, backward regression analyses selecting important other predictors in a first regression analysis (not shown), then entering these in another analysis with enter method in a first step, then entering illegitimate tasks with enter method in a second step, results of the last step are displayed. BITS=Bern Illegitimate Tasks Scale, TS=task stressors, SS=social stressors, ERI=effort-reward imbalance, ED=emotional dissonance, JC=job control, SEF=self-efficacy, SSW=social support at work, RES=feelings of resentment, IRR=irritation, WRD=work-related depression, PC=psychosomatic complaints, JS=job satisfaction, OBSE=organization-based self-esteem.

In replication, the effect of a stressor on psychological well-being / strain should be found for the same dependent variable ever and anon. So, an overview chart was provided to offer insight about the predictor quality of illegitimate tasks, which should be above 60% in terms of supporting the hypothesis (Table 22).

## Results

Table 22. Overview of the Significance of Standardized Regression Weights (Expected Direction) of the Predictors in the End Model in Four Studies.

DV / Pred.	RES	IRR	EXH	DIS	WRD	PC	JS	OBSE	Cumulative effects of predictors
Age	1/4	2/4	1/1	1/1	0/3	1/4	0/4	1/4	7/25=28%
Sex	1/4	1/4	0/1	0/1	1/3	3/4	2/4	0/4	8/25=32%
TS	0/4	2/4	1/1	0/1	0/3	2/4	0/4	1/4	6/25=24%
SS	3/4	2/4	0/1	0/1	2/3	1/4	3/4	3/4	14/25=56%
ERI	4/4	1/4	0/1	1/1	2/3	1/4	4/4	4/4	17/25=68%
ED	3/4	3/4	0/1	0/1	3/3	2/4	3/4	3/4	17/25=68%
WFC	1/3	3/3	n.a	n.a.	3/3	3/3	1/3	0/3	11/18=61%
JC	1/4	0/4	0/1	1/1	3/3	0/4	4/4	4/4	14/25=56%
SSW	2/3	1/3	n.a.	n.a.	3/3	0/3	2/3	2/3	10/18=56%
SEF	3/4	3/4	0/1	1/1	3/3	4/4	2/4	3/4	19/25=76%
SEE	1/1	1/1	1/1	0/1	n.a.	1/1	1/1	1/1	6/7=86%
BITS	4/4 (100%)	3/4 (75%)	1/1 (100%)	1/1 (100%)	3/3 (100%)	1/4 (25%)	3/4 (75%)	1/4 (25%)	17/25=68%

Note. n.a.=not assessed, Pred.=predictor, . BITS = Bern Illegitimate Tasks Scale, TS=task stressors, SS=social stressors, ERI=effort-reward imbalance, ED=emotional dissonance, JC=job control, SEF=self-efficacy, SEE=self-esteem, SSW=social support at work, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, WRD=work-related depression, PC=psychosomatic complaints, JS=job satisfaction, OBSE=organization-based self-esteem.

All of these analyses were of cross-sectional nature and preclude causality. Still, the replicated relationships of illegitimate tasks and feeling of resentments, irritation, work-related depression and job satisfaction were convincing. Effects on exhaustion and disengagement in study I were given but are in need of replication. The relationship between illegitimate tasks and psychosomatic complaints as well as organization-based self-esteem was rather dissatisfactory within this strict testing. Therefore, hypothesis 3.7. was partially supported. Across dependent variables, self-efficacy was the most consistent predictor, followed by illegitimate tasks, effort-reward imbalance, and emotional dissonance. Of further interest is that effort-reward imbalance was a significant predictor for organization-based self-esteem in

four out of four cases – a parameter on which illegitimate tasks did not show an impact. Analyzing the proposed closeness of both concepts was the matter of the next but one chapter. The effect over time was of interest beforehand and is presented next.

### 4.4 Illegitimate Tasks over Time

*Hypothesis 4.1. (for both studies – longitudinal analyses)*

*Illegitimate tasks at t1 (or t2) predict psychological well-being / strain at t2 (or t3), even after controlling for age, sex, and the psychological well-being / strain indicator in question at t1. Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, job satisfaction, and organization-based self-esteem.*

*Hypothesis 4.2. (for both studies – synchronous analyses)*

*Illegitimate tasks at t2 (or t3) predict psychological well-being / strain at t2 (or t3), even after controlling for age, sex, and the psychological well-being / strain indicator in question at t1 (or t2). Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, job satisfaction, and organization-based self-esteem.*

Two longitudinal studies were initiated and analyzed to test for the effect of illegitimate tasks over time. Study I had three measurement points with time lags of six months, while study II was repeated once after two years. In both studies, the loss of participants was severe as it cut down the sample sizes in half. Unfortunately, sample size restrictions did not allow for structural equation testing with these sample sizes (N=42 in three waves in study I and N=76 in two waves in study II – cf. Byrne, 2001). Therefore, multiple regression analyses were conducted. Descriptive results and correlation coefficients over three measurement points of study I are depicted in Table 23. Stability of BITS was apparent with correlations above  $r = .60$ . Somewhat astonishing was the very high correlation between BITS at t2 and BITS at t3. Also, stabilities of the dependent variables (longitudinal data set, N = 46 - 48, from t1 to t3) were high as well: feelings of resentment  $r = .57, p < .001$ ; irritation  $r = .69, p < .001$ ; emotional exhaustion  $r = .68, p < .001$ ; disengagement  $r = .66, p < .001$ ; psychosomatic complaints  $r = .75, p < .001$ ; job satisfaction  $r = .54, p < .001$ ; organization-based self-esteem  $r = .50, p < .001$ . And the dependent variables showed even higher stabilities between measurement points t1 and t2 (longitudinal data set, N = 90-91): feelings of resentment  $r = .56, p < .001$ ; irritation  $r = .75, p < .001$ ; emotional exhaustion  $r = .74, p < .001$ ; disengagement  $r = .72, p < .001$ ; psychosomatic complaints  $r = .76, p < .001$ ; job satisfaction  $r = .58, p < .001$ ; organization-based self-esteem  $r = .57, p < .001$ . As the dependent variable

## Results

of an earlier measurement point was controlled for, these stabilities did not leave a lot of not explained variance to be accounted for by other predictors (predictive validity). However, the high correlations also spoke for the reliability of the constructs measured.

Table 23: Descriptive Statistics and Correlations for BITS and the Depending Variables in Study I with Three Measurement Points (Different Sample Sizes).

Descriptive				Correlations		
Variable	N	Mean	SD	BITS T1	BITS T2	BITS T3
BITS T1	91	2.24	.56	1		
BITS T2	91	2.14	.59	.60***	1	
BITS T3	48	2.23	.57	.64***	.83***	1
RES T1	91	2.35	1.04	.59***	.53***	.58***
RES T2	91	2.59	1.14	.41***	.58***	.66***
RES T3	47	2.77	1.23	.64***	.60***	.64***
IRR T1	91	2.60	.80	.39***	.35***	.44***
IRR T2	91	2.68	1.09	.31***	.37***	.52***
IRR T3	48	3.01	1.14	.42***	.49***	.50***
EXH T1	91	2.01	.49	.34***	.37***	.33*
EXH T2	90	2.14	.50	.32***	.51***	.59***
EXH T3	47	2.27	.48	.54***	.58***	.44***
DIS T1	91	1.75	.49	.50***	.41***	.25†
DIS T2	90	1.90	.48	.41***	.48***	.36*
DIS T3	47	1.97	.44	.49***	.55***	.49***
PC T1	91	1.77	.48	.33**	.20†	.35*
PC T2	91	1.84	.58	.22*	.22***	.46***
PC T3	47	1.92	.65	.51***	.44***	.51***
JS T1	91	5.13	1.00	-.53***	-.38***	-.13
JS T2	90	4.80	1.22	-.31**	-.46***	-.34*
JS T3	48	4.80	1.35	-.33***	-.46***	-.40***
OBSE T1	91	4.25	.55	-.38***	-.25*	-.04
OBSE T2	91	4.14	.65	-.33***	-.41***	-.24
OBSE T3	46	4.12	.64	-.40**	-.54***	-.43***

Note. Pearson Correlations (2-tailed) \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N shown are for descriptive, correlations t1-t2 N=87-91, t1-t3 N=46-48, t2-t3 N=41-42, BITS=Bern Illegitimate Tasks Scale, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PC=psychosomatic complaints, OBSE=organization-based self-esteem, JS=job satisfaction.

## Results

Almost all correlations were consistently significant within measurement points or over time. The mere three correlations not significant were from psychological well-being parameters at t1 or t2 to BITS at t3. However, significant correlations were found for the other psychological strain indicators at t1 and BITS at t2 and t3, even if those were mostly smaller than vice versa. These could be interpreted as potential evidence for reversed causation. An additional analysis revealed that participants at t1, who did not participate at t2 or t3, did not report more or less illegitimate tasks, but more psychological strain in three cases than individuals who participated at two or three measurement points (ANCOVA adjusted for the two covariates age and sex; feelings of resentment:  $F(1, 189) = 6.93, p = .009$ ; emotional exhaustion:  $F(1, 189) = 6.31, p = .013$ ; disengagement:  $F(1, 189) = 4.44, p = .036$ ). So, it could be argued that individuals experiencing more strain at the beginning of the study did not participate again.

As three measurement points were assessed in study I, several sets of longitudinal analyses were performed: effects of illegitimate tasks at t1 on psychological well-being / strain at t2, effects of illegitimate tasks at t1 on well-being / strain at t3, and effects of illegitimate tasks at t2 on well-being / strain at t3. Also, the same sets of analyses were performed for synchronous effects. All in all, nine sets of analyses with regard to seven dependent variables were performed. As previously, potential effects of age and sex were controlled for. Also, the dependent variable (dv) of either measurement point one or measurement point two was controlled. Other predictors were not entered in the model, as the sample size did not allow for it (Field, 2005; Maxwell, 2000). The detailed analyses as well as correlation coefficients for studies I and II are presented in Appendix B4 as it was opted again for overview charts to reduce the number of tables. In Table 24 the beta-weights and significance level of illegitimate tasks for study I are disclosed and the significant effects highlighted.

All 63 beta-weights of illegitimate tasks were in the presumed direction, save two (once for psychosomatic complaints and once for job satisfaction). Regarding the longitudinal analyses t1-t2, not one significant effect was found with respect to seven psychological well-being / strain parameters. If just the longitudinal sample over all measurement points ( $N = 42$ ) were used to calculate the longitudinal analyses for t1-t2, not any significant results were found either (see Appendix B4). As mentioned before, the high stabilities of the dependent measures between t1 and t2 might be responsible, as they did not allow for a lot of variance not accounted for. Despite these results, the longitudinal analyses for t1-t3 and t2-t3 showed significant effects or tendencies. With regard to the analyses t1-t3, two out of seven strain indicators under control of dv t1 (emotional exhaustion and disengagement, BITS in both

## Results

cases  $\Delta R^2 = 4\%$ ) or three out of seven, respectively, under control of dv t2 (emotional exhaustion, disengagement, and psychosomatic complaints - BITS  $\Delta R^2$  ranged from 5-10%) were predicted by illegitimate tasks..

Table 24. Overview of the Significant Effects Regressing Well-Being / Strain onto Illegitimate Tasks under Control of Age, Sex, and the Respective Dependent Variable to Different Measurement Points in Study I.

BITS as predictor	RES	IRR	EXH	DIS	PC	JS	OBSE
	B	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$
t1-t2 longitudinal (controlled DV t1)	.11	.01	.04	.05	-.05	.002	-.11
t1-t2 synchronous (controlled DV t1)	.40***	.13†	.27***	.21**	.06	-.27**	-.28**
t1-t3 longitudinal (controlled DV t1)	.25 <sup>&amp;</sup>	.07	.25†	.23†	.12	-.11	-.23 <sup>&amp;</sup>
t1-t3 synchronous (controlled DV t1)	.48***	.24†	.26*	.36**	.27*	-.34**	-.38**
t1-t3 longitudinal (controlled DV t2)	.23 <sup>&amp;</sup>	.04	.34*	.36*	.27*	-.20 <sup>&amp;</sup>	-.22 <sup>&amp;</sup>
t1-t3 synchronous (controlled DV t2)	Same analyses as t2-t3 synchronous (controlled DV t2)						
t2-t3 longitudinal (controlled DV t2)	.30†	.16 <sup>&amp;</sup>	.37*	.36**	.17 <sup>&amp;</sup>	-.26†	-.36**
t2-t3 synchronous (controlled DV t2)	.34*	.13	.24 <sup>&amp;</sup>	.33*	.26*	-.21 <sup>&amp;</sup>	-.33**
t2-t3 longitudinal (controlled DV t1)	.31†	.24†	.37**	.34**	.29**	-.23†	-.41**
t2-t3 synchronous (controlled DV t1)	.48***	.24†	.26*	.36**	.27*	-.34**	-.38**

Note. \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , <sup>&</sup> $p \leq .10$  if tested one-sided, N=41-90, BITS=Bern Illegitimate Tasks Scale, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PC=psychosomatic complaints, OBSE=organization-based self-esteem, JS=job satisfaction.



## Results

With regard to the analyses t2-t3, all seven indicators of well-being / strain were predicted by illegitimate tasks (10% level or lower) under control of dv t1 (BITS  $\Delta R^2$  ranged from 4-15%), or four under control of dv t2 respectively (feelings of resentment, emotional exhaustion, disengagement, job satisfaction, and organization-based self-esteem - BITS  $\Delta R^2$  ranged from 5-11%).

Analyzing synchronous effects, BITS became a significant predictor in 24 out of 28 analyses, and explained between 1% - 15% of additional variance, highest for feelings of resentment, job satisfaction, and organization-based self-esteem. The least predicted variable in terms of all analyses was irritation. The high correlation between BITS t2 and t3 was not of any importance in these analyses, as they never entered a regression analysis simultaneously. Although it could be an issue analyzing reversed causation, in which BITS at t2 entered as a control variable and BITS at t3 was the dependent variable. However, analysis of reversed causation (see Appendix B4) revealed that feelings of resentment to t1 were capable of predicting illegitimate tasks to t2 ( $N = 91$ ,  $\beta = .27$ ,  $p = .010$ ) and t3 (under control of dv t1:  $N = 48$ ,  $\beta = .28$ ,  $p = .060$ ; under control of dv t2:  $N = 42$ ,  $\beta = .26$ ,  $p = .021$ ) as well as from t2 to t3 (under control of dv t1:  $N = 42$ ,  $\beta = .43$ ,  $p = .001$ ; under control of dv t2:  $N = 42$ ,  $\beta = .26$ ,  $p = .016$ ). This was remarkable as these effects were not predicted significantly the other way around from t1 to t2. In addition, two effects became significant for emotional exhaustion (from t1 to t2 under control of dv t1:  $N = 91$ ,  $\beta = .18$ ,  $p = .044$ ; from t2 to t3 under control of dv t1:  $N = 42$ ,  $\beta = .32$ ,  $p = .015$ ), two for psychosomatic complaints (from t1 to t3 under control of dv t2:  $N = 42$ ,  $\beta = .20$ ,  $p = .027$ ; from t2 to t3 under control of dv t2:  $N = 42$ ,  $\beta = .18$ ,  $p = .065$ ), two for irritation (from t2 to t3 under control of dv t2:  $N = 42$ ,  $\beta = .17$ ,  $p = .09$ ; from t2 to t3 under control of dv t1:  $N = 41$ ,  $\beta = .24$ ,  $p = .080$ ) and one for organization-based self-esteem (from t1 to t3 under control of dv t1:  $N = 48$ ,  $\beta = .23$ ,  $p = .065$ ). Most of these effects were also not predicted the other way around, but they were mainly small or just tendencies. However, some evidence was found that increased strain led to an increase at illegitimate tasks or an increased perception of illegitimate tasks at work. In the next longitudinal study these analyses were replicated to gather evidence, whether the former results were due to the sample (or sample error) or due to an existing impact.

In study II, emotional exhaustion and disengagement were assessed with four items at t2 (eight to t1) and psychosomatic complaints with nine (16 to t1), therefore, the scales of t1 were adapted for longitudinal analyses and differences in values became possible (in comparison with t1). Also, the time lag between measurement points was two years (contrary to six months in study I). The same seven dependent variables were assessed in study II as in study I. Descriptive results and correlations of the second longitudinal study, consisting of

## Results

76 individual, are presented in Table 25. Correlations were all in the predicted direction (illegitimate tasks correlated positively with strain and negatively with well-being). Stability of BITS over time was apparent again with a correlation of  $r = .62$ . Stabilities of the dependent variables were as followed: feelings of resentment  $r = .57$ ,  $p < .001$ ; irritation  $r = .65$ ,  $p < .001$ ; emotional exhaustion  $r = .45$ ,  $p < .001$ ; disengagement  $r = .38$ ,  $p = .001$ ; psychosomatic complaints  $r = .77$ ,  $p < .001$ ; job satisfaction  $r = .32$ ,  $p = .006$ ; organization-based self-esteem  $r = .37$ ,  $p = .001$ . It is noticeable that the correlations of variables of the same measurement points were often stronger than from t1 to t2 or t2 to t1, and also lower for feelings of resentment, irritation, and disengagement at t1 to BITS at t2 than from BITS t1 to strain t2. Therefore, reverse causation appeared less likely for these indicators.

Table 25: Descriptive Statistics and Correlations for BITS and the Depending Variables in Study II with Two Measurement Points (Time Lag Two Years).

Descriptive				Correlations	
Variable	N	Mean	SD	BITS T1	BITS T2
BITS T1	76	2.41	.58	1	
BITS T2	76	2.33	.65	.62***	1
RES T1	76	2.74	1.23	.53***	.28*
RES T2	76	2.76	1.15	.43***	.57***
IRR T1	76	3.13	.97	.39***	.17
IRR T2	76	3.03	1.12	.46***	.49***
EXH T1	76	2.25	.58	.48***	.41***
EXH T2	76	2.27	.59	.20†	.54***
DIS T1	76	1.85	.57	.28*	.23*
DIS T2	76	1.76	.61	.27*	.53***
PC T1	76	2.14	.76	.33**	.39***
PC T2	76	2.07	.66	.34**	.47***
JS T1	74	4.71	1.03	-.40***	-.21†
JS T2	76	4.69	1.02	-.27*	-.57***
OBSE T1	76	3.87	.75	-.29*	-.22†
OBSE T2	76	3.95	.73	-.21†	-.36***

Note. Pearson Correlations (2-tailed) \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N shown are for descriptive, correlations t1-t2 N=74-76, BITS=Bern Illegitimate Tasks Scale, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PC=psychosomatic complaints, OBSE=organization-based self-esteem, JS=job satisfaction.

Once again it was analyzed whether participants, who did not participate at t2, differed from those who participated twice with regard to the amount of illegitimate tasks and psychological

## Results

well-being and strain reported. Not any significant difference was found (ANCOVA adjusted for the two covariates age and sex – see Appendix B4), neither with the original nor the abbreviated scales. The results of the longitudinal and synchronous effects are presented in Table 26. All strain parameters were predicted significantly by illegitimate tasks in the synchronous analyses, and BITS explained between 2% and 27% (highest for job satisfaction, lowest for psychosomatic complaints) of additional variance. In the longitudinal analyses, three out of seven indicators of strain were predicted by BITS, explaining either 3% (feelings of resentment and disengagement) or 5% (irritation) of additional variance.

Table 26. Overview of the Significant Effects Regressing Well-Being / Strain on Illegitimate Tasks under Control of Age, Sex, and the Respective Dependent Variable in Study II.

BITS as predictor	RES	IRR	EXH	DIS	PC	JS	OBSE
	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$
t1-t2 longitudinal (controlled DV t1)	.20†	.24*	-.02	.20†	.08	-.19 <sup>&amp;</sup>	-.06
t1-t2 synchronous (controlled DV t1)	.46***	.40***	.44***	.48***	.17*	-.54***	-.27*

Note. \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , <sup>&</sup>  $p \leq .10$  if tested one-sided, N = 67-72, BITS= illegitimate tasks, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PC=psychosomatic complaints, OBSE=organization-based self-esteem, JS=job satisfaction.

Reverse causation could be identified for psychosomatic complaints at t1 to BITS t2 (N=71,  $\beta=.21$ ,  $p=.030$ ), but not any other. Hence, further research is needed as these analyses did not replicate the results of reversed causation of study I besides for psychosomatic complaints.

All in all, the longitudinal analyses partially supported hypothesis 4.1. More evenly results were found for disengagement (significantly predicted by illegitimate tasks in five out six longitudinal analyses), emotional exhaustion (four out of six) and feelings of resentment (three out of six), whereas irritation, psychosomatic complaints, job satisfaction, and organization-based self-esteem were predicted in two out of six analyses. More support was found for synchronous effects and, therefore, hypothesis 4.2. Disengagement and feelings of resentment were predicted by illegitimate tasks in five out of five cases, and all others in four out of five analyses.

#### 4.5 Illegitimate Tasks and Effort-Reward Imbalance

As illustrated, effort-reward imbalance appears conceptually close to the concept of illegitimate tasks, as both violate expectations of what one feels entitled to and considers being fair. The bivariate correlations in section 4.2. already offered insights in their relationship. It seems theoretically plausible that more specific stressors like illegitimate tasks imply deterioration in psychological well-being to the extent that they result in a more generalized feeling of being treated in an unfair manner. Methodologically, this would imply that effort-reward imbalance acts as a mediator between illegitimate tasks and indicators of psychological well-being / strain.

##### *Hypothesis 5.1.*

*Effort-reward imbalance partially mediates the relationship between illegitimate tasks and psychological well-being / strain (controlling for age and sex). Psychological well-being / strain indicators are feelings of resentment, irritation, emotional exhaustion, disengagement, psychosomatic complaints, work-related depression, job satisfaction, and organization-based self-esteem.*

According to Baron and Kenny (1986) the following conditions have to be met in order to speak of a mediating effect: (1) the independent variable significantly affects the mediator, (2) the independent variable significantly affects the dependent variable in the absence of the mediator, (3) the mediator has a significant effect on the dependent variable, and (4) the effect of the independent variable on the dependent variable shrinks upon the addition of the mediator to the model. If the effect of the independent variable is significant but diminished, it is called partial mediation. The Sobel test (1982; 1986) tests whether a mediator carries the influence of an IV to a DV. As recommended by Baron and Kenny (1986) and Preacher and Leonardelli (2003), the Goodman (1) test equation was used. It was tested for mediation in all six cross-sectional studies and in both longitudinal studies, and results are presented in three overview charts. The detailed analyses plus Sobel-testing can be found in Appendix B5.

Results of the 117 analyses of the six cross-sectional studies are presented in Table 27. In all six studies, illegitimate tasks predicted effort-reward imbalance (range of  $\beta = .49 - .65$ ). Effort-reward imbalance partially or completely mediated the relationship between illegitimate tasks and feelings of resentment as well as job satisfaction without exception (100%).

## Results

Table 27. Overview of Effort-Reward Imbalance Acting as Potential Mediator between Illegitimate Tasks and Well-Being Strain under Control of Age and Sex.

	RES	IRR	EXH	DIS	PC	JS	OBSE	WRD
Study I	partial	partial	partial	partial	no mediation	partial	partial	n.a.
Study II	partial	no mediation	partial	complete	complete	complete	complete	n.a.
Study III	partial	complete	n.a.	n.a.	no mediation	partial	(2) not met	n.a.
Study IV	partial	partial	n.a.	n.a.	partial	partial	partial	partial
Study V	partial	partial	n.a.	n.a.	partial	partial	complete	partial
Study VI	partial	partial	n.a.	n.a.	partial	partial	partial	partial

Note. Significance level for analysis  $p \leq .10$ , N=189-190 study I, N=134-147 study II, N =64-68 study III, N=881-884 study IV, N=176-181 study V, N =1241-1256 study VI, (2) the IV significantly effects the DV in the absence of the mediator, no mediation = beta of independent variable did not shrink or mediator became insignificant, partial = partial mediation, complete = complete mediation, n.a.=not assessed, BITS=Bern Illegitimate Tasks Scale, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PC=psychosomatic complaints, OBSE=organization-based self-esteem, JS=job satisfaction, WRD=work-related depression.

## Results

Also, effort-reward imbalance mediated the relationship between illegitimate tasks and irritation in five out of six studies (83%) and between illegitimate tasks and organization-based self-esteem in four out of six (67%). Emotional exhaustion and disengagement were assessed in two studies and work-related depression in three, and their relationship to illegitimate tasks was mediated by effort-reward imbalance in all cases (100%). Therefore, convincing evidence was found for hypothesis 5.1.

In a next step, the analyses were partaken for the two longitudinal studies. In study I several analyses were possible: besides cross-sectional and longitudinal analyses the measurement point of the mediator could be varied. Also, longitudinal analyses without control of the dependent variables were considered, as the stability of effort-reward imbalance over time (in this study  $t1-t2\ r = .72, p < .001$ ;  $t2-t3\ r = .79, p < .001$ ;  $t1 - t3\ r = .71, p < .001$ ) could prevent the prediction of effort-reward imbalance by illegitimate tasks with a high probability. Main aim was the understanding of mechanisms and a study with three measurement points allowed for testing whether a stressor at  $t1$  influenced a stressor at  $t2$ , which then influenced strain at  $t3$ . These analyses were highlighted in the overview results of the 330 analyses of study I in Table 28. Results of study I at  $t1$  were identical with study I from Table 27 and were included to report in full. Contemplating the cross-sectional analyses of study I, 21 out of 20 relationships between illegitimate tasks and psychological well-being / strain were mediated by effort-reward imbalance. Longitudinal analyses, abandoning the constraint to control for the dependent variable at  $t1$ , corroborated the former results as 37 out of 42 tested mediations became significant. In all of these analyses the prerequisites explained above were met. This changed when the dependent variable was controlled for. Illegitimate tasks at  $t1$  did not predict effort-reward imbalance at  $t2$  (besides when the mediator at  $t1$  was used and was, therefore, not controlled) or  $t3$ , if effort-reward imbalance at  $t1$  was controlled for. So, half of the longitudinal analyses lacked this prerequisite. Also, as pointed out in the previous chapter, illegitimate tasks at  $t1$  did not predict any psychological well-being / strain indicator at  $t2$  if the dependent variable at  $t1$  was controlled for. Effort-reward imbalance at  $t1$ , though, predicted five out of seven well-being and strain indicators at  $t2$  consistently. However, interpreting results from  $t1-t3$ , it was not only that illegitimate task did not predict effort-reward imbalance, but effort-reward imbalance at  $t2$  failed to predict feelings of resentment, emotional exhaustion, and job satisfaction. In the last set of analyses regarding the second and third measurement point, illegitimate tasks at  $t2$  predicted effort-reward imbalance at either  $t2$  or  $t3$ , so further analyses were partaken. However, effort-reward imbalance at  $t2$  was not able to predict four indicators of well-being or strain again. On the other hand, two complete mediations were found concerning feelings of resentment and organization-based self-esteem.

## Results

Table 28. Overview of Effort-Reward Imbalance Acting as a Potential Mediator between Illegitimate Tasks and Well-Being / Strain in Study I under Control of Age and Sex.

	MED	RES	IRR	EXH	DIS	PC	JS	OBSE
Study I t1	T1	partial	partial	partial	partial	no mediation	partial	partial
Study I t2	T2	partial	complete	partial	partial	complete	partial	partial
Study I t3	T3	partial	complete	complete	complete	partial	complete	complete
Study I t1-t2	T1	partial	complete	complete	complete	complete	complete	complete
Study I t1-t2	T2	partial	complete	complete	complete	complete	complete	complete
Study I t1-t3	T2	no mediation	complete	no mediation	partial	no mediation	complete	complete
Study I t1-t3	T3	complete	complete	partial	complete	partial	complete	complete
Study I t2-t3	T2	no mediation	partial	No mediation	partial	partial	partial	partial
Study I t2-t3	T3	partial	complete	partial	partial	complete	complete	partial
Study I t1-t2 control DV t1	T1	(2,3) not met	(2) not met	(2) not met	(2) not met	(2) not met	(2,3) not met	(2) not met
Study I t1-t2 control DV t1	T2	(1,2) not met	(1,2) not met	(1,2) not met	(1,2) not met	(1,2) not met	(1,2) not met	(1,2) not met
Study I t1-t3 control DV t1	T2	(1,2,3) not met	(1,2) not met	(1,3) not met	(1) not met	(1,2) not met	(1,2,3) not met	(1) not met
Study I t1-t3 control DV t1	T3	(1,2) not met	(1,2) not met	(1) not met	(1) not met	(1,2) not met	(1,2) not met	(1) not met
Study I t2-t3 control DV t2	T2	(3) not met	(2,3) not met	(3) not met	no mediation	(2) not met	(3) not met	no mediation
Study I t2-t3 control DV t2	T3	complete	(2) not met	no mediation	no mediation	(2) not met	no mediation	complete

Note. Significance level for analysis  $p \leq .10$ , N = 189-190 t1, N 90-91 t2, N =41-48 t3, (1) the IV significantly effects the mediator, (2) the IV significantly effects the DV in the absence of the mediator, (3) the mediator has a significant effect on the DV, no mediation = beta of independent variable did not shrink or mediator became insignificant, partial = partial mediation, complete = complete mediation, MED=measurement point of the mediator, BITS=Bern Illegitimate Tasks Scale, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PC=psychosomatic complaints, OBSE=organization-based self-esteem, JS=job satisfaction,

## Results

Results of the second longitudinal analyses are presented in Table 29. The stability of effort-reward imbalance was not as high as in the former study ( $r = .63$ ,  $p < .001$ ), but still caused concern for mediation analyses. Thus, the longitudinal analyses were performed with and without control of the dependent variable of t1.

Once again, the cross-sectional mediation analyses were promising as all 14 mediation analyses were verified. Nine mediations were partial, and five complete. Longitudinal analyses without control of the dependent variable at t1 either confirmed the mediation (12 out of 14) or were halted due to a lack of power with regard to fulfilling all conditions. When controlling for effort-reward imbalance at t1, illegitimate tasks as a stressor was not able to predict effort-reward imbalance at t2. And under control of the dependent variable at t1, effort-reward imbalance failed to predict feelings of resentment, emotional exhaustion, psychosomatic complaints, and job satisfaction.

To summarize findings, the cross-sectional and longitudinal analyses without additional control besides age and sex showed that the presumed mediation was promising and supported hypothesis 5.1. Albeit, the longitudinal analyses with control of the dependent variables were not as auspicious as hoped for. Reasons might lie in the limited sample size and stabilities reported before. So, these results need to be replicated with larger samples and other interactions should be tested as well (for instance moderation).



## Results

Table 29. Overview of Effort-Reward Imbalance Acting as a Potential Mediator between Illegitimate Tasks and Well-Being / Strain in Study II under Control of Age and Sex.

	MED	RES	IRR	EXH	DIS	PC	JS	OBSE
Study II t1	T1	partial	partial	partial	complete	complete	partial	partial
Study II t2	T2	partial	complete	partial	partial	complete	partial	complete
Study II t1-t2	T1	partial	no mediation	no mediation	complete	complete	complete	complete
Study II t1-t2	T2	complete	partial	complete	complete	complete	complete	Complete
Study II t1-t2 control DV t1	T1	(3) not met	no mediation	(2,3) not met	no mediation	(2,3) not met	(2,3) not met	(2) not met
Study II t1-t2 control DV t1	T2	(1) not met	(1) not met	(1,2) not met	(1) not met	(1,2) not met	(1,2) not met	(1,2) not met

Note. Significance level for analysis  $p \leq .10$ , N = 142-146 t1, N=73-75 t2, (1) the IV significantly effects the mediator, (2) the IV significantly effects the DV in the absence of the mediator, (3) the mediator has a significant effect on the DV, no mediation = beta of independent variable did not shrink or mediator became insignificant, partial = partial mediation, complete = complete mediation, MED=measurement point of the mediator, BITS= Bern Illegitimate Tasks Scale, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PC=psychosomatic complaints, OBSE=organization-based self-esteem, JS=job satisfaction.

#### 4.6. Illegitimate Stressors and Situational Well-Being

In this last subchapter, perceived illegitimacy of stressful situations at work was the main issue. It was tested whether the illegitimacy had an impact on situational well-being over and above chronic stressors and resources. 147 participants from study II reported stressful events at work, major or minor, via diaries on two work days. They briefly described the situation, indicated the stressfulness and the perceived illegitimacy of the situation as well as their situational well-being and temporary feelings of resentment caused by the situation. All in all, 428 situations were reported. In general, participants reported four stressful situations ( $M = 3.98$ ,  $SD = 1.87$ , Range = 1 - 8), and men reported less situations than women ( $M(\text{men}) = 3.80$ ,  $SD = 1.79$ ,  $M(\text{women}) = 4.35$ ,  $SD = 1.98$ ,  $t(426) = 2.77$ ,  $p = .004$ ).

Stressfulness (one item) and situational well-being were two veteran measures developed for situational stress studies by Perrez and Reicherts (1996) and internal consistencies for the latter reached  $\alpha = .64$  with four items. The measure of situational resentments was adapted for this study from the scale feelings of resentment by Geurts et al. (1999) and internal consistency reached  $\alpha = .83$  with eight items. The measure of perceived illegitimacy with eight items was especially created for this study and showed promising internal consistency  $\alpha = .87$  as well as corrected-items total correlations ranging from  $r_{it} = .32$  -  $.59$ . An exploratory factor analyses (principal component analyses with varimax rotation) calculated two factors, and the distinction between unnecessary (items: unnecessary, gratuitous, avoidable, meaningless) and unreasonable (items: intolerable, improper, illegitimate, incorrect) was tried and proven once again, and both factors explained 68% of the variance.

The data contained information at the person-level and the situation-level, with stressful situations nested within persons. Potential problems are, as Elfering, Grebner, and Semmer (2006) point out, that aggregating information implies loss of situational information and power, and that analyzing the data on the situational level implies ignoring dependency among data. For situational data, the multilevel approach is appropriate (Hox, 2002). Multilevel models (Snijders & Bosker, 1999) offer a valid alternative to conventional statistical analyses as the degree of non-independence is modeled and controlled for in the analysis. Statistical procedures that assume independence may lead to an underestimation of the size of standard errors and hence increase the likelihood of rejecting the null hypothesis (Snijders & Bosker, 1999). The MLwiN software package was used for the analyses (Rasbash et al., 2000). Dependent variables were situational well-being and situational resentments. A variance components model was performed first (intercept-only model), estimating the intraclass-correlation (ICC), which represents the proportion of the variance in dependent variables explained by the person level. The variance components model did not include any

explanatory variables but only intercept variances as random indicators at each level (cf. Hox, 2002). Iterative generalized least squares (IGLS) were used for estimating parameters, and fixed coefficients were tested by dividing the fixed coefficient by its standard error, which yielded a t-value (Snijders & Bosker, 1999). Because differences between participants in dependent variables regardless of the influence of predictor variables were expected, it was allowed for individual differences in intercepts as a random effect. Since not any assumptions with regard to individual differences concerning relations of situational predictors to the dependent variables were made, fixed effects with regard to slope were modeled, implying that no random error term is estimated for the regression slope (Nezlek, 2001). For each situation-related predictor variable it was then tested whether a random model fits the data better by allowing the slopes to vary across persons (slope variance as first random parameter) and by estimating the covariance between slopes and intercept (second random parameter). Significant estimates of slope variance indicate cross-level interactions. All parameters were mean-centered besides sex.

#### *Hypothesis 6.1.*

*Perceived illegitimacy of stressful events at work predicts situational psychological well-being and situational resentments, even after controlling for several task stressors, illegitimate tasks, age, and sex at the person level and stressfulness of the situation at the situational level. The task stressors are uncertainty, time pressure, concentration demands, problems with the organization of work, and interruptions at work.*

To test the first hypothesis of this chapter, five task-related stressors as well as illegitimate tasks and age and sex were entered on the person level and stressfulness and illegitimacy on the situational level, and results are presented in Table 31. All relationships between the situational variables were significant and pointed in the assumed directions. The high correlation of  $r = .65$  between situational resentments and illegitimacy was comparable with relationships detected between illegitimate tasks and feelings of resentment on the person level. The correlation did not change if single items bearing similarities in these two measures were eliminated (e.g., unfairness and illegitimate). An exploratory factor analyses (Appendix B6) with all items of these measures (principal component analyses with varimax rotation) yielded three factors with the items of situational resentments loading on one factor and the items for illegitimacy loading on a second spare two items, which loaded on the second as well as on a third factor (avoidable and unnecessary). Therefore, it was proceeded with the original developed scale. Descriptive data and correlations of the variables acquired are presented in Table 30 and the corresponding multilevel-analysis in Table 31.

## Results

Table 30. Means, Standard Deviations, and Correlations among Event-Related Well-Being / Strain and Situational and Chronic Stressors (Task-related Stressors).

	M	SD	1	2	3	4	5	6	7	8	9	10	11
1 BITS	2.49	.63											
2 UN	2.78	.68	.46***										
3 IW	3.54	.75	.15**	.23***									
4 CD	3.25	.80	.28***	.34***	.31***								
5 TP	3.67	.78	.15**	.20***	.48***	.41***							
6 POW	2.40	.73	.37***	.47***	.04	.19***	.03						
7 ILL	3.30	.97	.16***	.22***	.05	.11*	.06	.15**					
8 Stress	3.10	1.35	.28***	.23***	.19***	.06	.18***	.10*	.23***				
9 WeBe	3.25	.80	-.24***	-.17***	-.19***	-.03	-.05	-.15**	-.26***	-.48***			
10 SiRe	3.44	1.35	.30***	.26***	.10*	.11*	.14**	.10*	.65***	.45***	-.43***		
11 Age	40.01	9.86	-.06	.15**	.23***	.19***	.17***	.05	-.06	-.02	-.01	-.12*	
12 Sex			.14**	.24***	-.14**	.14**	.07	.11*	-.03	.04	-.12*	.04	.18***

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, N=400 - 428

BITS=Bern Illegitimate Tasks Scale, UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work, ILL=perceived illegitimacy of situation, Stress=stressfulness of situation, WeBe=situational well-being, SiRe=situational resentments, sex=dummy-coded male=1, female=0.

## Results

Table 31. Multilevel Analyses Regressing Event-Related Well-Being / Strain onto Situational and Chronic (Task-related Stressors) Predictor Variables.

Dependent Variables				
Predictor Variables	Well-Being: ICC = 0.36		Resentments ICC = 0.44	
Fixed Effects	PARAM	SE	PARAM	SE
Level 2 (Person)				
Sex	-.17	.10	.09	.14
Age	-.001	.01	-.01	.01
BITS	-.17	.08*	.38	.11***
TP	.08	.06	.05	.09
CD	.08	.07	.04	.10
POW	-.10	.07	-.14	.09
IW	-.17	.07*	-.03	.09
UN	.09	.08	.04	.11
Level 1 (Situation)				
Stressfulness	-.22	.03***	.24	.04***
Illegitimacy	-.13	.04***	.79	.05***
Intercept	3.37	.08	3.37	.11
Random Effects				
VAR Intercept L2	.11	.03	.22	.05
VAR Intercept L1	.30	.03	.57	.05
Modelfit (IGLS)	749.12			1018.40

Note. Sample size: N=400 (well-being) and N=405 (resentments) events reported during two working days. *Param*=fixed parameter estimates; *SE*=standard error, significance level the Wald-Test (parameter estimates/standard error) indicated by asterisks: \*<.05, \*\*<.01, \*\*\*<.001, two-tailed. Random Effects=variance estimates of the intercept that was allowed to vary on both levels, L2=level 2, L1=Level 1, BITS=Bern Illegitimate Tasks Scale, UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work, sex=dummy-coded male=1, female=0.

## Results

The intercept-only-model (without any explanatory variables) yielded an ICC of .36 for well-being and an ICC of .44 for resentments. Thus, 36 and 44 percent of the total variance in situational well-being / resentments was located at the person-level, and 64 and 56 percent at the situation-level. Close inspection of Table 31 revealed that higher chronic levels of illegitimate tasks were related to higher situational resentments and well-being. Also, illegitimate tasks and work interruptions contributed negatively to situational well-being. With regard to situational predictors (Level 1), stressfulness as well as illegitimacy was related to both outcome variables in the expected direction. Thus, perceived illegitimacy of the situation uniquely contributed to momentary well being as well as momentary resentments even when stressfulness of the situation was controlled. Especially powerful was the effect for situational resentments. The variation of the intercept across participants was significant for both dependent variables, indicating that significant differences between individuals in mean event-related well-being and resentments did remain when all predictors were in the model. There was, however, no indication of individual differences in the impact of situational characteristics on situational outcome (significant variation in slope). This also applied for the next three analyses.

In a next step, stressors of several domains were entered on the chronic level. Descriptive statistics and correlations are presented in Table 32 and the corresponding multilevel-analysis in Table 33. The depicted correlations in Table 32 are also the relevant correlations for the hypotheses 6.3. and 6.4.

### *Hypothesis 6.2.*

*Perceived illegitimacy of stressful events at work predicts situational psychological well-being and situational resentments, even after controlling for a group of other chronic stressors from different contexts, illegitimate tasks, age, and sex at the person level and stressfulness of the situation at the situational level. The other stressors are social stressors, effort-reward imbalance, work-family conflict, emotional dissonance, and task-related stressors (index).*

## Results

Table 32. Means, Standard Deviations, and Correlations among Event-Related Well-Being / Strain and Situational and a Group of Chronic Stressors and Resources.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 BITS	2.49	.63																	
2 TS	3.07	.47	.44***																
3 SS	2.12	.66	.39***	.42***															
4 ERI	3.36	1.31	.62***	.47***	.46***														
5 WFC	2.88	.80	.24***	.48***	.24***	.27***													
6 ED	3.01	.68	.43***	.42***	.37***	.43***	.19***												
7 JC	3.32	1.00	-.11*	.15**	-.24***	-.23***	.19***	-.20***											
8 MC	3.61	.98	cnr	cnr	cnr	cnr	cnr	cnr	cnr										
9 TC	3.04	1.21	cnr	cnr	cnr	cnr	cnr	cnr	cnr	.81***									
10 SSW	3.73	.62	-.26***	-.18***	-.42***	-.43***	.03	-.40***	.29***	.34***	.22***								
11 SEF	4.51	.72	-.15**	-.01	-.10*	-.11*	-.02	-.17***	.28***	.25***	.27***	.13**							
12 SEE	3.92	.54	-.17***	-.10*	-.24***	-.21***	-.11*	-.14**	.21***	.18***	.21***	.27***	.51***						
13 ILL	3.30	.97	.16***	-.18***	.24***	.26***	.01	.07	-.15**	-.13**	-.15**	-.13**	.02	-.02					
14 Stress	3.10	1.35	.28***	.24***	.24***	.27***	.15**	.23***	-.13**	-.14**	-.11*	-.16***	-.10*	-.12*	.23***				
15 WeBe	3.25	.80	-.24***	-.18***	-.20***	-.26***	-.11*	-.17***	.01	.04	-.02	.14**	.11*	.08	-.26***	-.49***			
16 SiRe	3.44	1.35	.30***	.22***	.33***	.35***	.11*	.13**	-.18***	-.15**	-.18***	-.12*	-.05	.03	.65***	.45***	-.43***		
17 Age	40.01	9.86	-.06	.24***	.10*	-.11*	.14**	.06	.10*	.02	.16***	-.01	.10*	.11*	-.06	-.02	-.01	-.12*	
18 Sex			.14**	.13**	.17***	.07	.06	-.06	.33***	.27***	.35***	-.09†	.11*	-.06	-.03	.04	-.13*	.04	.18***

Note. Pearson Correlations (2-tailed) \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N=398 – 428, cnr=correlation not relevant as they never entered the same model, BITS=Bern Illegitimate Tasks Scale, TS=task stressors (index), SS=social stressors, ERI=effort-reward imbalance, WFC=work-family conflict, ED=emotional dissonance, JC=job control (index), MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, ILL=perceived illegitimacy of situation, Stress=stressfulness of situation, WeBe=situational Well-being, SiRe=situational resentments, sex=dummy-coded male=1, female=0.

## Results

Table 33. Multilevel Analyses Regressing Event-Related Well-Being / Strain onto Situational and Chronic (Stressors from Several Domains) Predictor Variables.

	Dependent Variables			
Predictor Variables	Well-Being: ICC = 0.36		Resentments ICC = 0.44	
Fixed Effects				
	PARAM	SE	PARAM	SE
Level 2 (Person)				
Sex	-.11	.10	.07	.13
Age	-.003	.01	-.01	.01
SS	-.03	.08	.27	.10**
BITS	-.14	.09	.28	.13*
ED	-.01	.08	-.06	.10
TS	.12	.13	-.14	.17
ERI	-.01	.05	-.01	.07
WFC	.02	.06	.07	.08
Level 1 (Situation)				
Stressfulness	-.24	.03***	.23	.04***
Illegitimacy	-.12	.04**	.77	.05***
Intercept	3.33	.08	3.38	.11
Random Effects				
VAR Intercept L2	.11	.03	.203	.05
VAR Intercept L1	.32	.03	.588	.05
Modelfit (IGLS)	773.53		1034.96	

Note. Sample size: N=404 (well-being) and N=409 (resentments) events reported during two working days. *Param*=fixed parameter estimates; *SE*=standard error, significance level the Wald-Test (parameter estimates/standard error) indicated by asterisks: \*<.05, \*\*<.01, \*\*\*<.001, two-tailed. Random Effects=variance estimates of the intercept that was allowed to vary on both levels, L2=level 2, L1=Level 1, BITS=Bern Illegitimate Tasks Scale, TS=task stressors (index), SS=social stressors, ERI=effort-reward imbalance, WFC=work-family conflict, ED=emotional dissonance, JS=job satisfaction, sex=dummy-coded male=1, female=0.

None of the person-level variables was significantly related to situational well-being. With regard to situational resentments, higher chronic levels of both social stressors and illegitimate tasks were related to higher situational resentments. Again, the situational predictors stressfulness and illegitimacy predicted both outcome variables in the expected direction.



## Results

In the next analysis, resources were entered instead of stressors on the person level to test whether resources might affect the strong effect of perceived illegitimacy on situational well-being and resentments. Results are presented in Table 34.

### *Hypothesis 6.3.*

*Perceived illegitimacy of stressful events at work predicts situational psychological well-being and situational resentments, even after controlling for internal and external resources, age, and sex at the person level and stressfulness of the situation at the situational level. The resources are time control, method control, social support at work, self-efficacy, and self-esteem.*

Table 34. Multilevel Analyses Regressing Event-Related Well-Being / Strain onto Situational and Chronic (Resources) Predictor Variables.

Dependent Variables				
Predictor Variables	Well-Being: ICC = 0.36		Resentments ICC = 0.44	
Fixed Effects				
	PARAM	SE	PARAM	SE
Level 2 (Person)				
Sex	-.10	.11	.31	.14*
Age	.00	.01	-.01	.01
MC	.07	.08	.15	.10
SSW	.01	.08	-.03	.10
SEF	.08	.08	-.18	.10
SEE	.07	.11	.34	.14*
TC	-.08	.07	-.19	.08*
Level 1 (Situation)				
Stressfulness	-.25	.03***	.27	.04***
Illegitimacy	-.14	.04***	.77	.05***
Intercept	3.34	.09	3.22	.11
Random Effects				
VAR Intercept L2	.13	.03	.19	.05
VAR Intercept L1	.32	.03	.61	.05
Modelfit (IGLS)	757.26		996.33	

Note. Sample size: N=387 (well-being) and N=391 (resentments) events reported during two working days, *Param*=fixed parameter estimates; *SE*=standard error, significance level the Wald-Test (parameter estimates/standard error) indicated by asterisks: \*<.05, \*\*<.01, \*\*\*<.001, two-tailed. Random Effects=variance estimates of the intercept that was allowed to vary on both levels, L2=level 2, L1=Level 1, MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, sex=dummy-coded male=1, female=0.

## Results

Table 35. Multilevel Analyses Regressing Event-Related Well-Being / Strain onto Situational and Chronic (Different Stressors and Resources) Predictor Variables.

Dependent Variables				
Predictor Variables	Well-Being: ICC = 0.36		Resentments ICC = 0.44	
Fixed Effects	PARAM	SE	PARAM	SE
Level 2 (Person)				
Sex	.02	.11	.18	.14
Age	-.01	.01	-.01	.01*
SS	-.05	.08	.28	.10**
BITS	-.17	.10	.24	.12*
ED	.00	.08	-.01	.10
TS	.15	.13	-.08	.17
ERI	-.02	.05	-.01	.07
WFC	.05	.06	.12	.08
JC	-.10	.05	-.08	.07
SSW	.01	.08	.13	.11
SEF	.05	.07	-.13	.09
SEE	.10	.10	.38	.13**
Level 1 (Situation)				
Stressfulness	-.24	.03***	.24	.04***
Illegitimacy	-.12	.04**	.76	.05***
Intercept	3.24	.09	3.33	.11
Random Effects				
VAR Intercept L2	.10	.03	.14	.05
VAR Intercept L1	.32	.03	.61	.05
Modelfit (IGLS)	726.83		961.17	

Note. Sample size: N=380 (well-being) and N=384 (resentments) events reported during two working days. *Param*=fixed parameter estimates; *SE*=standard error, significance level the Wald-Test (parameter estimates/standard error) indicated by asterisks: \*<.05, \*\*<.01, \*\*\*<.001, two-tailed. Random Effects=variance estimates of the intercept that was allowed to vary on both levels, L2=level 2, L1=Level 1, BITS=Bern Illegitimate Tasks Scale, TS=task stressors (index), SS=social stressors, ERI=effort-reward imbalance, WFC=work-family conflict, ED=emotional dissonance, JC=job control (index), SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, sex=dummy-coded male=1, female=0.

## Results

Resources did show an effect on situational resentments, as time control and self-esteem were significantly related. But the effect of self-esteem went in the not-assumed direction, meaning that high self-esteem led to higher situational resentments instead of being a protective agent (bivariate correlation  $r = .03$ ,  $p = .560$ ). Also, sex became a significant predictor for resentments favoring the assumption that men reported more situational resentments. Both situational predictors were again related to both outcome variables in the expected direction.

In the last, and most challenging, analyses it was assumed that illegitimacy of the situations still predicts situational psychological well-being and resentments, if all stressors and resources are entered in the same model (task-related stressors / job control as index again).

### *Hypothesis 6.4.*

*Perceived illegitimacy of stressful events at work predicts situational psychological well-being and situational resentments, even after controlling for other stressors, internal and external resources, illegitimate tasks, age, and sex at the person level and stressfulness of the situation at the situational level. Resources entered are job control (time control and method control in one measure), social support at work, self-efficacy, and self-esteem. Other stressors entered are social stressors, effort-reward imbalance, work-family conflict, emotional dissonance, task stressors (index), and illegitimate tasks.*

Fourteen predictors were involved to test the last hypothesis (see Table 35). Once again, not any chronic stressor or resource indicated importance for situational well-being, whereupon illegitimate tasks marginally missed the significance level. Higher chronic levels of both social stressors and illegitimate tasks were related to higher situational resentments as well as age and self-esteem, whereat the latter went again in the wrong direction. Over and over again, both situational predictors (stressfulness as well as illegitimacy) were related to both outcome variables in the expected direction.

All in all, perceived illegitimacy of the situation uniquely contributed to situational well-being and resentments in all four analyses, even when stressfulness of the situation and many other predictors related to stress on the chronic level were controlled for. So, the four hypotheses were confirmed. The effect of perceived illegitimacy of the situation was stronger for situational resentments than for situational well-being. Nevertheless, its effect was always significant. On the chronic level, the stressor illegitimate tasks was a significant predictor for situational resentments in three out of three cases, social stressors in two out of two. The positive effect of self-esteem on situational resentments was rather surprising.

## 5. Discussion

The SOS concept assumes that potential threat to self-esteem is a central part of many stressful experiences, and that legitimacy at work signals fair treatment and respect, whereas violations of legitimacy imply “Stress as Disrespect” (SAD). Part of the SAD concept are illegitimate tasks, the assignment of which violates standards of what may reasonably be asked of somebody at work or, in the weaker version, is perceived as unnecessary, because it is the result of poor work organization, mistakes by others, idiosyncratic norms, or the like. This stressor concept was pursued in this work and severely put to the test. Also, based on event sampling, the role of perceived illegitimacy of stress situations was further investigated. In the following, the results are discussed and conclusions drawn. Also, strengths and limitations of this work are debated as well as implications presented.

### 5.1. Summary and Conclusions

#### 5.1.1. Pilot Studies

While writing this, physicians, and especially interns and residents at hospitals, have been demonstrating on the streets against their work characteristics in Germany and Switzerland, and their fight has been ongoing for the past six months. They are fighting for reduced working hours, better pay, more appreciation, and less administrative tasks; the latter as it hinders them from concentrating on their core tasks, which are described as preventing and healing illnesses. So, one could argue that they are fighting for lesser ancillary tasks and perhaps, among them, illegitimate tasks.

As far as the basic properties of the concept of illegitimate tasks are concerned, this work confirmed the expectations. Only 5 out of 159 (3%) individuals in the pilot interview studies reported neither an unnecessary nor an unreasonable task. Combined results showed that more than 3500 work tasks were mentioned by the 159 participants, and roughly a third of these were categorized as either unnecessary or unreasonable, and, therefore, illegitimate. Therefore, they are beyond negligibility. The tasks were categorized more often as unnecessary than as unreasonable (21% versus 13% of all tasks mentioned), indicating that the proposed weaker version appears more often in the normal course of work life. Differences between pilot studies were found as well: Whereas pilot study 1 and 3 are more or less comparable, in study 2 almost twice as many ancillary, unnecessary, and unreasonable tasks and more than three times as many illegitimate tasks were mentioned than in studies 1 and 3. As this particular pilot study comprised of employees from one company (IT-specialists), it could be argued that organizational settings or characteristics or specific occupations might favor the assignments of illegitimate tasks.

Furthermore, it was argued that the fulfillment of core tasks is likely to confirm one's identity (Thoits, 1991), whereas carrying out auxiliary tasks does not. Therefore, auxiliary tasks should carry a much higher risk of being perceived as illegitimate, and this was clearly confirmed. In the combined sample, approximately 10% of the core tasks were perceived as illegitimate and 64% of auxiliary tasks. The numbers oscillated slightly over the three pilot studies (study 1: 10% and 60%, study 2 16% and 75%, study 3 3% and 31%). This is important, since it is argued that one's core role is central to one's identity, and ancillary tasks often occupy time that people would rather spend working on their core tasks, which confirm their work identity. Therefore, it follows that when trying to detect illegitimate tasks, the turn of attention should go (especially) to the auxiliary tasks.

In this work, the interview studies provided a foundation for the importance and existence of illegitimate tasks in daily work life. Therefore, just the basic interview material with regard to frequencies and character of tasks (core or auxiliary task) was analyzed. But the interviews yielded much more information about illegitimate tasks than outlined here, and other work took care of that in analyzing and interpreting the data. For instance, characteristics of illegitimate tasks in comparison to other tasks, or ways to distinguish among them, or the relation of the number of illegitimate tasks and psychological well-being / strain, were explored in master's theses at the University of Bern by Dérer and Guyan (2005), Hagen and Schirmer (2002), and Schäfer (2006).

### **5.1.2. The Bern Illegitimate Tasks Scale BITS**

The Bern Illegitimate Tasks Scale (BITS) was construed on the basis of the preliminary interview work. The scale yielded good psychometric properties in eight independent studies for the subscales (unnecessary tasks  $\alpha = .76$  to  $.86$ ,  $r_{itt} = .29$  to  $.79$  and unreasonable tasks  $\alpha = .73$  to  $.82$ ,  $r_{itt} = .42$  to  $.73$ ) and the total scale (BITS  $\alpha = .79$  to  $.87$ ,  $r_{itt} = .29$  to  $.68$ ). Corrected item-total correlations were just twice below  $r_{itt} = .30$  and both in the same study with just 64 participants (2 out of 162 corrected-item total correlations performed altogether). Assimilable to the results of the interview studies, the means were higher for unnecessary tasks than unreasonable tasks in all eight main studies and the total sample (unnecessary tasks:  $M = 2.58$  to  $3.04$ ; unreasonable tasks:  $M = 1.76$  to  $2.40$ ) and the scale, ranging from 1-5 for all items, was fully availed. Skewness was an issue especially for unreasonable tasks and, thus, they significantly deviated from a normal distribution. But this was in line with the reasoning of a stronger, and, therefore, less likely, form of illegitimate tasks, which may breach the psychological contract. A normal distribution of these items in a sample of almost 3000 individuals with different occupations would draw a rather bleak picture of the work conditions in Switzerland. The relationships between subscales ranged from  $r = .34$  to  $.60$  in all eight

studies, and was in the total sample (all eight samples combined)  $r = .54$ . ( $p < .001$ ,  $N = 2973$ ). Gender differences, in terms of occurrence, were not detected, but age was of importance, hinting that employees below the age of 40 report more illegitimate tasks than elder employees.

The proposed two-factor structure was authenticated in seven out of eight studies in exploratory as well as in confirmatory factor analysis over the total sample. The overall fit of the CFA was moderate and indicated by eight different indicators drawn from the literature. However, a crux of the matter was unnecessary tasks item four, as it either loaded on both factors or (once) on the factor not assumed. Theoretically, it is comprehensible that some mistakes are acceptable, as everyone makes mistakes, whereas some smaller mistakes (in terms of consequences) may be perceived as unnecessary (e.g., filing documents in the wrong cabinet leading to a waste of time searching for them) and some larger mistakes may be perceived as unreasonable (e.g., irreversible loss of relevant documents). An additional set of CFA analyses revealed that the model fit deteriorated when the item was assigned to unreasonable tasks and slightly improved when the item was forsaken, but not with regard to all eight indicators of model fit. I decided to leave this item in the scale due to several reasons. Firstly, it correlated with both factors and its factor loadings were above .30, so it had a clear relationship to the illegitimate tasks scale. Secondly, its removal did not result in an overall better fit of the model. Thirdly, it would be premature to exclude an item as related as this one on the basis of just eight studies, even though the total sample size was impressive. Sample error is still an issue and, in my opinion, more studies should be collected before dismissing an item of such a brief scale. And fourthly, in terms of analyzing the potential of illegitimate tasks as a stressor, the total scale was of interest in this work, not its subscales.

Actually, that is another crux of the matter as one could argue that the proposed and verified factor structure should result in more differential analysis, for instance analyzing the relationships and effects of unnecessary tasks apart from the effects of unreasonable tasks. This would be a valid argument, but the empirical data showed that the total scale correlated more strongly with indicators of psychological well-being and strain than the subscales (with the exemption of emotional exhaustion based on three correlations). This is reasonable, as it contains the information of both unnecessary and unreasonable tasks an individual has to attend to, and suffering from both may lead to more strain. Unreasonable tasks may be more powerful in terms of triggering stress responses, but they are also less likely.

However, after collecting and analyzing more data, my decision might be questioned and the item will be either eliminated or reformulated (e.g., discriminating between smaller and larger mistakes). At the time of writing, one analysis is under way which includes 14 samples and 4150 participants' altogether. Whether including the item or not, the results suggest that the scale and its subscales are sound measures of the theoretical idea of illegitimate tasks and should be included in future research. The additional potential of more differential analyses than I have exploited in this work should be acknowledged as well. However, if I would have attempted to calculate the relationships and effects separately, the number of analyses would have doubled, and that would have logically resulted in a higher probability of Type I error and the curse of multiplicities (Maxwell, 2000, 2004).

### **5.1.3. Illegitimate Tasks Predicting Well-Being / Strain – Cross-Sectional Analysis**

In order to be considered viable as a stressor, illegitimate tasks have to show associations with well-being or strain. In bivariate analyses, these associations were present, as illegitimate tasks were consistently related in eight studies to the eight different indicators of psychological well-being and strain assessed for this work (feelings of resentment, irritation, emotional exhaustion, disengagement, work-related depression, psychosomatic complaints, job satisfaction, and organization-based self-esteem). Just 3 out of 41 correlations were not significant and those varied over the dependent variables, which alludes more strongly to sample error than to the systematic failure of proving a relationship. In addition, meta-analytic findings consolidated these results. The weighted mean correlations of  $r_c = .33$  to  $.51$  and observed confidence intervals were keenly promising. The accounted variance due to sampling error was above 75% in five out of eight cases, and, therefore, it met the Hunter & Schmidt criterion (1990). The accounted variance due to sampling error for disengagement, work-related depression, and organization-based self-esteem was dissatisfactory, which may have been caused by moderators and should be followed up. However, the meta-analytic results should be interpreted with care as the number of individuals and studies (between 400 and 2949 participants in three to eight studies) were rather humble in comparison to the typical reported numbers of studies and participants of meta-analytic research.

It is, however, necessary to establish that the association of illegitimate tasks with psychological well-being and strain is maintained when other stressors are controlled for. Beforehand, it is necessary to prove that illegitimate tasks have discriminant validity or, otherwise, it would be just a new way of measuring another established construct of a stressor or resource. Closer relationships were found with effort-reward imbalance ( $r = .38-.66$ ,  $p < .001$ ), which was expected given that the two constructs share variance due to the notion that both stressors violate norms of what one feels entitled to. Their special

relationship is discussed in chapter 5.1.5. Also, task-related stressors had a closer association, ( $r = .48-.60$ ,  $p < .001$ ), which is understandable since powerful task-related stressors as interruptions at work and problems of the organization of work presumably share variance with the concept of unnecessary tasks. Social stressors were associated as well ( $r = .41-.54$ ,  $p < .001$ ), indicating that the social aspect and the external attribution of illegitimate tasks are relevant, in the way that mistakes by others or idiosyncratic norms are causes of illegitimate tasks, for instance. The relations between illegitimate tasks and other stressors were also consistent, but more moderate. Furthermore, illegitimate tasks were consistently, but moderately, related with self-esteem, job control, and social support at work. It follows that associations exist, but that illegitimate tasks contain information not conveyed by other stressors or resources.

In terms of proving that illegitimate tasks keep their relationship to indicators of psychological well-being / strain, an intense ordeal was planned and executed. First, they were put up against task-related stressors (uncertainty, time pressure, concentration demands, problems with the organization of work, and interruptions at work), then a group of several stressors (social stressors, effort-reward imbalance, work-family conflict, emotional dissonance, and an index of task-related stressors), then external and internal resources (time control, method control, social support at work, self-esteem, and self-efficacy), and, lastly, a combination of all of these in four to six studies. Potential influences of age and sex were also controlled for. Please note, however, that complete replication is not very probable even if the proposed associations do exist in all studies, due to sampling error (Maxwell, 2004). Illegitimate tasks predicted unequivocally all of the indicators of psychological well-being / strain (besides organization-based self-esteem in five out of six cases) over and above task-related stressors, and could explain up to 20% of additional variance. This result spoke for the incremental validity of illegitimate tasks, even if their correlations with other constructs disclosed similarities. It had more trouble with the group of several stressors, but feelings of resentment were predicted unequivocally again, job satisfaction in four out of six cases, and work-related depression in two out of three, and explained up to 11% of additional variance. However, illegitimate tasks did not have any difficulties with predicting all of the strain indicators over and above external and internal resources (significant in 35 out of 37 cases). In the last test, which combined up to 11 predictors before illegitimate tasks were entered in the model, the replicated relationships of illegitimate tasks and feelings of resentment, irritation, work-related depression, and job satisfaction were convincing. The effects on exhaustion and disengagement were given but are in need of replication, and the relationship to psychosomatic complaints and organization-based self-esteem were dissatisfactory within this strict testing. All of these analyses were of cross-sectional nature and preclude causality.



The difficulties with regard to potential multicollinearity were commented upon in the method and result section and will not be repeated at this point. Altogether, support for illegitimate tasks as a stressor in their own right is considerable, and certainly encouraging enough to warrant further study.

The internal resources, and especially self-efficacy at work, showed smaller bivariate associations with dependent variables (see Appendix B1), but retained significance in many studies and with regard to many dependent variables, probably due to its lower correlation with the stressors (Baron & Kenny, 1986). These results underscore once more the importance of internal resources on psychological well-being and strain.

Among the outcome variables assessed, feelings of resentment and organization-based self-esteem deserve a comment. Conceptually, feelings of resentment is a much more specific concept than, say, irritation. Asking about emotional reactions like feeling offended, angered, or disappointed by one's work (characteristics), it tackles exactly those feeling that one would expect to result from the violation of norms by others. It is, therefore, not surprising that the association with this dependent variable is especially consistent, and remains significant when other variables are controlled for. Also, the question remains as to what is measured by organization-based self-esteem. It was developed by Pierce et al. (1989) as a source-oriented measure of self-esteem, but its items seem to scrutinize feelings of being appreciated at work as well as an estimation of one's own self-efficacy at work. Therefore, it was employed in an abbreviated version as a dependent variable (appreciation) in this work. Nevertheless, after working with the scale for a longer period of time, I believe that the items pose a potential threat to self-esteem as one has to admit to many negative interactions (or none at all) at work in telling that he or she does not feel valued, appreciated, trustworthy, essential, and not given credit to, and this is also indicated in the skewness of the items (Pierce and Gardner, 2004). Henceforth, another, more distinct measure for appreciation at work should either be developed or employed, if one exists and I failed to notice it.

### **5.1.4. Illegitimate Tasks Predicting Well-Being / Strain – Longitudinal Analysis**

So far, all analyses have been cross-sectional, implying that a causal interpretation is impossible to defend. Two longitudinal studies were analyzed to test for the effect of illegitimate tasks over time. There are two ways to analyze longitudinal data: the truly longitudinal analysis, predicting the dependent variable at time 2 from time 1 predictors, including the dependent variable at time 1. The second way of analyzing effects is taking stressors at t2 as predictors and controlling for the dependent variable at t1 (synchronous effects). In all analyses, the potential effects of age and sex were controlled for also. As the

question of power became an issue, due to the rather small sample sizes, other predictors were not employed (Maxwell, 2000), but this is a handicap in most longitudinal studies without substantial funding over the length of all measurement points.

In the first longitudinal study with three measurement points and a time lag of six months respectively, not one significant effect was found with respect to seven psychological well-being and strain parameters. The high stabilities of the dependent measures between t1 and t2 might be liable as they did not allow for a lot of variance not accounted for. Despite these disappointing results, the longitudinal analyses for t1 to t3 and t2 to t3 were much more fruitful. From t1 to t3, emotional exhaustion and disengagement - both indicators of burnout - were predicted significantly and 4% of additional variance was explained for both, when the dependent variable at t1 was controlled. If the dependent variable at t2 was controlled for, then emotional exhaustion, disengagement, and psychosomatic complaints were predicted, and the amount of additional variance explained ranged from 5 to 10%. From t2 to t3, all seven dependent variables were predicted significantly on the 10% significance level or better under control of the dependent variable at t1, and illegitimate tasks explained up to 15% of additional variance, and 5% under control of the dependent variable at t2 respectively (feelings of resentment, emotional exhaustion, disengagement, job satisfaction, and organization-based self-esteem – illegitimate tasks explaining up to 11% of additional variance). These results even paled in comparison with synchronous effects, in which BITS became a significant predictor in 24 out of 28 analyses, explaining up to 15% of additional variance. The expectations toward explained variance in longitudinal stress analysis are rather limited due to omitted third variables or reverse causation or other reasons (cf. Zapf et al., 1996). However, these results appear rather convincing, and not that limited – if the first measurement between t1 and t2 is disregarded.

Reverse causation was found as well for feelings of resentment, emotional exhaustion, and psychosomatic complaints at both measurement points, and irritation from t2 to t3. Some of these effects were not predicted the other way around, but they were mainly somewhat small or tendencies. However, some evidence was found that increased strain led either to an increase in illegitimate tasks or an increased perception of illegitimate tasks at work in this sample, and these results speak in favor of the drift hypothesis (Zapf et al., 1996). The mechanism of the reverse causation for feelings of resentment could be interpreted as that when a person holds a grudge, then she might become either a victim, or perceive herself as a victim with regard to illegitimate tasks at work. However, in the second longitudinal study the reversed causation results could not be replicated save for psychosomatic complaints, but in this study the time lag was approximately two years. Also in this study, all well-being

and strain parameters were predicted significantly by illegitimate tasks in the synchronous analyses (explaining up to 27% of additional variance), and feelings of resentment, irritation, and disengagement in the longitudinal approach, explaining up to 5% of additional variance. So, it never ceases to amaze me, and to worry me as a health professional, how powerful the relationships between illegitimate tasks and indicators of psychological well-being and strain appear to be.

All in all, more evenly distributed results were found for disengagement (significantly predicted by illegitimate tasks in five out six longitudinal analyses), emotional exhaustion (four out of six) and feelings of resentment (three out of six), whereas irritation, psychosomatic complaints, job satisfaction, and organization-based self-esteem were predicted in two out of six analyses. More support was found for synchronous effects: disengagement and feelings of resentment were predicted by illegitimate tasks in five out of five cases, and all others in four out of five cases. However, the analyses were performed with two samples, in which the control of the dependent variable was varied, and not in five or six independent samples. Still, the longitudinal analyses offered sound evidence for the hypotheses and, therefore, added even more power to the argument that the concept of illegitimate tasks is valuable and further research indicated. Replication is needed, especially in terms of collecting larger samples, to be able to add other predictors to the analysis as well as to keep limited power problems at bay.

### **5.1.5. Illegitimate Tasks and Effort-Reward-Imbalance**

The relationship to effort-reward imbalance is especially intriguing. Both concepts are related to the notion of fairness, and the danger that the concept of illegitimate tasks is redundant seems greatest with respect to effort-reward imbalance. But whereas illegitimate tasks represent a rather specific concept, effort-reward imbalance indicates a more general perception of unfair treatment. So, it was reasoned that effort-reward imbalance might mediate the effect of illegitimate tasks, and the cross-sectional results provided consistent support for this hypothesis, sometimes in terms of complete, but more often in terms of partial mediation. With partial mediation, illegitimate tasks have both a direct and an indirect association with the dependent variable, supporting its importance. Even complete mediation, however, does not render the concept of illegitimate tasks superfluous. It represents a possible reason for the more general perception of effort-reward imbalance, and knowing such influences not only increases the understanding of the processes involved, but also has more specific implications for intervention than knowing the more general evaluation only.

Contemplating the cross-sectional analyses of study I, 21 out of 20 relationships between illegitimate tasks and psychological well-being and strain were partially or completely mediated by effort-reward imbalance in study I and 14 out of 14 in study II. Longitudinal analyses, abandoning the constraint to control for the dependent variable to t1, corroborated the former results: in study I, 37 out of 42 tested mediations became significant, and in study II 12 out of 14. These analyses were considered, as the high stability of effort-reward imbalance over time would increase the likelihood that the prediction of effort-reward imbalance by illegitimate tasks would be in vain, and this is a prerequisite in proving mediation. However, illegitimate tasks predicted effort-reward imbalance in study I from t2 to t3 under control of effort-reward imbalance to t2 and complete mediations were found for feelings of resentment and organization-based self-esteem. However, these results could not be replicated in study II. Reason might lie in the limited sample size and the stabilities, so these results need to be replicated with larger samples. Also, effort-reward imbalance failed 13 times in predicting psychological well-being and strain under control of the dependent variable, so another prerequisite was not met.

Theoretically, it would not be plausible to assume that effort-reward imbalance leads to more (perception of) illegitimate tasks, as illegitimate tasks are a much more specific concept. Other interactions are more plausible, for instance a combined interplay of effort-reward imbalance and illegitimate task on psychologically well-being and strain (moderation). It could also be argued that the mediation relationship might be especially prone to unreasonable tasks, as they express the severe form of illegitimate tasks and, therefore, a strong violation of norms. Hence, more research is needed to decipher the relationship of effort-reward imbalance and illegitimate tasks.

### **5.1.6. Illegitimacy of Stress Situations**

The situational multilevel-analyses add an important element to the validation efforts. They show that the perception of a stressful situation as illegitimate has a strong impact on situational well-being and situational resentments. That impact was found in all four analyses for both dependent variables, even though the general stressfulness of the situation was controlled for on the situational level and a cluster of stressors and / or resources on the person level. Furthermore, situational legitimacy retains this influence, although general legitimacy (BITS) was also controlled for on the person level (which was a significant predictor for situational resentments in three of three cases), indicating that deviations from a general level of legitimacy at work does have an impact on resentments felt in a given situation. Another plausible mechanism - in that illegitimate tasks lead to an increased

perception of stressfulness of the situation and that would lead to more strain (mediation) - was not surveyed and should be regarded in the future.

Comparing coefficients indicates that stressfulness serves as the slightly better predictor for situational well-being, whereas illegitimacy serves as a much better predictor for situational resentments in all four analyses partaken. It could be argued that the relationships between situational resentments and illegitimacy were due to conceptual overlaps as indicated by the bivariate correlation ( $r = .65$ ). However, exploratory factor analyses yielded three factors with the items of situational resentments loading on one factor and the items for illegitimacy loading on a second spare two items, which loaded on the second as well as on a third factor. The positive effect of self-esteem on situational resentments was rather surprising. A possible explanation may lie in the fact that people high in global self-esteem but low in self-esteem stability react with hostility in illegitimate stress situations at work (e.g., Kernis, et al., 1989). Unfortunately, stability of self-esteem was not assessed in this study in a proper way, and replication is called for.

### **5.2. Limitations and Strengths**

The special value of this work lies in testing the concept of illegitimate tasks and illegitimate stressors with different samples and methods. Operating with 11 studies altogether facilitates instant replication, and replication provides verification functions. As many studies in psychological research have relatively small sample sizes and are underpowered (cf. Maxwell, 2000, 2004), replication is helpful for extending the generalization of the results. Also, the advantage of using meta-analysis - in that the meta-analytic results provide a more accurate estimate of the correlations between variables - was utilized. The situational assessments do represent an additional design aspect, where situational judgments can be analyzed while controlling both for other situational variables and for person-level variables. Therefore, the situational approach added an important element to the validation efforts. The question of reversed causation can and was solved by longitudinal analyses. However, influences of omitted third variables remain a problem even with longitudinal analysis (cf. Zapf et al., 1996).

Certainly, there are several limitations of this work. First, it is based on self-report only. This always implies the jeopardy of common method variance. This problem is attenuated by the fact that a number of other potentially important variables are controlled for, yet illegitimate tasks remain a unique predictor in many cases. The self-report problem is also attenuated by one of the strengths of this work: the situational assessments and the corresponding multilevel analyses. Although these also represent a self-report assessment, they are subject

to biases to a lesser extent than traditional questionnaires asking for general perceptions (cf. Bolger, Davis, & Rafaeli, 2003).

Next, the prevailing tripartite division distinguishing between psychological, physical, and behavioral components of well-being was not tapped to its full potential in this work (e.g., Jex & Beehr, 1991; Kahn & Byosiére, 1992). However, the promising results of this work indicate that resources should be exploited to warrant further study with regard to illegitimate tasks and behavioral components and physiological well-being. Assessing indicators of physiological strain are rather expensive and also cumbersome for all participants involved and, therefore, it made sense to concentrate on gathering sound evidence on psychological well-being and strain before risking the potential of defenestrating resources. However, while writing this, a longitudinal study - for which the Swiss National Science Foundation approved a grant – has started at the University of Bern, and it includes the assessment of cortisol obtained by salivary sampling, and, possibly, alpha amylase.

Also, it is rather unusual that a thesis has the word “stress” in its title, and that “coping” is mentioned nowhere. This is due to the wealth of other research questions in this work, and should not be interpreted as an expression of callousness or disregard. However, on another note, there are not many theoretic arguments conceivable as to why the mechanisms between illegitimate tasks and problem-oriented, emotion-oriented, or palliative coping should be different than for, say, task-related stressors (cf. Kälín, 2004). Also, even though the variety of influences of resources on the stressor-strain relationship was pinpointed in the theoretical background, only main effects of resources were analyzed. This is in line with arguing that a new stressor-strain concept has to prove its importance over and above other stressors and resources, but neglects literature pointing to moderating and mediating influences of resources (e.g., Ganster & Schaubroeck, 1991; Hobfoll, 2001 for self-esteem; Jerusalem & Schwarzer, 1992 for self-efficacy). Still, the results of this work show that resources, and especially internal resources, are important for psychological well-being and strain in proving main effects, and other effects should be followed-up.

Also, not all samples were funded by research grants; some of them were either mandates from corporations or implemented without financial aid. Thus, these studies reflect their purposes and not all relevant variables were assessed in all studies or assessed exactly the same, as some studies had to be shorter or had to answer other research questions as well. Semmer (2003a) mentions that the explanatory value of different scales measuring the same construct should remain comparable, when the scales are developed carefully. However,

assessing constructs like job satisfaction and organization-based self-esteem with only one item might deserve critique, even though the key items of the scales were selected.

Lastly, it is important to stress that some of the cross-sectional studies and both longitudinal studies are hampered due to the small sample sizes. The sample sizes altogether varied from 42 to 1256 participants. So, conclusions should be drawn with care for the cross-sectional studies with smaller sample sizes. In terms of longitudinal analysis, a replication with larger samples should be aimed for. Also, the situational analyses with regard to illegitimate stressors calculated with multilevel-analyses are in need of replication.

### **5.3. Implications and Outlook**

Altogether, the results are encouraging for the concept of illegitimate tasks and illegitimate stressors as independent predictors of psychological well-being and strain. Thus, they are an encouragement to continue working with this approach. This implies, on the one hand, further investigations into the role of illegitimate tasks, and, on the other hand, work that focuses on other implications of the “Stress as Disrespect” approach. In line with the wider literature on the motive to protect and enhance self-esteem (e.g., Sedikides and Strube, 1997; Crocker & Park, 2004), and the literature on fairness in general (Folger & Cropanzano, 2001), and with regard to stress at work (Siegrist, 2002; Taris et al., 2001; Tepper, 2001; van Dierendonck et al., 2001), investigating stress from the perspective of threat to self is a promising avenue.

The concept of illegitimate tasks as an example of “Stress as Disrespect” has firm implications for practice. It can alert practitioners, especially managers and supervisors, to the social meaning that is attributed to their actions, including task assignments. Analyzing one’s own actions in terms of potential threats to the selves of colleagues, clients, and subordinates gives a chance to come closer to the mechanisms involved, and thus to having a generic tool for judging the potential stressfulness of actions and events that may highlight aspects that have not been salient enough so far.

To assign tasks that do not have any relation to one’s core role just because an employee appears to have some time on his or her hands, or because another employee is absent, sick, or resigned, or to economize personnel costs due to the hidden agenda “to reach more in shorter time with less cost.” might be the wrong managerial strategy with regard to the concept of illegitimate tasks. Also, to burden an employee with too many ancillary tasks or idiosyncratic norms, just because it was always done this way, might have a negative impact on his or her psychological health and, therefore, might impact his or her work performance,

which may lead to a lowered organizational productivity (Sutherland & Cooper, 1990). This reasoning leads to rethinking and, probably in some cases, reorganization of work (with regard to why it is done this way and is it understood by our employees) and work tasks (with regard to who does what). It also accentuates the need for proper soft-skill training of managers and supervisors in terms of treating employees with respect and appreciation.

Perceived illegitimacy of stress situations leads to impaired situational well-being and situational resentments. This means that if a stress situation at work happens and is noticeable for supervisors or managers, they should regard aspects of probable perceptions of illegitimacy and take care of that, either in acknowledging the stress potential or in explaining the underlying reasons and, therefore, stressing legitimate aspects of the situation. As situational resentments is also influenced by the general perception of illegitimacy at the workplace, the level of perceived illegitimate tasks at work should be explored regularly, either in appraisal interviews or with surveys. The developed scale of illegitimate tasks facilitates the survey approach. However, it should be mentioned that stressful situations at work are part of the regular work life and - if handled successfully - offer a chance to grow and to learn. They should not be perceived as illegitimate, though.

On the positive side, there are implications of this approach for communicating respect and appreciation. The concept clearly speaks in favor for another, more articulate - and comprising appreciation - feedback culture than “no news is good news”. Also, outlining rationales for certain tasks might hinder the perception of a task as unnecessary or unreasonable, and, therefore, prevent negative consequences for psychological health. Appreciation can be expressed by financial rewards, but also by words of encouragement and commendation.

On a final note, this work also stresses the importance of attending even more to negative emotions at work, and, therefore, the physiological arousal involved, especially if the reactions of the body become maladaptive over time and the systems are repeatedly activated or fail to shut down. It appears utterly impossible to eliminate negative emotions at work completely, but, for instance, trying to detect sources of anger and resentment (e.g., illegitimate tasks and other threats to self-esteem or other fairness-related incidents) or conveying professionally designed workshops or courses in anger management - which are not that prevalent yet - might be adjuvant policies.



## 6. References

- Abraham, R. (1998). Emotional dissonance in organizations: Antecedents, consequences and moderators. *Genetic, Social, and General Psychology Monographs*, 124, 229–246.
- Adams, G. Y., King, L. A. & King, D. W. (1996). Relationships of job and family involvement, family social support, and work-family conflict with job and life satisfaction. *Journal of Applied Psychology*, 81, 411-420.
- Adams, J. S. (1963). Toward an understanding of inequity. *Journal of Abnormal and Social Psychology*, 67, 422-436.
- Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in experimental social psychology*, Vol. 2, (pp. 267- 299). New York: Academic Press.
- Allen, T. D., Herst, D. E. L., Bruck, C. S., & Sutton, M. (2000). Consequences associated with work-to-family conflict: A review and agenda for future research. *Journal of Occupational Health Psychology*, 5, 278-308.
- Andersson, L. M., & Pearson, C. M. (1999). Tit for tat? The spiraling effect of incivility in the workplace. *Academy of Management Review*, 24, 452–471.
- Antonovsky, A. (1988). *Unraveling the mystery of health - how people manage stress and stay well*. London: Jossey-Bass Publishers.
- Arbuckle, J. L. (2003). *AMOS 5.0. Update to the Amos User's Guide*. Chicago, IL: Small Waters Corporation.
- Aryee, S., Field, D., & Luk, V. (1999). A cross-cultural test of the work-family interface. *Journal of Management*, 25 (4), 491-511.
- Asendorpf, J. B. (1999). *Psychologie der Persönlichkeit [Psychology of personality]*. Berlin: Springer Verlag.
- Ashforth, B. (2001). *Role transitions in organizational life: An identity-based perspective*. Mahwah, NJ: Erlbaum.
- Averill, J. R. (1983). Studies on anger and aggression: Implications for theories of emotion. *American Psychologist*, 38, 1145-1160.
- Baillod, J. & Semmer, N. (1994). Fluktuation und Berufsverläufe bei Computerfachleuten [Turnover and career paths among computer specialists]. *Zeitschrift für Arbeits- und Organisationspsychologie*, 38, 152-163.
- Banaji, M. R., & Prentice, D. A. (1994). The self in social contexts. *Annual Review of Psychology*, 45, 297-332.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Upper Saddle River, NJ: Prentice Hill.
- Barclay, L. J., Skarlicki, D. P., & Pugh, S. D. (2005). Exploring the role of emotions in injustice perceptions and retaliation. *Journal of Applied Psychology*, 90, 629-643.

## References

- Barnett, R. C. & Hyde, J. S. (2001). Women, men, work, and family. *American Psychologist*, 56, 781-796.
- Baron, R. A. (1988). Negative effects of destructive criticism: Impact on conflict, self-efficacy, and task performance. *Journal of Applied Psychology*, 73, 199-207.
- Baron, R. A., & Neuman, J. H. (1996). Workplace violence and workplace aggression: Evidence on their relative frequency and potential causes. *Aggressive Behavior*, 22, 161–173.
- Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Baumeister, R. F. (1996). Self-regulation and ego threat: Motivated cognition, self-deception, and destructive goal setting. In P.M. Gollwitzer & J.A. Bargh (Eds.), *The psychology of action* (pp. 27-47). New York: Guilford Press.
- Baumeister, R. F., Smart, L., & Boden, J. M. (1996). Relation of threatened egoism to violence and aggression. *Psychological Review*, 103, 5-33.
- Beck, A. (1999) *Prisoners of hate*. New York: Harper Collins.
- Beehr, T. A. (1995). *Psychological stress in the workplace*. London: Routledge.
- Beehr, T. A. & Glazer, S. (2001). A cultural perspective of social support in relation to occupational stress. In P. L. Perrewé & D. C. Ganster (Eds.), *Exploring theoretical mechanisms and perspectives (Research in Occupational Stress and Well-Being, Vol. 1*, pp. 97-142). Amsterdam: Elsevier.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin* 107, 238–249.
- Berkman, L. (1995). The role of social relations in health promotion. *Psychosomatic Medicine*, 57, 245-254.
- Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology*, 54, 579-616.
- Bolger, N., Zuckerman, A., & Kessler, R.C. (2000). Invisible support and adjustment to stress. *Journal of Personality and Social Psychology*, 79, 953-961.
- Bond, A. J., Ruaro, L., & Wingrove, J. (2006). Reducing anger induced by ego threat: Use of vulnerability expression and influence of trait characteristics. *Personality and Individual Differences*, 40 (6), 1087-1097.
- Bongers, P. M., de Winter, C. R., Kompier, M., & Hildebrandt, V. H. (1993). Psychosocial factors at work and musculoskeletal disease. *Scandinavian Journal of Work, Environment and Health*, 19, 297-312.
- Bortz, J. (1993). *Statistik für Sozialwissenschaftler* [Statistics for social scientists] (4., vollst. Überarb. Aufl.). Berlin: Springer.

## References

- Bosma, H., Stansfeld, S. A., & Marmot, M. G. (1998) Job control, personal characteristics, and heart disease. *Journal of Occupational Health Psychology*, 3, 402-409.
- Bradley, G. W. (1978). Self-serving biases in the attribution process. A reexamination of the fact or fiction question. *Journal of Personality and Social Psychology*, 36, 56-71.
- Brief, A. P., Burke, M. J., George, J. M., Robinson, B. S., & Webster, J. (1988). Should negative affectivity remain an unmeasured variable in the study of job stress? *Journal of Applied Psychology*, 73, 193-198.
- Brill, P.L. (1984). The need for an operational definition of burnout. *Family and Community Health*, 6 (4), 12-24.
- Brockner, J. (1983). Low self-esteem and behavioural plasticity: Some implications. In L. Wheeler (Ed.), *Review of Personality and Social Psychology* (Vol. 4, pp. 237-271). Beverly Hills, CA: Sage.
- Brockner, J. (1988). *Self-esteem at work: Research, theory, and practice*. Lexington, MA: Lexington Books.
- Brockner, J., Derr, W. R., & Laing, W. N. (1987). Self-esteem and reactions to negative feedback: Toward greater generalizability. *Journal of Research in Personality*, 21, 318-333.
- Brown, G. W. (2002). Social roles, context and evolution in the origins of depression. *Journal of Health and Social Behaviour*, 43, 255-276.
- Browne, M. W. and Cudeck, R., (1993). Alternative ways of assessing model fit. In K. A. Bollen, and J. S. Long, (Eds.), *Testing structural equation models*, (pp. 136–162) Sage, Newbury Park, CA.
- Bruggemann, A. (1974). Zur Unterscheidung verschiedener Formen von "Arbeitszufriedenheit" [Differentiating different forms of job satisfaction]. *Arbeit und Leistung*, 28, 281-284.
- Buunk, P. B. (1990). Affiliation and helping interactions within organization: A critical analysis of the role of social support with regard to occupational stress. *European Review of Social Psychology*, 1, 293-322.
- Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Byron, K. (2005). A meta-analytic review of work-family conflict and its antecedents. *Journal of Vocational Behavior*, 67, 169-198.
- Campbell, N. K., & Hackett, G. (1986). The effects of mathematic task performance on math self-efficacy and task interest. *Journal of Vocational Behavior*, 28, 149-162.
- Caplan, R. D., Cobb, S., French, J. R. P., Harrison, R. V., & Pinneau, S. R. (1982). *Arbeit und Gesundheit. Stress und seine Auswirkungen bei verschiedenen Berufen* [Work and well-being: stress and its consequences in different occupations]. Huber: Bern.

## References

- Carayon, P. (1993). A longitudinal test of Karasek's job strain model among office workers. *Work and Stress*, 7, 299-314.
- Carlson, D. S. & Frone, M. R. (2003). Relation of behavioral and psychological involvement to a new four-factor conceptualisation of work-family Interference. *Journal of Business and Psychology*, 17, 515-535.
- Carnevale, A. P., Gainer, L. J., & Meltzer, A. S. (1990). *Workplace basics: The skills employers want*. San Francisco: Jossey-Bass / Pfeiffer.
- Carver, C. S. (1995). Stress and coping. In A. S. Maustead and M. Hewstone (Eds.), *The Blackwell Encyclopedia of Social Psychology* (pp. 635-639). Blackwell: Oxford.
- Chen, G., Goddard, T. G., & Casper, W. J. (2004). Examination of the relationships among general and work-specific self-evaluations, work-related control beliefs, and job attitudes. *Applied Psychology: an International Review*, 53 (3), 349 - 370.
- Chen, G., Gully, S., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, 4, 62-83.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression / correlation analysis for the behavioral sciences* (3<sup>rd</sup> ed.). Mahwah, NJ: Erlbaum.
- Cohen, S. & Edwards, J. R. (1989). Personality characteristics as moderators of the relationship between stress and disorder. In R. W. J. Neufeld (Ed.), *Advances in the investigation of psychological stress* (pp. 235-283). New York, NY: Wiley.
- Cohen, S., & Rodriguez, M. S. (1995). Pathways linking affective disturbances and physical disorders. *Health Psychology*, 14, 374-380.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310-357.
- Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology*, 85, 678-707.
- Cooper, C. L. & Cartwright, S. (1994). Healthy mind; Healthy organization — a proactive approach to occupational stress. *Human Relations*, 47 (4), 455-471.
- Cooper, C. L., Dewe, P. J., Driscoll, M. P. O. (2001). *Organizational stress. A review and critique of theory, research, and applications*. London: Sage.
- Creed, F (1993). Stress and psychosomatic disorder. In L. Goldberger, & S. Breznitz (Eds.). *Handbook of Stress. Theoretical and Clinical Aspects*, 2<sup>nd</sup> ed. (pp. 496-510). New York: The Free Press.
- Crocker, J. & Park, L. E. (2004). The costly pursuit of self-esteem. *Psychological Bulletin*, 130, 392-414.

## References

- Cropanzano, R., & Greenberg, J. (1997). Progress in organizational justice: Tunneling through the maze. In C.L. Cooper & I.T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology 1997, Vol. 12* (pp. 317-372). Chichester: Wiley.
- Cropanzano, R., Byrne, Z.S., Bobocel, D.R., & Rupp, D.E. (2001). Moral virtues, fairness heuristics, social entities, and other denizens of organizational justice. *Journal of Vocational Behavior, 58*, 164-209.
- Cutrona, C. E., & Suhr, J. A. (1994). Social support communication in the context of marriage: An analysis of couple's supportive interactions. In B. R. Burleson, T. L., Albrecht, & I. G. Sarson (Eds.), *Communication of social support: Messages, interactions, relationships, and community* (pp. 113-135). Thousand Oaks, CA: Sage.
- Daley, A. J., & Parfitt, G. (1996). Good health—Is it worth it? Mood states, physical well-being, job satisfaction and absenteeism in members and non-members of a British corporate health and fitness club. *Journal of Occupational and Organizational Psychology, 69*, 121-134.
- Daniels, K., Brough, P., Guppy, A., Peters-Bean, K. M., & Weatherstone, L. (1997). A note on a modification to Warr's measures of affective well-being at work. *Journal of Occupational and Organizational Psychology, 70*, 129-138.
- Danna, K., & Griffin, R. W. (1999). Health and well-being in the workplace: A review and synthesis of the literature. *Journal of Management, 3*, 357-384.
- Davidson, M. J., & Cooper, C.L. (1986). Executive women under pressure. Occupational ad life stress and the family (special issue). *International Review of Applied Psychology, 35* (3), 301-329.
- De Cremer, D. (2002). The self-relevant implications of distribution rules: When self-esteem and acceptance are influenced by violations of the equity rule. *Social Justice Research, 15*, 327-339.
- De Cremer, D., van Knippenberg, B., van Knippenberg, D., Mullenders, D., & Stinglhamber, F. (2005). Rewarding leadership and fair procedures as determinants of self-esteem. *Journal of Applied Psychology, 90*, 3-12.
- De Dreu, C. K. W., van Dierendonck, D., & Best-Waldhober, M. (2003). Conflict at work and individual well-being. In M. J. Schabracq, J. A. M. Winnubst, & C. L. Cooper (Eds.), *Handbook of Work and Health Psychology* (2<sup>nd</sup> ed., pp. 495-515) Chichester: Wiley.
- De Jonge, J., Bosma, H., Peter, R., & Siegrist, J. (2000). Job strain, effort-reward imbalance and employee well-being: A large-scale cross-sectional study. *Social Science and Medicine, 50*, 1317-1327.
- De Jonge, J., Dollard, M. F., Dormann, C., Le Blanc, P. M., & Houtman, I. L. D. (2000). The demand-control model: Specific demands, specific control, and well-defined groups. *International Journal of Stress Management, 7*, 269-287.

## References

- De Jonge, J., Dormann, C., Janssen, P. P. M., Dollard, M. F. Langeweerd, J. A., & Nijhuis, F. J. N. (2001). Testing reciprocal relationships between job characteristics and psychological well-being: A cross-lagged structural equation model. *Journal of Occupational and Organizational Psychology*, 74, 29-46.
- De Lange, A. H., Taris, T. W., Kompier, M. A. J., Houman, I. L. D., & Bongers, P. M. (2005). Different mechanisms to explain reversed effects of mental health on work characteristics. *Scandinavian Journal of Work, Environment, & Health*, 31 (1), 3-14.
- De Lange, A. H., Taris, T. W., Kompier, M. A. J., Houtman, I. L. D., & Bongers, P. M. (2003). The very best of the millennium: Longitudinal research and the demand-control-(support) model. *Journal of Occupational Health Psychology*, 8, 282-305.
- De Rijk, A. E., Le Blanc, P. M., Schaufeli, W. B., & de Jonge, J. (1998). Active coping and need for control as moderators of the job demand-control model: Effects on burnout. *Journal of Occupational and Organizational Psychology*, 71, 1-18.
- Deelstra, J. T., Peeters, M. C. W., Schaufeli, W. B., Stroebe, W., Zijlstra, F. R. H., & van Doornen, L. P. (2003). Receiving instrumental support at work: When help is not welcome. *Journal of Applied Psychology*, 88, 324-331.
- Deery, S. J., Iverson, R. D., & Walsh, J. T. (2006). Toward a better understanding of psychological contract breach: a study of customer service employees. *Journal of Applied Psychology*, 91 (1), 166-175.
- Demerouti, E., Bakker, A. B. & Bulters, A. J. (2004). The loss spiral of work pressure, work-home interference and exhaustion: Reciprocal relations in a three-wave study. *Journal of Vocational Behavior*, 64, 131-149.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands: resources model of burnout. *Journal of Applied Psychology*, 86, 499-512.
- Dérér, Z. & Guyan, C. (2005). Die Stressoren 'unnötige oder illegitime' Tätigkeiten und ihre Auswirkungen auf das Befinden im Arbeitskontext [The stressors unnecessary and illegitimate and their consequences on well-being]. *Unpublished masters' thesis*, University of Bern, Switzerland.
- Donovan, M. A., Drasgow, F., & Munson, L. J. (1998). The perceptions of fair interpersonal treatment scale: Development and validation of a measure of interpersonal treatment in the workplace. *Journal of Applied Psychology*, 83, 683-692.
- Dormann, C., & Zapf, D. (1999). Social support, social stressors at work, and depression: testing for moderating effects with structural equations in a 3-wave longitudinal study. *Journal of Applied Psychology*, 84, 874-884.
- Dormann, C. & Zapf, D. (2002). Social stressors at work, irritation, and depressive symptoms: accounting for unmeasured third variables in a multi-wave study. *Journal of Occupational and Organizational Psychology*, 75, 33-58.

## References

- Dormann, C., & Zapf, D. (2004). Customer-Related Social Stressors and Burnout. *Journal of Occupational Health Psychology*, 9 (1), 61-82.
- Dormann, C., Zapf, D. & Isic, A. (2002). Emotionale Arbeitsanforderungen und ihre Konsequenzen bei Call Center-Arbeitsplätzen [Emotional demands and consequences in call centers ]. *Zeitschrift für Arbeits- und Organisationspsychologie*, 46, 201-215.
- DuBois, D. L. & Tevendale, H. D. (1999). Self-esteem in childhood and adolescence: Vaccine or epiphenomenon? *Applied and Preventive Psychology*, 8, 103–117.
- Dwyer, D. J., & Ganster, D. C. (1991). The effects of job demands and control on employee attendance and satisfaction. *Journal of Organizational Behavior*, 12, 595-608.
- Eagle, B. W., Miles, E. W., & Icenogle, M. L. (1997). Interrole conflicts and the permeability of work and family domains: Are there sex differences? *Journal of Vocational Behavior*, 50, 168-184.
- Eby, L. T., Casper, W., Lockwood, A., Bordeaux, C., & Brinley, A. (2005). A twenty year retrospective on work and family research in IO/OB journals: A review of the literature. *Journal of Vocational Behavior*, 66, 124-197
- Edwards, J. R. (1998). Cybernetic theory of stress, coping, and well-being: Review and extension to work and family. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 122-152). Oxford: Oxford University Press.
- Einarsen, S., Hoel, H., Zapf, D., & Cooper, C. L. (2003). *Bullying and emotional abuse in the workplace. International perspectives in research and practice*. London: Taylor and Francis.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D., (1986). Perceived organizational support. *Journal of Applied Psychology* 71, pp. 500–507.
- Elangovan, A. R. & Xie, J. L. (1999). Effects of perceived power of supervisor on subordinate stress and motivation: the moderating role of subordinate characteristics. *Journal of Organizational Behavior*, 20, pp. 359–373.
- Elfering, A. Grebner, S., Semmer, N. K., & Gerber, H. (2002). Time control, catecholamines and back pain among young nurses. *Scandinavian Journal of Work, Environment & Health*, 28, 386-393.
- Elfering, A., Grebner, S., Semmer, N. K., Byland, C., & Gerber, H. (2003). Reliability of Urinary Catecholamine Measurement under conditions of different temperatures until freezing: A Basic Issue in Applied Stress Research. *Human Factors*, 45, 563-574.
- Elfering, A., Grebner, S., Semmer, N. K., Kaiser Freiburghaus, D., Ponte, S. L. D., & Witschi, I. (2005). Chronic job stressors and job control: Effects on event-related coping success and well-being. *Journal of Occupational and Organizational Psychology*, 78, 237-252.

## References

- Elfering, A., Semmer, N. K., & Grebner, S. (2006). Work stress and patient safety: Observer-rated work stressors as predictors of characteristics of safety-related events reported by young nurses. *Ergonomics*, 49, 457-469.
- Elfering, A., Semmer, N. K., Schade, V., Grund, S., & Boos, N. (2002). Supportive colleague, unsupportive supervisor: The role of provider-specific constellations of social support at work in the development of low back pain. *Journal of Occupational Health Psychology*, 7, 130-140.
- Elfering, A., Semmer, N. K., & Kälin, W. (2000). Stability and change in job satisfaction at the transition from vocational training into „Real Work“. *Swiss Journal of Psychology*, 59, 256-271.
- Elovaino, M., Kivimäki, M., & Helkama, K. (2001). Organizational justice evaluations, job control, and occupational strain. *Journal of Applied Psychology*, 86, 418-424.
- Endler, N. S. & Parker, J. D. A. (1990). Multidimensional assessment of coping: A critical evaluation. *Journal of Personality and Social Psychology*, 58, 844-854.
- Epstein, S. (1998). Cognitive-experiential self-theory. In D. F. Barone, M. Hersen, & V. B. van Hasselt (Eds.), *Advanced personality* (pp. 211-238). New York: Plenum.
- Fahrenberg, J. (1975). Die Freiburger Beschwerdeliste [The Freiburger list of complaints]. *Zeitschrift für Klinische Psychologie*, 4, 79-100.
- Fenlason, K. J., & Beehr, T. A. (1994). Social support and occupational stress: Effects of talking to others. *Journal of Organizational Behavior*, 15, 157-175.
- Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). London: SAGE.
- Field, A. P. (2001). Meta-analysis of correlation coefficients: A monte carlo comparison of fixed- and random-effects methods. *Psychological Methods*, 6(2), 161-180.
- Fisher, J. D., Nadler, A., & Whitcher-Alagna, S. (1982). Recipient reactions to aid. *Psychological Bulletin*, 91, 27-54.
- Fisseni, H.-J. (1997). Lehrbuch der Psychologischen Diagnostik [Handbook of psychological diagnostic]. Göttingen: Hogrefe.
- Fitness, J. (2000). Anger in the workplace: An emotion script approach to anger episodes between workers and their superiors, co-workers and subordinates. *Journal of Organizational Behavior*, 21, 147-162.
- Folger, R. & Cropanzano, R. (2001). Fairness theory: Justice as accountability. In J. Greenberg & R. Cropanzano (Eds.), *Advances in organizational justice* (pp. 1-55). Stanford, CA: Stanford University Press.
- Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-age community sample. *Journal of Health and Social Behavior*, 21, 219-239.
- Folkman, S., Lazarus, R. S., Pimley, S., & Novacek, J. (1987). Age differences in stress and coping processes. *Psychology and Aging*, 2 (2), 171-84.



## References

- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R.J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, 50, 992-1003.
- Fox, M. L. & Dwyer, D. J. (1999). An investigation of the effects of time and involvement in the relationships between stressors and work-family conflict. *Journal of Occupational Health Psychology*, 4, 164-174.
- Fox, S., Spector, P. E., & Miles, D. (2001). Counterproductive work behavior (CWB) in response to job stressors and organizational justice: Some mediator and moderator tests for autonomy and emotions. *Journal of Vocational Behavior*, 59, 291-309.
- Frankenhaeuser, M. (1986). A psychobiological framework for research on human stress and coping. In M. H. Appley & R. Trumbull (Eds.), *Dynamics of stress: Psychological, psychological, and social perspectives* (pp. 101-116). New York: Plenum Press.
- Frankenhaeuser, M. (1989). A biopsychosocial approach to work life issues. *International Journal of Health Services*, 19, 747-758.
- Frankenhaeuser, M. (1991). The psychophysiology of workload, stress, and health: Comparison between the sexes. *Annals of Behavioral Medicine*, 13, 197-204.
- French, J. R. P. Jr., & Kahn, R. L. (1962). A programmatic approach to studying the industrial environment and mental health. *Journal of Social Issues*, 18, 1-47.
- Frese, M. (1982). Occupational socialization and psychological development: An underemphasized research perspective in industrial psychology. *Journal of Occupational Psychology*, 55, 209-224.
- Frese, M. (1985). Stress at work and psychosomatic complaints: A causal interpretation. *Journal of Applied Psychology*, 70, 314-328.
- Frese, M. (1989a). Gütekriterien der Operationalisierung von sozialer Unterstützung am Arbeitsplatz [Reliability and validity of an operationalization of social support at work]. *Zeitschrift für Arbeitswissenschaft*, 43, 112-121.
- Frese, M. (1989b). Theoretical models of control and health. In S. L. Sauter, J. J. Hurrell, & C. L. Cooper (Eds.), *Job Control and work health* (pp. 108-128). New York: Wiley.
- Frese, M. (1995). Stress factors and health: A multicausal relationship. In O. Svane & C. Johansen (Eds.), *Work and Health - Scientific basis of progress in the working environment* (pp. 19-26). Luxembourg: Office for Official Publications of the European Communities.
- Frese, M. (1999). Social support as a moderator of the relationship between work stressors and psychological dysfunctioning: A longitudinal study with objective measures. *Journal of Occupational Health Psychology*, 4, 179-192.

## References

- Frese, M., & Zapf, D. (1987). Eine Skala zur Erfassung von Sozialen Stressoren am Arbeitsplatz [A scale for assessing social stressors at work]. *Zeitschrift für Arbeitswissenschaft*, 41, 134-141.
- Frese, M., & Zapf, D. (1988). Methodological issues in the study of work stress: Objective vs. subjective measurement of work stress and the question of longitudinal studies. In C. L. Cooper & R. Payne (Eds.), *Causes, coping, and consequences of stress at work* (pp. 375-411). Chichester: Wiley.
- Frese, M., & Zapf, D. (1994). Action as the core of work psychology: A German approach. In Dunnette, M. D., Hough L. M., & Triandis, H. C. (Eds.), *Handbook of Industrial and Organizational Psychology, Vol. 4* (pp. 271-340). Palo Alto, CA: Consulting Psychologists Press.
- Freudenberger, H. J. (1974). Staff burnout. *Journal of Social Issues*, 30, 159-165.
- Frone, M. R. (2000a). Interpersonal conflict at work and psychological outcomes: Testing a model among young workers. *Journal of Occupational Health Psychology*, 5, 246-255.
- Frone, M. R. (2000b). Work-family conflict and employee psychiatric disorders: the national comorbidity survey. *Journal of Applied Psychology*, 85, 888-895.
- Frone, M. R. (2003). Work-Family Balance. In J. Campbell Quick & L.E. Tetrick (Eds.), *Handbook of Occupational Health Psychology* (pp.143-162). Washington, DC: APA.
- Frone, M. R., Russell, M., & Cooper, M. L. (1992a). Antecedents and outcomes of work-family conflict: testing a model of the work-family interface. *Journal of Applied Psychology*, 77, 65-78.
- Frone, M. R., Russell, M., & Cooper, M. L. (1992b). Prevalence of work-family conflict: Are work and family boundaries asymmetrical permeable?. *Journal of Organizational Behavior*, 13, 723-729.
- Frone, M. R., Yardley, J. K. & Markel, K. S. (1997). Developing and testing an integrative model of the work-family interface. *Journal of Vocational Behavior*, 50, 145-167.
- Furnham, A., & Gunter, B. (1993). Corporate culture: Definition, diagnosis and change. In C. L. Cooper & I. T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology 1995, Vol. 8* (pp. 233-261). Chichester: Wiley.
- Ganster, D. C., & Fusilier, M. R. (1989). Control in the workplace. In C. L. Cooper & I. T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology* (pp. 235-280). Chichester: Wiley.
- Ganster, D. C., & Schaubroeck, J. (1991). Work stress and employee health. *Journal of Management*, 17 (2), 235-271.
- Geurts, S. A. E., & Demerouti, E. (2003). Work/Non-work interface : A review of theories and findings. In M. J. Schabracq, J. A. M. Winnubst & C. L. Cooper (Eds.) *Handbook of Work and Health Psychology*. Chichester: John Wiley & Sons, pp. 279-312.

## References

- Geurts, S. A., Buunk, A. P., & Schaufeli, W. B. (1994). Social comparison: A structural modeling approach. *Journal of Applied Social Psychology*, 24, 1871 – 1890.
- Geurts, S. A. E., Kompier, M. A. J., Roxburgh, S. & Houtman, I. L. D. (2003). Does work-home interference mediate the relationship between workload and well-being? *Journal of Vocational Behavior*, 63, 532-559.
- Geurts, S. A. E., Schaufeli, W. B., De Jonge, J. (1998). Burnout and intention to leave among mental health-care professionals: A social psychological approach. *Journal of Social and Clinical Psychology*, 17, 341-362.
- Geurts, S. A. E., Schaufeli, W. B. & Rutte, C. G. (1999). Absenteeism, turnover intention and inequity in the employment relationship. *Work & Stress*, 13, 253-267.
- Giardini, A., & Frese, M. (2004). Emotionen in Organisationen [Emotions in Organizations]. In G. Schreyoegg & A. von Werder (Eds.), *Handwörterbuch Unternehmensführung und Organisation* (4th ed.). Stuttgart: Schaeffer-Poeschel-Verlag.
- Gist, M. E. (1987). Self-Efficacy: Implications for organizational behavior and human resource management. *Academy of Management Review*, 12, 472-485.
- Gorissen, B., & Zapf, D. (1999). *Psychischer Stress bei den Berufsfeuerwehrleuten im Einsatz und im Wachalltag. Argumente, Erhebungen, Konsequenzen* [Psychological stress among firefighters in the field and at the base: Arguments, investigations, consequences]. Stuttgart: Gewerkschaft Öffentliche Dienste, Transport und Verkehr.
- Grandey, A. A. (2000). Emotion regulation in the workplace: A new way to conceptualize emotional labor. *Journal of Occupational Health Psychology*, 5, 95–110.
- Grandey, A. A. (2003). When “the show must go on”: Surface acting and deep acting as determinants of emotional exhaustion and peer-rated service delivery. *Academy of Management Journal*, 44, 86–98.
- Grandey, A.A. & Cropanzano, R. (1999). The Conservation of resources model applied to work-family conflict and strain. *Journal of Vocational Behavior*, 54, 350-370.
- Grebner, S. (2001). *Stress at work, well-being, blood pressure, and cortisol: Two field studies*. Unpublished doctoral dissertation, University of Bern, Bern.
- Grebner, S., Elfering, A. Semmer, N. K. Kaiser-Probst, C., & Schlapbach, M.-L. (2004). Stressful situations at work and in private life among young workers: An event sampling approach. *Social Indicators Research*, 67, 11-49.
- Grebner, S., Galliker, S., Emch, A., Elfering, A., & Semmer, N. K. (in prep). *Berner Instrument zur Erfassung sozialer Stressoren am Arbeitsplatz (BISS) [BISS Bern Inventory of Social Stressors at Work]*. Unveröffentlichtes Manuskript, Institut für Psychologie, Universität Bern, Schweiz.

## References

- Grebner, S., Semmer, N. K., Lo Faso, L., Gut, S., & Kälin, W. (2003). Working conditions, well-being, and job-related attitudes among call center Agents. *European Journal of Work and Organizational Psychology, 12*, 341-365.
- Greenberg, J., & Colquitt, J. A. (2005). *Handbook of Organizational Justice*. Mahwah, NJ, US: Lawrence Erlbaum Associates.
- Greenglass, E. R., Pantony, K. L. & Burke, R. J. (1988). A gender-role perspective on role conflict, work stress, and social support. *Journal of Social Behavior and Personality, 3*, 317-328.
- Greenhaus, J. H. & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review, 10*, 76-88.
- Greenhaus, J. H. & Parasuraman, S. (1999). Research on work, family, and sex: Current status and future directions. In G. N. Powell (Ed.). *Handbook of sex & work* (pp.391-412). Thousand Oakes: Sage.
- Greenhaus, J. H. & Parasuraman, S. (2002). The allocation of time to work and family roles. In D. L. Nelson & R. J. Burke (Eds.). *Sex Work Stress and Health* (pp.115-128). Washington, DC: APA.
- Greenier, K. G., Kernis, M. H., & Waschull, S. B. (1995). Not all high (or low) self-esteem people are the same: Theory and research on stability of self-esteem. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 51–71). New York: Plenum.
- Greif, S., Bamberg, E., & Semmer, N. (1991). *Psychischer Stress am Arbeitsplatz* [Psychological stress in the workplace]. Göttingen: Hogrefe.
- Gruen, R. J. (1993). Stress and depression: Towards the development of integrative models. In L. Goldberger, & S. Breznitz (Eds.). *Handbook of Stress. Theoretical and Clinical Aspects*, 2<sup>nd</sup> ed. (pp. 550-569). New York: The Free Press.
- Grzywacz, J. G., & Marks, N. F. (2000). Reconceptualizing the work-family interface: an ecological perspective on the correlates of positive and negative spillover between work and family. *Journal of Occupational Health Psychology, 5* (1), 111-126.
- Gutek, B. A., Searle, S. & Klepa, L. (1991). Rational versus sex role explanations for work-family conflict. *Journal of Applied Psychology, 76*, 560-568.
- Hacker, W. (2005). *Allgemeine Arbeitspsychologie: Psychische Regulation von Arbeitstätigkeiten* [General Work Psychology: Mental Regulation of Work Activities]. Bern: Huber.
- Hackett, G., & Betz, N. E. (1981). A self-efficacy approach to the career development of women. *Journal of Vocational Behavior, 18*, 326-339.
- Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology, 60*, 159-170.

## References

- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: test of a theory. *Organizational Behavior and Human Performance*, 16, 250-279.
- Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison-Wesley.
- Hagen, A., & Schirmer, B. (2002). „Unnötige“ und „illegitime“ Tätigkeiten als Stressoren in der Arbeit [„Unnecessary“ and „illegitimate“ activities as occupational stressors]. *Unpublished masters' thesis*, University of Bern, Switzerland.
- Harlos, K. P. & Pinder, C. C, (2000). Emotions and injustice in the workplace. In S. Finnemann (Ed.), *Emotions in organizations* (2<sup>nd</sup> ed, pp.255-276). London: Sage.
- Hemingway, H., & Marmot, M. (1999). Psychosocial factors of in the aetiology and prognosis of coronary heart disease: Systematic review of prospective cohort studies. *British Medical Journal*, 318, 1460-1467.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology: An International Review*, 50, 337–421.
- Hoel, H., Zapf, D., & Cooper, C. L. (2002). Workplace bullying and stress. In P. L. Perrewé & D. C. Ganster (Eds.), *Research in Occupational Stress and Well-being* (Vol. 2: Historical and current perspectives on stress and health, pp. 293-333). Amsterdam: JAI.
- Houkes, I., Janssen, P. P. M., de Jonge, J., & Nijhuis, F. J. N. (2001). Specific relationships between work characteristics and intrinsic work motivation, burnout and turnover intention: a multi-sample analysis. *European Journal of Work and Organizational Psychology*, 10, 1–23.
- House, J. S. (1981). *Work stress and social support*. London: Addison-Wesley.
- House, J. S., & Kahn, R. L. (1985). Measures and concepts of social support. In S. Cohen & S. L. Syme (Eds.), *Social support and health* (pp. 83-108). Orlando, FA: Academic Press.
- Hox, J. J. (2002). *Multilevel Analysis, Techniques and Applications*. Hillsdale, N. J : Lawrence Erlbaum Associates.
- Hoyle, R. H., Kernis, M. H., Leary, M. R., & Baldwin, M. W. (1999). *Selfhood: Identity, esteem, regulation*. Boulder, CO: Westview Press.
- Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3, 424-453.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.
- Hunter, J. E. & Schmidt, F. L. (1990). *Methods of meta-analysis: Correcting error and bias in research findings*. (Beverly Hills, CA: Sage)
- Iaffaldano, M. T., & Muchinsky, P. M. (1985). Job satisfaction and job performance: A meta-analysis. *Psychological Bulletin*, 97 (2), 251-273.

## References

- Ingram, K. M., Betz, N. E., Mindes, E. J., Schmitt, M. M., & Smith, N. G. (2001). Unsupportive responses from others concerning a stressful life event: Development of the Unsupportive Social Interactions Inventory. *Journal of Social and Clinical Psychology, 20*, 173-207.
- Ippolito, J., Adler, A. B., Thomas, J. L., Litz, B. T., & Holzl, R. (2005). Extending and applying the demand-control model: The role of soldier's coping on a peacekeeping deployment. *Journal of Occupational Health Psychology, 10*, 452-464.
- Isic, A., Dormann, C., & Zapf, D. (1999). Belastungen und Ressourcen an Call Center-Arbeitsplätzen [Job stressors and resources among call center employees]. *Zeitschrift für Arbeitswissenschaft, 53*, 202-208.
- Jackson, P. E., Wall, T. D., Martin, R., & Davids, K. (1993). New measures of job control, cognitive demand, and production responsibility. *Journal of Applied Psychology, 78*, 753-762.
- Jacobshagen, N., Amstad, F. T., Semmer, N. K., & Kuster, M. (2005). Work-Family-Balance im Topmanagement [Work-Family-Balance in the Topmanagement]. *Zeitschrift für Arbeits- und Organisationspsychologie, 49*, 208-219.
- Jerusalem, M., & Schwarzer, R. (1992). Self-efficacy as resource factor in stress appraisal process. In R. Schwarzer (Ed.), *Self-efficacy. Thought control of action* (pp. 195-213). Washington, D.C.: Hemisphere.
- Jex, S. M., & Beehr, T. A. (1991). Emerging theoretical and methodological issues in the study of work-related stress. In G. R. Ferris & K. M. Rowland (Eds.), *Research in personnel and human resources management, Vol. 9* (pp. 311-364). Greenwich, CT: Jai Press.
- Jex, S. M., & Beehr, T. A., (1999). Emerging theoretical and methodological issues in the study of work-related stress. *Research in Personnel and Human Resources Management, 9*, 311-365.
- Jex, S. M. & Elacqua, T. C. (1999). Self-esteem as a moderator: a comparison of global and organization-based measures. *Journal of Occupational and Organizational Psychology, 72*, 71-81.
- Johnson, E. H. (1990). *The deadly emotions: The role of anger, hostility, and aggression in health and emotional well-being*. New York: Praeger Publishers.
- Johnson, J. V., & Hall, E. M. (1988). Job strain, workplace social support, and cardiovascular disease: A cross-sectional study of random sample of the Swedish working population. *American Journal of Public Health, 78*, 1336-1342.
- Judge, T. A., & Bono, J. E. (2001a). A rose by any other name. Are self-esteem, generalized self-efficacy, neuroticism, and locus of control indicators of a common construct? In B. W.

## References

- Roberts & R. Hogan (Hrsg.), *Personality Psychology in the Workplace*. Washington, DC: American Psychological Association.
- Judge, T. A., & Bono, J. E. (2001b). Relationship of core self-evaluations traits -- self-esteem, generalized self-efficacy, locus of control, and emotional stability -- with job satisfaction and job performance: a meta-analysis. *Journal of Applied Psychology*, 86 (1), 80-92.
- Judge, T.A., & Colquitt, J.A. (2004). Organizational justice and stress: The mediating role of work-family conflict. *Journal of Applied Psychology*, 89, 395-404.
- Judge, T. A. & Locke, E. A. (1993). Effect of dysfunctional thought processes on subjective well-being and job satisfaction. *Journal of Applied Psychology*, 78, 475-490.
- Judge, T. A., & Watanabe, S. (1993). Another look at the job satisfaction-life satisfaction relationship. *Journal of Applied Psychology*, 78, 939-948.
- Judge, T. A., Bono, J. E., Thoresen, C. J., & Patton, G. K. (2001). The job satisfaction-job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*, 127, 376-407.
- Kälin, W. (2004). Coping – Moderator oder Mediator zwischen Stressoren und Befinden? [Coping – moderator or mediator between stressors and well-being?] *Unveröffentlichte Dissertation*, Institut für Psychologie der Universität Bern.
- Kälin, W., Semmer, N. K., Elfering, A., Tschann, F., Dauwalder, J.-P., Heunert, S., & Crettaz von Roten, F. (2000), Work characteristics and well-being of Swiss apprentices entering the labor market. *Swiss Journal of Psychology*, 59, 272-290.
- Kahn, R. L., & Byosiére, P. (1992). Stress in organizations. In M. D. Dunnette & L. M. Hough (Hrsg.), *Handbook of industrial and organizational psychology* (2<sup>nd</sup> ed., vol. 3, pp. 571-650). Palo Alto, CA: Consulting Psychologists Press.
- Kahn, R. L., Wolf, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A (1964). *Organizational stress: Studies in role conflict and ambiguity*. New York: Wiley.
- Kanning, U. P., & Schnitker, R. (2004). Übersetzung und Validierung einer Skala zur Messung des organisationsbezogenen Selbstwertes [Translation and validation of a scale measuring organization-based self-esteem ]. *Zeitschrift für Personalpsychologie*, 3, 112-121.
- Karasek, R. (1979). Job Demands, job decision latitude, and mental strain. *Administrative Science Quarterly*, 24, 285-311.
- Karasek, R. A. & Theorell, T. (1990). *Healthy work. Stress, productivity, and the reconstruction of working life*. New York, NY: Basic Books.
- Kasl, S. V. (1982). Strategies of research on economic instability and health, *Psychological Medicine*, 12, 637-649.

## References

- Kasl, S. V. (1996). The influence of the work environment on cardiovascular health: A historical, conceptual, and methodological perspective. *Journal of Occupational Health Psychology, 1*, 42-56.
- Katz, D. & Kahn, R. L. (1978). *The social psychology of organizations* (2<sup>nd</sup> ed.). New York: Wiley.
- Kawakami, N., Haratani, T., & Araki, S. (1992). Effects of perceived job stress on depressive symptoms in blue-collar workers of an electrical factory in Japan. *Scandinavian Journal of Work, Environment and Health, 18*, 195-200.
- Keashly, L. (1998). Emotional abuse in the workplace: Conceptual and empirical issues. *Journal of Emotional Abuse, 1*, 85-117.
- Kemeny, M. E. (2003). The psychobiology of stress. *Current Directions in Psychological Science, 12* (4), 124-129.
- Kernis, M. H. (1993). The roles of stability and level of self-esteem in psychological functioning. In R. Baumeister (Ed.), *Self-Esteem: The puzzle of low self-regard* (pp. 167-182). New York: Plenum Press.
- Kernis, M. H. (2005). Measuring Self-Esteem in Context: The Importance of Stability of Self-Esteem in Psychological Functioning. *Journal of Personality, 73* (6), 1569-1605.
- Kernis, M. H., Grannemann, B. D., & Barclay, L. C. (1989). Stability and level of self-esteem as predictors of anger arousal and hostility. *Journal of Personality and Social Psychology, 56*, 1013-1022.
- Kernis, M. H., Whisenhunt, C. R., Waschull, S. B., Greenier, K. D., Berry, A. J., & Herlocker, C. E., & Anderson C. A. (1998). Multiple facets of self-esteem and their relations to depressive symptoms. *Personality and Social Psychology Bulletin, 24*, 657-668.
- Kinnunen, U., & Mauno, S. (1998). Antecedents and Outcomes of work-family conflict among employed women and men in Finland. *Human Relations, 51* (2), 157-177.
- Kirschbaum, C., & Hellhammer, D. H. (1989). Salivary cortisol in psychobiological research: An overview. *Neuropsychobiology, 22*, 150-169.
- Kirschbaum, C., & Hellhammer, D.H. (1994). Salivary cortisol in psychoneuroendocrine research: Recent developments and applications. *Psychoneuroendocrinology, 19*, 4, 313-333.
- Kirwan, B. & Ainsworth, L. K. (1992). *A guide to task analysis*. London: Taylor & Francis.
- Kitayama, S., Markus, H. R., & Matsumoto, H. (1995). Culture, self, and emotion: A cultural perspective on "self-conscious" emotions. In J. P. Tangney & K. W. Fischer (Eds.), *Self-conscious emotions* (pp. 439-464). New York: Guilford Press.
- Kline, R. B. (1998). Principles and practice of structural equation modeling. New York: Guilford Press.



## References

- Klingenspor, B. (1984). Geschlecht, soziale Identität und bulimisches Essverhalten [Gender, social identity, and bulimic eating behavior]. *Zeitschrift für Sozialpsychologie*, 25, 108-125.
- Koper, G., van Knippenberg, D., Bouhuijs, F., Vermunt, R., & Wilke, H. A. M. (1993). Procedural fairness and self-esteem. *European Journal of Social Psychology*, 38, 504-516.
- Kopelman, R., Greenhaus, J., & Connolly, T. (1983). A model of work, family, and interrole conflict: A construct validation study. *Organizational Behavior and Human Performance*, 32, 198-215.
- Kossek, E. E., & Ozeki, C. (1998). Work-family conflict, policies, and the job-life satisfaction relationship: a review and directions for organization behavior. *Journal of Applied Psychology*, 83 (2), 139-149.
- Kuhl, J. (1997). Wille und Freiheitserleben: Formen der Selbststeuerung [Volition and perception of freedom: forms of self-control]. In J. Kuhl & H. Heckhausen (Eds.). *Motivation, Volition und Handlung*. Vol. 4, (pp. 665-765). Göttingen: Hogrefe.
- Krampen, P. (1991). *Fragebogen zu Kompetenz- und Kontrollüberzeugungen [Inventory on competence and control beliefs]*. Göttingen: Hogrefe.
- Lazarus, R. S. (1999). *Stress and emotion. A new synthesis*. New York, NY: Springer.
- Lazarus, R. S. & Folkman, S. (1986). Cognitive theories of stress and the issue of circularity. In M. Appley & R. Trumbull (Eds.), *Dynamics of stress* (pp. 63-80). New York: Plenum.
- Leary, M. R. (1999). Making sense of self-esteem. *Current Directions in Psychological Science*, 8, 32-35.
- Leary, M. R. & Baumeister R. F. (2000). The nature and function of self-esteem: Sociometer theory. *Advances in Experimental Social Psychology*, 32, 1-62.
- Leary, M. R. & Kowalski, R. M. (1995). *Social anxiety*. New York: Guilford Press.
- Lee, R. T. & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology*, 81, 123-133.
- Leiter, M. P., & Maslach, C. (1988). The impact of interpersonal environment on burnout and organizational commitment. *Journal of Organizational Behavior*, 9, 297-308.
- Leitner, K. (1993). Auswirkungen von Arbeitsbedingungen auf die psychosoziale Gesundheit [Consequences of work conditions on psychosocial health]. *Zeitschrift für Arbeitswissenschaft*, 47(19), 98 - 107.
- Leitner, K., Volpert, W., Greiner, W., Weber, W., & Hennes, K. (1987). *Analyse psychischer Belastung in der Arbeit. Das RHIA Verfahren [Analysis of mental workload]*. Köln, Germany: TÜV Rheinland.
- Lent, R.W., & Hackett, G. (1987). Career self-efficacy: Empirical status and future directions. *Journal of Vocational Behavior*, 30, 347-382.

## References

- Leppin, A., & Schwarzer, R. (1990). Social support and physical health: An updated meta-analysis. In L. R. Schmidt, P. Schwenkmezger, J. Weinman, & S. Maes (Eds.), *Health psychology: Theoretical and applied aspects* (pp. 185-202). London: Harwood.
- Leppin, A., & Schwarzer, R. (1997). Sozialer Rückhalt, Krankheit und Gesundheitsverhalten [Social support, illness, and health behavior]. In R. Schwarzer (Ed.), *Gesundheitspsychologie* (pp. 349-373). Göttingen, Germany: Hogrefe.
- Levenstein S. (1998) Stress and peptic ulcer: life beyond helicobacter. *Brittish Medical Journal*, 316, 538-541.
- Levenstein, S., Ackermann, S., Kiecolt-Glaser, J. K., & Dobois, A. (1999). Stress and peptic ulcer disease. *Journal of the American Medical Association*, 181, 10-11.
- Lewis, S. N., & Cooper, C. L. (1987). Stress in two-earner couples and stage in the life-cycle. *Journal of Occupational Psychology*, 60, 289-303.
- Lienert, G. A. & Raatz, U. (1998). *Testaufbau und Testanalyse*. Weinheim: Psychology Verlags Union.
- Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Eds.), *Handbook of Industrial and Organizational Psychology* (pp. 1297-1349). Chicago: Rand McNally.
- Loher, B. T., Noe, R. A., Moeller, N. L., & Fitzgerald, M. P. (1985). A meta-analysis of the relation of job characteristics to job satisfaction. *Journal of Applied Psychology*, 70 (2), 280-289.
- Lyness, K. S. & Thompson, D. E. (1997). Above the glass ceiling? A comparison of matched samples of female and male executives. *Journal of Applied Psychology*, 82, 359-375.
- Marmot, M., Siegrist, H., Theorell, T., & Feeney, A. (1999). Health and the psychosocial environment at work. In M. Marmot & R. G. Wilkinson (Eds.), *Social determinants of health* (pp. 105-131). Oxford, UK: Oxford University Press.
- Maslach, C. (1982). *Burnout: The costs of caring*. Englewood Cliffs, NJ: Prentice Hall.
- Maslach, C., & Jackson, S. E. (1986). *Maslach Burnout Inventory*. Manual (2<sup>nd</sup> ed.). Palo Alto, CA: Consulting Psychologists Press.
- Matthews, G., Jones, D.M., & Chamberlain, A.G. (1990). Refining the measurement of mood: the UWIST Mood Adjective Checklist. *British Journal of Psychology*, 81, 17-42.
- Maxwell, S. E. (2000). Sample size and multiple regression analysis. *Psychological Methods*, 5 (4), 434-458.
- Maxwell, S. E. (2004). The persistence of underpowered studies in psychological research: causes, consequences, and remedies. *Psychological Methods*, 9, 147-163.
- Mayes, B. T., Barton, M. E., & Ganster, D. C. (1991). An exploration of the moderating effect of age on job stressor-employee strain relationships. *Journal of Social Behavior and Personality*, 6, 289-308.

## References

- McAllister, D. J. and Bigley, G. A. (2001). Work context and the definition of self: How organizational care influences organization-based self-esteem. *Academy of Management Journal* 45, 894–904.
- McCrae R. R., & Costa, P. T., Jr. (1987) Validation of the five-factor model across instruments and observers. *Journal of Personality and Social Psychology*, 52, 81-90.
- McEwen, B. S. (1998). Protective and damaging effects of stress mediators. *New England Journal of Medicine*, 338, 171-179.
- McEwen, B. S. (2000). Allostasis and allostatic load: Implications for neuropsychopharmacology. *Neuropsychopharmacology*, 22, 108-124.
- Meier, L. L., Semmer, N. K., Elfering, A., & Jacobshagen, N. (manuscript under review). *The double meaning of control: three-way interactions between internal resources, job control, and stressors at work*.
- Meijman, T. F. & Mulder, G. (1998). Psychological aspects of workload. In P. J. D. Drenth, H. Thierry & C. J. de Wolff (Eds.), *Handbook of work and organizational psychology* (2<sup>nd</sup> ed., vol. 2: Work Psychology, pp. 5-33). Hove, GB: Psychology Press.
- Miller, D.T. (2001). Disrespect and the experience of injustice. *Annual Review of Psychology*, 52, 527-553.
- Mohr, G. (1986). *Die Erfassung psychischer Befindensbeeinträchtigungen bei Industriearbeitern* [The assessment of psychological strain of industrial workers]. Frankfurt: Lang.
- Mohr, G. (1991). Fünf Subkonstrukte psychischer Befindensbeeinträchtigungen bei Industriearbeitern: Auswahl und Entwicklung [Five subconstructs of psychological strain in industrial personnel: Selection and development]. In S. Greif, E. Bamberg & N. K. Semmer (Eds.), *Psychischer Stress am Arbeitsplatz* (pp. 91-119). Göttingen, Germany: Hogrefe.
- Mohr, G. (2000). The changing significance of different stressors after the announcement of bankruptcy: A longitudinal investigation with special emphasis on job insecurity. *Journal of Organizational Behavior*, 21, 337-359.
- Mohr, G., Müller, A. & Rigotti, T. (2005). Normwerte der Skala Irritation: Zwei Dimensionen psychischer Beanspruchung [Standardisation data of the Irritation Scale. Two dimensions of mental strain] . *Diagnostica*, 51, 12-20.
- Mohr, G., Müller, A., Rigotti, T., Aycan, Z., & Tschan, F. (2006). The Assessment of Psychological Strain in Work Contexts. Concerning the structural equivalency of nine language adaptations of the irritation scale. *European Journal of Psychological Assessment*, 22 (3), 198-206.
- Mohr, G., Rigotti, T., & Müller, A. (2005). Irritation - ein Instrument zur Erfassung psychischer Befindensbeeinträchtigungen im Arbeitskontext. Skalen- und Itemparameter aus 15

- Studien [Irritation - an instrument assessing mental strain in working contexts. Scale and item parameters from 15 studies]. *Zeitschrift für Arbeits- und Organisationspsychologie*, 49(1), 44-48.
- Mohr, G., Rigotti, T. & Müller, A. (2006). *Irritations-Skala zur Erfassung arbeitsbezogener Beanspruchungsfolgen* [Irritation scale for the assessment of work related strain]. Göttingen: Hogrefe.
- Morf, C. C. & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, 12, 177-196.
- Morris, J. A., & Feldman, D. C. (1996). The dimensions, antecedents, and consequences of emotional labor. *Academy of Management Journal*, 21, 986–1010.
- Mossholder, K. W., Bedeian, A. G., & Armenakis, A. A. (1982). Group process-work outcome relationships: A note on the moderation impact of self-esteem. *Academy of Management Journal*, 25, 575-585.
- Müller, A., Mohr, G. & Rigotti, T. (2004). Differentielle Aspekte psychischer Beanspruchung aus Sicht der Zielorientierung. Die Faktorstruktur der Irritations-Skala [Differential Aspects of Psychological Strain with Respect to Goal Orientation: The Factor-Structure of the Irritation Scale]. *Zeitschrift für Differentielle und Diagnostische Psychologie*, 25, 213-225.
- Mullarkey, S., Wall, T. D., Warr, P. B., Clegg, C. W., & Stride, C. B. (1999). *Measures of job satisfaction, mental health, and job-related well-being: a bench-marking manual*. Seffield, England: Institute of Work Psychology.
- Nadler, A., & Fisher, J. D. (1986). The role of threat to self-esteem and perceived control in recipient reaction to help: Theory development and empirical validation. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 81-122. San Diego, CA: Academic Press.
- Nelson, D. L. & Burke, R. J. (2002). *Sex, work, stress, and health*. Washington, DC: American Psychological Association.
- Nerdinger, F. W. (1994). *Zur Psychologie der Dienstleistung* [On the psychology of services]. Stuttgart, Germany: Schäffer-Poeschel.
- Netemeyer, R. G., McMurrian, R., & Boles, J. S. (1996). Development and validation of work-family conflict scales. *Journal of Applied Psychology*, 81, 400-410.
- Nezlek, J. B. (2001). Multilevel random coefficient analyses of event- and interval-contingent data in social and personality psychology research. *Personality and Social Psychology Bulletin*, 27, 771–785.
- Niedhammer, I., Tek, M. L., Starke, D., & Siegrist, J. (2004). Effort-reward imbalance model and self-reported health: Cross-sectional and prospective findings from the GAZEL cohort. *Social Science and Medicine*, 58, 1531-1541.

## References

- Oegerli, K. (1984). *Arbeitszufriedenheit. Versuche einer qualitativen Bestimmung* [Work satisfaction. Trials of qualitative disposition.] Unveröffentlichte Dissertation, Universität Bern, Schweiz.
- Oesterreich, R., & Volpert, W. (1986). Task analysis of action regulation theory. *Economic and Industrial Democracy*, 7, 503-527.
- Parasuraman, S. & Simmers, C. A. (2001). Type of employment, work-family conflict and well-being: a comparative study. *Journal of Organizational Behavior*, 22, 551-568.
- Parker, S. K., & Sprigg, C. A. (1999). Minimizing strain and maximizing learning: The role of job demands, job control, and proactive personality. *Journal of Applied Psychology*, 84, 925-939.
- Parkes, K. R. (1991). Locus of control as moderator: An explanation for additive versus interactive findings in the demand-discretion model of work stress? *British Journal of Psychology*, 82, 291-312.
- Parkes, K. R. (1994). Personality and coping as moderators of work stress processes: models, methods and measures. *Work & Stress*, 8, 110-129.
- Peeters, M. C. W., Buunk, B. P., & Schaufeli, W. B. (1995). Social interactions and feelings of inferiority among correctional officers: A daily event-recording approach. *Journal of Applied Social Psychology*, 25, 1073-1089.
- Peeters, M. C. W., Schaufeli, W. B., & Buunk, B. P. (1995). The role of attributions in the cognitive appraisal of work-related stressful events: an event-recording approach. *Work & Stress*, 9 (4), 463-474.
- Pekrun, R., & Frese, M. (1992). Emotions in work and achievement. In C.L. Cooper & I.T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology 1992*, Vol. 7 (pp. 153-200). Chichester: Wiley.
- Perrewé, P. L., & Zellars, K. L. (1999). An examination of attributions and emotions in the transactional approach to the organizational stress process. *Journal of Organizational Behavior*, 20, 739-752.
- Perrez, M. & Reicherts, M. (1996). A computer-assisted self-monitoring procedure for assessing stress-related behavior under real life conditions. In J. Fahrenberg & M. Myrtek (Eds.), *Ambulatory Assessment. Computer-Assisted Psychological and Psychophysiological Methods in Monitoring and Field Studies* (pp. 51-67). Seattle: Hogrefe & Huber Publishers.
- Pervin, L. A. (2000). *Persönlichkeitstheorien* [Personality theories], 4. Auflage. Stuttgart: UTB.
- Perry, L. S. (1993). Effects of inequity on job satisfaction and self-evaluation in a national sample of African-American workers. *Journal of Social Psychology*, 133, 565-573.

## References

- Peters, L. H., & O'Connor, E. J. (1980). Situational constraints and work outcomes: The influences of a frequently overlooked construct. *Academy of Management Review*, 5, 391-397.
- Peters, L. H., O'Connor, E. J., & Rudolf, C. J. (1980). The behavioral and affective consequences of performance- relevant situational variables. *Organizational Behavior and Human Performance*, 25, 79-96.
- Pierce, J. L., & Gardner, D. G. (2004). Self-Esteem within the Work and Organizational Context: A Review of the Organization-Based Self-Esteem Literature. *Journal of Management*, 30 (5), 591-622.
- Pierce, J. L., Gardner, D. G., Cummings, L. L., & Dunham, R. B. (1989). Organization-based self-esteem: Construct definition, measurement, and validation. *Academy of Management Journal*, 32(3), 622-648.
- Pierce, J. L., Gardner, D. G., Cummings, L. L., & Dunham, R. B. (1993). Moderation of organization-based self-esteem of role condition-employee response relationships. *Academy of Management Journal* 36, 271-288.
- Pikhart, H., Bobak, M., Pajak, A., Malyutina, S., Kubinova, R., Topor, R., Sebakova, H., Nikitin, Y., & Marmot M. (2004). Psychosocial factors at work and depression in three countries of Central and Eastern Europe. *Social Science and Medicine*, 58, 1475-1482.
- Preacher, K. J., & Leonardelli, G.J. (2003). *Calculation for the Sobel Test: An interactive calculation tool for mediation tests*. <http://www.unc.edu/~preacher/sobel/sobel.htm>.
- Prümper, J., Hartmannsgruber, K., & Frese, M (1995). KFZA. Kurzfragebogen zur Arbeitsanalyse [Short Questionnaire for Work Analyses] *Zeitschrift für Arbeits- und Organisationspsychologie*. 39, S.127-132.
- Pryor, R. G. (1987). Differences among differences: In search of general work preference dimensions. *Journal of Applied Psychology*, 72, 426-433.
- Ramaciotti, D., & Perriard, J. (2000). *Die Kosten des Stresses in der Schweiz [The costs of stress in Switzerland]*. Berne: SECO.
- Rasbash, J., Browne, W., Goldstein, H., Yang, M., Plewis, I., Healy, M., Woodhouse, G., Draper, D., Langford, I., & Lewis, T. (2000). *A user's guide to MLwiN*. London: Multilevel models project, Institute of Education, University of London.
- Reichert, M. & Pihet, S. (2000). Job newcomers coping with stressful situations: A micro-analysis of adequate coping and well-being. *Swiss Journal of Psychology*, 59, 303-316.
- Rice, R. W., Frone, M. R., & McFarlin, D. B. (1992). Work-nonwork conflict and the perceived quality of life. *Journal of Organizational Behavior*, 13, 155-168.
- Rice, R. W., Phillips, S. M., & McFarlin, D. B. (1990). Multiple discrepancies and pay satisfaction. *Journal of Applied Psychology*, 66, 193-217.

## References

- Roberts, J. E., Shapiro, A. M., & Gamble, S. A. (1999). Level and perceived stability of self-esteem prospectively predict depressive symptoms during psychoeducational group treatment. *British Journal of Clinical Psychology*, 38 (4), 425-439.
- Rodriguez, I., Bravo, M. J., Peiro, J. M., & Schaufeli, W. (2001). The Demands-Control-Support model, locus of control and job dissatisfaction: A longitudinal study. *Work and Stress*, 15, 97-114.
- Rook, K. S. (1992). Detrimental aspects of social relationships: Taking stock of an emerging literature. In H.O.F. Veiel & U. Baumann (Eds.), *The meaning and measurement of social support* (pp. 157-169). New York: Hemisphere.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rosenberg, M. (1989). *Society and the adolescent self-image* (revised ed.). Princeton, NJ: Princeton University Press.
- Russell, J.A. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology*, 39, 1161-1178.
- Rosenthal, R. (1994). Parametric measures of effect sizes. In H. Cooper & L. V. Hedges (Eds.), *The handbook of research synthesis* (pp. 231-244). New York: Sage.
- Russell, J. A., & Feldman Barrett, L. (1999). Core affect, prototypical emotional episodes, and other things called emotion: Dissecting the elephant. *Journal of Personality and Social Psychology*, 76, 805-819.
- Rutte, C. G. & Messick, D. M. (1995). An integrated model of perceived unfairness in organizations. *Social Justice Research*, 8, 239-261.
- Sabo, K. (1990). Protecting the professional role. A study to review non-nursing activities and recommendations for change. *Canadian Journal of Nursing Administration*, 3(4), 15-18.
- Sarason, I. G., Sarason, B. R., Brock, D. M., & Pierce, G. R. (1996). Social support: Current status, current issues. In C. D. Spielberger, I. G. Sarason, J. M. T. Brebner, E. Greenglass, P. Laungani, & A. M. O'Roark (Eds.), *Stress and emotion: Anxiety, anger, and curiosity*, Vol. 16 (pp. 3-27). Washington, DC: Taylor & Francis.
- Sauter, S. L., Hurrell, J. J., & Cooper, D.L. (1989). *Job control and work health*. Chichester, UK: Wiley.
- Schäfer, N. (2006). Illegitime Tätigkeiten in der Arbeit [Illegitimate tasks at work - a replication and extension]. *Unpublished masters' thesis*, University of Bern, Switzerland.
- Schade, V., Semmer, N. K., Main, C., Hora, J., & Boos, N. (1999). The Impact of Clinical, Morphological, Psychosocial and Work-related Factors on the Outcome of Lumbar Discectomy. *Pain*, 80, 239-249.

## References

- Schaubroeck, J., & Jones, J. R. (2000). Antecedents of workplace emotional labor dimensions and moderators of their effects on physical symptoms. *Journal of Organizational Behavior*, 21, 163–183.
- Schaubroeck, J., Jones, J. R., & Xie, J. L. (2001). Individual differences in utilizing control to cope with job demands: Effects on susceptibility to infectious disease. *Journal of Applied Psychology*, 86, 265-278.
- Schaubroeck, J., & Merritt, D. E. (1997). Divergent effects of job control on coping with work stressors: The key role of self-efficacy. *Academy of Management Journal*, 40, 738-754.
- Schaufeli, W. B., & Bakker, A. B. (2004) Job demands, job resources and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25, 293-315.
- Schaufeli, W. B., & Buunk, B. P. (1996). Professional burnout. In: M. J. Schabracq, J. A. M. Winnubst, & C.L. Cooper (Eds.), *Handbook of work and health psychology* (pp. 513-527). New York: Wiley.
- Schaufeli, W. B. & Enzmann, D. (1998). *The burnout companion to study and practice: a critical analysis*. London: Taylor & Francis.
- Schaufeli, W. B., Maslach, C., & Marek, T. (1993). *Professional burnout: Recent developments in theory and research*. Washington, DC: Taylor & Francis.
- Schaufeli, W. B., Van Dierendonk D., & Van Gorp, K. (1996). Burnout and reciprocity: towards a dual-level social exchange model. *Work & Stress*, 10, 225-237.
- Schaufeli, W. B., Leiter, M. P., Maslach, C., & Jackson, S. E. (1996). Maslach Burnout Inventory—General Survey. In C. Maslach, S. E. Jackson, & M. P. Leiter (Eds.), *Maslach Burnout Inventory manual* (3rd ed., pp. 19–26). Palo Alto, CA: Consulting Psychologists Press.
- Schieman, S., McBrier, D. B., & Van Gundy, K. (2003). Home-to-work conflict, work qualities, and emotional distress. *Sociological Forum*, 18, 137-164.
- Schwarzer, R. (1994). Optimistische Kompetenzerwartung: Zur Erfassung einer personellen Bewältigungsressource [Optimistic expectancy of competence: acquisition of a personal resource]. *Diagnostica*, 40, 105–123.
- Schwarzer, R., & Leppin, A. (1992). Social support and mental health: A conceptual and empirical overview. In L. Montada, S.-H. Filipp, & M. J. Lerner (Eds.), *Life crises and experiences of loss in adulthood* (pp. 435-458). Hillsdale, NJ: Lawrence Erlbaum.
- Sedikides, C., & Strube, M. J. (1997). Self-evaluation: To thine own self be good, to thine own self be sure, to thine own self be true, and to thine own self be better. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology*, 29, 209-269. New York, NY: Academic Press.



## References

- Seery, M. D., Blascovich, J., Weisbuch, M., & Vick, S. B. (2004). The relationship between self-esteem level, self-esteem stability, and cardiovascular reactions to performance feedback. *Journal of Personality and Social Psychology*, 87 (1), 133-45.
- Selye, H. (1993). History of the stress concept. In L. Goldberger & S. Breznitz (Eds.), *Handbook of Stress: Theoretical and clinical aspects* (2nd ed., pp. 7-17). New York: The Free Press.
- Semmer, N. (1984). *Streßbezogene Tätigkeitsanalyse. Psychologische Untersuchungen zur Analyse von Streß am Arbeitsplatz* [Stress-related job analysis. Psychological analyses of stress at work]. Weinheim: Beltz.
- Semmer, N. (1992). One man's meat, another man's poison? Stressors and their cultural background. In M. von Cranach, W. Doise & G. Mugny (Eds.), *Social representations and the social bases of knowledge* (pp. 153-158). Bern: Huber.
- Semmer, N. (1996). Individual differences, work stress and health. In M. J. Schabracq, J. A. M. Winnubst, & C. L. Cooper (Eds.), *Handbook of work and health psychology* (pp. 51-86). New York: Wiley.
- Semmer, N. (1998). Stress am Arbeitsplatz. Merkmale, Diagnose, Auswirkungen und Intervention [Stress at work: Characteristics, diagnosis, effects, and intervention]. In G. Steffgen, M. Meis & C. Bollendorff (Hrsg.), *Psychologie in der Arbeitswelt* (S. 33-64). Luxembourg: Editions promoculture.
- Semmer, N. K. (2000). Control at work: Issues of specificity, generality, and legitimacy. In W. J. Perrig & A. Grob (Eds.), *Control of human behavior, mental processes, and consciousness. Essays in honour of the 60th birthday of August Flammer* (pp. 555-574). Mahwah, NJ: Erlbaum.
- Semmer, N. K. (2003a). Individual differences, work stress and health. In M. J. Schabracq, J. A. M. Winnubst & C. L. Cooper (Eds.), *The Handbook of Work and Health Psychology*: John Wiley & Sons.
- Semmer, N. K. (2003b). Job stress interventions and organization of work. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of Occupational Health Psychology* (pp. 325-353). Washington, DC: American Psychological Association.
- Semmer, N. K. & Jacobshagen, N. (2003). Selbstwert und Wertschätzung als Themen der arbeitspsychologischen Stressforschung [Self-esteem and appreciation as topics of occupational stress research]. In K.-C. Hamborg & H. Holling (Hrsg.), *Innovative Personal- und Organisationsentwicklung* (pp. 131-155). Göttingen: Hogrefe.
- Semmer, N. K. & Mohr, G. (2001). Arbeit und Gesundheit: Konzepte und Ergebnisse der arbeitspsychologischen Stressforschung [Work and health. Concepts and findings of occupational health psychology]. *Psychologische Rundschau*, 52, 150-158.

## References

- Semmer, N. & Udris, I. (2000). Bedeutung und Wirkung von Arbeit [The meaning and the effects of work]. In H. Schuler (Hrsg.), *Lehrbuch Organisationspsychologie* (2. Aufl.). Bern: Huber.
- Semmer, N. & Udris, I. (2004). Bedeutung und Wirkung von Arbeit [The meaning and the effects of work]. In H. Schuler (Hrsg.), *Lehrbuch Organisationspsychologie* (2nd Ed., pp. 157-195). Bern: Huber.
- Semmer, N. K., Grebner, S., & Elfering, A. (2004). Beyond self-report: Using observational, physiological, and situation-based measures in research on occupational stress. In P. L. Perrewé & D. C. Ganster (Eds.), *Research in Occupational Stress and Well-being* (Vol. 3: *Emotional and physiological processes and positive intervention strategies*, pp. 207-263). Amsterdam: JAI.
- Semmer, N. K., Grebner, S. & Jacobshagen, N. (2006). Diagnostik von Stress und Belastung in der Arbeit [Diagnosing stress and strain at work]. In F. Petermann & M. Eid (Hrsg.), *Handbuch psychologischer Diagnostik* (747-753). Göttingen: Hogrefe.
- Semmer, N. K., McGrath, J. E., & Beehr, T. A. (2005). Conceptual issues in research on stress and health. In C.L. Cooper (Ed.), *Handbook of Stress and Health* (2<sup>nd</sup> ed., pp. 1-43). New York: CRC Press.
- Semmer, N. K., Zapf, D., & Dunckel, H. (1995). Assessing stress at work: A framework and an instrument. In O. Svane & C. Johansen (Eds.), *Work and health: Scientific basis of progress in the working environment* (pp. 105-113). Luxembourg: Office for Official Publications of the European Communities.
- Semmer, N., Zapf, D., & Dunckel, H. (1999). Instrument zur Stressbezogenen Tätigkeitsanalyse (ISTA) Version 5.1 [Instrument for stress-related task analysis. Version 5.1]. Unpublished Manuscript. *Department of Psychology*, University of Berne, Switzerland.
- Semmer, N. K., Zapf, D., & Greif, S. (1996). "Shared job strain": A new approach for assessing the validity of job stress measurements. *Journal of Occupational and Organizational Psychology*, 69, 293–310.
- Semmer, N. K., Baillod, J., Stadler, R., & Gail, K. (1996). Fluktuation bei Computerfachleuten. Eine Follow-up Studie [Turnover among computer specialists: A follow-up study]. *Zeitschrift für Arbeits- und Organisationspsychologie*, 40, 190-199.
- Sevastos, P., Smith, L. and Cordery, J.L., (1992) Evidence on the reliability and construct validity of Warr's (1990) well-being and mental health measures. *Journal of Occupational and Organizational Psychologist*, 64, 33–49.
- Shelton, S. (1990). Developing the construct of general self-efficacy. *Psychological Reports*, 66, 987-994.

## References

- Siegrist, J. (1996). Adverse health effects of high effort/low reward conditions. *Journal of Occupational Health Psychology*, 1, 27-41.
- Siegrist, J. (2002). Effort-reward imbalance at work and health. In P Perrewe & D Ganster (Eds.), *Research in Occupational Stress and Well Being, Vol. 2: Historical and Current Perspectives on Stress and Health*, pp 261-291. New York: JAI Elsevier.
- Silver, R. C., Wortman, C. B., & Crofton, C. (1990). The role of coping in support provision: The self-presentational dilemma of victims of life crises. In B. R. Sarason, I. G. Sarason, & G. R. Pierce (Eds.), *Social support: An interactional view* (pp. 397-426). New York: Wiley.
- Skarlicki, D. P., & Folger, R. (1997). Retaliation in the workplace: The roles of distributive, procedural, and interactional justice. *Journal of Applied Psychology*, 82, 434-443.
- Smith, L. A., Roman, A., Dollard, M. F., Winefield, A. H., & Siegrist, J. (2005). Effort-reward imbalance at work: The effects of work stress on anger and cardiovascular disease symptoms in a community sample. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 21, 113-128.
- Snijders, T. A. B. & Bosker, R. J. (1999). *Multilevel analysis: An introduction to basic and advanced multilevel modelling*. London: Sage.
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equations models. In S. Leinhard (Ed.), *Sociological methodology* (pp. 290-312). San Francisco: Jossey-Bass.
- Sobel, M. E. (1986). Some new results on indirect effects and their standard errors in covariance structure models *Sociological Methodology*, 16, 159-186.
- Sonnentag, S. (1996). Arbeitsbedingungen und psychisches Befinden bei Frauen und Männern: Eine Metaanalyse [Work condition and psychological well-being for women and men]. *Zeitschrift für Arbeits- und Organisationspsychologie*, 40, 118-126.
- Sonnentag, S. (2001). Work, recovery activities, and individual well-being: A diary study. *Journal of Occupational Health Psychology*, 6, 196-210.
- Sonnentag, S. & Zijlstra, F. R. H. (2006). Job characteristics and off-job activities as predictors of need for recovery, well-being, and fatigue. *Journal of Applied Psychology*, 91 (2), 330-350.
- Spector, P. E. (1982). Behavior in organizations as a function of employee's locus of control. *Psychological Bulletin*, 91, 482-497.
- Spector, P. E. (1985). Measurement of human service staff satisfaction: Development of the Job Satisfaction Survey. *American Journal of community Psychology*, 13, 693-713.
- Spector, P. E. (1986). Perceived control by employees: A meta-analysis of studies concerning autonomy and participation at work. *Human Relations*, 39, 1005-1016.

## References

- Spector, P. E. (1992). A consideration of the validity and meaning of self-report measures of job conditions. In C. L. Cooper & I. T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology* (pp. 123-151). Chichester: Wiley.
- Spector, P. E. (1997). *Job Satisfaction: Application, Assessment, Causes, and Consequences*. California: Sage.
- Spector, P. E. & Jex, S. M. (1998). Development of four self-report measures of job stressors and strain: Interpersonal Conflict at Work Scale, Organizational Constraints Scale, Quantitative Workload Inventory, and Physical Symptoms Inventory. *Journal of Occupational Health Psychology*, 3, 356-367.
- Spector, P. E., Fox, S., & van Katwyk, P. T. (1999). The role of negative affectivity in employee reactions to jobs: nuisance effect or substantive effect? *Journal of Occupational and Organizational Psychology*, 72, 205-218.
- Spector, P. E., Zapf, D., Chen, P. Y., & Frese, M. (2000). Why negative affectivity should not be controlled in job stress research: Don't throw out the baby with the bath water. *Journal of Organizational Behavior*, 21, 79-95.
- Staerkle, R., Mannion, A., Elfering, A., Junge, A., Semmer, N. K., Jacobshagen, N., Grob, D., Drorak, J., & Boos, N. (2004). Longitudinal validation of the Fear-Avoidance Beliefs Questionnaire (FABQ) in a Swiss-German sample of low back pain patients. *European Spine Journal*, 13, 332-340.
- Stake, J. E., Huff, L., & Zand, D. (1995). Trait self-esteem, positive and negative events and event-specific shifts in self-evaluation and affect. *Journal of Research in Personality*, 29, 223-241.
- Stephens, A. (1991). Psychological coping, individual differences and physiological stress responses. In C. L. Cooper & R. Payne (Eds.), *Personality and stress: Individual differences in the stress process* (pp. 205-233). Chichester: Wiley.
- Stephens, A., Siegrist, J., Kirschbaum, C., & Marmot, M. (2004). Effort-reward imbalance, overcommitment, and measures of cortisol and blood pressure over the working day. *Psychosomatic Medicine*, 66, 323-329.
- Stets, J. E. & Burke, P. J. (2000). Identity theory and social identity theory. *Social Psychology Quarterly*, 63, 324-237.
- Stroebe, W., & Stroebe, M. (1996). The social psychology of social support. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 597-621). New York: Guilford Press.
- Stryker, S. (1987). Identity theory: developments and extension. In K. Yardley & T. Honess (Eds.), *Self and identity: Psychosocial perspectives* (pp. 89-103).
- Sutherland, V. J. & Cooper, C. L. (1990). *Understanding stress. A psychological perspective for health professionals*. London: Chapman and Hall.

## References

- Tacq, J. (1997). *Multivariate analysis techniques in social science research*. London: Sage.
- Tait, M., Padgett, M. Y., & Baldwin, T. T. (1989). Job and life satisfaction: A reevaluation of the strength of the relationship and gender effects as a function of the date of the study. *Journal of Applied Psychology*, 74, 502-507.
- Tang, T. L., & Gilbert, P. R. (1994). Organization-based self-esteem among mental health workers: A replication and extension. *Public Personnel Management*, 23, 127-134.
- Taris, T. W., Kompier, M. A. J., Geurts, S. A., Schreurs, P. J. G, Schaufeli, W. B., De Boer, E., Sepmeijer, K. J., & Watez, C. (2003). Stress management interventions in the Dutch domiciliary care sector: Findings from 81 organizations. *International Journal of Stress Management*, 10, 297-325.
- Taris, T. W., Peeters, M. C. W., Le-Blanc, P. M., Schreurs, P. J. G., & Schaufeli, W.B. (2001). From inequity to burnout: The role of job stress. *Journal of Occupational Health Psychology*, 6 (4), 303-323.
- Taylor, M. S. (2001). Reflections on fairness: Continuing the progression of justice research and practice. *Journal of Vocational Behavior*, 58, 342-253.
- Tepper, B. J. (2000). Consequences of abusive supervision. *Academy of Management Journal*, 43, 178–190.
- Tepper, B. J. (2001). Health consequences of organizational injustice: Tests of main and interactive effects. *Organizational Behavior and Human Decision Processes*, 86, 197-215.
- Terry, D. J., & Jimmieson, N. L. (1999). Work control and employee well-being: A decade review. In I. Robertson & C. L. Cooper (Eds.), *International review of Industrial and organizational psychology* (Vol. 14, pp. 95-145).
- Tesser, A. & Martin, L. (1996). The psychology of evaluation. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 400-432). New York: Guilford.
- Tharenou, P. (1979). Employee self-esteem: A review of the literature. *Journal of Vocational Behavior* 15, 1-29.
- Tharenou, P., & Harker, P. (1982). Organizational correlates of employee self-esteem. *Journal of Applied Psychology* 67, 797-805.
- Theorell, T., & Karasek, R.A. (1996). Current issues relating to psychosocial job strain and cardiovascular disease research. *Journal of Occupational Health Psychology*, 1, 9-26.
- Thoits, P A. (1991). On merging identity theory and stress research. *Social Psychology Quarterly* 54, 101-112.
- Thoits, P. A. (1995). Stress, coping, and social support processes: Where are we? What next? *Journal of Health and Social Behavior, Extra Issue*, 53-79.

## References

- Totterdell, P., Wood, S., & Wall, T. (2006). An intra-individual test of the demands–control model: A weekly diary study of psychological strain in portfolio workers. *Journal of Occupational and Organizational Psychology*, 79, 63-84.
- Trzesniewski, K. H., Donnellan, M. B., & Robins R. W. (2003). Stability of self-esteem across the life span. *Journal of Personality and Social Psychology*, 84 (1), 205-20.
- Tsutsumi, A., & Kawakami, N. (2004). A review of empirical studies on the model of effort-reward imbalance at work: Reducing occupational stress by implementing a new theory. *Social Science & Medicine*, 59, 2335-2359.
- Tucker, L. R., & Lewis, C. (1973). The reliability coefficient for maximum likelihood factor analysis. *Psychometrika* 38, 1–10.
- Tyler, T. R. (1994). Psychological models of the justice motive: Antecedents of distributive and procedural justice. *Journal of Personality and Social Psychology*, 67, 850-863.
- Tyler, T. R., & Degoe, P. (1995). Collective restraint in social dilemmas: Procedural justice and social identification effects on support for authorities. *Journal of Personality and Social Psychology*, 69, 482-497.
- Tyler, T., Degoy, P., & Smith, H. (1996). Understanding why the justice of group procedures matters: A test of the psychological dynamics of the group-value model. *Journal of Personality and Social Psychology*, 70 (5), 913-930.
- Tyler, T. R., Boeckmann, R. J., Smith, H. J., & Huo, Y. J. (1997). *Social justice in a diverse society*. Boulder, CO: Westview.
- Van de Vliert, E. (1998). Conflict and conflict management. In P.J.D. Drenth, H. Thierry, & C.J. de Wolff (Eds.), *Handbook of work and organizational psychology* (2<sup>nd</sup> ed., vol. 3: Personnel Psychology, pp. 351-376). Hove, UK: Psychology Press.
- Van der Doef, M., & Maes, S. (1999). The Job Demand-Control (-Support) model and psychological well-being: A review of 20 years of empirical research. *Work and Stress*, 13, 87-114.
- Van Dierendonck, D., Schaufeli, W. B., & Buunk, B. P. (2001). Burnout and inequity among human service professionals: A longitudinal study. *Journal of Occupational Health Psychology*, 6, 43-52.
- Van Dierendonck, D. Schaufeli, W. B., & Sixma, H. J. (1994). Burnout among general practitioners: A perspective from equity theory. *Journal of Social and Clinical Psychology*, 13, 86-100.
- Van Horn, J. E., Schaufeli, W. B., & Taris, T. W. (2001). Lack of reciprocity among Dutch teachers: Validation of reciprocity indices and their relation to stress and well-being. *Work & Stress*, 15, 191-213.

## References

- Van Katwyk, P. T., Fox, S., Spector, P. E., & Kelloway, E. K. (2000). Using the Job-Related Affective Well-Being Scale (JAWS) to investigate affective responses to work stressors. *Journal of Occupational Health Psychology, 5*, 219-230.
- Van Stegeren, A. H., Rohleder, N., Everaerd, W., & Wolf, O. T. (2006). Salivary Alpha Amylase (sAA) as a marker for adrenergic activity during stress: effects of beta blockade. *Psychoneuroendocrinology, 31*, 137-141.
- Van Vegchel, N., de Jonge, J., Bosma, H., & Schaufeli, W.B. (2005). Reviewing the effort-reward imbalance model: drawing up the balance of 45 empirical studies. *Social Science & Medicine, 60*, 1117-1131.
- Van Yperen, N. W. (1996). Communal Orientation and the Burnout Syndrome Among Nurses: A Replication and Extension. *Journal of Applied Social Psychology, 26* (4), 338-354.
- Van Yperen, N. W. (1998). Informational support, equity and burnout: The moderating effect of self-efficacy. *Journal of Occupational and Organizational Psychology, 71*, 29-33.
- Van Yperen, N. W., Hagedoorn, M., & Geurts, S. A. E. (1996). Intent to leave and absenteeism as reactions to perceived inequity: the role of psychological and social constraints. *Journal of Occupational and Organizational Psychology, 69*, 367-37.
- Viswesvaran, C., Sanchez, J. I., & Fisher, J. (1999). The role of social support in the process of work stress: A meta-analysis. *Journal of Vocational Behavior, 54* (2), 314-334.
- Walbott, H. G., & Scherer, K. R. (1995). Cultural determinants in experiencing shame and guilt. In J. P. Tangney & K. W. Fischer (Eds.), *Self-conscious emotions* (pp. 465-487). New York: Guilford Press.
- Wall, T. D., Jackson, P. R., Mullarkey, S., & Parker, S. K. (1996). The demand-control model of job strain: A more specific test. *Journal of Occupational and Organizational Psychology, 69*, 153-166.
- Warr, P. B. (1987). *Work, unemployment, and mental health*. Oxford: Oxford University Press.
- Warr, P. B. (1990). The measurement of well-being and other aspects of mental health. *Journal of Occupational Psychology, 63*, 193-210.
- Warr, P. (1992). Age and occupational well-being. *Psychology and Aging, 7*, 37-45.
- Warr, P. B. (1994). A conceptual framework for the study of work and mental health. *Work & Stress, 8*, 84-97.
- Warr, P. B. (1999). *Well-being and the workplace*. In D. Kahnemann, E. Diener, & N. Schwarz (Eds.), *Well-Being: The foundations of hedonic psychology* (pp. 392-412). New York: Russell Sage Foundation.
- Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin, 96*, 465-490.

## References

- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin*, 98, 219-235.
- Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, 97, 346-353.
- Watson, D., Pennebaker, J. W., & Folger, R. (1986). Beyond negative affectivity: Measuring stress and satisfaction in the workplace. *Journal of Organizational Behavior Management*, 8, 141-147.
- Weiss, H. M., Suckow, K., & Cropanzano, R. (1999). Effects of justice conditions on discrete emotions. *Journal of Applied Psychology*, 84, 786-794.
- Whitener, E. M. (1990). Confusion of confidence intervals and credibility intervals in meta-analysis. *Journal of Applied Psychology*, 75(3), 315-321.
- Williams, L. J., & Brown, B. (1994). Method variance in organizational behavior and human resources research: Effects on correlations, path coefficients and hypothesis testing. *Organizational Behavior and Human Decision Processes*, 57, 185-209.
- Wills, T. A. & Shinar, O. (2000). Measuring perceived and received social support. In S. Cohen, L. G. Underwood, & B. H. Gottlieb (Eds.), *Social support measurement and intervention* (p. 86-135). New York: Oxford University Press.
- Wright, T. A., & Doherty, E. M. (1998). Organizational behavior "rediscovered" the role of emotional well-being. *Journal of Organizational Behavior*, 19, 481-485.
- Zapf, D. (1999). Mobbing in Organisationen - Überblick zum Stand der Forschung. [Mobbing in organizations – an overview]. *Zeitschrift für Arbeits- und Organisationspsychologie*,
- Zapf, D. (2002). Emotion work and psychological well-being. A review of the literature and some conceptual considerations. *Human Resource Management Review*, 12, 237-268.
- Zapf, D., & Frese, M. (1991). Soziale Stressoren am Arbeitsplatz und psychische Gesundheit [Social stressors at work and psychological health]. In S. Greif, E. Bamberg, & N. Semmer (Eds.), *Psychischer Stress am Arbeitsplatz* [Psychological stress at work] (pp. 168-184). Göttingen, Germany: Hogrefe.
- Zapf, D. & Semmer, N. K. (2004). Stress und Gesundheit in Organisationen [Stress and Health in Organizations]. In H. Schuler (Hrsg.), *Organisationspsychologie - Grundlagen und Personalpsychologie* (Enzyklopädie der Psychologie, Themenbereich D, Serie III, Band 3, S. 1007-1112). Göttingen: Hogrefe.
- Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal studies in organizational stress research: A review of the literature with reference to methodological issues. *Journal of Occupational Health Psychology*, 1, 145-169.



## References

- Zapf, D., Knorz, C., & Kulla, M. (1996). On the relationship between mobbing factors, and job content, social work environment and health outcomes. *European Journal of Work and Organizational Psychology*, 5, 215–237.
- Zapf, D., Seifert, C., Schmutte, B., Mertini, H. & Holz, M. (2001). Emotion work and job stressors and their effects on burnout. *Psychology and Health*, 16, 527-545.
- Zapf, D., Vogt, C., Seifert, C., Mertini, H., & Isic, A. (1999). Emotion work as a source of stress: The concept and development of an instrument. *European Journal of Work and Organizational Psychology*, 8, 371–400.
- Zohar, D. (1995). The justice perspective of job stress. *Journal of Organizational Behavior*, 16, 487-495.
- Zohar, D. (1999). When things go wrong: The effect of daily work hassles on effort, exertion and negative mood. *Journal of Occupational and Organizational Psychology*, 72, 265-283.

**ILLEGITIMATE TASKS, ILLEGITIMATE STRESSORS:  
TESTING A NEW STRESSOR-STRAIN CONCEPT**

INAUGURALDISSERTATION DER  
PHILOSOPHISCH-HUMANWISSENSCHAFTLICHEN FAKULTÄT DER UNIVERSITÄT BERN  
ZUR ERLANGUNG DER DOKTORWÜRDE VORGELEGT VON

NICOLA JACOBSHAGEN  
DEUTSCHLAND

**APPENDIX**

## Appendix A – Scales – Overview

Scales in Questionnaires

Scales/Items in Diary Approach

Key Questions of the Interview Approach

## Appendix A – List of Tables and Figures

<b>Questionnaire - Scales measuring stressors</b>	3
Figure 1. Berne Illegitimate Tasks Scale (Semmer & Jacobshagen).	3
Figure 2. Work Interruptions (ISTA, Semmer et al.).	4
Figure 3. Concentration Requirements (ISTA, Semmer et al.).	4
Figure 4. Time Pressure (ISTA, Semmer et al.).	4
Figure 5. Problems with the Organization of Work (ISTA, Semmer et al.).	5
Figure 6. Uncertainty (ISTA, Semmer et al.).	5
Figure 7. Social Stressors (4 Items, Frese & Zapf).	6
Figure 8. Effort Reward Imbalance (vanYperen).	6
Figure 9. Effort Reward Imbalance (Siegrist).	7
Figure 10. Work-Family Conflict (Kopelman et al.).	9
Figure 11. Emotional Dissonance (ISTA, Semmer et al.).	9
Figure 12. Emotional Dissonance (FEWS, Zapf et al.).	9
<b>Questionnaire - scales measuring resources</b>	10
Figure 13. Social Support at Work (House & Caplan).	10
Figure 14. Job Control (Time and Method Control - ISTA, Semmer et al.).	10
Figure 15. Self-efficacy (Krampen).	10
Figure 16. Self-Esteem (Rosenberg).	11
<b>Questionnaire - scales measuring psychological well-being and strain</b>	12
Figure 17. Feelings of Resentment (Geurts et al.).	12
Figure 18. Irritation (Mohr).	12
Figure 19. Psychosomatic Complaints (Mohr).	13
Figure 20. Work-related Depression (Warr).	13
Figure 21. Burnout : Emotional Exhaustion (Demerouti et al.).	14
Figure 22. Burnout : Disengagement (Demerouti et al.).	14
Figure 23. Job Satisfaction (Baillod & Semmer).	15
Figure 24. Organizational Based Self – Esteem (Pierce et al.).	15
<b>Diary approach – items / scales measuring stressors</b>	16
Figure 25. Stressfulness of the Situation (Perrez & Reicherts).	16
Figure 26. Perceived Illegitimacy of the Situation (Jacobshagen, Amstad & Semmer).	16
<b>Diary approach – items / scales measuring psychological well-being / strain</b>	16
Figure 27. Situational Well-Being (Perrez & Reicherts).	16
Figure 28. Situational Resentments (Adapted from Geurts et al.).	17
<b>Interview approach – key questions</b>	18
Table 1. Key Questions in Interview (in German).	18

**Questionnaire - Scales measuring stressors**

Figure 1. Berne Illegitimate Tasks Scale (Semmer &amp; Jacobshagen).

Do you have work tasks to take care of, which keep you wondering if ...					
	never (1)	rarely (2)	once in a while (3)	rather often (4)	fre- quently (5)
...they have to be done at all?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
...they make sense at all?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
...they would not exist (or could be done with less effort), if it were organized differently?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
...they would not exist (or could be done with less effort), if some other people made less mistakes?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
...they just exist because some people simply demand it this way?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Do you have work tasks to take care of, which you believe ...					
	never (1)	rarely (2)	once in a while (3)	rather often (4)	fre- quently (5)
...should be done by someone else?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
...are going too far, which should not be expected from you?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
...put you into an awkward position?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
...are unfair that you have to deal with them?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

## Appendix A

Figure 2. Work Interruptions (ISTA, Semmer et al.).

Please answer the following questions with regard to your situation at work.	very rarely / never (1)	rarely (2)	occasionally (3)	rather often (4)	very often / constantly (5)
How often are you interrupted by other colleagues at work?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
How often are you interrupted by clients at work?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
How often does it occur that you have to work on several tasks simultaneously, and you have to jump back and forth between tasks?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
How often does it occur that you cannot work on something in peace because something always comes in between?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>

Figure 3. Concentration Requirements (ISTA, Semmer et al.).

Please answer the following questions with regard to your situation at work.	very rarely / never (1)	rarely (2)	occasionally (3)	rather often (4)	very often / constantly (5)
Do you have to temporarily retain complicated information in your mind that is difficult to remember (e.g., quantities, names)?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
Does it happen that you have to be attentive for a long time without anything happening, and then you have to react immediately?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
How often does your work require the utmost concentration for short periods of time?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
At work, how often do you have to keep many different things in mind at the same time?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>

Figure 4. Time Pressure (ISTA, Semmer et al.).

Please answer the following questions with regard to your situation at work.	very rarely / never (1)	rarely (2)	occasionally (3)	rather often (4)	very often / constantly (5)
How often are you pressed for time?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
How often do you have to miss or delay a break because of having too much work to do?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
How often do you go home late because of too much work?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
At work, how often is a rapid pace of work required?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>

## Appendix A

Figure 5. Problems with the Organization of Work (ISTA, Semmer et al.).

Which of the described workplaces resembles yours the most?	exactly like A (1)	rather like A (2)	between A and B (3)	rather like B (4)	exactly like B (5)
In general, person A's workplace is arranged to facilitate work. Person B's workplace is arranged in such a way that certain objects are difficult to reach and movements are often hindered.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
A has documents and information at his/her disposal, which are always accurate and up-to-date. B has documents that often contain incomplete or out-of-date information.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
A must waste a lot of time in order to get information and/or materials to pursue his/her work. B always has the necessary information and/or materials at his/her disposal.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
A must work with materials and/or equipment, which are not really suitable for use B works with flawless materials and/or equipment.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Figure 6. Uncertainty (ISTA, Semmer et al.).

Please answer the following questions with regard to your situation at work.	from no supervisor (1)	from one supervisor (2)	from two supervi- sors (3)	from three supervi- sors (4)	from more than three supervi-sors (5)
From how many people do you regularly receive instructions?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

	very rarely / never (1)	rarely (2)	occasio- nally (3)	rather often (4)	very often / con-stantly (5)
How often do you receive ambiguous instructions?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
How often do you receive contradictory instructions from different supervisors?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
How often do you have to make decisions at work without sufficient information?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

## Appendix A

Figure 7. Social Stressors (4 Items, Frese & Zapf).

Please answer the following statements regarding the working atmosphere.					
	strongly disagree (1)	mostly disagree (2)	agree a bit (3)	mostly agree (4)	strongly agree (5)
With some colleagues one often quarrels.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
People put you down for almost nothing here.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Some colleagues interrupt the regular work rhythm repeatedly.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I have to work with people who lack a sense of humour.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Figure 8. Effort Reward Imbalance (vanYperen).

Please indicate how strongly you agree or disagree with the following statements.							
	totally dis-agree (1)	dis-agree (2)	rather dis-agree (3)	partly agree (4)	rather agree (5)	agree (6)	totally agree (7)
I work too hard considering my outcomes.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I give a great deal of time and attention to the organization, but get very little appreciation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I invest more in my job than I receive in return.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
The rewards I receive are not proportional to my investments.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I put more energy into my job than it is worth.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I feel unfairly treated in my job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Figure 9. Effort Reward Imbalance (Siegrist).

For each of the following statements, please indicate first whether you agree or disagree with it. If there is an arrow  $\Rightarrow$  behind your answer please also indicate how much you are generally distressed by this situation. Please note that the arrow  $\Rightarrow$  follows sometimes after stating "agree" and sometimes after stating "disagree".

I have constant time pressure due to a heavy work load.	Disagree O <sub>1</sub> <b>Agree</b> O $\Rightarrow$	O <sub>2</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>4</sub> I am distressed O <sub>5</sub> I am very distressed
I have many interruptions and disturbances in my job.	Disagree O <sub>1</sub> <b>Agree</b> O $\Rightarrow$	O <sub>2</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>4</sub> I am distressed O <sub>5</sub> I am very distressed
I have a lot of responsibility in my job.	Disagree O <sub>1</sub> <b>Agree</b> O $\Rightarrow$	O <sub>2</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>4</sub> I am distressed O <sub>5</sub> I am very distressed
I am often pressured to work overtime.	Disagree O <sub>1</sub> <b>Agree</b> O $\Rightarrow$	O <sub>2</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>4</sub> I am distressed O <sub>5</sub> I am very distressed
Over the past few years, my job has become more and more demanding.	Disagree O <sub>1</sub> <b>Agree</b> O $\Rightarrow$	O <sub>2</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>4</sub> I am distressed O <sub>5</sub> I am very distressed
I receive the respect I deserve from my superiors.	Agree O <sub>5</sub> <b>Disagree</b> O $\Rightarrow$	O <sub>4</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>2</sub> I am distressed O <sub>1</sub> I am very distressed
I receive the respect I deserve from my colleagues.	Agree O <sub>5</sub> <b>Disagree</b> O $\Rightarrow$	O <sub>4</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>2</sub> I am distressed O <sub>1</sub> I am very distressed
I experience adequate support in difficult situations.	Agree O <sub>5</sub> <b>Disagree</b> O $\Rightarrow$	O <sub>4</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>2</sub> I am distressed O <sub>1</sub> I am very distressed
I am treated unfairly at work.	Disagree O <sub>5</sub> <b>Agree</b> O $\Rightarrow$	O <sub>4</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>2</sub> I am distressed O <sub>1</sub> I am very distressed



## Appendix A

My job promotion prospects are poor.	Disagree O <sub>5</sub> <b>Agree</b> O ⇒ O <sub>4</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>2</sub> I am distressed O <sub>1</sub> I am very distressed
I have experienced or I expect to experience an undesirable change in my work.	Disagree O <sub>5</sub> <b>Agree</b> O ⇒ O <sub>4</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>2</sub> I am distressed O <sub>1</sub> I am very distressed
My job security is poor.	Disagree O <sub>5</sub> <b>Agree</b> O ⇒ O <sub>4</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>2</sub> I am distressed O <sub>1</sub> I am very distressed
My current occupational position adequately reflects my education and training.	Agree O <sub>5</sub> <b>Disagree</b> O ⇒ O <sub>4</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>2</sub> I am distressed O <sub>1</sub> I am very distressed
Considering all my efforts and achievements, I receive the respect and prestige I deserve at work.	Agree O <sub>5</sub> <b>Disagree</b> O ⇒ O <sub>4</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>2</sub> I am distressed O <sub>1</sub> I am very distressed
Considering all my efforts and achievements, my work prospects are adequate.	Agree O <sub>5</sub> <b>Disagree</b> O ⇒ O <sub>4</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>2</sub> I am distressed O <sub>1</sub> I am very distressed
Considering all my efforts and achievements, my salary/income is adequate.	Agree O <sub>5</sub> <b>Disagree</b> O ⇒ O <sub>4</sub> I am not at all distressed O <sub>3</sub> I am somewhat distressed O <sub>2</sub> I am distressed O <sub>1</sub> I am very distressed

## Appendix A

Figure 10. Work-Family Conflict (Kopelman et al.).

Please indicate in general how much you agree or disagree with the following statements.					
	strongly disagree	inclined to disagree	neither agree nor disagree (3)	inclined to agree	strongly agree
	(1)	(2)		(4)	(5)
After work, I come home too tired to do some of the things I'd like to do.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
On the job I have so much work to do that it takes away from my personal interests.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
My family / friends dislike how often I am preoccupied with my work while I am at home.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
My work takes up time that I'd like to spend with family / friends.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Figure 11. Emotional Dissonance (ISTA, Semmer et al.).

How often do your duties at work require you to show feelings that are not compatible with what you really feel?				
very rarely/ never	rarely	occasionally	rather often	very often/ constantly
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Figure 12. Emotional Dissonance (FEWS, Zapf et al.).

Please answer the following questions with regard to your situation at work.					
	very rarely/ never	rarely	occasionally	rather often	very often/ constantly
How often do your duties at work require you to show feelings, which are not compatible with what you really feel?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
How often do your duties at work require you to do show feelings that are not compatible with what you really feel about your client?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
How often do your duties at work require you to suppress feelings to appear neutral?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
How often do your duties at work require you to show pleasant feelings (e.g., cheerfulness) or unpleasant feelings (e.g., sternness), while you are feeling indifferent?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Which of the described workplaces resembles yours the most?					
	exactly like A (1)	rather like A (2)	between A and B (3)	rather like B (4)	exactly like B (5)
For Person A's work it is very important to suppress emerging feelings while dealing with clients	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Person B's work it is not important to suppress emerging feelings while dealing with clients	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

**Questionnaire - scales measuring resources**

Figure 13. Social Support at Work (House & Caplan).

How much can you rely on the following people in difficult situations at work?						
	not at all (1)	barely (2)	a bit (3)	pretty much (4)	a lot (5)	I cannot answer this question (0)
Your direct supervisor	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 0
The colleague who you feel closest to	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 0
Other colleagues	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 0

Figure 14. Job Control (Time and Method Control - ISTA, Semmer et al.).

Please answer the following questions:						
	very little / not at all (1)	rather little (2)	somewhat (3)	rather a lot (4)	very much (5)	
Considering your work in general, how many opportunities do you have to make your own decisions?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	
Can you decide on your own in which way you carry out your work tasks?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	
Is it possible for you to organize your work tasks independently?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	
To what degree are you able to determine on your own how much time you spend on a task?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	
Can you organize your workday independently?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	
Can you determine your daily working hours yourself?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	

Figure 15. Self-efficacy (Krampen).

We are interested in your opinion about the following statements. Please indicate how much you agree or disagree with the following statements with regard to your work.						
	strongly disagree	disagree	rather disagree	rather agree	agree	strongly agree
Even in difficult situations I can always think of several possibilities to do something.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
I always know what I can do in ambiguous or dangerous situations.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
I can always think of several possibilities to solve problems.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

## Appendix A

Figure 16. Self-Esteem (Rosenberg).

How much do you agree with the following statements?					
	strongly disagree	inclined to disagree	neither agree nor disagree	inclined to agree	strongly agree
	(1)	(2)	(3)	(4)	(5)
On the whole, I am satisfied with myself.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
At times, I think I am no good at all.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I feel that I have a number of good qualities.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I am able to do things as well as most other people.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I feel I do not have much to be proud of.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I certainly feel useless at times.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I feel that I'm a person of worth, at least on an equal plane with others.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I wish I could have more respect for myself.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
All in all, I am inclined to feel that I am a failure.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I take a positive attitude toward myself.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

**Questionnaire - scales measuring psychological well-being and strain**

Figure 17. Feelings of Resentment (Geurts et al).

The next questions concern feelings you might have with respect to your company. Please indicate with a number varying from '1' (not at all) to '7' (very strongly) to what extent you experience each feeling.

Example for the feeling "anger": with the number '6' you would report that you quite strongly (but not very strongly) feel anger with respect to your company.

	not at all						very strongly
indignation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
rancour	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
anger	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
unfairness	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
disappointment	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
grievance	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
hurt	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Figure 18. Irritation (Mohr).

Please indicate how you feel about the following <i>statements</i> from strongly disagree to strongly agree.							
	strongly dis-agree	dis- agree	some- what dis- agree	neither agree nor dis-agree	some- what agree	agree	strongly agree
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
I have difficulty relaxing after work.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Even at home I often think of my problems at work.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I get grumpy when others approach me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Even on my vacations I think about my problems at work.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
From time to time I feel like a bundle of nerves.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I anger quickly.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I get irritated easily, although I don't want this to happen.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
When I come home tired after work, I feel rather irritable.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

## Appendix A

Figure 19. Psychosomatic Complaints (Mohr).

Which <i>troubles</i> did you have during the last 12 months?					
	hardly ever / never (1)	every few months (2)	every few weeks (3)	every few days (4)	nearly every day (5)
circulatory troubles	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
stomach / intestinal troubles	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
headaches	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
restlessness / nervousness	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
having difficulties concentrating	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
backaches or lower back pain	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
neck or shoulder pain	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
dizziness	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
eating or weight problems (too much, too little)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
insomnia (difficulty initiating sleep, difficulty in maintaining sleep)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
palpitation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
tiredness	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
aching, heavy, tired legs	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
problems with the eyes (scorching, itching, pressure, aching)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
uncomfortable feeling of fullness	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
heartburn	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Figure 20. Work-related Depression (Warr).

Thinking of <i>the past few weeks</i> , how much of the time has <i>your job</i> made you feel each of the following?					
	never (1)	occasionally (2)	some of the time (3)	most of the time (4)	all of the time (5)
Miserable	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Depressed	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Optimistic	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Enthusiastic	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Gloomy	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Cheerful	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Figure 21. Burnout : Emotional Exhaustion (Demerouti et al).








	totally disagree (1)	rather disagree (2)	rather agree (3)	totally agree (4)
There are days that I feel already tired before I go to work.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
After my work, I now need more time to relax than in the past to become fit again.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
I can stand the pressure of my work very well.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
During my work, I often feel emotionally drained.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
After my work, I usually feel still totally fit for my leisure activities.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
After my work, I usually feel worn out and weary.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Normally, I can manage the amount of work well.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
When I work, I usually feel vital.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

Figure 22. Burnout : Disengagement (Demerouti et al).

	totally disagree (1)	rather disagree (2)	rather agree (3)	totally agree (4)
I always find new and interesting aspects in my work.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
It happens more and more often that I talk about my work in a derogatory way.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Lately, I tend to think less during my work and just execute it mechanically.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
I experience my work as a real challenge.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
With the time, one loses the internal relationship with one's work.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Sometimes I feel really sick about my work tasks.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
I cannot imagine another occupation for myself.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
I get more and more engaged in my work.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

Figure 23. Job Satisfaction (Baillod & Semmer).

How satisfied are you with your work *in general*?

						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
extremely dissatisfied	very dissatisfied	rather dissatisfied	more or less satisfied	rather satisfied	very satisfied	extremely satisfied

What do you think about your work <i>these days</i> ? I think that ...							
	almost never (1)	very rarely (2)	rather rarely (3)	once in a while (4)	rather often (5)	very often (6)	almost always (7)
If some things with my work don't change soon, I'm going to look for a new job.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I hope my work situation Always stays as good as it is now.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I really look forward to going back to work after days off.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Figure 24. Organizational Based Self – Esteem (Pierce et al.).

Please think about what kind of messages you receive from the attitudes and behaviours of your supervisors and colleagues. How much do you agree or disagree with the following statements?.					
	completely disagree (1)	disagree (2)	agree a bit (3)	agree (4)	strongly agree (5)
I am appreciated around here.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I count around here.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I am taken seriously around here.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I am important around here.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I am trusted around here.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
There is faith in me around here.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
I can make a difference around here.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5



**Diary approach – items / scales measuring stressors**

Figure 25. Stressfulness of the Situation (Perrez &amp; Reicherts).

The strain of this situations was for me						
none	very small	small	rather small	rather heavy	heavy	very heavy
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

Figure 26. Perceived Illegitimacy of the Situation (Jacobshagen, Amstad &amp; Semmer).

think this situation is					
	dis-agree		part-ly		agree
Unnecessary	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Gratuitous	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Avoidable	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Meaningless	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Intolerable	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Improper	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Illegitimate	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Incorrect	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

**Diary approach – items / scales measuring psychological well-being / strain**

Figure 27. Situational Well-Being (Perrez &amp; Reicherts).

In this situation I felt							
	very	fairly	partly	partly	fairly	very	
nervous	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	calm
sad	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	cheerful
angry	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	peaceable
anxious	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	confident

Figure 28. Situational Resentments (Adapted from Geurts et al.).

Which emotion did you feel in this situation?

	not at all						very much
Indignation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Rancour	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Anger	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Unfairness	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Disappointment	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Grievance	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Hurt	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

## Interview approach – key questions

Table 1. Key Questions in Interview (in German).

Wie sieht für Sie ein konkreter Tagesablauf aus?
Kommt es häufig vor, dass Ihr Tagesablauf sehr unterschiedlich oder „unplanmässig“ verläuft?
Was gefällt Ihnen an der Arbeit?
Was machen sie besonders gerne? Weshalb?
Wie bereits angekündigt, möchte ich jetzt gern sehr ausführlich über die einzelnen Tätigkeiten mit Ihnen reden, denen Sie an Ihrem Arbeitsplatz nachgehen.
Welches sind Ihre Hauptaufgaben?
Neben den Hauptaufgaben müssen oft auch andere Tätigkeiten ausgeführt werden, bspw. Administration, Schreibarbeiten, Mitarbeit in Arbeitsgruppen, etc.
Manchmal haben diese nur sehr wenig mit den Hauptaufgaben zu tun, müssen aber auch gemacht werden. Gibt es solche Tätigkeiten in Ihrem Arbeitsalltag?
Gibt es Tätigkeiten, die Sie bereits genannt haben oder die Ihnen jetzt noch in den Sinn kommen, bei denen Sie sich fragen:
...ob diese überhaupt gemacht werden müssen?
...ob diese nicht jemand anderes machen könnte?
...ob diese nicht gemacht werden müssen, wenn es anders organisiert wäre?
...ob diese nicht mit einem geringeren Aufwand erledigt werden könnten, wenn es anders organisiert wäre?
...ob diese nur existieren, weil bestimmte Personen das einfach so wollen?
Stellen Sie sich eine Situation vor, bei der Sie denken: "muss dass denn sein!" ... "jetzt kommt das schon wieder!". Was wäre eine solche Tätigkeit?
Gibt es Tätigkeiten, von denen Sie der Meinung sind, dass:
...diese jemand anderes machen sollte
...diese einfach nicht von Ihnen erwartet werden können (Tätigkeiten die zu weit gehen)
...man Sie in eine unmögliche Situation gebracht hat
...Sie sich dafür nicht als zuständig erachten
...es unfair ist, dass Sie diese machen müssen

## Appendix B1 – Scale Indicators of Eight Studies - Overview

- Means, standard deviations, correlations, internal consistencies in eight cross-sectional studies

## Appendix B1 – List of Tables

<b>Means, standard deviations, correlations, internal consistencies in eight cross-sectional studies</b>	<b>2</b>
Table 1. Means, standard deviations, correlations, and internal consistencies among variables in study I, part I.	2
Table 2. Means, standard deviations, correlations, and internal consistencies among variables in study I, part II.	3
Table 3. Means, standard deviations, correlations, and internal consistencies among variables in study II, part I.	4
Table 4. Means, standard deviations, correlations, and internal consistencies among secondary variables in study II, part II.	5
Table 5. Means, standard deviations, correlations, and internal consistencies among variables in study III, part I.	6
Table 6. Means, standard deviations, correlations, and internal consistencies among variables in study III, part II.	7
Table 7. Means, standard deviations, correlations, and internal consistencies among variables in study IV, part I.	8
Table 8. Means, standard deviations, correlations, and internal consistencies among variables in study IV, part II.	9
Table 9. Means, standard deviations, correlations, and internal consistencies among variables in study V, part I.	10
Table 10. Means, standard deviations, correlations, and internal consistencies among variables in study V, part II.	11
Table 11. Means, standard deviations, correlations, and internal consistencies among variables in study VI, part I.	12
Table 12. Means, standard deviations, correlations, and internal consistencies among variables in study VI, part II.	13
Table 13. Means, standard deviations, correlations, and internal consistencies among variables in study VII.	14
Table 14. Means, standard deviations, correlations, and internal consistencies among variables in study VIII.	15

## Appendix B1

**Means, standard deviations, correlations, internal consistencies in eight cross-sectional studies**

Table 1. Means, standard deviations, correlations, and internal consistencies among variables in study I, part I.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
<b>1</b> BITS	2.31	.591	(.85)																		
<b>2</b> TS	2.90	.445	.483***	(.62)																	
<b>3</b> SS	1.49	.456	.422***	.401***	(.68)																
<b>4</b> ERI	2.69	1.21	.496***	.368***	.457***	(.91)															
<b>5</b> WFC	n.a.	--	--	--	--	--	--														
<b>6</b> ED	3.24	1.13	.225**	.354***	.191**	.209**	--	(1 item)													
<b>7</b> JC	4.02	.786	-.169*	.027	-.163*	-.200**	--	-.025	(.85)												
<b>8</b> SSW	n.a.	--	--	--	--	--	--	--	--	--											
<b>9</b> SEF	4.61	.667	-.182*	-.065	-.151*	-.135†	--	-.033	.269***	--	(.83)										
<b>10</b> SEE	3.99	.534	-.333***	-.214**	-.279***	-.237***	--	-.081	.205**	--	.448***	(.82)									
<b>11</b> RES	2.59	1.09	.550***	.376***	.505***	.596***	--	.186**	-.198**	--	-.174*	-.323***	(.87)								
<b>12</b> IRR	2.71	.868	.363***	.401***	.245***	.343***	--	.220**	-.019	--	-.196**	-.462***	.380***	(.80)							
<b>13</b> EXH	2.09	.478	.428***	.441***	.323***	.336***	--	.203**	-.176*	--	-.247***	-.486***	.416***	.516***	(.79)						
<b>14</b> DIS	1.84	.488	.497***	.260***	.332***	.502***	--	.097	-.352***	--	-.360***	-.357***	.530***	.168*	.381***	(.80)					
<b>15</b> PC	1.82	.515	.343***	.216**	.237***	.220**	--	.099	-.117	--	-.310***	-.398***	.246***	.415***	.530***	.248***	(.82)				
<b>16</b> OBSE	4.20	.624	-.414***	-.257***	-.445***	-.557***	--	-.134†	.314***	--	.291***	.392***	-.482***	-.275***	-.263***	-.586***	-.146*	(.91)			
<b>17</b> WRD	n.a.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>18</b> JS	4.98	1.04	-.473***	-.246***	-.299***	-.550***	--	-.130†	.247***	--	.185*	.306***	-.576***	-.243***	-.322***	-.688***	-.212**	.637***	--	(.74)	
<b>19</b> Age	37.91	10.95	-.112	-.038	-.014	-.093	--	.177*	.032	--	.031	.091	-.118	.046	.041	-.207**	.054	.125†	--	.192**	--
<b>20</b> Sex	--	--	.031	.057	.069	.027	--	-.109	.201**	--	.202**	.085	.077	.092	-.001	-.091	.039	.003	--	-.065	.086

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=181-190

BITS= illegitimate tasks, TS=task stressors (index), SS=social stressors, ERI=effort-reward imbalance, WFC=work-family conflict, ED=emotional dissonance, JC=job control (index), SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBSE=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

# Appendix B1

Table 2. Means, standard deviations, correlations, and internal consistencies among variables in study I, part II.

	M	SD	1	2	3	4	5	6	7	8
1 BITS	2.31	.591	(.85)							
2 UN	2.29	.681	.485***	(.66)						
3 IW	3.38	.780	.354***	.257***	(.70)					
4 CD	3.30	.596	.220**	.176*	.317***	(.45)				
5 TP	3.32	.806	.115	.036	.383***	.355***	(.81)			
6 POW	2.25	.666	.369***	.424***	.218**	.159*	.114	(.62)		
7 MC	4.23	.675	-.169*	-.231***	.145*	.137†	.159*	-.167*	(.71)	
8 TC	3.81	1.03	-.145*	-.118	.163*	.063	.125†	-.194**	.688***	(.81)
9 SSW	n.a.	--	--	--	--	--	--	--	--	--
10 SEF	4.61	.667	-.182*	-.143*	-.128†	.170*	.087	-.189**	.311***	.208**
11 SEE	3.99	.534	-.333***	-.269***	-.178*	-.099	.085	-.267***	.192**	.183*
12 RES	2.59	1.09	.550***	.388***	.245***	.164*	.013	.417***	-.215**	-.158*
13 IRR	2.71	.868	.363***	.159*	.325***	.308***	.221**	.257***	-.027	-.016
14 EXH	2.09	.478	.428***	.237***	.345***	.232***	.237***	.327***	-.133†	-.178*
15 DIS	1.84	.488	.497***	.396***	.227**	.021	-.090	.288***	-.384***	-.279***
16 PC	1.82	.515	.343***	.173*	.171*	.112	.051	.190**	-.115	-.105
17 OBSE	4.20	.624	-.414***	-.469***	-.110	-.084	.115	-.334***	.384***	.223**
18 WRD	n.a.	--	--	--	--	--	--	--	--	--
19 JS	4.98	1.04	-.473***	-.373***	-.157*	-.027	.047	-.290***	.316***	.162*
20 Age	37.91	10.95	-.112	-.171*	.051	.023	.057	-.093	.033	.023
21 Sex	--	--	.031	.077	-.057	.151*	.069	-.048	.145*	.209**

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=188-190

BITS=illegitimate tasks, UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work, MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBS=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

# Appendix B1

Table 3. Means, standard deviations, correlations, and internal consistencies among variables in study II, part I.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 BITS	2.40	.643	(.87)																		
2 TS	3.00	.476	.452***	(.63)																	
3 SS	1.93	.670	.407***	.413***	(.71)																
4 ERI	3.13	1.32	.661***	.471***	.461***	(.93)															
5 WFC	2.82	.853	.308***	.553***	.243**	.284***	(.71)														
6 ED	2.88	.710	.448***	.473***	.383***	.448***	.218**	(.74)													
7 JC	3.37	1.07	-.161†	.173*	-.219**	-.262***	.207*	-.211*	(.92)												
8 SSW	3.79	.619	-.326***	-.234**	-.389***	-.451***	-.041	-.342***	.235**	(.56)											
9 SEF	4.51	.752	-.161†	.036	-.193*	-.170*	-.016	-.164*	.379***	.094	(.83)										
10 SEE	3.93	.534	-.240***	-.127	-.265***	-.249***	-.146†	-.188*	-.281***	.325***	.470***	(.81)									
11 RES	2.66	1.22	.602***	.350***	.603***	.696***	.184*	.504***	-.274***	-.428***	-.223**	-.252**	(.89)								
12 IRR	3.02	1.04	.359***	.349***	.239**	.271***	.425***	.360***	.126	-.139	-.163*	-.234**	.351***	(.83)							
13 EXH	2.21	.468	.472***	.464***	.456***	.462***	.503***	.366***	-.123	-.236**	-.241**	-.415***	.409***	.417***	(.78)						
14 DIS	2.07	.467	.295***	-.086	.284***	.451***	-.165*	.305***	-.559***	-.313***	-.353***	-.298***	.491***	.015	.293***	(.73)					
15 PC	1.92	.614	.257**	.345***	.348***	.396***	.323***	.266***	-.159†	-.215*	-.172*	-.360***	.420***	.371***	.554***	.163*	(.85)				
16 OBSE	3.92	.708	-.276***	-.024	-.367***	-.453***	.003	-.262***	.415***	.453***	.337***	.288***	-.456***	-.087	-.361***	-.519***	-.326***	(.92)			
17 WRD	n.a.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18 JS	4.72	1.05	-.392***	-.044	-.297***	-.511***	.024	-.321***	.334***	.329***	.247**	.191*	-.557***	-.129	-.292***	-.617***	-.177*	.467***	--	(.65)	
19 Age	40.50	10.09	-.124	.187*	-.001	-.189*	.097	-.085	.164*	.030	.092	.095	-.219**	.041	.083	-.250**	.019	.148†	--	.325***	--
20 Sex	--	--	.046	.047	.111	-.026	.010	.137†	.296***	-.066	.088	.012	.044	.044	-.056	-.070	-.151†	.138†	--	-.057	.189*

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=136-147

BITS= illegitimate tasks, TS=task stressors (index), SS=social stressors, ERI=effort-reward imbalance, WFC=work-family conflict, ED=emotional dissonance, JC=job control (index), SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBSE=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

# Appendix B1

Table 4. Means, standard deviations, correlations, and internal consistencies among secondary variables in study II, part II.

	M	SD	1	2	3	4	5	6	7	8
1 BITS	2.40	.643	(.87)							
2 UN	2.68	.693	.470***	(.67)						
3 IW	3.46	.783	.177*	.209*	(.71)					
4 CD	3.22	.673	.253**	.272***	.292***	(.57)				
5 TP	3.34	.806	.135	.175*	.430***	.424***	(.81)			
6 POW	2.34	.743	.424***	.536***	.082	.145†	.070	(.76)		
7 MC	3.66	.975	-.107	-.071	.245**	.199*	.320***	-.167*	(.88)	
8 TC	3.07	1.26	-.189*	-.011	.176*	.172*	.337***	-.196*	.813***	(.86)
9 SSW	3.79	.619	-.326***	-.376***	-.060	-.114	.084	-.322***	.265**	.192*
10 SEF	4.51	.752	-.161†	-.108	-.012	.192*	.289***	-.199*	.353***	.368***
11 SEE	3.93	.534	-.240**	-.253**	.056	.009	.125	-.285***	.272***	.264***
12 RES	2.66	1.22	.602***	.446***	.096	.179*	-.022	.424***	-.273***	-.252**
13 IRR	3.02	1.04	.359***	.242**	.219**	.277***	.250**	.137†	.125	.116
14 EXH	2.21	.468	.472***	.408***	.227**	.286***	.265***	.316***	-.154†	-.089
15 DIS	2.07	.467	.295***	.154†	-.206*	-.173*	-.344***	.333***	-.575***	-.502***
16 PC	1.92	.614	.257**	.304***	.126	.189*	.144†	.328***	-.129	-.169*
17 OBSE	3.92	.708	-.276***	-.248**	.091	.080	.241**	-.209*	.486***	.326***
18 WRD	n.a.	--	--	--	--	--	--	--	--	--
19 JS	4.72	1.05	-.392***	-.270***	.119	.096	.153†	-.241**	.372***	.276***
20 Age	40.50	10.09	-.124	.107	.237**	.159†	.122	.006	.105	.196*
21 Sex	--	--	.046	.142†	-.169*	.117	.025	.059	.236**	.317***

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=136-147

BITS= illegitimate tasks, UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work, MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBS=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.



Appendix B1

Table 5. Means, standard deviations, correlations, and internal consistencies among variables in study III, part I.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 BITS	2.26	.601	(.85)																		
2 TS	2.87	.513	.565***	(.77)																	
3 SS	1.41	.425	.536***	.539***	(.67)																
4 ERI	2.55	1.05	.657***	.482***	.524***	(.90)															
5 WFC	n.a.	--	--	--	--	--	--														
6 ED	2.62	.644	.265*	.240*	.194†	.237*	--	(.81)													
7 JC	4.29	.458	-.342**	-.072	-.266*	-.256*	--	.023	(.76)												
8 SSW	4.05	.633	-.479***	-.389***	-.511***	-.383***	--	-.027	.352**	(.65)											
9 SEF	4.52	.554	-.065	-.182	-.162	-.118	--	-.214†	.033	.116	(.65)										
10 SEE	4.01	.469	-.257*	-.199†	-.229*	-.381***	--	-.220†	.120	.121	.366***	(.82)									
11 RES	2.51	.990	.631***	.449***	.479***	.593***	--	.032	-.343**	-.510***	-.188	-.326**	(.84)								
12 IRR	2.54	.836	.484***	.418***	.475***	.552***	--	.238*	-.182	-.375***	-.332**	-.386***	.533****	(.81)							
13 EXH	n.a.	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
14 DIS	n.a.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--					
15 PC	1.82	.493	.263*	.195	.269*	.312**	--	.275*	-.128	-.130	-.115	-.138	.285*	.389***	--	--	(.80)				
16 OBSE	3.96	.703	-.269*	-.074	-.249*	-.444***	--	-.227*	.187	.223†	.038	.252*	-.359**	-.253*	--	--	-.242*	(.93)			
17 WRD	n.a.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
18 JS	4.92	.939	-.557***	-.348**	-.274*	-.599***	--	-.150	.214†	.235*	.122	.330**	-.564***	-.490***	--	--	-.246*	.390***	--	(.73)	
19 Age	41.92	9.46	.011	.138	-.083	-.039	--	-.363***	.154	-.177	.268*	-.059	-.013	-.009	--	--	-.122	.141	--	.048	--
20 Sex	--	--	.164	-.082	.051	.073	--	-.209†	.001	-.083	.112	-.151	-.016	-.047	--	--	-.259*	.090	--	-.060	.272*

Note. Pearson Correlations (2-tailed) \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , cronbach's alpha in parentheses, N=64-76

BITS= illegitimate tasks, TS=task stressors (index), SS=social stressors, ERI=effort-reward imbalance, WFC=work-family conflict, ED=emotional dissonance, JC=job control (index), SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBSE=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

# Appendix B1

Table 6. Means, standard deviations, correlations, and internal consistencies among variables in study III, part II.

	M	SD	1	2	3	4	5	6	7	8
1 BITS	2.26	.601	(.85)							
2 UN	2.09	.580	.608***	(.71)						
3 IW	3.39	.733	.427***	.471***	(.79)					
4 CD	n.a.	--	--	--	--	--				
5 TP	3.61	.723	.340**	.534***	.671***	--	(.77)			
6 POW	2.30	.611	.402***	.536***	.298**	--	.251*	(.72)		
7 MC	4.31	.503	-.338**	-.226†	-.049	--	.096	-.196†	(.66)	
8 TC	4.25	.574	-.226†	-.033	-.055	--	.241*	-.134	.506***	(.68)
9 SSW	4.05	.633	-.479***	-.454***	-.153	--	-.167	-.438***	.360**	.212†
10 SEF	4.52	.554	-.065	-.194†	-.087	--	-.144	-.168	.037	-.051
11 SEE	4.01	.469	-.257*	-.203†	-.116	--	-.032	-.312**	.214†	.010
12 RES	2.51	.990	.631***	.389***	.335**	--	.273*	.373***	-.360**	-.193†
13 IRR	2.54	.836	.484***	.379***	.281*	--	.287*	.386***	-.203†	-.082
14 EXH	n.a.	--	--	--	--	--	--	--	--	--
15 DIS	n.a.	--	--	--	--	--	--	--	--	--
16 PC	1.82	.493	.263*	.191	.138	--	.137	.176	-.143	-.043
17 OBSE	3.96	.703	-.269*	-.140	-.098	--	.075	-.093	.261*	.086
18 WRD	n.a.	--	--	--	--	--	--	--	--	--
19 JS	4.92	.939	-.557***	-.315**	-.347**	--	-.226†	-.214†	.215†	.140
20 Age	41.92	9.46	.011	-.064	.059	--	.209†	.080	.005	.212†
21 Sex	--	--	.164	-.019	-.022	--	-.045	-.111	-.109	.103

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=73-76

BITS= illegitimate tasks, UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work, MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBS=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

## Appendix B1

Table 7. Means, standard deviations, correlations, and internal consistencies among variables in study IV, part I.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 BITS	2.73	.603	(.85)																		
2 TS	3.26	.478	.578***	(.75)																	
3 SS	2.11	.713	.508***	.435***	(.72)																
4 ERI	n.a.	--	--	--	--	--															
5 WFC	3.27	.967	.386***	.565***	.308***	--	(.80)														
6 ED	3.12	.925	.451***	.456***	.486***	--	.353***	(1 item)													
7 JC	3.82	.651	-.379***	-.385***	-.348***	--	-.310***	-.313***	(.83)												
8 SSW	3.82	.733	-.276***	-.205***	-.375***	--	-.210***	-.302***	.195***	(.56)											
9 SEF	4.52	.772	-.110***	-.027	-.101**	--	-.134***	-.130***	.273***	.174***	(.86)										
10 SEE	n.a.	--	--	--	--	--	--	--	--	--	--	--									
11 RES	2.26	1.19	.474***	.301***	.429***	--	.262***	.403***	-.307***	-.357***	-.184***	--	(.92)								
12 IRR	3.38	1.24	.406***	.431***	.376***	--	.569***	.447***	-.275***	-.234***	-.303***	--	.335***	(.87)							
13 EXH	n.a.	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
14 DIS	n.a.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--					
15 PC	2.20	.766	.324***	.375***	.290***	--	.487***	.365***	-.309***	-.219***	-.246***	--	.332***	.573***	--	--	(.82)				
16 OBSE	3.69	.764	-.372***	-.224***	-.436***	--	-.149***	-.365***	.345***	.440***	.241***	--	-.429***	-.248***	--	--	-.240***	(1 item)			
17 WRD	2.64	.733	.446***	.346***	.454***	--	.381***	.482***	-.418***	-.408***	-.337***	--	.540***	.471***	--	--	.509***	-.523***	(.84)		
18 JS	4.76	1.16	-.448***	-.306***	-.459***	--	-.273***	-.406***	.408***	.411***	.282***	--	-.526***	-.402***	--	--	-.367***	.549***	-.694***	(1 item)	
19 Age	41.64	8.51	-.067*	-.079*	.001	--	-.046	.036	.064†	-.028	.009	--	.102**	-.035	--	--	.018	-.047	.033	-.002	--
20 Sex	--	--	-.024	-.098**	-.040	--	-.033	-.059†	.048	.038	.109***	--	-.071*	-.103**	--	--	-.132***	.049	-.090**	.101**	.226***

Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=847-884

BITS= illegitimate tasks, TS=task stressors (index), SS=social stressors, ERI=effort-reward imbalance, WFC=work-family conflict, ED=emotional dissonance, JC=job control (index), SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBSE=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

# Appendix B1

Table 8. Means, standard deviations, correlations, and internal consistencies among variables in study IV, part II.

	M	SD	1	2	3	4	5	6	7	8
1 BITS	2.73	.603	(.85)							
2 UN	2.76	.701	.543***	(.73)						
3 IW	3.74	.670	.353***	.352***	(.72)					
4 CD	3.53	.617	.357***	.322***	.441***	(.64)				
5 TP	3.78	.729	.343***	.306***	-.591***	.499***	(.81)			
6 POW	2.49	.657	.446***	.437***	.296***	.247***	.253***	(.67)		
7 MC	3.79	.694	-.370***	-.310***	-.129***	-.117***	-.172***	-.374***	(.74)	
8 TC	3.84	.747	-.316***	-.314***	-.225***	-.169***	-.274***	-.323***	.631***	(.75)
9 SSW	3.82	.733	-.276***	-.243***	-.015	-.123***	-.091**	-.255***	.246***	.112***
10 SEF	4.52	.772	-.110***	-.073*	.074*	.065†	.013	-.169***	.314***	.183***
11 SEE	n.a.	--	--	--	--	--	--	--	--	--
12 RES	2.26	1.19	.474***	.333***	.128***	.138***	.141***	.321***	-.330***	-.228***
13 IRR	3.38	1.24	.406***	.266***	.258***	.278***	.380***	.338***	-.272***	-.227***
14 EXH	n.a.	--	--	--	--	--	--	--	--	--
15 DIS	n.a.	--	--	--	--	--	--	--	--	--
16 PC	2.20	.766	.324***	.240***	.237***	.232***	.306***	.309***	-.313***	-.247***
17 OBSE	3.69	.764	-.372***	-.321***	-.003	-.121***	-.030	-.321***	.392***	.237***
18 WRD	2.64	.733	.446***	.361***	.148***	.147***	.165***	.400***	-.461***	-.301***
19 JS	4.76	1.16	-.448***	-.342***	-.089**	-.163***	-.114***	-.377***	.460***	.283***
20 Age	41.64	8.51	-.067*	-.049	-.026	-.081*	-.078*	-.046	.050	.064†
21 Sex	--	--	-.024	-.032	-.068*	-.062†	-.096**	-.087**	.061†	.027

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=884

BITS=illegitimate tasks, UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work, MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SES=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBS=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

# Appendix B1

Table 9. Means, standard deviations, correlations, and internal consistencies among variables in study V, part I.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 BITS	2.66	.594	(.83)																		
2 TS	2.85	.520	.575***	(.75)																	
3 SS	2.24	.823	.496***	.442***	(.77)																
4 ERI	3.66	.135	.556***	.512***	.569***	(.92)															
5 WFC	2.63	.884	.363***	.435***	.357***	.446***	(.75)														
6 ED	2.97	1.12	.456***	.464***	.488***	.524***	.422***	(1 item)													
7 JC	2.35	.902	-.198**	-.144†	-.273***	-.203**	-.278***	-.152*	(.88)												
8 SSW	3.56	.891	-.139†	-.198**	-.413***	-.279***	-.195**	-.248***	-.183*	(.67)											
9 SEF	4.26	.829	-.031	.061	-.156*	-.110	-.160*	-.132†	.187*	.266***	(.84)										
10 SEE	n.a.	--	--	--	--	--	--	--	--	--	--	--									
11 RES	2.91	1.39	.526***	.388***	.458***	.609***	.483***	.572***	-.282***	-.225**	-.260***	--	(.93)								
12 IRR	2.80	1.31	.339***	.389***	.314***	.312***	.634***	.420***	-.179*	-.190**	-.218**	--	.422**	(.92)							
13 EXH	n.a.	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
14 DIS	n.a.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--					
15 PC	2.38	.839	.262***	.367***	.260***	.311***	.593***	.371***	-.230**	-.233**	-.193**	--	.415***	.704***	--	--	(.84)				
16 OBSE	3.09	1.00	-.314***	-.241***	-.371***	-.468***	-.298***	-.381***	.365***	.236***	.299***	--	-.556***	-.269***	--	--	-.328***	(1 item)			
17 WRD	2.84	.702	.446***	.360***	.437***	.489***	.497***	.575***	-.337***	-.342***	-.296***	--	.683***	.501***	--	--	.450***	-.498***	(.81)		
18 JS	4.70	1.02	-.412***	-.354***	-.454***	-.455***	-.431***	-.527***	-.307***	.254***	.185*	--	-.573***	-.402***	--	--	-.336***	.455***	-.621***	(1 item)	
19 Age	42.34	10.82	-.241***	.003	-.124†	-.074	-.042	-.177*	.087	-.177*	.086	--	-.125†	.043	--	--	.068	.122	-.177	.187*	--
20 Sex	--	--	.055	.059	-.025	.027	-.209**	-.066	.244***	.211**	.226**	--	-.083	-.160*	--	--	-.219**	.042	-.023	.034	.005

Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=167-187

BITS= illegitimate tasks, UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work, MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBSE=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

## Appendix B1

Table 10. Means, standard deviations, correlations, and internal consistencies among variables in study V, part II.

	M	SD	1	2	3	4	5	6	7	8
1 BITS	2.66	.594	(.83)							
2 UN	2.71	.712	.468***	(.67)						
3 IW	2.55	.706	.389***	.412***	(.72)					
4 CD	3.27	.765	.290***	.292***	-.503***	(.72)				
5 TP	3.04	.765	.475***	.429***	.593***	.451***	(.71)			
6 POW	2.69	.782	.410***	.424***	.219**	.234**	.164*	(.63)		
7 MC	2.62	.964	-.194**	-.234**	.081	-.072	-.068	-.139†	(.79)	
8 TC	2.05	.957	-.176*	-.238***	.080	-.162*	-.091	-.096	.765***	(.78)
9 SSW	3.56	.891	-.139†	-.213**	-.089	-.029	-.183*	-.111	.216**	.128†
10 SEF	4.26	.829	-.031	.044	.138†	.146†	-.038	-.027	.262***	.082
11 SEE	n.a.	--	--	--	--	--	--	--	--	--
12 RES	2.91	1.39	.526***	.374***	.238***	.120	.457***	.178**	-.276***	-.241***
13 IRR	2.80	1.31	.339***	.291***	.350***	.210**	.374***	.175*	-.186*	-.148*
14 EXH	n.a.	--	--	--	--	--	--	--	--	--
15 DIS	n.a.	--	--	--	--	--	--	--	--	--
16 PC	2.38	.839	.262***	.285***	.272***	.206**	.382***	.212**	-.280***	-.155*
17 OBSE	3.09	1.00	-.314***	-.363***	-.075	-.098	-.199**	-.185*	.378***	.302***
18 WRD	2.84	.702	.446***	.390***	.227**	.082	.285***	.251***	-.313***	-.308***
19 JS	4.70	1.02	-.412***	-.350***	-.230**	-.081	-.294***	-.205**	.276***	.290***
20 Age	42.34	10.82	-.241***	.015	.003	.094	-.017	-.066	.089	.057
21 Sex	--	--	.055	.094	.125†	.100	-.151*	.100	.257***	.223**

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=167-187

BITS= illegitimate tasks, UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work, MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBSE=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

Appendix B1

Table 11. Means, standard deviations, correlations, and internal consistencies among variables in study VI, part I.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 BITS	2.49	.652	(.88)																		
2 TS	2.89	.544	.602***	(.80)																	
3 SS	1.87	.721	.522***	.499***	(.75)																
4 ERI	3.28	1.37	.593***	.539***	.568***	(.93)															
5 WFC	2.71	.884	.435***	.557***	.393***	.480***	(.76)														
6 ED	2.86	.995	.494***	.518***	.541***	.509***	.427***	(1 item)													
7 JC	3.66	.682	-.288***	-.225***	-.301***	-.318***	-.233***	-.239***	(.83)												
8 SSW	3.72	.825	-.268***	-.223***	-.357***	-.383***	-.199***	-.277***	.223***	(.51)											
9 SEF	4.46	.746	-.112***	.031	-.093***	-.131***	-.153***	-.065*	.253***	.157***	(.83)										
10 SEE	n.a.	--	--	--	--	--	--	--	--	--	--	--									
11 RES	2.28	1.21	.514***	.396***	.493***	.646***	.397***	.474***	-.303***	-.330***	-.168***	--	(.92)								
12 IRR	2.83	1.17	.451***	.477***	.443***	.448***	.591***	.479***	-.212***	-.283***	-.182***	--	.423***	(.88)							
13 EXH	n.a.	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
14 DIS	n.a.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--					
15 PC	2.24	.789	.356***	.404***	.356***	.375***	.494***	.414***	-.197***	-.206***	-.170***	--	.409***	.596***	--	--	(.83)				
16 OBSE	3.57	.885	-.367***	-.230***	-.425***	-.560***	-.257***	-.367***	.322***	.395***	.347***	--	-.495***	-.305***	--	--	-.265***	(1 item)			
17 WRD	2.52	.765	.532***	.431***	.513***	.606***	.458***	.533***	.395***	-.369***	-.253***	--	.608***	.491***	--	--	.497***	-.527***	()		
18 JS	5.01	1.13	-.445***	-.305***	-.457***	-.532***	-.329***	-.403***	.354***	.323***	.243***	--	-.522***	-.333***	--	--	-.314***	.516***	-.668***	(1 item)	
19 Age	40.10	10.85	-.083**	-.041	-.059*	-.023	-.084**	-.060*	.021	-.100***	.084**	--	-.002	.042	--	--	.009	.061*	-.012	.076**	--
20 Sex	--	--	-.067	-.049†	-.049†	-.029	.035	.036	.032	-.023	-.125***	--	-.027	.029	--	--	.119***	-.032	.011	-.051†	-.168***

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=1231-1256

BITS= illegitimate tasks, TS=task stressors (index), SS=social stressors, ERI=effort-reward imbalance, WFC=work-family conflict, ED=emotional dissonance, JC=job control (index), SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBSE=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

## Appendix B1

Table 12. Means, standard deviations, correlations, and internal consistencies among variables in study VI, part II.

	M	SD	1	2	3	4	5	6	7	8
1 BITS	2.49	.652	(.88)							
2 UN	2.49	.710	.550***	(.70)						
3 IW	3.16	.794	.407***	.464***	(.77)					
4 CD	3.23	.680	.354***	.375***	.522***	(.70)				
5 TP	3.25	.770	.418***	.404***	.560***	.540***	(.82)			
6 POW	2.33	.705	.514***	.497***	.361***	.297***	.360***	(.71)		
7 MC	3.59	.734	-.245***	-.223***	.054†	.019	-.103***	-.256***	(.76)	
8 TC	3.72	.773	-.275***	-.269***	-.107***	-.109***	-.225***	-.302***	.640***	(.72)
9 SSW	3.72	.825	-.268***	-.283***	-.079**	-.096***	-.131***	-.252***	.230***	.174***
10 SEF	4.46	.746	-.112***	-.056*	.123***	.132***	.009	-.099***	.298***	.164***
11 SEE	n.a.	--	--	--	--	--	--	--	--	--
12 RES	2.28	1.21	.514***	.391***	.220***	.214***	.268***	.288***	-.296***	-.253***
13 IRR	2.83	1.17	.451***	.358***	.331***	.300***	.429***	.353***	-.195***	-.188***
14 EXH	n.a.	--	--	--	--	--	--	--	--	--
15 DIS	n.a.	--	--	--	--	--	--	--	--	--
16 PC	2.24	.789	.356***	.303***	.279***	.263***	.327***	.330***	-.192***	-.165***
17 OBSE	3.57	.885	-.367***	-.316***	-.024	-.088**	-.135***	-.309***	.356***	.230***
18 WRD	2.52	.765	.532***	.410***	.248***	-.186***	.311***	.453***	-.383***	-.333***
19 JS	5.01	1.13	-.445***	-.350***	-.139***	-.098***	-.190***	-.367***	.366***	.278***
20 Age	40.10	10.85	-.083**	-.020	.025	-.037	-.065*	-.060*	.011	.027
21 Sex	--	--	-.067*	-.064*	-.038	-.048†	.017	-.055*	-.017	.072*

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=1231-1256

BITS=illegitimate tasks, UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work, MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBSE=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.



Appendix B1

Table 13. Means, standard deviations, correlations, and internal consistencies among variables in study VII.

	M	SD	1	2	3	4	5	6	7	8	9	10
<b>1</b> BITS	2.66	.492	(.78)									
<b>2</b> RES	2.67	1.12	.425***	(.88)								
<b>3</b> IRR	3.10	1.01	.261*	.484***	(.84)							
<b>4</b> EXH	2.04	.404	.297***	.526***	.341**	(.73)						
<b>5</b> DIS	1.86	.439	.155	.394***	.142	.584***	(.73)					
<b>6</b> PC	1.85	.546	.100	.111	.380**	.196	-.659***	(.83)				
<b>7</b> OBSE	3.84	.651	-.057	-.536***	-.384**	-.508***	-.513***	-.224†	(.91)			
<b>8</b> WRD	n.a.	--	--	--	---	--	--	--	--	--		
<b>9</b> JS	4.55	1.11	-.254*	-.512***	-.302*	-.619***	-.659***	-.077	.720***	--	(.79)	
<b>10</b> Age	39.72	8.05	.052	-.057	.214†	-.086	-.073	.197	.044	--	.265*	--
<b>11</b> Sex	--	--	-.059	-.178	-.178	-.204	-.174	-.479***	.480***	--	.399***	-.013

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=63-63

BITS=illegitimate tasks, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBSE=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

## Appendix B1

Table 14. Means, standard deviations, correlations, and internal consistencies among variables in study VIII.

	M	SD	1	2	3	4	5	6	7	8	9	10
1 BITS	2.71	.545	(.79)									
2 RES	2.56	1.09	.435***	(.87)								
3 IRR	3.60	1.13	.471***	.437***	(.86)							
4 EXH	n.a.	--	--	--	--	--						
5 DIS	n.a.	--	--	--	--	--	--					
6 PC	n.a.	--	--	--	--	--	--	--				
7 OBSE	3.88	.720	-.389***	-.300***	-.210**	--	--	--	(.90)			
8 WRD	n.a.	--	--	--	--	--	--	--	--	--		
9 JS	n.a.	--	--	--	--	--	--	--	--	--	--	
10 Age	42.23	8.96	-.001	.040	.070	--	--	--	.080	--	--	--
11 Sex	--	--	.041	.006	.016	--	--	--	.063	--	--	--

Note. Pearson Correlations (2-tailed) \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , cronbach's alpha in parentheses, N=164-170

BITS=illegitimate tasks, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PS=psychosomatic complaints, OBSE=organization-based self-esteem, WRD=work-related depression, JS=job satisfaction, n.a.=not assessed, sex=dummy-coded male=1, female=0.

## Appendix B2 – Bern Illegitimate Tasks Scale - Overview

- Exploratory factor analyses of BITS in eight studies
- Inter-item correlations of BITS in eight studies
- Inter-item correlations of BITS in the total sample
- Additional confirmatory factor analyses of BITS
- Differences in eight samples regarding frequencies of BITS
- Illegitimate tasks and age differences in three studies

## Appendix B2 – List of Tables and Figures

<b>Exploratory factor analyses of BITS in eight studies</b>	2
Table 1. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study I.	2
Table 2. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study I.	2
Table 3. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study III.	3
Table 4. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study IV.	3
Table 5. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study V.	4
Table 6. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study VI.	4
Table 7. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study VII.	5
Table 8. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study VIII.	5
<b>Inter-item correlations of BITS in eight studies</b>	6
Table 9. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study I.	6
Table 10. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study II.	6
Table 11. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study III.	6
Table 12. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study IV.	7
Table 13. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study V.	7
Table 14. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study VI.	7
Table 15. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study VII.	8
Table 16. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study VIII.	8
Table 17. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in the total sample of eight studies.	8
Table 18. Correlations of the subscales unnecessary and unreasonable of the Bern Illegitimate Tasks Scale (BITS) in eight studies.	9
<b>Additional confirmatory factor analyses of BITS</b>	10
Figure 1. Confirmatory factor analyses of The Bern Illegitimate Tasks Scale (BITS) with item 4 as an item of the unreasonable subscale.	10
Figure 2. Confirmatory factor analyses of The Bern Illegitimate Tasks Scale (BITS) without item 4.	11
<b>Differences in eight samples regarding frequencies of BITS</b>	12
Table 19. Analyses of variances of illegitimate tasks in eight studies under control of age and sex.	12
Table 20. Estimated marginal means with regard to the analyses of variances of illegitimate tasks in eight studies under control of age and sex.	12
<b>Illegitimate tasks and age differences in three studies</b>	13
Table 21. Age differences with regard to reporting illegitimate, unreasonable and unnecessary tasks in eight studies.	13
Table 22. T-tests of significant age differences with regard to illegitimate, unreasonable and unnecessary tasks in eight studies.	14

**Exploratory factor analyses of BITS in eight studies**

Table 1. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study I.

Item	M	SD	F1*	F2*	$r_{it}$ BITS	$r_{it}$ UNN	$r_{it}$ UNR
Do you have work tasks to take care of, which keep you wondering if ...							
1. ... they have to be done at all?	2.50	0.85	.94		.57	.62	
2. ... they make sense at all?	2.53	0.87	.91		.64	.68	
3. ... they would not exist (or could be done with less effort), if it were organized differently?	2.85	0.93	.68		.68	.70	
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	2.51	0.93	.23	.47	.49	.43	
5. ... they just exist because some people simply demand it this way?	2.50	1.10	.68		.64	.62	
Do you have work tasks to take care of, which you believe ...							
6. ... should be done by someone else?	2.44	0.80	.38	.48	.65		.52
7. ... are going too far, which should not be expected from you?	2.02	0.79		.76	.50		.56
8. ... put you into an awkward position?	1.83	0.79	-.25	.95	.46		.63
9. ... are unfair that you have to deal with them?	1.63	0.73		.62	.57		.50

*Note.* N=190. 5-point Likert scale: (1) "never" to (5) "frequently". \*Factor loadings of the exploratory factor analysis (Principal Component Analysis, Promax Rotation, eigenvalues > 1), factor 1 explained 46.62% of the variance, factor 2 14.15% of the variance, factors correlated with  $r=.50$ .

Table 2. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study I.

Item	M	SD	F1*	F2*	$r_{it}$ BITS	$r_{it}$ UNN	$r_{it}$ UNR
Do you have work tasks to take care of, which keep you wondering if ...							
1. ... they have to be done at all?	2.41	0.89	.83		.63	.64	
2. ... they make sense at all?	2.69	0.94	.90		.65	.70	
3. ... they would not exist (or could be done with less effort), if it were organized differently?	2.84	1.03	.84		.66	.72	
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	2.80	0.97	.34	.41	.55	.49	
5. ... they just exist because some people simply demand it this way?	2.65	1.13	.70		.64	.63	
Do you have work tasks to take care of, which you believe ...							
6. ... should be done by someone else?	2.56	0.81	.26	.44	.51		.52
7. ... are going too far, which should not be expected from you?	1.99	0.82		.87	.56		.56
8. ... put you into an awkward position?	1.86	0.86		.90	.54		.63
9. ... are unfair that you have to deal with them?	1.78	0.86		.73	.65		.50

*Note.* N=147. 5-point Likert scale: (1) "never" to (5) "frequently". \*Factor loadings of the exploratory factor analysis (Principal Component Analysis, Promax Rotation, eigenvalues > 1), factor 1 explained 48.74% of the variance, factor 2 13.11% of the variance, factors correlated with  $r=.55$ .

# Appendix B2

Table 3. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study III.

Item	M	SD	F1*	F2*	r <sub>it</sub> BITS	r <sub>it</sub> UNN	r <sub>it</sub> UNR
Do you have work tasks to take care of, which keep you wondering if ...							
1. ... they have to be done at all?	2.61	0.83	.90		.66	.70	
2. ... they make sense at all?	2.67	0.76	.79		.68	.70	
3. ... they would not exist (or could be done with less effort), if it were organized differently?	2.95	0.89	.85		.64	.71	
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	2.21	0.88	.32	.52	.61	.53	
5. ... they just exist because some people simply demand it this way?	2.40	1.06	.85		.68	.72	
Do you have work tasks to take care of, which you believe ...							
7. ... are going too far, which should not be expected from you?	2.05	0.86		.74	.51		.51
8. ... put you into an awkward position?	1.66	0.70		.81	.50		.55
9. ... are unfair that you have to deal with them?	1.57	0.77		.89	.54		.60

Note. N=76, item 6 was not assessed in this, 5-point Likert scale: (1) "never" to (5) "frequently". \*Factor loadings of the exploratory factor analysis (Principal Component Analysis, Promax Rotation), eigenvalues > 1), factor 1 explained 66.18% of the variance, factor 2 15.81% of the variance, factors correlated with  $r=.50$ .

Table 4. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study IV.

Item	M	SD	F1*	F2*	r <sub>it</sub> BITS	r <sub>it</sub> UNN	r <sub>it</sub> UNR
Do you have work tasks to take care of, which keep you wondering if ...							
1. ... they have to be done at all?	2.93	0.85		.92	.60	.69	
2. ... they make sense at all?	3.01	0.87		.92	.62	.71	
3. ... they would not exist (or could be done with less effort), if it were organized differently?	3.25	0.91		.74	.60	.66	
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	2.88	0.93	.49		.43	.33	
5. ... they just exist because some people simply demand it this way?	3.04	1.00		.67	.59	.60	
Do you have work tasks to take care of, which you believe ...							
6. ... should be done by someone else?	2.85	0.80	.62		.52		.49
7. ... are going too far, which should not be expected from you?	2.29	0.83	.83		.56		.67
8. ... put you into an awkward position?	2.22	0.93	.82		.61		.67
9. ... are unfair that you have to deal with them?	2.08	0.90	.88		.61		.71

Note. N=884, 5-point Likert scale: (1) "never" to (5) "frequently". \*Factor loadings of the exploratory factor analysis (Principal Component Analysis, Promax Rotation, eigenvalues > 1), factor 1 explained 45.96% of the variance, factor 2 16.21% of the variance, factors correlated with  $r=.45$ .

# Appendix B2

Table 5. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study V.

Item	M	SD	F1*	F2*	$r_{it}$ BITS	$r_{it}$ UNN	$r_{it}$ UNR
Do you have work tasks to take care of, which keep you wondering if ...							
1. ... they have to be done at all?	2.74	0.95	.85		.56	.66	
2. ... they make sense at all?	2.89	0.99	.88		.61	.72	
3. ... they would not exist (or could be done with less effort), if it were organized differently?	3.18	0.94	.78		.61	.68	
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	2.93	0.94	.55	.20	.51	.49	
5. ... they just exist because some people simply demand it this way?	3.16	1.09	.84		.63	.73	
Do you have work tasks to take care of, which you believe ...							
6. ... should be done by someone else?	2.57	0.93		.76	.45		.59
7. ... are going too far, which should not be expected from you?	2.20	0.74		.86	.48		.70
8. ... put you into an awkward position?	2.05	0.75		.80	.43		.59
9. ... are unfair that you have to deal with them?	2.17	0.84		.77	.49		.63

Note. N = 184, 5-point Likert scale: (1) "never" to (5) "frequently". \*Factor loadings of the exploratory factor analysis (Principal Component Analysis, Promax Rotation, eigenvalues > 1), factor 1 explained 42.07% of the variance, factor 2 21.31% of the variance, factors correlated with  $r=.31$ .

Table 6. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study VI.

Item	M	SD	F1*	F2*	$r_{it}$ BITS	$r_{it}$ UNN	$r_{it}$ UNR
Do you have work tasks to take care of, which keep you wondering if ...							
1. ... they have to be done at all?	2.73	0.88	.87		.63	.67	
2. ... they make sense at all?	2.77	0.89	.91		.63	.70	
3. ... they would not exist (or could be done with less effort), if it were organized differently?	2.96	0.95	.81		.65	.72	
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	2.65	0.97	.39	.35	.55	.49	
5. ... they just exist because some people simply demand it this way?	2.78	1.08	.73		.65	.67	
Do you have work tasks to take care of, which you believe ...							
6. ... should be done by someone else?	2.54	0.90		.70	.60		.61
7. ... are going too far, which should not be expected from you?	2.17	0.88		.88	.62		.73
8. ... put you into an awkward position?	1.90	0.85		.84	.60		.67
9. ... are unfair that you have to deal with them?	1.91	0.88		.85	.63		.72

Note. N = 1256, 5-point Likert scale: (1) "never" to (5) "frequently". \*Factor loadings of the exploratory factor analysis (Principal Component Analysis, Promax Rotation, eigenvalues > 1), factor 1 explained 50.41% of the variance, factor 2 14.91% of the variance, factors correlated with  $r=.52$ .

# Appendix B2

Table 7. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study VII.

Item	M	SD	F1*	F2*	$r_{it}$ BITS	$r_{it}$ UNN	$r_{it}$ UNR
Do you have work tasks to take care of, which keep you wondering if ...							
1. ... they have to be done at all?	3.02	0.81	.88		.61	.66	
2. ... they make sense at all?	3.10	0.91	.93		.67	.79	
3. ... they would not exist (or could be done with less effort), if it were organized differently?	3.27	0.77	.59		.45	.51	
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	2.71	0.99	.27	.36	.37	.29	
5. ... they just exist because some people simply demand it this way?	3.03	1.06	.80		.49	.56	
Do you have work tasks to take care of, which you believe ...							
6. ... should be done by someone else?	2.81	0.64	.50	.44	.60		.42
7. ... are going too far, which should not be expected from you?	2.19	0.67		.68	.48		.58
8. ... put you into an awkward position?	1.94	0.74		.84	.31		.55
9. ... are unfair that you have to deal with them?	1.81	0.69		.87	.29		.59

Note. N=63, 5-point Likert scale: (1) "never" to (5) "frequently". \*Factor loadings of the confirmatory factor analysis (Principal Component Analysis, Promax Rotation, eigenvalues > 1), factor 1 explained 38.26% of the variance, factor 2 20.96% of the variance, factors correlated with  $r=.24$ .

Table 8. Factor analysis of the Bern Illegitimate Tasks Scale (BITS) in study VIII.

Item	M	SD	F1*	F2*	$r_{it}$ BITS	$r_{it}$ UNN	$r_{it}$ UNR
Do you have work tasks to take care of, which keep you wondering if ...							
1. ... they have to be done at all?	2.76	0.87		.86	.45	.58	
2. ... they make sense at all?	2.81	0.92		.79	.53	.58	
3. ... they would not exist (or could be done with less effort), if it were organized differently?	3.20	0.90		.69	.46	.54	
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	2.92	0.93	.43	.29	.45	.35	
5. ... they just exist because some people simply demand it this way?	2.93	1.00		.76	.53	.60	
Do you have work tasks to take care of, which you believe ...							
6. ... should be done by someone else?	2.89	0.86	.69		.42		.76
7. ... are going too far, which should not be expected from you?	2.42	0.84	.84		.53		.67
8. ... put you into an awkward position?	2.26	0.84	.77		.44		.73
9. ... are unfair that you have to deal with them?	2.13	0.82	.76		.47		.69

Note. N=168, 5-point Likert scale: (1) "never" to (5) "frequently". \*Factor loadings of the exploratory factor analysis (Principal Component Analysis, Promax Rotation, eigenvalues > 1), factor 1 explained 37.47% of the variance, factor 2 18.89% of the variance, factors correlated with  $r=.32$ .

**Inter-item correlations of BITS in eight studies**

Table 9. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study I.

Item	1	2	3	4	5	6	7	8
1. ... they have to be done at all?	--							
2. ... they make sense at all?	.735***	--						
3. ... they would not exist (or could be done with less effort), if it were organized differently?	.499***	.550***	--					
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	.240***	.276***	.503***	--				
5. ... they just exist because some people simply demand it this way?	.470***	.536***	.561***	.361***	--			
6. ... should be done by someone else?	.422***	.442***	.486***	.413***	.507***	--		
7. ... are going too far, which should not be expected from you?	.241***	.330***	.314***	.264***	.363***	.418***	--	
8. ... put you into an awkward position?	.163*	.223**	.289***	.311***	.211**	.444***	.531***	--
9. ... are unfair that you have to deal with them?	.312***	.343***	.396***	.381***	.472***	.381***	.361***	.470***

Note. N = 190, Pearson correlations, \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ .

Table 10. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study II.

Item	1	2	3	4	5	6	7	8
1. ... they have to be done at all?	--							
2. ... they make sense at all?	.682***	--						
3. ... they would not exist (or could be done with less effort), if it were organized differently?	.561***	.595***	--					
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	.271***	.366***	.536***	--				
5. ... they just exist because some people simply demand it this way?	.511***	.540***	.531***	.410***	--			
6. ... should be done by someone else?	.375***	.322***	.373***	.310***	.393***	--		
7. ... are going too far, which should not be expected from you?	.335***	.357***	.277***	.387***	.355***	.420***	--	
8. ... put you into an awkward position?	.370***	.280***	.317***	.353***	.298***	.326***	.577***	--
9. ... are unfair that you have to deal with them?	.387***	.393***	.419***	.448***	.496***	.383***	.508***	.585***

Note. N = 147, Pearson correlations, \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ .

Table 11. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study III.

Item	1	2	3	4	5	6	7	8
1. ... they have to be done at all?	--							
2. ... they make sense at all?	.723***	--						
3. ... they would not exist (or could be done with less effort), if it were organized differently?	.598***	.508***	--					
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	.313**	.484***	.504***	--				
5. ... they just exist because some people simply demand it this way?	.647***	.581***	.657***	.465***	--			
6. ... should be done by someone else?	--	--	--	--	--	--		
7. ... are going too far, which should not be expected from you?	.326**	.314**	.298**	.405***	.371***	--	--	
8. ... put you into an awkward position?	.312**	.363***	.247*	.375***	.309**	--	.426***	--
9. ... are unfair that you have to deal with them?	.310**	.346**	.276*	.507***	.310**	--	.496***	.533***

Note. N = 76, Pearson correlations, \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ .



# Appendix B2

Table 12. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study IV.

Item	1	2	3	4	5	6	7	8
1. ... they have to be done at all?	--							
2. ... they make sense at all?	.793***	--						
3. ... they would not exist (or could be done with less effort), if it were organized differently?	.543***	.569***	--					
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	.239***	.232***	.368***	--				
5. ... they just exist because some people simply demand it this way?	.516***	.545***	.513***	.259***	--			
6. ... should be done by someone else?	.310***	.288***	.358***	.248***	.297***	--		
7. ... are going too far, which should not be expected from you?	.283***	.292***	.266***	.288***	.307***	.463***	--	
8. ... put you into an awkward position?	.301***	.327***	.319***	.324***	.413***	.361***	.581***	--
9. ... are unfair that you have to deal with them?	.258***	.296***	.315***	.367***	.360***	.450***	.577***	.678***

Note. N = 884, Pearson correlations, \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10.

Table 13. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study V.

Item	1	2	3	4	5	6	7	8
1. ... they have to be done at all?	--							
2. ... they make sense at all?	.777***	--						
3. ... they would not exist (or could be done with less effort), if it were organized differently?	.481***	.508***	--					
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	.287***	.353***	.530***	--				
5. ... they just exist because some people simply demand it this way?	.566***	.614***	.648***	.455***	--			
6. ... should be done by someone else?	.180*	.140†	.192**	.338***	.250***	--		
7. ... are going too far, which should not be expected from you?	.188**	.208**	.226**	.197**	.173*	.517***	--	
8. ... put you into an awkward position?	.141†	.125†	.226**	.222**	.193**	.404***	.641***	--
9. ... are unfair that you have to deal with them?	.159*	.265***	.242***	.267***	.267***	.546***	.554***	.447***

Note. N = 187, Pearson correlations, \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10.

Table 14. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study VI.

Item	1	2	3	4	5	6	7	8
1. ... they have to be done at all?	--							
2. ... they make sense at all?	.738***	--						
3. ... they would not exist (or could be done with less effort), if it were organized differently?	.550***	.580***	--					
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	.335***	.349***	.504***	--				
5. ... they just exist because some people simply demand it this way?	.525***	.555***	.605***	.436***	--			
6. ... should be done by someone else?	.391***	.330***	.391***	.374***	.386***	--		
7. ... are going too far, which should not be expected from you?	.356***	.329***	.337***	.382***	.371***	.588**	--	
8. ... put you into an awkward position?	.321***	.335***	.337***	.402***	.377***	.445***	.619***	--
9. ... are unfair that you have to deal with them?	.343***	.352***	.353***	.386***	.415***	.541***	.618***	.637***

Note. N = 1256, Pearson correlations, \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10.

## Appendix B2

Table 15. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study VII.

Item	1	2	3	4	5	6	7	8
1. ... they have to be done at all?	--							
2. ... they make sense at all?	.804***	--						
3. ... they would not exist (or could be done with less effort), if it were organized differently?	.392***	.517***	--					
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	.167	.263*	.391***	--				
5. ... they just exist because some people simply demand it this way?	.585***	.647***	.277*	.192	--			
6. ... should be done by someone else?	.493***	.416***	.213†	.235†	.384**	--		
7. ... are going too far, which should not be expected from you?	.253*	.314*	.113	.149	.258*	.423***	--	
8. ... put you into an awkward position?	.030	.081	.202	.238†	-.037	.275*	.449***	--
9. ... are unfair that you have to deal with them?	.067	-.022	-.019	.251*	.034	.341**	.461***	.544***

Note. N = 63-64, Pearson correlations, \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10.

Table 16. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in study VIII.

Item	1	2	3	4	5	6	7	8
1. ... they have to be done at all?	--							
2. ... they make sense at all?	.597***	--						
3. ... they would not exist (or could be done with less effort), if it were organized differently?	.366***	.413***	--					
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	.171*	.214**	.351***	--				
5. ... they just exist because some people simply demand it this way?	.515***	.454***	.445***	.326**	--			
6. ... should be done by someone else?	.098	.267***	.157*	.333***	.149†	--		
7. ... are going too far, which should not be expected from you?	.069	.210**	.218**	.361***	.267***	.519***	--	
8. ... put you into an awkward position?	.131†	.211**	.131†	.281***	.164*	.237**	.542***	--
9. ... are unfair that you have to deal with them?	.202	.150*	.187*	.231**	.196*	.430***	.463***	.548***

Note. N = 170-171, Pearson correlations, \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10.

Table 17. Inter-item correlations of the Bern Illegitimate Tasks Scale (BITS) in the total sample of eight studies.

Item	1	2	3	4	5	6	7	8
1. ... they have to be done at all?	1							
2. ... they make sense at all?	.749	1						
3. ... they would not exist (or could be done with less effort), if it were organized differently?	.538	.567	1					
4. ... they would not exist (or could be done with less effort), if some other people made less mistakes?	.289	.315	.466	1				
5. ... they just exist because some people simply demand it this way?	.533	.559	.570	.358	1			
6. ... should be done by someone else?	.351	.321	.373	.368	.359	1		
7. ... are going too far, which should not be expected from you?	.308	.312	.305	.339	.341	.529	1	
8. ... put you into an awkward position?	.296	.313	.325	.365	.358	.414	.593	1
9. ... are unfair that you have to deal with them?	.303	.323	.338	.382	.391	.492	.574	.629

Note. N = 2899-2982, Pearson correlations, \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10.

## Appendix B2

Table 18. Correlations of the subscales unnecessary and unreasonable of the Bern Illegitimate Tasks Scale (BITS) in eight studies.

Study		Unnecessary tasks	
Study I	Unreasonable tasks	Pearson Correlation	.600***
		N	190
Study II	Unreasonable tasks	Pearson Correlation	.604***
		N	147
Study III	Unreasonable tasks	Pearson Correlation	.522***
		N	76
Study IV	Unreasonable tasks	Pearson Correlation	.528***
		N	884
Study V	Unreasonable tasks	Pearson Correlation	.335***
		N	186
Study VI	Unreasonable tasks	Pearson Correlation	.564***
		N	1256
Study VII	Unreasonable tasks	Pearson Correlation	.324***
		N	64
Study VIII	Unreasonable tasks	Pearson Correlation	.366***
		N	169

**Additional confirmatory factor analyses of BITS**

Figure 1. Confirmatory factor analyses of The Bern Illegitimate Tasks Scale (BITS) with item 4 as an item of the unreasonable subscale.

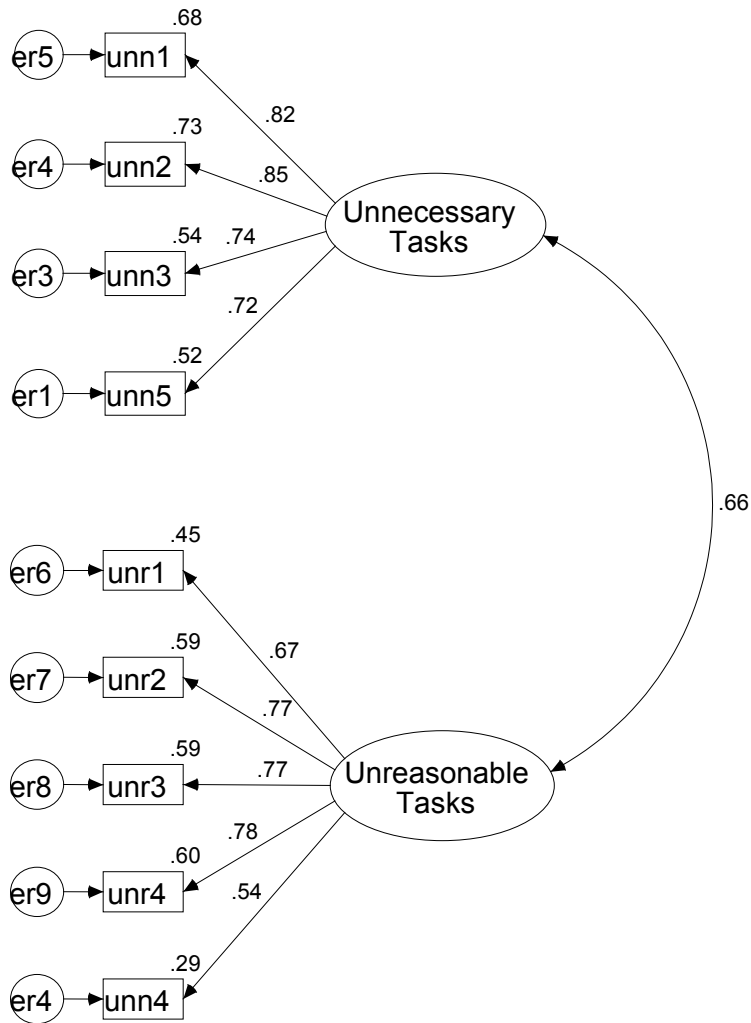
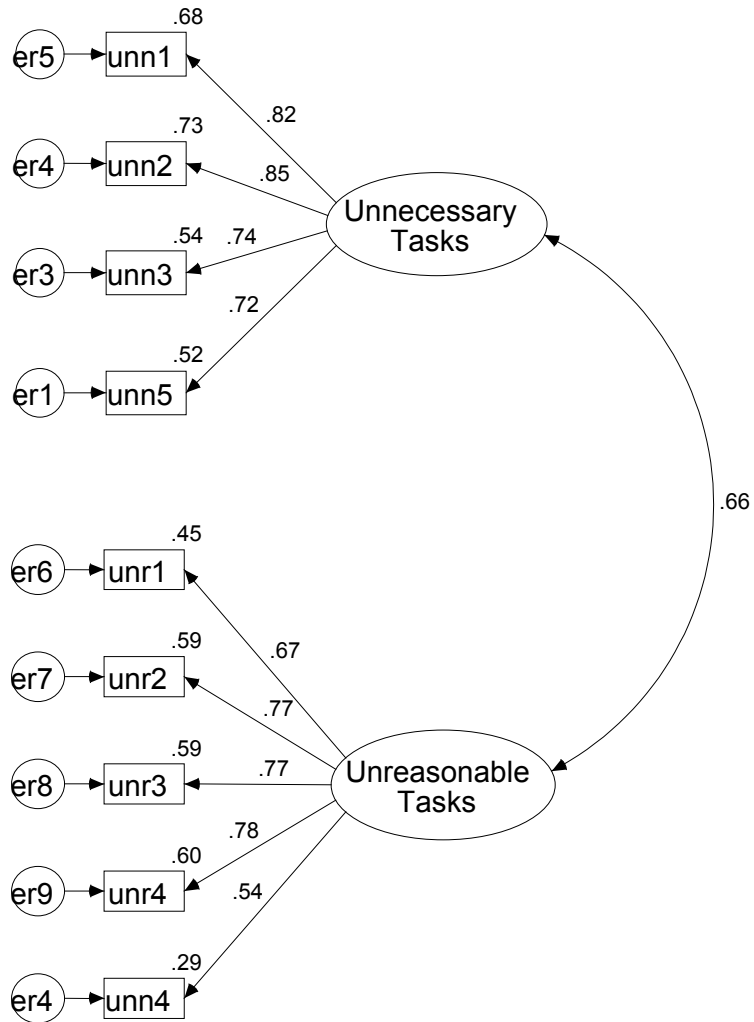


Figure 2. Confirmatory factor analyses of The Bern Illegitimate Tasks Scale (BITS) without item 4.



**Differences in eight samples regarding frequencies of BITS**

Table 19. Analyses of variances of illegitimate tasks in eight studies under control of age and sex.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	69.389(a)	9	7.710	20.309	.000	.058
Intercept	1082.384	1	1082.384	2851.101	.000	.491
Sex	.729	1	.729	1.919	.166	.001
Age	8.164	1	8.164	21.505	.000	.007
Sample	64.434	7	9.205	24.247	.000	.054
Error	1119.929	2950	.380			
Total	20620.543	2960				
Corrected Total	1189.319	2959				

Note. R Squared = .058 (Adjusted R Squared = .055)

Table 20. Estimated marginal means with regard to the analyses of variances of illegitimate tasks in eight studies under control of age and sex.

95% Confidence Interval				
sample	Mean	Std. Error	Lower Bound	Upper Bound
Study I	2.294	.045	2.206	2.382
Study II	2.397	.051	2.297	2.497
Study III	2.227	.072	2.087	2.368
Study IV	2.734	.021	2.693	2.775
Study V	2.675	.046	2.585	2.764
Study IV	2.481	.017	2.447	2.516
Study VII	2.656	.077	2.505	2.807
Study VIII	2.701	.048	2.607	2.795

Note. Covariates appearing in the model are evaluated at the following values: sex = .6051, age = 40.73.

**Illegitimate tasks and age differences in three studies**

Table 21. Age differences with regard to reporting illegitimate, unreasonable and unnecessary tasks in eight studies.

Sample		Mediansplit Age	N	Mean	SD
Study I	Unnecessary tasks	1.00	123	2.6472	.73600
		2.00	67	2.4448	.65117
	Unreasonable tasks	1.00	123	2.0508	.62476
		2.00	67	1.8507	.49822
	Illegitimate tasks	1.00	123	2.3821	.62727
		2.00	67	2.1808	.49722
Study V	Unnecessary tasks	1.00	68	3.2235	.76140
		2.00	118	2.8445	.74787
	Unreasonable tasks	1.00	67	2.3321	.62672
		2.00	117	2.1966	.65803
	Illegitimate tasks	1.00	67	2.8325	.58615
		2.00	117	2.5604	.57772
Study VI	Unnecessary tasks	1.00	640	2.8334	.74368
		2.00	614	2.7156	.74122
	Unreasonable tasks	1.00	640	2.1539	.72591
		2.00	614	2.0969	.71811
	Illegitimate tasks	1.00	640	2.5314	.64927
		2.00	614	2.4406	.65009

Note. Group1 individuals below the age of forty, group 2 individuals 40 and older.

# Appendix B2

Table 22. T-tests of significant age differences with regard to illegitimate, unreasonable and unnecessary tasks in eight studies.

			F	Sig.	t	df	Sig. (2-tailed)
Study I	Unnecessary tasks	eva	1.226	.270	1.884	188	.061
		evna			1.953	150.412	.053
	Unreasonable tasks	eva	1.424	.234	2.258	188	.025
		evna			2.412	162.852	.017
	Illegitimate tasks	eva	3.023	.084	2.267	188	.025
		evna			2.426	163.544	.016
Study V	Unnecessary tasks	eva	.397	.530	3.307	184	.001
		evna			3.291	137.815	.001
	Unreasonable tasks	eva	.527	.469	1.367	182	.173
		evna			1.386	143.170	.168
	Illegitimate tasks	eva	.014	.905	3.058	182	.003
		evna			3.046	135.922	.003
Study VI	Unnecessary tasks	eva	.072	.789	2.809	1252	.005
		evna			2.809	1250.175	.005
	Unreasonable tasks	eva	.729	.393	1.397	1252	.163
		evna			1.398	1250.821	.162
	Illegitimate tasks	eva	.107	.743	2.474	1252	.014
		evna			2.473	1249.713	.014

Note. T-tests, eva=equal variance assumed, evna= equal variance not assumed



## **Appendix B3 – Relationships between Illegitimate Tasks and Well-Being / Strain, Resources, Stressors, Demographics - Overview**

- Syntax to calculate the meta-analysis following the Schmidt-Hunter method (Field, 2001).
- Meta-Analytic results for the relationships among unnecessary tasks / unreasonable tasks (subscales) and well-being / strain.
- Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in studies I, II, III, IV, V, VI.
- Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict) in studies I, II, III, IV, V, VI.
- Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, self-efficacy, and self-esteem) in studies I, II, III, IV, V, VI.
- Regressing well-being / strain onto illegitimate tasks under control of the best other predictors in each study (age, sex, stressors, resources) in studies I, IV, V, VI.
- Overview of the significant beta-weights regressing well-being / strain onto illegitimate tasks under control of age, sex, stressors, and resources in study II.
- Overview of the significant beta-weights regressing well-being / strain onto illegitimate tasks under control of age, sex, stressors, and resources in study III.
- Overview of the significant results regressing well-being / strain onto illegitimate tasks under control of age, sex, stressors, and resources in six studies.

## Appendix B3 – Table of Contents

<b>Syntax to calculate the meta-analysis following the Schmidt-Hunter method (Field, 2001).</b>	9
<b>Meta-Analytic results for the relationships among unnecessary tasks / unreasonable tasks (subscales) and well-being / strain.</b>	11
Table 1. Meta-analytic results for the relationships among unnecessary tasks and well-being / strain.	11
Table 2. Meta-analytic results for the relationships among unreasonable tasks and well-being / strain.	11
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study I.</b>	12
Table 3. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study I.	12
Table 4. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.	12
Table 5. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.	13
Table 6. Regressing disengagements onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.	13
Table 7. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.	14
Table 8. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.	14
Table 9. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.	15
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, and emotional dissonance) in study I.</b>	16
Table 10. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.	16
Table 11. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.	16
Table 12. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.	17
Table 13. Regressing disengagement onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.	17
Table 14. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.	18
Table 15. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.	18
Table 16. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.	19
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, and self-efficacy) in study I.</b>	20
Table 17. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.	20
Table 18. Regressing irritation onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.	20
Table 19. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.	21
Table 20. Regressing disengagement onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.	21
Table 21. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.	22

Table 22. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.	22
Table 23. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.	23
<b>Regressing well-being / strain onto illegitimate tasks under control of the best other predictors in each study (age, sex, stressors, resources) in study I.</b>	24
Table 24. Regressing feelings of resentment onto illegitimate tasks under control of the best other predictors in study I.	24
Table 25. Regressing irritation onto illegitimate tasks under control of the best other predictors in study I.	24
Table 26. Regressing emotional exhaustion onto illegitimate tasks under control of the best other predictors in study I.	25
Table 27. Regressing disengagement onto illegitimate tasks under control of the best other predictors in study I.	25
Table 28. Regressing psychosomatic complaints onto illegitimate tasks under control of the best other predictors in study I.	26
Table 29. Regressing job satisfaction onto illegitimate tasks under control of the best other predictors in study I.	26
Table 30. Regressing organization-based self-esteem onto illegitimate tasks under control of the best other predictors in study I.	27
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study II.</b>	28
Table 31. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.	28
Table 32. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.	28
Table 33. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.	29
Table 34. Regressing disengagement onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.	29
Table 35. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.	30
Table 36. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.	30
Table 37. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.	31
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict) in study II.</b>	32
Table 38. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and Work-Family-Conflict in study II.	32
Table 39. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.	32
Table 40. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.	33
Table 41. Regressing disengagement onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.	33
Table 42. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.	34

Table 43. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.	34
Table 44. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.	35
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, self-efficacy, and self-esteem) in study II.</b>	36
Table 45. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.	36
Table 46. Regressing irritation onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.	36
Table 47. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.	37
Table 48. Regressing disengagement onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.	37
Table 49. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.	38
Table 50. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.	38
Table 51. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.	39
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study III.</b>	40
Table 52. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, time pressure, and problems of work-organization in study III.	40
Table 53. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, time pressure, and problems of work-organization in study III.	40
Table 54. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, time pressure, and problems of work-organization in study III.	41
Table 55. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, time pressure, and problems of work-organization in study III.	41
Table 56. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, time pressure, and problems of work-organization in study III.	42
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict) in study III.</b>	43
Table 57. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, and emotional dissonance in study III.	43
Table 58. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, and emotional dissonance in study III.	43
Table 59. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, and emotional dissonance in study III.	44
Table 60. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, and emotional dissonance in study III.	44
Table 61. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, and emotional dissonance in study III.	45
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, self-efficacy, and self-esteem) in study III.</b>	46
Table 62. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study III.	46

Table 63. Regressing irritation onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study III.	46
Table 64. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study III.	47
Table 65. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study III.	47
Table 66. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study III.	48
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study IV.</b>	49
Table 67. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.	49
Table 68. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.	49
Table 69. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.	50
Table 70. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.	50
Table 71. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.	51
Table 72. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.	51
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict) in study IV.</b>	52
Table 73. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.	52
Table 74. Regressing irritation onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.	52
Table 75. Regressing work-related depression onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.	53
Table 76. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.	53
Table 77. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.	54
Table 78. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.	54
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, self-efficacy, and self-esteem) in study IV.</b>	55
Table 79. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.	55
Table 80. Regressing irritation onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.	55
Table 81. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.	56
Table 82. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.	56
Table 83. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.	57

Table 84. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.	57
<b>Regressing well-being / strain onto illegitimate tasks under control of the best other predictors in each study (age, sex, stressors, resources) in study IV.</b>	58
Table 85. Regressing feelings of resentment onto illegitimate tasks under control of the best other predictors in study IV.	58
Table 86. Regressing irritation onto illegitimate tasks under control of the best other predictors in study IV.	58
Table 87. Regressing work-related depression onto illegitimate tasks under control of the best other predictors in study IV.	59
Table 88. Regressing job satisfaction onto illegitimate tasks under control of the best other predictors in study IV.	59
Table 89. Regressing psychosomatic complaints onto illegitimate tasks under control of the best other predictors in study IV.	60
Table 90. Regressing organization-based self-esteem onto illegitimate tasks under control of the best other predictors in study IV.	60
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study V.</b>	61
Table 91. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.	61
Table 92. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.	61
Table 93. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.	62
Table 94. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.	62
Table 95. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.	63
Table 96. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.	63
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict) in study V.</b>	64
Table 97. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.	64
Table 98. Regressing irritation onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.	64
Table 99. Regressing work-related depression onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.	65
Table 100. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.	65
Table 101. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.	66
Table 102. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.	66
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, self-efficacy, and self-esteem) in study V.</b>	67
Table 103. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.	67

Table 104. Regressing irritation onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.	67
Table 105. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.	68
Table 106. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.	68
Table 107. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.	69
Table 108. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.	69
<b>Regressing well-being / strain onto illegitimate tasks under control of the best other predictors in each study (age, sex, stressors, resources) in study V.</b>	70
Table 109. Regressing feelings of resentment onto illegitimate tasks under control of the best other predictors in study V.	70
Table 110. Regressing irritation onto illegitimate tasks under control of the best other predictors in study V.	70
Table 111. Regressing work-related depression onto illegitimate tasks under control of the best other predictors in study V.	71
Table 112. Regressing job satisfaction onto illegitimate tasks under control of the best other predictors in study V.	71
Table 113. Regressing psychosomatic complaints onto illegitimate tasks under control of the best other predictors in study V.	72
Table 114. Regressing organization-based self-esteem onto illegitimate tasks under control of the best other predictors in study V.	72
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study VI.</b>	73
Table 115. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.	73
Table 116. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.	73
Table 117. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.	74
Table 118. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.	74
Table 119. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.	75
Table 120. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.	75
<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict) in study VI.</b>	76
Table 121. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study VI.	76
Table 122. Regressing irritation onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study VI.	76
Table 123. Regressing work-related depression onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study VI.	77
Table 125. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study VI.	78
Table 126. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study VI.	78

<b>Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, and self-efficacy, and self-esteem) in study VI.</b>	79
Table 127. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study VI.	79
Table 129. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study VI.	80
Table 130. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study VI.	80
Table 131. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study VI.	81
Table 132. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study VI.	81
<b>Regressing well-being / strain onto illegitimate tasks under control of the best other predictors in each study (age, sex, stressors, resources) in study VI.</b>	82
Table 133. Regressing feelings of resentment onto illegitimate tasks under control of the best other predictors in study VI.	82
Table 134. Regressing irritation onto illegitimate tasks under control of the best other predictors in study VI.	82
Table 135. Regressing work-related depression onto illegitimate tasks under control of the best other predictors in study VI.	83
Table 136. Regressing job satisfaction onto illegitimate tasks under control of the best other predictors in study VI.	83
Table 137. Regressing psychosomatic complaints onto illegitimate tasks under control of the best other predictors in study VI.	84
Table 138. Regressing organization-based self-esteem onto illegitimate tasks under control of the best other predictors in study VI.	84
Table 139. Overview of the significant beta-weights regressing well-being / strain onto illegitimate tasks under control of age, sex, stressors, and resources in study II.	85
Table 140. Overview of the significant beta-weights regressing well-being / strain onto illegitimate tasks under control of age, sex, stressors, and resources in study III.	86
Table 141. Overview of significant standardized regression weights (expected direction) of the predictors sorted after dependent variables in six studies.	87



**Syntax to calculate the meta-analysis following the Schmidt-Hunter method (Field, 2001).**

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** META-ANALYSIS OF CORRELATION COEFFICIENTS **
** (Schmidt-Hunter method) **

* Written by Marta Garcia-Granero and downloaded from SPSStools on 4-2-2005
* I have adapted it for the needs of the ESM Workshop 2. This is doing
* Hunter and Schmidt's multiplicative model (they prefer their interactive
* model). Most of my changes are taking out the examples and graphs, and
* adding in the confidence intervals in the initial output. I use the equations on
* p. 28 of Smithson (2003) for this. This is just an approx interval and is not
* good near -1 or 1, or with small samples.

* Schmidt & Hunter label this model as random-effect.
* Formulas were obtained from: Field AP, "Meta-analysis of correlation
coefficients: a Monte Carlo comparison of fixed- and random-effects methods"
Psychological Methods, 6(2), 161-180.

* (1) General analysis *
* ***** *

* (I) MACRO definition *.
DEFINE metacorr().
matrix.
PRINT /TITLE ' META-ANALYSIS OF CORRELATIONS: SCHMIDT-HUNTER
METHOD'.
get trial /var=trial.
get n /var=n.
get cor /var=cor.
compute zcor=abs(0.5*ln((1+cor)/(1-cor))).
compute pvals=2*(1-cdfnorm(zcor*sqrt(n-3))).
compute zcor2=0.5*ln((1+cor)/(1-cor)).
compute zcorl=zcor2-1.96/sqrt(n-3).
compute zcorh=zcor2+1.96/sqrt(n-3).
compute corl=(exp(2*zcorl)-1)/(exp(2*zcorl)+1).
compute corh=(exp(2*zcorh)-1)/(exp(2*zcorh)+1).
print {trial,n,cor,pvals,corl,corh}
/format="f8.2"
/clabels="Trial" "n" "Corr" "Sig" "Lower" "Higher"
/title="Input data".
compute totaln=msum(n).
compute k=nrow(n).
print k
/format="f8.0"
/title="Z Test of association for WMC. H0: No association (rho=0)"
/clabels="Value" "Sig.".

```

```

/title="Number of trials (k)".
do if k=1.
print /title="Only one trial. No further analyses are possible".
end if.
do if k>1.
print totaln
/format="f8.0"
/title="Total sample size (N)".
compute umeanr=msum(cor)/k.
compute wmeanr=msum(n&*cor)/totaln.
compute var_r=msum(n&*(cor-wmeanr)**2)/totaln.
compute var_e=((1-wmeanr**2)**2)/((totaln/k)-1).
compute percvar=100*var_e/var_r.
compute var_p=var_r-var_e.
do if var_p<0.
compute var_p=0.
compute percvar=100.
end if.
compute z=wmeanr/sqrt(var_r/k).
compute pz=2*(1-cdfnorm(z)).
compute rlowci=wmeanr-1.96*sqrt(var_r/k).
compute ruppci=wmeanr+1.96*sqrt(var_r/k).
compute s_res=sqrt(var_p).
compute rcilow=wmeanr-1.96*s_res.
compute rciup=wmeanr+1.96*s_res.
compute hetd_chi=k*var_r/var_e.
compute hetd_sig=1-chicdf(hetd_chi,k-1).
print {wmeanr,umeanr}
/format="f10.3"
/title="Mean correlations (weighted & unweighted)."
/clabels="Weighted" "(Unwgt.)".
print {rlowci,ruppci}
/format="f8.3"
/clabels="Lower", "Upper"
/title="95% Confidence Interval for WMC".
print {z,pz}
/format="f8.3"

```

\* Example data. This will creat a data set. You may change

## Appendix B3

```

print var_r
/format="f8.4"
/title="Observed variance across studies".
print var_e
/format="f8.4"
/title="Variance due to sampling error".
print var_p
/format="f8.4"
/title="Variance in the population correlations (VARp)".

do if var_p eq 0.
print /title="Underdispersion. Var less than expected by sampling".
print /title="error alone. Credibility interval not calculated".
end if.
do if var_p ne 0.
print {rcilow,rciup}
/format="f8.3"
/clabels="Lower","Upper"
/title="95% Credibility Interval for WMC (based in VARp)".
end if.
print /title="Indicators of homogeneity/heterogeneity:".
print {s_res,(wmeanr/4)}
/format="f12.3"
/title=" 1. Residual standard deviation (should be smaller than 1/4 WMC)"
/clabels="Res SD" "1/4 WMC".
print percvar
/format="f12.2"
/title=" 2. % Obs. variance accounted for by sampling error"
+ " (should be at least 75%)".
print {hetd_chi,hetd_sig}
/format="f12.4"
/title=" 3. Chi-square test of heterogeneity (df=k-1)"
/clabels="Value" "Sig".
end if.
end matrix.
!ENDDEFINE.

```

\* the data here or in the data editor. Add more studies as you  
 \* desire. These are the data from Petrosino et al. (2002)  
 \* reported in Wright & Kelley (2004) and Wright (in press).

data list free /trial n cor.

begin data

1 190 .550

2 105 .554

3 41 .714

4 64 .425

5 77 .620

6 166 .435

7 881 .474

8 143 .484

end data.

\* This calls the procedure. If you change the data in this  
 \* syntax file simply run the whole thing. If you have the data  
 \* in the data editor, just highlight this and run it with the  
 \* triangle in the tool bar (or RUN/SELECTION)

metacorr.

**Meta-Analytic results for the relationships among unnecessary tasks / unreasonable tasks (subscales) and well-being / strain.**

Table 1. Meta-analytic results for the relationships among unnecessary tasks and well-being / strain.

Criterion	k	N	r	r <sub>c</sub>	CI-	CI+	Var.-obs.	Var.-err.	%Var.-expl.	Cred.Int-	Cred.Int+
Feelings of Resentment	8	2970	.424	.428***	.391	.465	.0028	.0018	63.29	.365	.492
Irritation	8	2970	.310	.337***	.305	.370	.0022	.0021	94.27	.315	.360
Emotional Exhaustion	3	400	.253	.297***	.189	.405	.0091	.0063	69.19	.194	.401
Disengagement	3	400	.277	.354***	.152	.556	.0319	.0058	18.13	.037	.671
Work-related Depression	3	2329	.400	.429***	.377	.481	.0021	.0009	40.37	.359	.499
Psychosomatic Complaints	7	2796	.216	.265***	.229	.300	.0023	.0022	94.29	.242	.287
Job Satisfaction	7	2798	-.369	-.390***	-.434	-.346	.0036	.0018	50.45	-.472	-.307
OBSE	8	2972	-.264	-.302***	-.351	-.254	.0049	.0022	45.52	-.404	-.201

Note. †p<.10, \*p<.05, \*\*p<.01, \*\*\*p<.001 (two-tailed), k=number of studies, N=total sample size for k studies, r=unweighted mean correlation, r<sub>c</sub>=weighted mean correlation, CI+=95% confidence interval for r<sub>c</sub>: upper bound, CI-=95% confidence interval for r<sub>c</sub>: lower bound, Var.-obs. = observed variance across studies, Var.-err.=variance due to sampling error, %Var.-expl.=observed variance accounted for by sampling error, Cred.Int+=95% credibility interval for r<sub>c</sub>: upper bound, Cred.Int-= 95% credibility interval for r<sub>c</sub>: lower bound

Table 2. Meta-analytic results for the relationships among unreasonable tasks and well-being / strain.

Criterion	k	N	r	r <sub>c</sub>	CI-	CI+	Var.-obs.	Var.-err.	%Var.-expl.	Cred.Int-	Cred.Int+
Feelings of Resentment	8	2959	.489	.465***	.435	.596	.0020	.0017	83.54	.430	.501
Irritation	8	2961	.381	.403***	.376	.430	.0015	.0019	100.00		
Emotional Exhaustion	3	400	.505	.510***	.478	.531	.0006	.0042	100.00		
Disengagement	3	399	.330	.317***	.255	.378	.0030	.0061	100.00		
Work-related Depression	3	2327	.330	.365***	.315	.415	.0020	.0010	49.43	.303	.427
Psychosomatic Complaints	7	2790	.273	.320***	.287	.353	.0020	.0020	100.00		
Job Satisfaction	7	2794	-.376	-.384***	-.400	-.396	.0004	.0018	100.00		
OBSE	8	2966	-.281	-.326***	-.356	-.296	.0019	.0022	100.00		

Note. †p<.10, \*p<.05, \*\*p<.01, \*\*\*p<.001 (two-tailed), k=number of studies, N=total sample size for k studies, r=unweighted mean correlation, r<sub>c</sub>=weighted mean correlation, CI+=95% confidence interval for r<sub>c</sub>: upper bound, CI-=95% confidence interval for r<sub>c</sub>: lower bound, Var.-obs. = observed variance across studies, Var.-err.=variance due to sampling error, %Var.-expl.=observed variance accounted for by sampling error, Cred.Int+=95% credibility interval for r<sub>c</sub>: upper bound, Cred.Int-= 95% credibility interval for r<sub>c</sub>: lower bound

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study I.**

Table 3. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study I.

	Dependent Variable Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.296	.548		.540	.590
Age	-.005	.007	-.054	-.808	.420
Sex (1=male)	.195	.146	.090	1.335	.183
Uncertainty	.306	.121	.194*	2.542	.012
Interruptions at work	.235	.104	.170*	2.254	.025
Concentration demands	.095	.132	.052	.719	.473
Time pressure	-.141	.098	-.105	-1.436	.153
Problems of work-organization	.471	.119	.289***	3.945	.000
<b>Step 2</b>					
(Constant)	-.246	.517		-.475	.635
Age	-.003	.006	-.034	-.549	.584
Sex (1=male)	.171	.135	.079	1.269	.206
Uncertainty	.094	.118	.059	.792	.429
Interruptions at work	.105	.099	.076	1.060	.291
Concentration demands	.053	.122	.029	.432	.666
Time pressure	-.127	.091	-.095	-1.398	.164
Problems of work-organization	.372	.112	.228***	3.316	.001
BITS	.741	.135	.401***	5.502	.000
R <sup>2</sup> first step					.256***
$\Delta R^2$ for BITS					.110***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 184

Table 4. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.

	Dependent Variable Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.096	.461		.207	.836
Age	.004	.006	.045	.644	.520
Sex (1=male)	.132	.123	.075	1.075	.284
Uncertainty	-.005	.102	-.004	-.053	.958
Interruptions at work	.223	.088	.200*	2.539	.012
Concentration demands	.280	.111	.191*	2.526	.012
Time pressure	.054	.083	.050	.656	.512
Problems of work-organization	.249	.101	.188*	2.470	.014
<b>Step 2</b>					
(Constant)	-.200	.457		-.439	.661
Age	.005	.005	.059	.862	.390
Sex (1=male)	.119	.119	.068	1.000	.319
Uncertainty	-.122	.104	-.095	-1.166	.245
Interruptions at work	.152	.088	.136†	1.733	.085
Concentration demands	.257	.108	.176*	2.384	.018
Time pressure	.062	.080	.057	.770	.442
Problems of work-organization	.194	.099	.147†	1.961	.052
BITS	.405	.119	.271***	3.403	.001
R <sup>2</sup> first step					.193***
$\Delta R^2$ for BITS					.050***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 184

## Appendix B3

Table 5. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.

	Dependent Variable Emotional Exhaustion				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.656	.251		2.610	.010
Age	.003	.003	.067	.979	.329
Sex (1=male)	-.025	.067	-.026	-.375	.708
Uncertainty	.058	.055	.082	1.048	.296
Interruptions at work	.132	.048	.214**	2.763	.006
Concentration demands	.057	.060	.070	.937	.350
Time pressure	.060	.045	.100	1.320	.188
Problems of work-organization	.170	.055	.233**	3.095	.002
Step 2					
(Constant)	.469	.246		1.909	.058
Age	.004	.003	.083	1.251	.213
Sex (1=male)	-.033	.064	-.034	-.516	.607
Uncertainty	-.015	.056	-.022	-.276	.783
Interruptions at work	.087	.047	.142†	1.849	.066
Concentration demands	.042	.058	.052	.726	.469
Time pressure	.064	.043	.108	1.485	.139
Problems of work-organization	.135	.053	.186*	2.537	.012
BITS	.255	.064	.310***	3.990	.000
R <sup>2</sup> first step					.215***
$\Delta R^2$ for BITS					.065***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 184

Table 6. Regressing disengagements onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.

	Dependent Variable Disengagement				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.459	.242		6.033	.000
Age	-.006	.003	-.133†	-1.961	.051
Sex (1=male)	-.047	.064	-.050	-.735	.463
Uncertainty	.208	.053	.302***	3.912	.000
Interruptions at work	.129	.046	.214**	2.807	.006
Concentration demands	-.034	.058	-.043	-.588	.557
Time pressure	-.100	.043	-.171*	-2.310	.022
Problems of work-organization	.065	.053	.092	1.240	.217
Step 2					
(Constant)	1.242	.232		5.364	.000
Age	-.005	.003	-.115†	-1.795	.074
Sex (1=male)	-.057	.060	-.060	-.936	.351
Uncertainty	.123	.053	.178*	2.320	.021
Interruptions at work	.077	.045	.128†	1.733	.085
Concentration demands	-.051	.055	-.065	-.931	.353
Time pressure	-.095	.041	-.162*	-2.321	.021
Problems of work-organization	.025	.050	.036	.507	.613
BITS	.297	.060	.368***	4.924	.000
R <sup>2</sup> first step					.241***
$\Delta R^2$ for BITS					.092***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 184

## Appendix B3

Table 7. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.

	Dependent Variable Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.935	.293		3.189	.002
Age	.004	.004	.074	.993	.322
Sex (1=male)	.017	.078	.016	.216	.829
Uncertainty	.061	.065	.080	.941	.348
Interruptions at work	.081	.056	.121	1.443	.151
Concentration demands	.032	.070	.037	.458	.648
Time pressure	-.015	.053	-.023	-.284	.777
Problems of work-organization	.124	.064	.157†	1.931	.055
Step 2					
(Constant)	.716	.287		2.499	.013
Age	.004	.003	.091	1.268	.206
Sex (1=male)	.007	.075	.007	.099	.921
Uncertainty	-.025	.066	-.033	-.386	.700
Interruptions at work	.028	.055	.042	.510	.611
Concentration demands	.015	.068	.018	.227	.821
Time pressure	-.009	.051	-.014	-.184	.854
Problems of work-organization	.083	.062	.106	1.339	.182
BITS	.300	.075	.337***	4.009	.000
R <sup>2</sup> first step					.077*
$\Delta R^2$ for BITS					.078***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 184

Table 8. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.

	Dependent Variable Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	5.823	.543		10.715	.000
Age	.012	.007	.125†	1.787	.076
Sex (1=male)	-.197	.145	-.096	-1.358	.176
Uncertainty	-.399	.120	-.266***	-3.334	.001
Interruptions at work	-.162	.103	-.124	-1.567	.119
Concentration demands	.109	.131	.064	.839	.403
Time pressure	.126	.098	.099	1.291	.198
Problems of work-organization	-.225	.119	-.145†	-1.891	.060
Step 2					
(Constant)	6.272	.526		11.918	.000
Age	.010	.006	.108	1.612	.109
Sex (1=male)	-.176	.138	-.085	-1.277	.203
Uncertainty	-.223	.120	-.149†	-1.853	.066
Interruptions at work	-.056	.101	-.043	-.553	.581
Concentration demands	.143	.124	.084	1.154	.250
Time pressure	.114	.093	.089	1.223	.223
Problems of work-organization	-.141	.114	-.091	-1.235	.218
BITS	-.610	.137	-.348***	-4.446	.000
R <sup>2</sup> first step					.191***
$\Delta R^2$ for BITS					.083***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 183

Appendix B3

Table 9. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, concentration demands, uncertainty, time pressure, and problems of work-organization in study I.

	Dependent Variable OBSE				
	B	se <sub>B</sub>	$\beta$	t	Sig
<b>Step 1</b>					
(Constant)	5.114	.301		16.995	.000
Age	.000	.004	.004	.058	.954
Sex (1=male)	.025	.080	.020	.306	.760
Uncertainty	-.370	.066	-.421***	-5.588	.000
Interruptions at work	-.025	.057	-.033	-.436	.663
Concentration demands	-.026	.072	-.026	-.356	.722
Time pressure	.114	.054	.154*	2.119	.035
Problems of work-organization	-.129	.066	-.142†	-1.959	.052
<b>Step 2</b>					
(Constant)	5.276	.301		17.557	.000
Age	.000	.004	-.007	-.108	.914
Sex (1=male)	.032	.079	.026	.401	.689
Uncertainty	-.306	.069	-.349***	-4.455	.000
Interruptions at work	.014	.058	.018	.242	.809
Concentration demands	-.013	.071	-.013	-.186	.853
Time pressure	.110	.053	.148*	2.082	.039
Problems of work-organization	-.099	.065	-.109	-1.513	.132
BITS	-.223	.078	-.217**	-2.842	.005
R <sup>2</sup> first step					.274***
ΔR <sup>2</sup> for BITS					.032**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 184

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, and emotional dissonance) in study I.**

Table 10. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.000	.468		.001	.999
Age	-.010	.006	-.102†	-1.726	.086
Sex (1=male)	.147	.127	.067	1.157	.249
Task Stressors	.229	.166	.092	1.384	.168
Social Stressors (4 Items)	.618	.159	.257***	3.876	.000
Effort-Reward Imbalance	.385	.061	.417***	6.349	.000
Emotional Dissonance (4 Items)	.076	.063	.077	1.197	.233
<b>Step 2</b>					
(Constant)	-.241	.454		-.530	.597
Age	-.008	.006	-.078	-1.366	.174
Sex (1=male)	.134	.122	.061	1.099	.274
Task Stressors	.012	.168	.005	.072	.942
Social Stressors (4 Items)	.521	.155	.217***	3.360	.001
Effort-Reward Imbalance	.311	.061	.338***	5.091	.000
Emotional Dissonance (4 Items)	.064	.061	.065	1.047	.297
BITS	.504	.129	.272***	3.921	.000
R <sup>2</sup> first step					.450***
$\Delta R^2$ for BITS					.045***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 180

Table 11. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.180	.446		.404	.687
Age	.002	.006	.028	.396	.692
Sex (1=male)	.120	.121	.069	.994	.322
Task Stressors	.589	.158	.296***	3.738	.000
Social Stressors (4 Items)	.039	.152	.020	.256	.799
Effort-Reward Imbalance	.132	.058	.179*	2.282	.024
Emotional Dissonance (4 Items)	.080	.060	.101	1.321	.188
<b>Step 2</b>					
(Constant)	.073	.447		.164	.870
Age	.003	.006	.041	.585	.559
Sex (1=male)	.114	.120	.065	.952	.342
Task Stressors	.493	.166	.248**	2.973	.003
Social Stressors (4 Items)	-.004	.153	-.002	-.026	.979
Effort-Reward Imbalance	.099	.060	.135	1.646	.102
Emotional Dissonance (4 Items)	.074	.060	.095	1.239	.217
BITS	.223	.126	.151†	1.763	.080
R <sup>2</sup> first step					.214***
$\Delta R^2$ for BITS					.014†

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 180



Appendix B3

Table 12. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.

	Dependent Variable				
	Emotional Exhaustion				
	B	se <sub>B</sub>	β	T	sig
Step 1					
(Constant)	.547	.242		2.262	.025
Age	.003	.003	.064	.930	.354
Sex (1=male)	-.029	.066	-.030	-.443	.658
Task Stressors	.370	.085	.336***	4.334	.000
Social Stressors (4 Items)	.123	.082	.116	1.495	.137
Effort-Reward Imbalance	.062	.031	.153*	1.988	.048
Emotional Dissonance (4 Items)	.011	.033	.025	.333	.740
Step 2					
(Constant)	.465	.240		1.934	.055
Age	.004	.003	.083	1.210	.228
Sex (1=male)	-.033	.065	-.035	-.518	.605
Task Stressors	.297	.089	.269***	3.326	.001
Social Stressors (4 Items)	.090	.082	.085	1.097	.274
Effort-Reward Imbalance	.037	.032	.092	1.149	.252
Emotional Dissonance (4 Items)	.007	.032	.016	.211	.833
BITS	.172	.068	.210*	2.526	.012
R <sup>2</sup> first step					.244***
ΔR <sup>2</sup> for BITS					.027*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 180

Table 13. Regressing disengagement onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.

	Dependent Variable				
	Disengagement				
	B	se <sub>B</sub>	β	T	sig
Step 1					
(Constant)	1.277	.228		5.595	.000
Age	-.007	.003	-.151*	-2.318	.022
Sex (1=male)	-.093	.062	-.096	-1.499	.136
Task Stressors	.073	.081	.066	.899	.370
Social Stressors (4 Items)	.115	.078	.109	1.480	.141
Effort-Reward Imbalance	.180	.030	.444***	6.096	.000
Emotional Dissonance (4 Items)	-.005	.031	-.011	-.153	.879
Step 2					
(Constant)	1.146	.219		5.234	.000
Age	-.005	.003	-.122†	-1.952	.053
Sex (1=male)	-.100	.059	-.103†	-1.696	.092
Task Stressors	-.046	.081	-.041	-.560	.576
Social Stressors (4 Items)	.062	.075	.059	.835	.405
Effort-Reward Imbalance	.140	.029	.346***	4.753	.000
Emotional Dissonance (4 Items)	-.011	.029	-.026	-.383	.702
BITS	.274	.062	.336***	4.426	.000
R <sup>2</sup> first step					.324***
ΔR <sup>2</sup> for BITS					.069***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 180

Appendix B3

Table 14. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.

	Dependent Variable				
	Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	T	sig
Step 1					
(Constant)	6.051	.481		12.575	.000
Age	.015	.006	.166*	2.580	.011
Sex (1=male)	-.100	.131	-.048	-.766	.445
Task Stressors	-.032	.170	-.014	-.191	.849
Social Stressors (4 Items)	-.102	.164	-.045	-.623	.534
Effort-Reward Imbalance	-.443	.062	-.510***	-7.112	.000
Emotional Dissonance (4 Items)	-.046	.065	-.050	-.708	.480
Step 2					
(Constant)	6.298	.467		13.487	.000
Age	.013	.006	.140*	2.247	.026
Sex (1=male)	-.086	.126	-.042	-.685	.494
Task Stressors	.187	.173	.080	1.082	.281
Social Stressors (4 Items)	-.003	.159	-.001	-.021	.983
Effort-Reward Imbalance	-.368	.063	-.424***	-5.849	.000
Emotional Dissonance (4 Items)	-.034	.063	-.036	-.540	.590
BITS	-.513	.132	-.294***	-3.881	.000
R <sup>2</sup> first step					.348***
$\Delta R^2$ for BITS					.053***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 179

Table 15. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.

	Dependent Variable				
	Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.860	.282		3.049	.003
Age	.003	.004	.067	.894	.372
Sex (1=male)	.020	.076	.019	.257	.798
Task Stressors	.158	.100	.134	1.585	.115
Social Stressors (4 Items)	.132	.096	.117	1.374	.171
Effort-Reward Imbalance	.061	.036	.140†	1.663	.098
Emotional Dissonance (4 Items)	.006	.038	.013	.154	.878
Step 2					
(Constant)	.746	.278		2.682	.008
Age	.004	.003	.091	1.234	.219
Sex (1=male)	.014	.075	.013	.181	.857
Task Stressors	.056	.103	.047	.539	.590
Social Stressors (4 Items)	.086	.095	.076	.908	.365
Effort-Reward Imbalance	.026	.037	.060	.696	.487
Emotional Dissonance (4 Items)	.000	.037	.000	.006	.995
BITS	.238	.079	.272**	3.022	.003
R <sup>2</sup> first step					.099**
$\Delta R^2$ for BITS					.045**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 180

Appendix B3

Table 16. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance in study I.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	5.151	.289		17.828	.000
Age	.005	.004	.084	1.335	.184
Sex (1=male)	.031	.078	.024	.390	.697
Task Stressors	.018	.102	.012	.172	.864
Social Stressors (4 Items)	-.335	.098	-.242***	-3.409	.001
Effort-Reward Imbalance	-.237	.037	-.446***	-6.348	.000
Emotional Dissonance (4 Items)	-.015	.039	-.026	-.373	.710
Step 2					
(Constant)	5.228	.289		18.077	.000
Age	.004	.004	.071	1.128	.261
Sex (1=male)	.035	.078	.027	.446	.656
Task Stressors	.087	.107	.060	.810	.419
Social Stressors (4 Items)	-.304	.099	-.220**	-3.081	.002
Effort-Reward Imbalance	-.214	.039	-.402***	-5.491	.000
Emotional Dissonance (4 Items)	-.011	.039	-.019	-.276	.783
BITS	-.161	.082	-.150†	-1.968	.051
R <sup>2</sup> first step					.372***
$\Delta R^2$ for BITS					.014†

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 180

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, and self-efficacy) in study I.**

Table 17. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	6.386	.748		8.540	.000
Age	-.010	.007	-.096	-1.403	.162
Sex (1=male)	.311	.156	.142*	1.998	.047
Time Control	-.031	.102	-.029	-.303	.762
Method Control	-.241	.159	-.147	-1.512	.132
Self-Efficacy (3 Items)	-.035	.132	-.021	-.262	.794
Self-Esteem	-.575	.158	-.281***	-3.635	.000
Step 2					
(Constant)	2.671	.833		3.207	.002
Age	-.005	.006	-.055	-.903	.368
Sex (1=male)	.217	.138	.099	1.573	.117
Time Control	-.007	.090	-.007	-.079	.937
Method Control	-.180	.141	-.110	-1.277	.203
Self-Efficacy (3 Items)	-.011	.116	-.007	-.093	.926
Self-Esteem	-.291	.145	-.142*	-2.012	.046
BITS	.872	.119	.472***	7.297	.000
R <sup>2</sup> first step					.151***
$\Delta R^2$ for BITS					.193***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 189

Table 18. Regressing irritation onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	5.489	.559		9.819	.000
Age	.006	.005	.072	1.110	.269
Sex (1=male)	.193	.116	.111†	1.660	.099
Time Control	.043	.076	.051	.567	.572
Method Control	.000	.119	.000	-.002	.998
Self-Efficacy (3 Items)	-.014	.099	-.011	-.143	.887
Self-Esteem	-.798	.118	-.491***	-6.749	.000
Step 2					
(Constant)	3.938	.683		5.768	.000
Age	.007	.005	.094	1.490	.138
Sex (1=male)	.154	.113	.089	1.362	.175
Time Control	.053	.074	.063	.721	.472
Method Control	.025	.115	.019	.220	.826
Self-Efficacy (3 Items)	-.004	.095	-.003	-.044	.965
Self-Esteem	-.680	.119	-.418***	-5.728	.000
BITS	.364	.098	.249***	3.714	.000
R <sup>2</sup> first step					.246***
$\Delta R^2$ for BITS					.053***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 189

## Appendix B3

Table 19. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.

	Dependent Variable				
	Emotional Exhaustion				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.786	.306		12.359	.000
Age	.004	.003	.084	1.306	.193
Sex (1=male)	.061	.064	.064	.957	.340
Time Control	-.065	.042	-.141	-1.566	.119
Method Control	.043	.065	.060	.660	.510
Self-Efficacy (3 Items)	-.033	.054	-.046	-.603	.547
Self-Esteem	-.413	.065	-.461***	-6.373	.000
Step 2					
(Constant)	2.740	.367		7.472	.000
Age	.005	.003	.111†	1.809	.072
Sex (1=male)	.035	.061	.036	.569	.570
Time Control	-.059	.040	-.126	-1.482	.140
Method Control	.060	.062	.084	.974	.331
Self-Efficacy (3 Items)	-.026	.051	-.036	-.506	.614
Self-Esteem	-.333	.064	-.372***	-5.226	.000
BITS	.246	.053	.304***	4.667	.000
R <sup>2</sup> first step					.256***
$\Delta R^2$ for BITS					.080***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 189

Table 20. Regressing disengagement onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.

	Dependent Variable				
	Disengagement				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.202	.299		14.031	.000
Age	-.007	.003	-.167**	-2.626	.009
Sex (1=male)	.036	.062	.038	.582	.561
Time Control	-.024	.041	-.052	-.583	.561
Method Control	-.157	.064	-.222*	-2.460	.015
Self-Efficacy (3 Items)	-.148	.053	-.209**	-2.793	.006
Self-Esteem	-.171	.063	-.193**	-2.701	.008
Step 2					
(Constant)	2.872	.343		8.367	.000
Age	-.006	.003	-.133*	-2.289	.023
Sex (1=male)	.003	.057	.003	.045	.964
Time Control	-.015	.037	-.033	-.412	.681
Method Control	-.135	.058	-.191*	-2.328	.021
Self-Efficacy (3 Items)	-.139	.048	-.197**	-2.900	.004
Self-Esteem	-.070	.060	-.079	-1.165	.245
BITS	.312	.049	.392***	6.336	.000
R <sup>2</sup> first step					.269***
$\Delta R^2$ for BITS					.133***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 189

# Appendix B3

Table 21. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.

	Dependent Variable				
	Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.771	.689		1.119	.265
Age	.016	.006	.169*	2.519	.013
Sex (1=male)	-.299	.143	-.145*	-2.086	.038
Time Control	-.075	.093	-.075	-.807	.421
Method Control	.477	.146	.309***	3.259	.001
Self-Efficacy (3 Items)	.035	.121	.023	.288	.774
Self-Esteem	.470	.146	.242**	3.223	.002
Step 2					
(Constant)	3.570	.804		4.440	.000
Age	.013	.006	.135*	2.174	.031
Sex (1=male)	-.226	.133	-.109†	-1.698	.091
Time Control	-.093	.086	-.093	-1.079	.282
Method Control	.433	.135	.281**	3.198	.002
Self-Efficacy (3 Items)	.016	.112	.010	.141	.888
Self-Esteem	.254	.140	.131†	1.815	.071
BITS	-.654	.115	-.376***	-5.688	.000
R <sup>2</sup> first step					.197***
$\Delta R^2$ for BITS					.122***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 188

Table 22. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.

	Dependent Variable				
	Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.606	.343		10.521	.000
Age	.004	.003	.078	1.163	.246
Sex (1=male)	.101	.071	.098	1.413	.159
Time Control	-.014	.047	-.028	-.299	.765
Method Control	-.003	.073	-.003	-.037	.971
Self-Efficacy (3 Items)	-.135	.061	-.176*	-2.239	.026
Self-Esteem	-.322	.073	-.333***	-4.441	.000
Step 2					
(Constant)	2.732	.421		6.488	.000
Age	.005	.003	.098	1.509	.133
Sex (1=male)	.079	.070	.076	1.128	.261
Time Control	-.008	.045	-.017	-.184	.854
Method Control	.012	.071	.015	.165	.869
Self-Efficacy (3 Items)	-.130	.059	-.168*	-2.207	.029
Self-Esteem	-.255	.073	-.264***	-3.488	.001
BITS	.205	.060	.235***	3.396	.001
R <sup>2</sup> first step					.200***
$\Delta R^2$ for BITS					.048***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 189

# Appendix B3

Table 23. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, self-efficacy, and self-esteem in study I.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	1.121	.395		2.836	.005
Age	.005	.004	.090	1.410	.160
Sex (1=male)	-.106	.082	-.085	-1.283	.201
Time Control	-.046	.054	-.076	-.853	.395
Method Control	.330	.084	.354***	3.909	.000
Self-Efficacy (3 Items)	.071	.070	.077	1.021	.309
Self-Esteem	.350	.084	.301***	4.182	.000
Step 2					
(Constant)	2.355	.478		4.929	.000
Age	.004	.003	.066	1.072	.285
Sex (1=male)	-.074	.079	-.060	-.939	.349
Time Control	-.054	.052	-.089	-1.044	.298
Method Control	.309	.081	.332***	3.827	.000
Self-Efficacy (3 Items)	.063	.067	.068	.949	.344
Self-Esteem	.255	.083	.220**	3.075	.002
BITS	-.290	.069	-.276***	-4.226	.000
R <sup>2</sup> first step					.264***
ΔR <sup>2</sup> for BITS					.066***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 189

**Regressing well-being / strain onto illegitimate tasks under control of the best other predictors in each study (age, sex, stressors, resources) in study I.**

Table 24. Regressing feelings of resentment onto illegitimate tasks under control of the best other predictors in study I.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.793	.585		3.064	.003
Social Stressors (4 Items)	.630	.154	.262***	4.083	.000
Effort Reward Imbalance	.405	.059	.439***	6.896	.000
Self-Esteem	-.315	.120	-.155**	-2.627	.009
Step 2					
(Constant)	.643	.629		1.023	.308
Social Stressors (4 Items)	.498	.151	.207***	3.285	.001
Effort Reward Imbalance	.319	.060	.347***	5.320	.000
Self Esteem	-.207	.118	-.102†	-1.749	.082
BITS	.494	.122	.266***	4.060	.000
R <sup>2</sup> first step					.447***
$\Delta R^2$ for BITS					.048***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 180

Table 25. Regressing irritation onto illegitimate tasks under control of the best other predictors in study I.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.079	.639		4.822	.000
Task Stressors	.510	.133	.256***	3.835	.000
Effort Reward Imbalance	.107	.049	.145*	2.157	.032
Job Control	.122	.073	.107†	1.672	.096
Self-Esteem	-.661	.106	-.408***	-6.226	.000
Step 2					
(Constant)	2.949	.661		4.462	.000
Task Stressors	.467	.144	.235***	3.243	.001
Effort Reward Imbalance	.092	.053	.126†	1.750	.082
Job Control	.126	.073	.111†	1.720	.087
Self-Esteem	-.644	.108	-.398***	-5.939	.000
BITS	.091	.116	.061	.778	.437
R <sup>2</sup> first step					.346***
$\Delta R^2$ for BITS					.002

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 180



## Appendix B3

Table 26. Regressing emotional exhaustion onto illegitimate tasks under control of the best other predictors in study I.

	Dependent Variable Emotional Exhaustion				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	2.270	.340		6.673	.000
Age	.004	.003	.100†	1.671	.096
Task Stressors	.334	.071	.303***	4.711	.000
Effort Reward Imbalance	.051	.026	.126†	1.948	.053
Self-Esteem	-.363	.056	-.405***	-6.481	.000
Step 2					
(Constant)	2.121	.350		6.058	.000
Age	.005	.003	.108†	1.802	.073
Task Stressors	.286	.076	.259***	3.747	.000
Effort Reward Imbalance	.034	.028	.085	1.233	.219
Self-Esteem	-.343	.057	-.382***	-6.012	.000
BITS	.104	.062	.127†	1.671	.097
R <sup>2</sup> first step					.382***
$\Delta R^2$ for BITS					.010†

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ . N = 180

Table 27. Regressing disengagement onto illegitimate tasks under control of the best other predictors in study I.

	Dependent Variable Disengagement				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.223	.291		11.077	.000
Age	-.006	.002	-.142*	-2.481	.014
Effort Reward Imbalance	.167	.024	.411***	6.946	.000
Job Control	-.137	.038	-.218***	-3.638	.000
Self Efficacy (3 Items)	-.130	.046	-.180**	-2.797	.006
Self-Esteem	-.116	.058	-.129*	-1.989	.048
Step 2					
(Constant)	2.597	.318		8.161	.000
Age	-.006	.002	-.129*	-2.356	.020
Effort Reward Imbalance	.121	.026	.299***	4.729	.000
Job Control	-.136	.036	-.217***	-3.772	.000
Self Efficacy (3 Items)	-.127	.044	-.176**	-2.851	.005
Self-Esteem	-.062	.057	-.070	-1.089	.277
BITS	.215	.053	.264***	4.076	.000
R <sup>2</sup> first step					.442***
$\Delta R^2$ for BITS					.049***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ . N = 180

## Appendix B3

Table 28. Regressing psychosomatic complaints onto illegitimate tasks under control of the best other predictors in study I.

	Dependent Variable Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.176	.411		7.724	.000
Task Stressors	.168	.080	.143*	2.099	.037
Self Efficacy (3 Items)	-.140	.057	-.182*	-2.460	.015
Self-Esteem	-.300	.072	-.314***	-4.148	.000
Step 2					
(Constant)	2.883	.422		6.832	.000
Task Stressors	.067	.089	.057	.748	.455
Self Efficacy (3 Items)	-.133	.056	-.173*	-2.375	.019
Self-Esteem	-.259	.073	-.271***	-3.543	.001
BITS	.170	.068	.195*	2.495	.014
R <sup>2</sup> first step					.229***
$\Delta R^2$ for BITS					.027*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 180

Table 29. Regressing job satisfaction onto illegitimate tasks under control of the best other predictors in study I.

	Dependent Variable Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.556	.613		5.803	.000
Age	.013	.006	.135*	2.272	.024
Effort Reward Imbalance	-.419	.053	-.483***	-7.850	.000
Job Control	.163	.083	.121*	1.972	.050
Self-Esteem	.360	.120	.187**	3.010	.003
Step 2					
(Constant)	4.673	.691		6.767	.000
Age	.012	.005	.124*	2.140	.034
Effort Reward Imbalance	-.337	.058	-.388***	-5.811	.000
Job Control	.162	.080	.120*	2.010	.046
Self-Esteem	.259	.121	.134*	2.147	.033
BITS	-.385	.120	-.221**	-3.218	.002
R <sup>2</sup> first step					.396***
$\Delta R^2$ for BITS					.034**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 179

Appendix B3

Table 30. Regressing organization-based self-esteem onto illegitimate tasks under control of the best other predictors in study I.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.535	.375		9.426	.000
Social Stressors	-.239	.089	-.172**	-2.671	.008
Effort Reward Imbalance	-.213	.034	-.399***	-6.229	.000
Job Control	.135	.048	.164**	2.803	.006
Self-Esteem	.267	.070	.227***	3.786	.000
Step 2					
(Constant)	3.722	.412		9.041	.000
Social Stressors	-.217	.091	-.157*	-2.374	.019
Effort Reward Imbalance	-.199	.036	-.373***	-5.461	.000
Job Control	.135	.048	.164**	2.807	.006
Self-Esteem	.249	.072	.212***	3.447	.001
BITS	-.080	.073	-.075	-1.097	.274
R <sup>2</sup> first step					.449***
$\Delta R^2$ for BITS					.004

Note. BITS = Bern Illegitimate Tasks Scale. OBSE = Organization-based Self-Esteem

\*\*\*p<sub>≤</sub>.001, \*\*p<sub>≤</sub>.01, \*p<sub>≤</sub>.05, †p<sub>≤</sub>.10. N = 180

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study II.**

Table 31. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.

	Dependent Variable Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.995	.616		1.614	.109
Age	-.034	.009	-.280***	-3.638	.000
Sex (1=male)	.072	.209	.027	.344	.731
Uncertainty	.587	.156	.333***	3.768	.000
Interruptions at work	.174	.133	.112	1.309	.193
Concentration demands	.203	.150	.110	1.348	.180
Time pressure	-.225	.126	-.149†	-1.776	.078
Problems of work-organization	.385	.139	.233**	2.778	.006
<b>Step 2</b>					
(Constant)	.054	.584		.092	.927
Age	-.022	.009	-.182*	-2.532	.013
Sex (1=male)	.035	.189	.013	.185	.854
Uncertainty	.350	.148	.198*	2.370	.019
Interruptions at work	.068	.122	.044	.561	.576
Concentration demands	.151	.137	.082	1.109	.270
Time pressure	-.208	.114	-.138†	-1.814	.072
Problems of work-organization	.215	.129	.130†	1.661	.099
BITS	.841	.154	.427***	5.443	.000
R <sup>2</sup> first step					.334***
$\Delta R^2$ for BITS					.124***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 138

Table 32. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.

	Dependent Variable Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.026	.567		1.809	.073
Age	.000	.009	.001	.014	.989
Sex (1=male)	-.027	.192	-.012	-.139	.890
Uncertainty	.280	.143	.199†	1.952	.053
Interruptions at work	.108	.122	.088	.884	.378
Concentration demands	.141	.138	.096	1.019	.310
Time pressure	.149	.116	.124	1.284	.201
Problems of work-organization	-.037	.128	-.028	-.287	.774
<b>Step 2</b>					
(Constant)	.629	.584		1.077	.284
Age	.005	.009	.053	.587	.558
Sex (1=male)	-.042	.189	-.020	-.224	.823
Uncertainty	.180	.148	.128	1.218	.226
Interruptions at work	.064	.122	.051	.521	.603
Concentration demands	.119	.137	.081	.874	.384
Time pressure	.157	.115	.130	1.367	.174
Problems of work-organization	-.108	.129	-.082	-.838	.403
BITS	.355	.154	.226*	2.296	.023
R <sup>2</sup> first step					.115*
$\Delta R^2$ for BITS					.035*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 138

# Appendix B3

Table 33. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.

	Dependent Variable Emotional Exhaustion				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	.957	.253		3.785	.000
Age	.001	.004	.030	.368	.713
Sex (1=male)	-.142	.086	-.138	-1.651	.101
Uncertainty	.190	.064	.283**	2.949	.004
Interruptions at work	.028	.055	.047	.514	.608
Concentration demands	.063	.062	.091	1.027	.306
Time pressure	.077	.052	.134	1.484	.140
Problems of work-organization	.091	.058	.141	1.550	.124
Step 2					
(Constant)	.717	.255		2.806	.006
Age	.004	.004	.089	1.089	.278
Sex (1=male)	-.148	.083	-.145†	-1.786	.076
Uncertainty	.122	.066	.183†	1.864	.065
Interruptions at work	-.003	.054	-.005	-.053	.958
Concentration demands	.052	.060	.075	.873	.384
Time pressure	.083	.050	.145†	1.660	.099
Problems of work-organization	.054	.058	.084	.936	.351
BITS	.221	.069	.289**	3.218	.002
R <sup>2</sup> first step					.233***
ΔR <sup>2</sup> for BITS					.057**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 137

Table 34. Regressing disengagement onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.

	Dependent Variable Disengagement				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	2.775	.238		11.645	.000
Age	-.010	.004	-.216**	-2.809	.006
Sex (1=male)	-.060	.081	-.058	-.747	.457
Uncertainty	.067	.061	.099	1.110	.269
Interruptions at work	-.027	.052	-.046	-.531	.596
Concentration demands	-.085	.058	-.120	-1.465	.145
Time pressure	-.176	.049	-.303***	-3.604	.000
Problems of work-organization	.226	.055	.347***	4.096	.000
Step 2					
(Constant)	2.603	.245		10.635	.000
Age	-.008	.004	-.175*	-2.254	.026
Sex (1=male)	-.065	.079	-.063	-.817	.416
Uncertainty	.019	.063	.028	.304	.762
Interruptions at work	-.050	.052	-.082	-.962	.338
Concentration demands	-.093	.057	-.132	-1.629	.106
Time pressure	-.172	.048	-.296***	-3.574	.000
Problems of work-organization	.199	.055	.307***	3.614	.000
BITS	.158	.066	.203*	2.396	.018
R <sup>2</sup> first step					.336***
ΔR <sup>2</sup> for BITS					.028*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 137

## Appendix B3

Table 35. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.

	Dependent Variable				
	Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.797	.349		2.288	.024
Age	.003	.005	.048	.557	.579
Sex (1=male)	-.285	.119	-.211*	-2.401	.018
Uncertainty	.149	.089	.168†	1.679	.096
Interruptions at work	-.038	.075	-.049	-.508	.613
Concentration demands	.112	.085	.122	1.318	.190
Time pressure	.058	.071	.077	.810	.420
Problems of work-organization	.165	.079	.200*	2.100	.038
Step 2					
(Constant)	.667	.364		1.830	.070
Age	.005	.005	.076	.842	.401
Sex (1=male)	-.291	.119	-.215*	-2.451	.016
Uncertainty	.116	.093	.131	1.250	.214
Interruptions at work	-.052	.076	-.067	-.691	.491
Concentration demands	.105	.085	.114	1.235	.219
Time pressure	.060	.071	.080	.843	.401
Problems of work-organization	.142	.081	.172†	1.758	.081
BITS	.116	.096	.117	1.203	.231
R <sup>2</sup> first step					.162**
$\Delta R^2$ for BITS					.009

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 137

Table 36. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.

	Dependent Variable				
	Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.989	.569		7.006	.000
Age	.032	.009	.309***	3.732	.000
Sex (1=male)	-.081	.191	-.036	-.423	.673
Uncertainty	-.426	.143	-.284**	-2.974	.004
Interruptions at work	.032	.121	.025	.267	.790
Concentration demands	.117	.137	.076	.855	.394
Time pressure	.165	.115	.129	1.427	.156
Problems of work-organization	-.171	.127	-.123	-1.351	.179
Step 2					
(Constant)	4.594	.574		8.007	.000
Age	.024	.009	.236**	2.863	.005
Sex (1=male)	-.061	.184	-.027	-.334	.739
Uncertainty	-.285	.143	-.190*	-1.985	.049
Interruptions at work	.097	.118	.074	.823	.412
Concentration demands	.151	.132	.097	1.141	.256
Time pressure	.152	.111	.120	1.373	.172
Problems of work-organization	-.064	.126	-.046	-.511	.610
BITS	-.518	.150	-.312***	-3.459	.001
R <sup>2</sup> first step					.230***
$\Delta R^2$ for BITS					.066***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 136

Appendix B3

Table 37. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study II.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	3.594	.391		9.195	.000
Age	.004	.006	.054	.645	.520
Sex (1=male)	.364	.132	.234**	2.748	.007
Uncertainty	-.316	.099	-.309**	-3.204	.002
Interruptions at work	.058	.084	.065	.689	.492
Concentration demands	.015	.095	.014	.154	.878
Time pressure	.212	.080	.242**	2.639	.009
Problems of work-organization	-.094	.088	-.098	-1.068	.288
<b>Step 2</b>					
(Constant)	3.896	.401		9.720	.000
Age	.000	.006	.000	.002	.999
Sex (1=male)	.376	.130	.241**	2.895	.004
Uncertainty	-.240	.101	-.235*	-2.373	.019
Interruptions at work	.092	.084	.103	1.100	.273
Concentration demands	.031	.094	.029	.333	.739
Time pressure	.206	.079	.236**	2.624	.010
Problems of work-organization	-.039	.089	-.041	-.442	.659
BITS	-.270	.106	-.236*	-2.546	.012
R <sup>2</sup> first step					.205***
$\Delta R^2$ for BITS					.038*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 138

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict) in study II.**

Table 38. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and Work-Family-Conflict in study II.

	Dependent Variable Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.083	.478		.174	.862
Age	-.010	.007	-.085	-1.465	.145
Sex (1=male)	.149	.146	.056	1.022	.309
Task Stressors	-.194	.195	-.074	-.996	.321
Social Stressors (4 Items)	.616	.116	.339***	5.328	.000
Effort-Reward Imbalance	.443	.065	.469***	6.793	.000
Emotional Dissonance (FEWS)	.379	.111	.220***	3.407	.001
Work-Family-Conflict	-.066	.091	-.045	-.723	.471
<b>Step 2</b>					
(Constant)	-.231	.477		-.483	.630
Age	-.008	.007	-.065	-1.155	.250
Sex (1=male)	.095	.143	.036	.666	.507
Task Stressors	-.257	.191	-.099	-1.347	.180
Social Stressors (4 Items)	.608	.113	.334***	5.404	.000
Effort-Reward Imbalance	.340	.073	.360***	4.680	.000
Emotional Dissonance (FEWS)	.334	.109	.193**	3.055	.003
Work-Family-Conflict	-.092	.089	-.064	-1.040	.300
BITS	.415	.143	.212**	2.904	.004
R <sup>2</sup> first step					.638***
$\Delta R^2$ for BITS					.022**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 138

Table 39. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.

	Dependent Variable Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.175	.537		.325	.745
Age	.004	.008	.045	.552	.582
Sex (1=male)	.111	.164	.052	.677	.500
Task Stressors	.052	.219	.025	.239	.812
Social Stressors (4 Items)	.097	.130	.066	.746	.457
Effort-Reward Imbalance	-.002	.073	-.002	-.024	.981
Emotional Dissonance (FEWS)	.375	.125	.271**	2.999	.003
Work-Family-Conflict	.404	.102	.349***	3.961	.000
<b>Step 2</b>					
(Constant)	-.007	.549		-.012	.991
Age	.006	.008	.059	.723	.471
Sex (1=male)	.080	.164	.038	.486	.628
Task Stressors	.016	.220	.008	.073	.942
Social Stressors (4 Items)	.092	.129	.063	.712	.478
Effort-Reward Imbalance	-.061	.084	-.081	-.733	.465
Emotional Dissonance (FEWS)	.349	.126	.252**	2.773	.006
Work-Family-Conflict	.388	.102	.335***	3.805	.000
BITS	.240	.165	.153	1.460	.147
R <sup>2</sup> first step					.288***
$\Delta R^2$ for BITS					.012

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 138



## Appendix B3

Table 40. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.

	Dependent Variable				
	Emotional Exhaustion				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.678	.226		2.997	.003
Age	.005	.003	.103	1.456	.148
Sex (1=male)	-.078	.069	-.076	-1.123	.264
Task Stressors	.046	.092	.046	.503	.616
Social Stressors (4 Items)	.152	.055	.217**	2.779	.006
Effort-Reward Imbalance	.094	.031	.256**	3.026	.003
Emotional Dissonance (FEWS)	.042	.053	.063	.788	.432
Work-Family-Conflict	.189	.043	.339***	4.385	.000
Step 2					
(Constant)	.610	.231		2.639	.009
Age	.005	.003	.113	1.584	.116
Sex (1=male)	-.089	.069	-.087	-1.278	.203
Task Stressors	.032	.093	.031	.341	.734
Social Stressors (4 Items)	.150	.054	.214**	2.753	.007
Effort-Reward Imbalance	.071	.035	.195*	2.031	.044
Emotional Dissonance (FEWS)	.031	.053	.046	.576	.566
Work-Family-Conflict	.184	.043	.330***	4.265	.000
BITS	.094	.070	.122	1.342	.182
R <sup>2</sup> first step					.455***
$\Delta R^2$ for BITS					.008

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10.. N = 137

Table 41. Regressing disengagement onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.

	Dependent Variable				
	Disengagement				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	2.437	.231		10.531	.000
Age	-.001	.003	-.023	-.309	.758
Sex (1=male)	-.025	.071	-.024	-.350	.727
Task Stressors	-.396	.094	-.398***	-4.200	.000
Social Stressors (4 Items)	.093	.056	.134†	1.663	.099
Effort-Reward Imbalance	.192	.032	.527***	6.054	.000
Emotional Dissonance (FEWS)	.136	.054	.206*	2.514	.013
Work-Family-Conflict	-.097	.044	-.175*	-2.191	.030
Step 2					
(Constant)	2.432	.238		10.216	.000
Age	-.001	.003	-.022	-.298	.766
Sex (1=male)	-.025	.071	-.025	-.357	.722
Task Stressors	-.397	.095	-.399***	-4.164	.000
Social Stressors (4 Items)	.093	.056	.134	1.654	.101
Effort-Reward Imbalance	.191	.036	.523***	5.263	.000
Emotional Dissonance (FEWS)	.135	.055	.205*	2.461	.015
Work-Family-Conflict	-.097	.045	-.175*	-2.182	.031
BITS	.006	.072	.008	.087	.931
R <sup>2</sup> first step					.422***
$\Delta R^2$ for BITS					.000

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 137

Appendix B3

Table 42. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.

	Dependent Variable				
	Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.860	.525		9.259	.000
Age	.019	.008	.184*	2.482	.014
Sex (1=male)	-.315	.160	-.138†	-1.964	.052
Task Stressors	.469	.213	.211*	2.197	.030
Social Stressors (4 Items)	-.188	.127	-.120	-1.480	.141
Effort-Reward Imbalance	-.355	.071	-.441***	-4.977	.000
Emotional Dissonance (FEWS)	-.335	.122	-.228**	-2.744	.007
Work-Family-Conflict	.128	.099	.104	1.289	.200
Step 2					
(Constant)	5.022	.537		9.350	.000
Age	.018	.008	.172*	2.315	.022
Sex (1=male)	-.287	.161	-.126†	-1.781	.077
Task Stressors	.501	.214	.225*	2.342	.021
Social Stressors (4 Items)	-.184	.127	-.118	-1.451	.149
Effort-Reward Imbalance	-.302	.081	-.375***	-3.706	.000
Emotional Dissonance (FEWS)	-.312	.123	-.212*	-2.534	.012
Work-Family-Conflict	.142	.100	.115	1.425	.157
BITS	-.215	.160	-.128	-1.341	.182
R <sup>2</sup> first step					.406***
ΔR <sup>2</sup> for BITS					.008

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 137

Table 43. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.

	Dependent Variable				
	Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.457	.338		1.350	.179
Age	.007	.005	.111	1.371	.173
Sex (1=male)	-.220	.104	-.163*	-2.118	.036
Task Stressors	.081	.138	.061	.586	.559
Social Stressors (4 Items)	.162	.082	.175*	1.975	.050
Effort-Reward Imbalance	.132	.046	.275**	2.858	.005
Emotional Dissonance (FEWS)	-.008	.079	-.009	-.099	.921
Work-Family-Conflict	.141	.064	.193*	2.195	.030
Step 2					
(Constant)	.488	.349		1.398	.164
Age	.007	.005	.107	1.309	.193
Sex (1=male)	-.215	.105	-.159*	-2.040	.043
Task Stressors	.087	.139	.066	.624	.534
Social Stressors (4 Items)	.163	.082	.176*	1.979	.050
Effort-Reward Imbalance	.142	.053	.296**	2.673	.008
Emotional Dissonance (FEWS)	-.003	.080	-.004	-.044	.965
Work-Family-Conflict	.144	.065	.196*	2.215	.029
BITS	-.040	.104	-.040	-.385	.701
R <sup>2</sup> first step					.297***
ΔR <sup>2</sup> for BITS					.001

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10 N = 137

## Appendix B3

Table 44. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family-conflict in study II.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.017	.372		10.790	.000
Age	-.005	.005	-.073	-.943	.347
Sex (1=male)	.200	.114	.129†	1.761	.081
Task Stressors	.493	.152	.323**	3.243	.002
Social Stressors (4 Items)	-.280	.090	-.263**	-3.111	.002
Effort-Reward Imbalance	-.269	.051	-.487***	-5.300	.000
Emotional Dissonance (FEWS)	-.083	.087	-.083	-.963	.338
Work-Family-Conflict	.035	.071	.041	.492	.623
Step 2					
(Constant)	4.034	.384		10.515	.000
Age	-.005	.006	-.074	-.956	.341
Sex (1=male)	.203	.115	.131†	1.764	.080
Task Stressors	.496	.153	.325**	3.232	.002
Social Stressors (4 Items)	-.280	.090	-.263**	-3.094	.002
Effort-Reward Imbalance	-.263	.058	-.477***	-4.515	.000
Emotional Dissonance (FEWS)	-.081	.088	-.080	-.922	.358
Work-Family-Conflict	.036	.071	.043	.507	.613
BITS	-.022	.115	-.019	-.192	.848
R <sup>2</sup> first step					.357***
$\Delta R^2$ for BITS					.000

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 138

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, self-efficacy, and self-esteem) in study II.**

Table 45. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	Sig
<b>Step 1</b>					
(Constant)	7.568	.947		7.988	.000
Age	-.025	.010	-.206**	-2.603	.010
Sex (1=male)	.415	.220	.153†	1.885	.062
Time Control	-.076	.134	-.077	-.570	.570
Method Control	-.026	.170	-.020	-.151	.880
Social Support at Work	-.745	.165	-.376***	-4.519	.000
Self-Efficacy (3 Items)	-.216	.151	-.131	-1.424	.157
Self-Esteem	-.023	.219	-.010	-.104	.917
<b>Step 2</b>					
(Constant)	3.561	.988		3.604	.000
Age	-.018	.008	-.149*	-2.195	.030
Sex (1=male)	.271	.189	.100	1.435	.154
Time Control	.042	.115	.043	.364	.716
Method Control	-.196	.147	-.151	-1.333	.185
Social Support at Work	-.430	.147	-.217**	-2.917	.004
Self-Efficacy (3 Items)	-.100	.130	-.061	-.770	.443
Self-Esteem	.001	.187	.000	.003	.998
BITS	.964	.137	.498***	7.023	.000
R <sup>2</sup> first step					.270***
ΔR <sup>2</sup> for BITS					.205***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10.. N = 135

Table 46. Regressing irritation onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	5.389	.777		6.934	.000
Age	.001	.008	.012	.150	.881
Sex (1=male)	-.054	.181	-.025	-.299	.765
Time Control	.181	.110	.232	1.649	.102
Social Support at Work	.226	.140	.219	1.619	.108
Method Control	-.236	.135	-.150†	-1.748	.083
Self-Efficacy (3 Items)	-.278	.124	-.214*	-2.237	.027
Self-Esteem	-.430	.180	-.228*	-2.391	.018
<b>Step 2</b>					
(Constant)	3.618	.916		3.949	.000
Age	.004	.008	.044	.556	.579
Sex (1=male)	-.118	.175	-.055	-.675	.501
Time Control	.233	.107	.299*	2.185	.031
Method Control	.151	.136	.147	1.108	.270
Social Support at Work	-.097	.137	-.062	-.710	.479
Self-Efficacy (3 Items)	-.227	.120	-.174†	-1.882	.062
Self-Esteem	-.420	.173	-.223*	-2.425	.017
BITS	.426	.127	.278***	3.347	.001
R <sup>2</sup> first step					.219***
ΔR <sup>2</sup> for BITS					.064***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 135

## Appendix B3

Table 47. Regressing emotional exhaustion onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.

	Dependent Variable				
	Emotional Exhaustion				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.003	.371		10.780	.000
Age	.005	.004	.103	1.263	.209
Sex (1=male)	-.113	.087	-.110	-1.290	.200
Time Control	.093	.054	.246†	1.720	.088
Method Control	-.053	.068	-.107	-.775	.440
Social Support at Work	-.110	.065	-.146†	-1.703	.091
Self-Efficacy (3 Items)	-.082	.059	-.131	-1.375	.172
Self-Esteem	-.315	.087	-.349***	-3.639	.000
Step 2					
(Constant)	2.708	.418		6.474	.000
Age	.006	.003	.138†	1.854	.066
Sex (1=male)	-.145	.080	-.142†	-1.827	.070
Time Control	.118	.049	.314*	2.401	.018
Method Control	-.095	.062	-.194	-1.534	.128
Social Support at Work	-.007	.062	-.009	-.107	.915
Self-Efficacy (3 Items)	-.049	.054	-.079	-.908	.365
Self-Esteem	-.297	.079	-.329***	-3.771	.000
BITS	.306	.058	.409***	5.245	.000
R <sup>2</sup> first step					.226***
$\Delta R^2$ for BITS					.140***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 134

Table 48. Regressing disengagement onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.

	Dependent Variable				
	Disengagement				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.181	.314		13.295	.000
Age	-.010	.003	-.217**	-3.094	.002
Sex (1=male)	.076	.074	.075	1.030	.305
Time Control	-.005	.046	-.013	-.106	.916
Method Control	-.212	.057	-.437***	-3.701	.000
Social Support at Work	-.121	.055	-.163*	-2.211	.029
Self-Efficacy (3 Items)	-.120	.050	-.195*	-2.378	.019
Self-Esteem	.011	.073	.013	.155	.877
Step 2					
(Constant)	3.744	.386		9.710	.000
Age	-.009	.003	-.205**	-2.942	.004
Sex (1=male)	.065	.073	.064	.886	.377
Time Control	.004	.045	.010	.083	.934
Method Control	-.227	.057	-.467***	-3.959	.000
Social Support at Work	-.086	.057	-.116	-1.508	.134
Self-Efficacy (3 Items)	-.109	.050	-.177*	-2.170	.032
Self-Esteem	.017	.073	.020	.240	.811
BITS	.103	.054	.140†	1.919	.057
R <sup>2</sup> first step					.429***
$\Delta R^2$ for BITS					.016†

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 134

Appendix B3

Table 49. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.

	Dependent Variable				
	Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.413	.799		.516	.607
Age	.034	.008	.329***	4.228	.000
Sex (1=male)	-.406	.186	-.173*	-2.184	.031
Time Control	-.092	.112	-.110	-.822	.413
Method Control	.389	.144	.349**	2.706	.008
Social Support at Work	.403	.138	.239**	2.928	.004
Self-Efficacy (3 Items)	.218	.127	.155†	1.716	.089
Self-Esteem	-.110	.183	-.054	-.600	.550
Step 2					
(Constant)	2.658	.931		2.856	.005
Age	.030	.008	.284***	3.841	.000
Sex (1=male)	-.324	.176	-.138†	-1.840	.068
Time Control	-.149	.107	-.177	-1.396	.165
Method Control	.470	.137	.421***	3.434	.001
Social Support at Work	.233	.136	.138†	1.711	.090
Self-Efficacy (3 Items)	.146	.121	.104	1.211	.228
Self-Esteem	-.118	.172	-.059	-.687	.493
BITS	-.523	.127	-.317***	-4.103	.000
R <sup>2</sup> first step					.314***
$\Delta R^2$ for BITS					.083***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 132

Table 50. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.

	Dependent Variable				
	Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.811	.469		8.120	.000
Age	.006	.005	.097	1.185	.238
Sex (1=male)	-.167	.110	-.127	-1.518	.131
Time Control	-.082	.066	-.172	-1.230	.221
Method Control	.169	.085	.270*	1.990	.049
Social Support at Work	-.120	.081	-.125	-1.472	.143
Self-Efficacy (3 Items)	.047	.075	.059	.618	.538
Self-Esteem	-.547	.113	-.464***	-4.859	.000
Step 2					
(Constant)	3.059	.565		5.411	.000
Age	.007	.005	.118	1.455	.148
Sex (1=male)	-.193	.109	-.147†	-1.773	.079
Time Control	-.059	.066	-.125	-.895	.372
Method Control	.137	.085	.218	1.611	.110
Social Support at Work	-.061	.084	-.064	-.724	.471
Self-Efficacy (3 Items)	.068	.075	.086	.906	.367
Self-Esteem	-.540	.111	-.459***	-4.882	.000
BITS	.180	.078	.193*	2.301	.023
R <sup>2</sup> first step					.239***
$\Delta R^2$ for BITS					.031*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 134

Appendix B3

Table 51. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study II.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	.466	.489		.952	.343
Age	.006	.005	.091	1.245	.216
Sex (1=male)	.154	.114	.101	1.354	.178
Time Control	-.137	.069	-.248*	-1.985	.049
Method Control	.338	.088	.462***	3.833	.000
Social Support at Work	.414	.085	.371***	4.855	.000
Self-Efficacy (3 Items)	.189	.078	.205*	2.416	.017
Self-Esteem	-.036	.113	-.027	-.319	.750
Step 2					
(Constant)	1.287	.589		2.187	.031
Age	.005	.005	.070	.969	.334
Sex (1=male)	.184	.112	.121	1.635	.105
Time Control	-.161	.068	-.292*	-2.354	.020
Method Control	.372	.088	.509***	4.251	.000
Social Support at Work	.349	.088	.313***	3.975	.000
Self-Efficacy (3 Items)	.165	.077	.179*	2.136	.035
Self-Esteem	-.041	.111	-.031	-.368	.713
BITS	-.198	.082	-.182*	-2.416	.017
R <sup>2</sup> first step					.383***
ΔR <sup>2</sup> for BITS					.027*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 135

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study III.**

Table 52. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, time pressure, and problems of work-organization in study III.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.615	.745		.825	.412
Age	-.008	.013	-.084	-.649	.519
Sex (1=male)	.101	.271	.046	.370	.712
Uncertainty	.106	.278	.060	.383	.703
Interruptions at work	.375	.205	.285†	1.834	.071
Time pressure	-.013	.221	-.010	-.058	.954
Problems of work-organization	.315	.214	.197	1.474	.145
Step 2					
(Constant)	-.050	.672		-.074	.941
Age	-.006	.011	-.062	-.544	.588
Sex (1=male)	-.142	.245	-.065	-.581	.564
Uncertainty	-.272	.259	-.153	-1.051	.297
Interruptions at work	.171	.186	.130	.923	.359
Time pressure	.043	.195	.033	.219	.827
Problems of work-organization	.236	.189	.148	1.251	.216
BITS	.933	.210	.552***	4.448	.000
R <sup>2</sup> first step					.171†
ΔR <sup>2</sup> for BITS					.198***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 71

Table 53. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, time pressure, and problems of work-organization in study III.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.074	.638		1.682	.097
Age	-.005	.011	-.059	-.443	.659
Sex (1=male)	.000	.233	.000	.001	.999
Uncertainty	.034	.238	.023	.145	.885
Interruptions at work	.102	.175	.093	.583	.562
Time pressure	.147	.189	.135	.776	.440
Problems of work-organization	.303	.183	.226	1.650	.104
Step 2					
(Constant)	.743	.633		1.175	.245
Age	-.004	.011	-.046	-.356	.723
Sex (1=male)	-.120	.231	-.066	-.522	.603
Uncertainty	-.154	.244	-.103	-.631	.530
Interruptions at work	.001	.175	.001	.005	.996
Time pressure	.175	.183	.161	.952	.345
Problems of work-organization	.263	.178	.197	1.479	.144
BITS	.464	.198	.329*	2.349	.022
R <sup>2</sup> first step					.126
ΔR <sup>2</sup> for BITS					.070*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 71



Appendix B3

Table 54. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, time pressure, and problems of work-organization in study III.

	Dependent Variable				
	Psychosomatic Complaints				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	1.558	.406		3.841	.000
Age	-.001	.007	-.020	-.152	.880
Sex (1=male)	-.316	.148	-.274*	-2.138	.036
Uncertainty	.116	.151	.123	.764	.448
Interruptions at work	.026	.111	.037	.231	.818
Time pressure	-.001	.120	-.002	-.009	.993
Problems of work-organization	.032	.117	.038	.278	.782
Step 2					
(Constant)	1.372	.406		3.379	.001
Age	.000	.007	-.009	-.066	.948
Sex (1=male)	-.384	.148	-.333*	-2.598	.012
Uncertainty	.009	.156	.010	.060	.953
Interruptions at work	-.031	.112	-.045	-.281	.780
Time pressure	.014	.118	.021	.123	.903
Problems of work-organization	.010	.114	.012	.089	.929
BITS	.262	.127	.295*	2.068	.043
R <sup>2</sup> first step					.111
ΔR <sup>2</sup> for BITS					.057*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 71

Table 55. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, time pressure, and problems of work-organization in study III.

	Dependent Variable				
	Job Satisfaction				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	6.528	.760		8.591	.000
Age	.009	.013	.086	.641	.524
Sex (1=male)	-.217	.279	-.099	-.778	.439
Uncertainty	-.291	.283	-.164	-1.032	.306
Interruptions at work	-.392	.209	-.299†	-1.874	.066
Time pressure	.093	.229	.071	.404	.688
Problems of work-organization	-.142	.233	-.083	-.608	.545
Step 2					
(Constant)	7.175	.700		10.250	.000
Age	.006	.012	.064	.531	.597
Sex (1=male)	.011	.256	.005	.043	.966
Uncertainty	.071	.269	.040	.263	.794
Interruptions at work	-.199	.194	-.152	-1.027	.308
Time pressure	.051	.206	.039	.249	.804
Problems of work-organization	-.101	.209	-.060	-.483	.631
BITS	-.877	.218	-.518***	-4.017	.000
R <sup>2</sup> first step					.163†
ΔR <sup>2</sup> for BITS					.175***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10.. N = 69

# Appendix B3

Table 56. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, time pressure, and problems of work-organization in study III.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	3.547	.575		6.169	.000
Age	.006	.010	.077	.555	.581
Sex (1=male)	.122	.210	.077	.583	.562
Uncertainty	-.054	.216	-.042	-.249	.804
Interruptions at work	-.212	.161	-.220	-1.317	.193
Time pressure	.261	.171	.277	1.528	.131
Problems of work-organization	.031	.165	.027	.186	.853
Step 2					
(Constant)	3.749	.583		6.426	.000
Age	.005	.010	.070	.504	.616
Sex (1=male)	.196	.213	.124	.923	.359
Uncertainty	.063	.226	.049	.280	.780
Interruptions at work	-.154	.164	-.160	-.939	.351
Time pressure	.244	.169	.260	1.444	.154
Problems of work-organization	.055	.164	.048	.334	.739
BITS	-.283	.183	-.232	-1.550	.126
R <sup>2</sup> first step					.062
ΔR <sup>2</sup> for BITS					.035

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 70

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict) in study III.**

Table 57. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, and emotional dissonance in study III.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.040	.822		1.265	.210
Age	-.007	.012	-.069	-.574	.568
Sex (1=male)	-.143	.246	-.064	-.580	.564
Task Stressors	.304	.245	.157	1.238	.220
Social Stressors (4 Items)	.343	.294	.142	1.169	.247
Effort-Reward Imbalance	.430	.111	.456***	3.875	.000
Emotional Dissonance (FEWS)	-.267	.170	-.180	-1.575	.120
<b>Step 2</b>					
(Constant)	.763	.777		.982	.330
Age	-.005	.011	-.049	-.436	.664
Sex (1=male)	-.325	.238	-.145	-1.364	.178
Task Stressors	.069	.242	.036	.286	.776
Social Stressors (4 Items)	.262	.277	.108	.944	.349
Effort-Reward Imbalance	.268	.117	.284*	2.300	.025
Emotional Dissonance (FEWS)	-.308	.160	-.208†	-1.924	.059
BITS	.685	.222	.407**	3.086	.003
R <sup>2</sup> first step					.365***
$\Delta R^2$ for BITS					.085**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 70

Table 58. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, and emotional dissonance in study III.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.401	.732		.547	.586
Age	.008	.011	.091	.714	.478
Sex (1=male)	-.184	.219	-.098	-.840	.404
Task Stressors	.089	.218	.055	.405	.687
Social Stressors (4 Items)	.355	.262	.175	1.355	.180
Effort-Reward Imbalance	.282	.099	.357**	2.857	.006
Emotional Dissonance (FEWS)	.142	.151	.115	.941	.350
<b>Step 2</b>					
(Constant)	.351	.741		.473	.638
Age	.008	.011	.096	.742	.461
Sex (1=male)	-.217	.227	-.116	-.955	.343
Task Stressors	.046	.231	.029	.199	.843
Social Stressors (4 Items)	.340	.264	.168	1.286	.203
Effort-Reward Imbalance	.253	.111	.320*	2.275	.026
Emotional Dissonance (FEWS)	.135	.153	.109	.885	.380
BITS	.124	.212	.088	.586	.560
R <sup>2</sup> first step					.281**
$\Delta R^2$ for BITS					.004

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 70

## Appendix B3

Table 59. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, and emotional dissonance in study III.

	Dependent Variable				
	Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	6.717	.833		8.059	.000
Age	.006	.012	.060	.492	.624
Sex (1=male)	-.108	.253	-.048	-.428	.670
Task Stressors	-.302	.249	-.157	-1.211	.231
Social Stressors (4 Items)	.136	.299	.056	.454	.651
Effort-Reward Imbalance	-.513	.113	-.541***	-4.524	.000
Emotional Dissonance (FEWS)	-.023	.172	-.016	-.136	.892
Step 2					
(Constant)	6.955	.805		8.635	.000
Age	.004	.012	.043	.365	.717
Sex (1=male)	.047	.251	.021	.188	.852
Task Stressors	-.104	.252	-.054	-.413	.681
Social Stressors (4 Items)	.206	.288	.085	.714	.478
Effort-Reward Imbalance	-.380	.121	-.400**	-3.132	.003
Emotional Dissonance (FEWS)	.010	.166	.007	.063	.950
BITS	-.575	.230	-.341*	-2.499	.015
R <sup>2</sup> first step					.365***
$\Delta R^2$ for BITS					.060*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 68

Table 60. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, and emotional dissonance in study III.

	Dependent Variable				
	Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.956	.480		1.990	.051
Age	.005	.007	.088	.659	.513
Sex (1=male)	-.343	.144	-.291*	-2.385	.020
Task Stressors	-.081	.143	-.080	-.563	.576
Social Stressors (4 Items)	.241	.172	.190	1.405	.165
Effort-Reward Imbalance	.099	.065	.200	1.524	.133
Emotional Dissonance (FEWS)	.158	.099	.203	1.593	.116
Step 2					
(Constant)	.901	.484		1.863	.067
Age	.005	.007	.096	.713	.479
Sex (1=male)	-.379	.148	-.322*	-2.553	.013
Task Stressors	-.127	.151	-.125	-.841	.404
Social Stressors (4 Items)	.225	.173	.177	1.304	.197
Effort-Reward Imbalance	.067	.073	.135	.920	.361
Emotional Dissonance (FEWS)	.150	.100	.193	1.507	.137
BITS	.135	.138	.153	.980	.331
R <sup>2</sup> first step					.212*
$\Delta R^2$ for BITS					.012

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 70

Appendix B3

Table 61. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors task stressors, social stressors, effort-reward imbalance, and emotional dissonance in study III.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.110	.650		6.325	.000
Age	-.002	.009	-.023	-.177	.860
Sex (1=male)	.257	.194	.159	1.322	.191
Task Stressors	.434	.194	.311*	2.242	.029
Social Stressors (4 Items)	-.089	.232	-.051	-.385	.702
Effort-Reward Imbalance	-.330	.088	-.482***	-3.755	.000
Emotional Dissonance (FEWS)	-.145	.135	-.134	-1.079	.285
Step 2					
(Constant)	4.108	.660		6.229	.000
Age	-.002	.010	-.023	-.175	.862
Sex (1=male)	.256	.202	.158	1.266	.210
Task Stressors	.433	.206	.311*	2.106	.039
Social Stressors (4 Items)	-.090	.235	-.051	-.382	.704
Effort-Reward Imbalance	-.331	.099	-.483***	-3.339	.001
Emotional Dissonance (FEWS)	-.145	.136	-.135	-1.068	.290
BITS	.004	.188	.003	.019	.985
R <sup>2</sup> first step					.250**
$\Delta R^2$ for BITS					.000

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 69

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, self-efficacy, and self-esteem) in study III.**

Table 62. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study III.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	9.277	1.470		6.313	.000
Age	-.005	.012	-.053	-.448	.656
Sex (1=male)	-.347	.267	-.148	-1.298	.199
Time Control	-.079	.239	-.040	-.330	.742
Method Control	-.413	.269	-.196	-1.537	.129
Social Support at Work	-.567	.193	-.331**	-2.933	.005
Self-Efficacy (3 Items)	.087	.214	.051	.408	.685
Self-Esteem	-.608	.239	-.310*	-2.538	.014
<b>Step 2</b>					
(Constant)	5.047	1.687		2.992	.004
Age	-.003	.011	-.026	-.245	.808
Sex (1=male)	-.495	.242	-.211*	-2.043	.045
Time Control	.091	.218	.047	.418	.678
Method Control	-.296	.242	-.140	-1.220	.227
Social Support at Work	-.353	.181	-.206†	-1.946	.056
Self-Efficacy (3 Items)	.023	.193	.014	.121	.904
Self-Esteem	-.450	.218	-.230*	-2.065	.043
BITS	.751	.187	.442***	4.010	.000
R <sup>2</sup> first step					.320***
$\Delta R^2$ for BITS					.144***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 69

Table 63. Regressing irritation onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study III.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	6.900	1.209		5.707	.000
Age	.003	.010	.034	.288	.775
Sex (1=male)	-.318	.220	-.167	-1.445	.154
Time Control	.114	.197	.072	.581	.563
Method Control	-.117	.221	-.068	-.528	.600
Social Support at Work	-.239	.159	-.172	-1.503	.138
Self-Efficacy (3 Items)	-.289	.176	-.208	-1.642	.106
Self-Esteem	-.549	.197	-.346**	-2.788	.007
<b>Step 2</b>					
(Constant)	4.367	1.472		2.966	.004
Age	.004	.009	.054	.477	.635
Sex (1=male)	-.406	.211	-.214†	-1.922	.059
Time Control	.216	.191	.136	1.135	.261
Method Control	-.046	.212	-.027	-.219	.828
Social Support at Work	-.111	.158	-.080	-.699	.487
Self-Efficacy (3 Items)	-.328	.168	-.235†	-1.951	.056
Self-Esteem	-.455	.190	-.287*	-2.390	.020
BITS	.449	.163	.327**	2.751	.008
R <sup>2</sup> first step					.298**
$\Delta R^2$ for BITS					.079**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 69

Appendix B3

Table 64. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study III.

	Dependent Variable				
	Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	-.807	1.594		-.506	.615
Age	.010	.013	.096	.750	.456
Sex (1=male)	.062	.294	.027	.212	.833
Time Control	.293	.266	.148	1.102	.275
Method Control	.238	.303	.111	.787	.435
Social Support at Work	.352	.210	.206†	1.679	.098
Self-Efficacy (3 Items)	-.212	.249	-.116	-.850	.399
Self-Esteem	.630	.263	.322*	2.393	.020
Step 2					
(Constant)	3.461	1.858		1.863	.068
Age	.008	.012	.075	.643	.523
Sex (1=male)	.210	.270	.090	.780	.439
Time Control	.108	.247	.054	.436	.665
Method Control	.146	.276	.068	.528	.599
Social Support at Work	.134	.200	.078	.671	.505
Self-Efficacy (3 Items)	-.155	.227	-.085	-.684	.497
Self-Esteem	.464	.243	.237†	1.905	.062
BITS	-.759	.207	-.446***	-3.670	.001
R <sup>2</sup> first step					.222*
$\Delta R^2$ for BITS					.147***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 67

Table 65. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study III.

	Dependent Variable				
	Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.247	.869		3.739	.000
Age	-.004	.007	-.076	-.574	.568
Sex (1=male)	-.353	.158	-.288*	-2.233	.029
Time Control	.123	.141	.121	.873	.386
Method Control	-.282	.159	-.255†	-1.772	.081
Social Support at Work	-.061	.114	-.068	-.530	.598
Self-Efficacy (3 Items)	.075	.127	.083	.588	.558
Self-Esteem	-.140	.142	-.137	-.992	.325
Step 2					
(Constant)	2.121	1.098		1.932	.058
Age	-.003	.007	-.062	-.476	.636
Sex (1=male)	-.392	.158	-.320*	-2.487	.016
Time Control	.169	.142	.165	1.186	.240
Method Control	-.250	.158	-.226	-1.585	.118
Social Support at Work	-.004	.118	-.004	-.030	.976
Self-Efficacy (3 Items)	.057	.125	.064	.458	.648
Self-Esteem	-.098	.142	-.096	-.693	.491
BITS	.200	.122	.225	1.640	.106
R <sup>2</sup> first step					.130
$\Delta R^2$ for BITS					.037

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 69

Appendix B3

Table 66. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, self-efficacy, and self-esteem in study III.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.373	1.175		1.169	.247
Age	.015	.010	.209	1.606	.113
Sex (1=male)	.330	.214	.195	1.543	.128
Time Control	-.083	.191	-.059	-.436	.664
Method Control	.219	.215	.143	1.017	.313
Social Support at Work	.085	.155	.069	.551	.584
Self-Efficacy (3 Items)	-.218	.171	-.176	-1.273	.208
Self-Esteem	.486	.191	.344*	2.540	.014
Step 2					
(Constant)	1.891	1.514		1.248	.217
Age	.015	.010	.204	1.559	.124
Sex (1=male)	.348	.218	.206	1.599	.115
Time Control	-.104	.196	-.074	-.532	.597
Method Control	.204	.218	.134	.938	.352
Social Support at Work	.059	.163	.048	.362	.718
Self-Efficacy (3 Items)	-.210	.173	-.169	-1.215	.229
Self-Esteem	.467	.196	.331*	2.385	.020
BITS	-.092	.168	-.075	-.546	.587
R <sup>2</sup> first step					.164
$\Delta R^2$ for BITS					.004

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 69



**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study IV.**

Table 67. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.

	Dependent Variable Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	-.553	.330		-1.676	.094
Age	.020	.004	.144***	4.537	.000
Sex (1=male)	-.195	.080	-.078*	-2.447	.015
Uncertainty	.414	.061	.244***	6.781	.000
Interruptions at work	-.101	.071	-.057	-1.417	.157
Concentration demands	.035	.071	.018	.487	.626
Time pressure	.063	.066	.039	.952	.341
Problems of work-organization	.392	.063	.217***	6.196	.000
<b>Step 2</b>					
(Constant)	-1.004	.311		-3.228	.001
Age	.022	.004	.156***	5.251	.000
Sex (1=male)	-.229	.075	-.091**	-3.071	.002
Uncertainty	.161	.061	.095**	2.617	.009
Interruptions at work	-.145	.067	-.082*	-2.182	.029
Concentration demands	-.058	.067	-.030	-.856	.392
Time pressure	.007	.062	.004	.105	.917
Problems of work-organization	.226	.061	.125***	3.711	.000
BITS	.815	.073	.414***	11.243	.000
R <sup>2</sup> first step					.172***
$\Delta R^2$ for BITS					.105***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 881

Table 68. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.

	Dependent Variable Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	-.109	.334		-.326	.744
Age	.003	.005	.019	.616	.538
Sex (1=male)	-.152	.081	-.058†	-1.876	.061
Uncertainty	.123	.062	.070*	1.991	.047
Interruptions at work	-.070	.072	-.038	-.967	.334
Concentration demands	.144	.072	.071*	1.987	.047
Time pressure	.484	.067	.284***	7.179	.000
Problems of work-organization	.423	.064	.224***	6.600	.000
<b>Step 2</b>					
(Constant)	-.403	.328		-1.227	.220
Age	.004	.004	.026	.880	.379
Sex (1=male)	-.174	.079	-.066*	-2.206	.028
Uncertainty	-.042	.065	-.024	-.644	.520
Interruptions at work	-.099	.070	-.053	-1.403	.161
Concentration demands	.084	.071	.042	1.178	.239
Time pressure	.447	.066	.263***	6.784	.000
Problems of work-organization	.316	.064	.167***	4.899	.000
BITS	.531	.077	.258***	6.932	.000
R <sup>2</sup> first step					.218***
$\Delta R^2$ for BITS					.041***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 881

Appendix B3

Table 69. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.

	Dependent Variable				
	Work Related Depression				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.977	.198		4.941	.000
Age	.007	.003	.078*	2.530	.012
Sex (1=male)	-.119	.048	-.077*	-2.482	.013
Uncertainty	.248	.037	.238***	6.768	.000
Interruptions at work	-.064	.043	-.059	-1.505	.133
Concentration demands	.001	.043	.000	.013	.990
Time pressure	.049	.040	.049	1.230	.219
Problems of work-organization	.332	.038	.298***	8.744	.000
Step 2					
(Constant)	.767	.192		3.998	.000
Age	.008	.003	.087**	2.934	.003
Sex (1=male)	-.135	.046	-.087**	-2.924	.004
Uncertainty	.130	.038	.124***	3.425	.001
Interruptions at work	-.085	.041	-.078*	-2.069	.039
Concentration demands	-.043	.042	-.036	-1.026	.305
Time pressure	.023	.038	.022	.587	.557
Problems of work-organization	.255	.038	.228***	6.768	.000
BITS	.381	.045	.314***	8.507	.000
R <sup>2</sup> first step					.214***
$\Delta R^2$ for BITS					.060***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 881

Table 70. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.

	Dependent Variable				
	Psychosomatic Complaints (8 Items)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.168	.212		.789	.430
Age	.007	.003	.075*	2.352	.019
Sex (1=male)	-.171	.051	-.106***	-3.322	.001
Uncertainty	.074	.039	.068†	1.883	.060
Interruptions at work	.002	.046	.002	.052	.959
Concentration demands	.073	.046	.059	1.593	.112
Time pressure	.207	.043	.197***	4.831	.000
Problems of work-organization	.244	.041	.210***	5.994	.000
Step 2					
(Constant)	.045	.212		.210	.834
Age	.007	.003	.080*	2.537	.011
Sex (1=male)	-.180	.051	-.111***	-3.538	.000
Uncertainty	.005	.042	.005	.117	.907
Interruptions at work	-.010	.045	-.009	-.216	.829
Concentration demands	.048	.046	.039	1.048	.295
Time pressure	.191	.043	.182***	4.503	.000
Problems of work-organization	.199	.042	.171***	4.791	.000
BITS	.223	.049	.175***	4.503	.000
R <sup>2</sup> first step					.171***
$\Delta R^2$ for BITS					.019***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 881

Appendix B3

Table 71. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.

	Dependent Variable Job Satisfaction (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	6.935	.318		21.821	.000
Age	-.006	.004	-.047	-1.517	.130
Sex (1=male)	.207	.077	.084**	2.696	.007
Uncertainty	-.391	.059	-.235***	-6.635	.000
Interruptions at work	.193	.068	.111**	2.826	.005
Concentration demands	-.125	.069	-.066†	-1.814	.070
Time pressure	.004	.064	.003	.068	.946
Problems of work-organization	-.506	.061	-.285***	-8.297	.000
Step 2					
(Constant)	7.303	.306		23.879	.000
Age	-.008	.004	-.057†	-1.922	.055
Sex (1=male)	.235	.073	.096***	3.201	.001
Uncertainty	-.184	.060	-.111**	-3.047	.002
Interruptions at work	.230	.065	.132***	3.511	.000
Concentration demands	-.050	.066	-.026	-.749	.454
Time pressure	.051	.061	.032	.825	.409
Problems of work-organization	-.371	.060	-.209***	-6.185	.000
BITS	-.665	.071	-.344***	-9.316	.000
R <sup>2</sup> first step					.197***
$\Delta R^2$ for BITS					.073***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 881

Table 72. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study IV.

	Dependent Variable OBSE (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.861	.210		23.145	.000
Age	-.007	.003	-.081**	-2.569	.010
Sex (1=male)	.087	.051	.054†	1.707	.088
Uncertainty	-.291	.039	-.268***	-7.479	.000
Interruptions at work	.193	.045	.170***	4.273	.000
Concentration demands	-.095	.046	-.077*	-2.080	.038
Time pressure	.054	.042	.052	1.277	.202
Problems of work-organization	-.283	.040	-.245***	-7.034	.000
Step 2					
(Constant)	5.057	.206		24.600	.000
Age	-.008	.003	-.089**	-2.909	.004
Sex (1=male)	.101	.049	.063*	2.057	.040
Uncertainty	-.181	.041	-.167***	-4.453	.000
Interruptions at work	.213	.044	.187***	4.834	.000
Concentration demands	-.054	.045	-.044	-1.224	.221
Time pressure	.079	.041	.076†	1.910	.057
Problems of work-organization	-.211	.040	-.183***	-5.245	.000
BITS	-.354	.048	-.281***	-7.392	.000
R <sup>2</sup> first step					.179***
$\Delta R^2$ for BITS					.048***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 881

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict) in study IV.**

Table 73. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.046	.299		.154	.877
Age	.010	.004	.069*	2.409	.016
Sex (1=male)	-.164	.071	-.065*	-2.308	.021
Task Stressors	-.151	.093	-.061	-1.621	.105
Social Stressors (4 Items)	.310	.056	.186***	5.486	.000
ERI (Siegrist)	1.625	.150	.395***	10.832	.000
Emotional Dissonance (1 Item)	.207	.043	.161***	4.787	.000
Work-Family-Conflict	-.014	.043	-.011	-.325	.745
<b>Step 2</b>					
(Constant)	-.285	.291		-.979	.328
Age	.012	.004	.088**	3.174	.002
Sex (1=male)	-.197	.069	-.079**	-2.875	.004
Task Stressors	-.397	.095	-.160***	-4.183	.000
Social Stressors (4 Items)	.197	.056	.118***	3.513	.000
ERI (Siegrist)	1.471	.146	.358***	10.085	.000
Emotional Dissonance (1 Item)	.161	.042	.125***	3.812	.000
Work-Family-Conflict	-.018	.041	-.014	-.428	.669
BITS	.568	.070	.288***	8.123	.000
R <sup>2</sup> first step					.343***
$\Delta R^2$ for BITS					.046***

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ . N = 881

Table 74. Regressing irritation onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.253	.295		.858	.391
Age	-.002	.004	-.012	-.451	.652
Sex (1=male)	-.177	.070	-.068*	-2.530	.012
Task Stressors	.024	.092	.009	.257	.797
Social Stressors (4 Items)	.186	.056	.107***	3.340	.001
ERI (Siegrist)	.247	.148	.058†	1.669	.096
Emotional Dissonance (1 Item)	.282	.043	.210***	6.593	.000
Work-Family-Conflict	.546	.042	.426***	12.975	.000
<b>Step 2</b>					
(Constant)	.130	.297		.437	.662
Age	-.001	.004	-.005	-.200	.842
Sex (1=male)	-.190	.070	-.073**	-2.716	.007
Task Stressors	-.068	.097	-.026	-.704	.482
Social Stressors (4 Items)	.144	.057	.083*	2.520	.012
ERI (Siegrist)	.190	.149	.044	1.278	.202
Emotional Dissonance (1 Item)	.265	.043	.197***	6.156	.000
Work-Family-Conflict	.545	.042	.425***	13.000	.000
BITS	.212	.071	.103**	2.976	.003
R <sup>2</sup> first step					.412***
$\Delta R^2$ for BITS					.006**

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ . N = 881

## Appendix B3

Table 75. Regressing work-related depression onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.

	Dependent Variable				
	Work Related Depression				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.331	.174		7.669	.000
Age	.000	.002	.003	.094	.925
Sex (1=male)	-.105	.041	-.068*	-2.554	.011
Task Stressors	-.171	.054	-.112**	-3.161	.002
Social Stressors (4 Items)	.168	.033	.163***	5.111	.000
ERI (Siegrist)	.953	.087	.376***	10.925	.000
Emotional Dissonance (1 Item)	.188	.025	.237***	7.469	.000
Work-Family-Conflict	.093	.025	.123***	3.765	.000
Step 2					
(Constant)	1.215	.173		7.016	.000
Age	.001	.002	.013	.501	.617
Sex (1=male)	-.117	.041	-.076**	-2.870	.004
Task Stressors	-.258	.057	-.168***	-4.565	.000
Social Stressors (4 Items)	.128	.033	.125***	3.834	.000
ERI (Siegrist)	.899	.087	.355***	10.349	.000
Emotional Dissonance (1 Item)	.172	.025	.216***	6.839	.000
Work-Family-Conflict	.092	.024	.121***	3.758	.000
BITS	.200	.042	.165***	4.805	.000
R <sup>2</sup> first step					.415***
$\Delta R^2$ for BITS					.015***

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ . N = 881

Table 76. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.

	Dependent Variable				
	Job Satisfaction (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	6.447	.295		21.838	.000
Age	.003	.004	.023	.803	.422
Sex (1=male)	.179	.070	.073*	2.559	.011
Task Stressors	.167	.092	.068†	1.808	.071
Social Stressors (4 Items)	-.390	.056	-.239***	-6.989	.000
ERI (Siegrist)	-1.345	.148	-.334***	-9.067	.000
Emotional Dissonance (1 Item)	-.205	.043	-.163***	-4.798	.000
Work-Family-Conflict	-.017	.042	-.014	-.395	.693
Step 2					
(Constant)	6.697	.292		22.926	.000
Age	.001	.004	.009	.300	.765
Sex (1=male)	.205	.069	.083**	2.974	.003
Task Stressors	.353	.095	.145***	3.700	.000
Social Stressors (4 Items)	-.305	.056	-.187***	-5.409	.000
ERI (Siegrist)	-1.229	.147	-.305***	-8.387	.000
Emotional Dissonance (1 Item)	-.170	.042	-.135***	-4.019	.000
Work-Family-Conflict	-.014	.041	-.011	-.335	.738
BITS	-.429	.070	-.222***	-6.118	.000
R <sup>2</sup> first step					.330***
$\Delta R^2$ for BITS					.028***

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ . N = 881

## Appendix B3

Table 77. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.

	Dependent Variable Psychosomatic Complaints (8 Items)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.515	.196		2.631	.009
Age	.003	.003	.037	1.275	.202
Sex (1=male)	-.183	.047	-.113***	-3.936	.000
Task Stressors	.006	.061	.004	.106	.915
Social Stressors (4 Items)	.025	.037	.023	.681	.496
ERI (Siegrist)	.476	.098	.180***	4.840	.000
Emotional Dissonance (1 Item)	.122	.028	.147***	4.279	.000
Work-Family-Conflict	.266	.028	.335***	9.499	.000
Step 2					
(Constant)	.478	.198		2.416	.016
Age	.004	.003	.041	1.386	.166
Sex (1=male)	-.187	.047	-.116***	-4.012	.000
Task Stressors	-.021	.065	-.013	-.332	.740
Social Stressors (4 Items)	.012	.038	.012	.326	.744
ERI (Siegrist)	.459	.099	.173***	4.626	.000
Emotional Dissonance (1 Item)	.116	.029	.140***	4.057	.000
Work-Family-Conflict	.265	.028	.335***	9.488	.000
BITS	.064	.048	.051	1.357	.175
R <sup>2</sup> first step					.318***
$\Delta R^2$ for BITS					.001

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 881

Table 78. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study IV.

	Dependent Variable OBSE (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.623	.201		23.047	.000
Age	-.001	.003	-.010	-.331	.740
Sex (1=male)	.059	.048	.037	1.232	.218
Task Stressors	.132	.063	.083*	2.103	.036
Social Stressors (4 Items)	-.286	.038	-.268***	-7.542	.000
ERI (Siegrist)	-.817	.101	-.311***	-8.109	.000
Emotional Dissonance (1 Item)	-.133	.029	-.161***	-4.559	.000
Work-Family-Conflict	.075	.029	.096**	2.627	.009
Step 2					
(Constant)	4.754	.200		23.741	.000
Age	-.002	.003	-.022	-.728	.467
Sex (1=male)	.072	.047	.045	1.524	.128
Task Stressors	.229	.065	.144***	3.502	.000
Social Stressors (4 Items)	-.242	.039	-.227***	-6.251	.000
ERI (Siegrist)	-.757	.100	-.288***	-7.534	.000
Emotional Dissonance (1 Item)	-.114	.029	-.139***	-3.937	.000
Work-Family-Conflict	.077	.028	.098**	2.710	.007
BITS	-.224	.048	-.178***	-4.657	.000
R <sup>2</sup> first step					.275***
$\Delta R^2$ for BITS					.018***

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 881

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, self-efficacy, and self-esteem) in study IV.**

Table 79. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	5.601	.350		15.993	.000
Age	.017	.004	.122***	3.871	.000
Sex (1=male)	-.174	.080	-.069*	-2.170	.030
Time Control	-.104	.063	-.065†	-1.645	.100
Method Control	-.364	.072	-.210***	-5.063	.000
Social Support at Work	-.468	.052	-.285***	-8.946	.000
Self-Efficacy (3 Items)	-.080	.050	-.052	-1.586	.113
<b>Step 2</b>					
(Constant)	2.168	.442		4.905	.000
Age	.021	.004	.147***	4.987	.000
Sex (1=male)	-.186	.075	-.073**	-2.481	.013
Time Control	-.021	.059	-.013	-.348	.728
Method Control	-.213	.068	-.123**	-3.130	.002
Social Support at Work	-.341	.050	-.208***	-6.842	.000
Self-Efficacy (3 Items)	-.094	.047	-.061*	-1.997	.046
BITS	.726	.063	.365***	11.484	.000
R <sup>2</sup> first step					.213***
$\Delta R^2$ for BITS					.107***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 844

Table 80. Regressing irritation onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	7.521	.374		20.103	.000
Age	-.003	.005	-.021	-.630	.529
Sex (1=male)	-.156	.086	-.060†	-1.815	.070
Time Control	-.179	.067	-.108**	-2.652	.008
Social Support at Work	-.158	.077	-.088*	-2.057	.040
Method Control	-.273	.056	-.161***	-4.890	.000
Self-Efficacy (3 Items)	-.348	.054	-.218***	-6.465	.000
<b>Step 2</b>					
(Constant)	4.341	.481		9.017	.000
Age	.000	.005	.001	.048	.962
Sex (1=male)	-.166	.081	-.063*	-2.040	.042
Time Control	-.102	.064	-.062	-1.578	.115
Method Control	-.018	.074	-.010	-.248	.805
Social Support at Work	-.156	.054	-.092**	-2.870	.004
Self-Efficacy (3 Items)	-.361	.051	-.226***	-7.066	.000
BITS	.673	.069	.327***	9.770	.000
R <sup>2</sup> first step					.158***
$\Delta R^2$ for BITS					.086***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 844

Appendix B3

Table 81. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.

	Dependent Variable				
	Work Related Depression				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	5.777	.196		29.514	.000
Age	.004	.002	.049†	1.673	.095
Sex (1=male)	-.079	.045	-.051†	-1.767	.078
Time Control	-.040	.035	-.041	-1.144	.253
Method Control	-.321	.040	-.304***	-7.995	.000
Social Support at Work	-.297	.029	-.297***	-10.157	.000
Self-Efficacy (3 Items)	-.167	.028	-.177***	-5.917	.000
Step 2					
(Constant)	4.263	.254		16.762	.000
Age	.006	.002	.066*	2.384	.017
Sex (1=male)	-.084	.043	-.055†	-1.958	.051
Time Control	-.004	.034	-.004	-.107	.915
Method Control	-.254	.039	-.241***	-6.500	.000
Social Support at Work	-.241	.029	-.241***	-8.402	.000
Self-Efficacy (3 Items)	-.173	.027	-.184***	-6.403	.000
BITS	.320	.036	.264***	8.803	.000
R <sup>2</sup> first step					.338***
ΔR <sup>2</sup> for BITS					.056***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 844

Table 82. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.

	Dependent Variable				
	Job Satisfaction (1 Item)				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	-.167	.315		-.530	.596
Age	-.002	.004	-.012	-.417	.677
Sex (1=male)	.140	.072	.057†	1.939	.053
Time Control	.008	.057	.005	.136	.892
Method Control	.582	.065	.346***	9.019	.000
Social Support at Work	.487	.047	.305***	10.354	.000
Self-Efficacy (3 Items)	.177	.045	.118***	3.918	.000
Step 2					
(Constant)	2.220	.410		5.420	.000
Age	-.004	.004	-.030	-1.060	.290
Sex (1=male)	.148	.069	.060*	2.132	.033
Time Control	-.050	.055	-.032	-.916	.360
Method Control	.477	.063	.284***	7.569	.000
Social Support at Work	.399	.046	.250***	8.624	.000
Self-Efficacy (3 Items)	.187	.043	.125***	4.304	.000
BITS	-.505	.059	-.261***	-8.617	.000
R <sup>2</sup> first step					.326***
ΔR <sup>2</sup> for BITS					.055***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 844



# Appendix B3

Table 83. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.

	Dependent Variable				
	Psychosomatic Complaints (8 Items)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.467	.232		19.259	.000
Age	.004	.003	.042	1.300	.194
Sex (1=male)	-.172	.053	-.106***	-3.228	.001
Time Control	-.102	.042	-.099*	-2.436	.015
Method Control	-.198	.048	-.179***	-4.170	.000
Social Support at Work	-.149	.035	-.142***	-4.307	.000
Self-Efficacy (3 Items)	-.132	.033	-.133***	-3.946	.000
Step 2					
(Constant)	3.175	.308		10.309	.000
Age	.005	.003	.057†	1.776	.076
Sex (1=male)	-.176	.052	-.108***	-3.379	.001
Time Control	-.071	.041	-.069†	-1.711	.087
Method Control	-.142	.047	-.128**	-2.988	.003
Social Support at Work	-.102	.035	-.096**	-2.922	.004
Self-Efficacy (3 Items)	-.137	.033	-.138***	-4.190	.000
BITS	.273	.044	.214***	6.201	.000
R <sup>2</sup> first step					.160***
$\Delta R^2$ for BITS					.037***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 844

Table 84. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, social-support at work, and self-efficacy in study IV.

	Dependent Variable				
	OBSE (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.895	.212		4.224	.000
Age	-.005	.003	-.058†	-1.912	.056
Sex (1=male)	.031	.049	.019	.637	.524
Time Control	.014	.038	.014	.366	.714
Method Control	.297	.043	.270***	6.832	.000
Social Support at Work	.364	.032	.349***	11.509	.000
Self-Efficacy (3 Items)	.095	.030	.097**	3.126	.002
Step 2					
(Constant)	2.074	.281		7.373	.000
Age	-.006	.003	-.071*	-2.400	.017
Sex (1=male)	.035	.048	.022	.731	.465
Time Control	-.015	.038	-.014	-.389	.698
Method Control	.245	.043	.223***	5.658	.000
Social Support at Work	.320	.032	.307***	10.102	.000
Self-Efficacy (3 Items)	.100	.030	.102***	3.352	.001
BITS	-.249	.040	-.197***	-6.200	.000
R <sup>2</sup> first step					.287***
$\Delta R^2$ for BITS					.031***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 844

**Regressing well-being / strain onto illegitimate tasks under control of the best other predictors in each study (age, sex, stressors, resources) in study IV.**

Table 85. Regressing feelings of resentment onto illegitimate tasks under control of the best other predictors in study IV.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.117	.371		3.012	.003
Age	.011	.004	.078**	2.759	.006
Sex	-.136	.072	-.054†	-1.879	.061
Social Stressors (4 Items)	.259	.058	.153***	4.496	.000
Effort Reward Imbalance	1.444	.140	.346***	10.343	.000
Emotion Work	.158	.043	.121***	3.695	.000
Social Support Work	-.197	.051	-.120***	-3.887	.000
Self-Efficacy (3 Items)	-.118	.044	-.077**	-2.720	.007
<b>Step 2</b>					
(Constant)	.314	.384		.818	.413
Age	.014	.004	.103***	3.659	.000
Sex	-.152	.071	-.060*	-2.159	.031
Social Stressors (4 Items)	.155	.059	.091**	2.638	.009
Effort Reward Imbalance	1.216	.141	.292***	8.622	.000
Emotion Work	.104	.043	.079*	2.433	.015
Social Support Work	-.189	.049	-.115***	-3.827	.000
Self-Efficacy (3 Items)	-.112	.043	-.072**	-2.628	.009
BITS	.428	.067	.215***	6.357	.000
R <sup>2</sup> first step					.368***
$\Delta R^2$ for BITS					.029***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 844

Table 86. Regressing irritation onto illegitimate tasks under control of the best other predictors in study IV.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.473	.298		4.947	.000
Sex	-.126	.068	-.048†	-1.851	.065
Task Stressors	.168	.088	.065†	1.910	.057
Social Stressors (4 Items)	.189	.053	.108***	3.552	.000
Emotion Work	.259	.042	.192***	6.216	.000
Work Family Conflict	.514	.040	.404***	12.773	.000
Self Efficacy (3 Items)	-.319	.042	-.200***	-7.614	.000
<b>Step 2</b>					
(Constant)	1.392	.299		4.655	.000
Sex	-.133	.068	-.051*	-1.960	.050
Task Stressors	.087	.094	.034	.927	.354
Social Stressors (4 Items)	.152	.055	.087**	2.740	.006
Emotion Work	.246	.042	.182***	5.849	.000
Work Family Conflict	.511	.040	.401***	12.713	.000
Self Efficacy (3 Items)	-.312	.042	-.196***	-7.441	.000
BITS	.164	.070	.080*	2.354	.019
R <sup>2</sup> first step					.450***
$\Delta R^2$ for BITS					.004*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 844

Appendix B3

Table 87. Regressing work-related depression onto illegitimate tasks under control of the best other predictors in study IV.

	Dependent Variable				
	Work-related Depression				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.421	.259		13.230	.000
Task Stressors	-.118	.053	-.077*	-2.254	.024
Social Stressors (4 Items)	.105	.032	.102***	3.244	.001
Effort Reward Imbalance	.745	.086	.293***	8.658	.000
Emotion Work	.158	.024	.199***	6.510	.000
Work Family Conflict	.063	.024	.084**	2.679	.008
Job Control	-.127	.033	-.113***	-3.827	.000
Social Support Work	-.147	.028	-.147***	-5.255	.000
Self-Efficacy (3 Items)	-.179	.025	-.190***	-7.151	.000
Step 2					
(Constant)	3.269	.260		12.559	.000
Task Stressors	-.181	.055	-.118***	-3.287	.001
Social Stressors (4 Items)	.078	.033	.076*	2.357	.019
Effort Reward Imbalance	.719	.086	.283***	8.387	.000
Emotion Work	.149	.024	.187***	6.114	.000
Work Family Conflict	.063	.024	.083**	2.661	.008
Job Control	-.116	.033	-.104***	-3.507	.000
Social Support Work	-.142	.028	-.142***	-5.113	.000
Self-Efficacy (3 Items)	-.176	.025	-.187***	-7.094	.000
BITS	.144	.040	.119***	3.567	.000
R <sup>2</sup> first step					.481***
$\Delta R^2$ for BITS					.008***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 844

Table 88. Regressing job satisfaction onto illegitimate tasks under control of the best other predictors in study IV.

	Dependent Variable				
	Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.041	.395		7.690	.000
Sex	.124	.067	.050†	1.867	.062
Social Stressors (4 Items)	-.262	.055	-.159***	-4.753	.000
Effort Reward Imbalance	-.794	.137	-.196***	-5.779	.000
Emotion Work	-.141	.041	-.111***	-3.465	.001
Job Control	.274	.056	.153***	4.880	.000
Social Support Work	.305	.048	.191***	6.349	.000
Self-Efficacy (3 Items)	.218	.043	.145***	5.128	.000
Step 2					
(Constant)	3.608	.415		8.690	.000
Sex	.126	.066	.051†	1.912	.056
Social Stressors (4 Items)	-.200	.057	-.121***	-3.529	.000
Effort Reward Imbalance	-.682	.139	-.168***	-4.916	.000
Emotion Work	-.110	.041	-.087**	-2.684	.007
Job Control	.238	.056	.133***	4.238	.000
Social Support Work	.299	.048	.188***	6.292	.000
Self-Efficacy (3 Items)	.220	.042	.147***	5.228	.000
BITS	-.267	.065	-.138***	-4.121	.000
R <sup>2</sup> first step					.397***
$\Delta R^2$ for BITS					.012***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 844

Appendix B3

Table 89. Regressing psychosomatic complaints onto illegitimate tasks under control of the best other predictors in study IV.

	Dependent Variable				
	Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.619	.229		7.059	.000
Sex	-.147	.046	-.090***	-3.204	.001
Effort Reward Imbalance	.461	.094	.173***	4.890	.000
Emotion Work	.115	.027	.137***	4.286	.000
Work Family Conflict	.253	.026	.321***	9.807	.000
Job Control	-.069	.038	-.058†	-1.796	.073
Self-Efficacy (3 Items)	-.127	.029	-.128***	-4.376	.000
Step 2					
(Constant)	1.548	.247		6.256	.000
Sex	-.147	.046	-.090***	-3.206	.001
Effort Reward Imbalance	.445	.097	.166***	4.592	.000
Emotion Work	.110	.028	.131***	3.955	.000
Work Family Conflict	.251	.026	.317***	9.592	.000
Job Control	-.064	.039	-.054	-1.637	.102
Self-Efficacy (3 Items)	-.128	.029	-.129***	-4.390	.000
BITS	.034	.044	.026	.772	.440
R <sup>2</sup> first step					.345***
$\Delta R^2$ for BITS					.000

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 844

Table 90. Regressing organization-based self-esteem onto illegitimate tasks under control of the best other predictors in study IV.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	2.265	.273		8.286	.000
Social Stressors (4 Items)	-.197	.037	-.183***	-5.323	.000
Effort Reward Imbalance	-.521	.097	-.197***	-5.355	.000
Emotion Work	-.094	.028	-.113***	-3.384	.001
Work Family Conflict	.123	.025	.157***	4.863	.000
Job Control	.149	.038	.127***	3.922	.000
Social Support Work	.258	.032	.247***	7.992	.000
Self-Efficacy (3 Items)	.125	.029	.127***	4.373	.000
Step 2					
(Constant)	2.500	.285		8.766	.000
Social Stressors (4 Items)	-.169	.038	-.157***	-4.422	.000
Effort Reward Imbalance	-.481	.098	-.182***	-4.915	.000
Emotion Work	-.081	.028	-.098**	-2.900	.004
Work Family Conflict	.133	.025	.170***	5.223	.000
Job Control	.134	.038	.114***	3.506	.000
Social Support Work	.256	.032	.245***	7.943	.000
Self-Efficacy (3 Items)	.126	.028	.129***	4.444	.000
BITS	-.123	.044	-.097**	-2.769	.006
R <sup>2</sup> first step					.362***
$\Delta R^2$ for BITS					.006**

Note. BITS = Bern Illegitimate Tasks Scale. OBSE = Organization-based Self-Esteem

\*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 844

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study V.**

Table 91. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.

	Dependent Variable Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.578	.673		.859	.392
Age	-.014	.009	-.114	-1.638	.103
Sex (1=male)	-.033	.261	-.009	-.125	.901
Uncertainty	.527	.165	.270**	3.198	.002
Interruptions at work	-.144	.190	-.072	-.758	.450
Concentration demands	-.156	.150	-.087	-1.034	.303
Time pressure	.766	.172	.427***	4.468	.000
Problems of work-organization	.020	.136	.012	.150	.881
<b>Step 2</b>					
(Constant)	-.473	.692		-.683	.495
Age	-.003	.009	-.025	-.366	.715
Sex (1=male)	-.021	.249	-.006	-.085	.932
Uncertainty	.374	.162	.191*	2.313	.022
Interruptions at work	-.169	.182	-.084	-.928	.355
Concentration demands	-.210	.144	-.117	-1.461	.146
Time pressure	.574	.170	.320***	3.372	.001
Problems of work-organization	-.118	.134	-.067	-.882	.379
BITS	.821	.203	.356***	4.047	.000
R <sup>2</sup> first step					.290***
$\Delta R^2$ for BITS					.069***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 160

Table 92. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.

	Dependent Variable Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.022	.661		.034	.973
Age	.005	.009	.044	.619	.537
Sex (1=male)	-.667	.251	-.199**	-2.656	.009
Uncertainty	.315	.165	.167†	1.914	.057
Interruptions at work	.469	.191	.239*	2.457	.015
Concentration demands	.046	.148	.027	.311	.756
Time pressure	.187	.168	.110	1.115	.267
Problems of work-organization	.117	.136	.068	.859	.391
<b>Step 2</b>					
(Constant)	-.464	.703		-.659	.511
Age	.011	.009	.088	1.172	.243
Sex (1=male)	-.654	.249	-.195**	-2.624	.010
Uncertainty	.235	.169	.124	1.394	.165
Interruptions at work	.440	.190	.224*	2.318	.022
Concentration demands	.032	.147	.018	.215	.830
Time pressure	.095	.173	.056	.547	.585
Problems of work-organization	.037	.141	.022	.266	.791
BITS	.409	.215	.185†	1.897	.060
R <sup>2</sup> first step					.235***
$\Delta R^2$ for BITS					.018†

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 162

Appendix B3

Table 93. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.

	Dependent Variable				
	Work Related Depression				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.804	.351		5.146	.000
Age	-.007	.005	-.110	-1.526	.129
Sex (1=male)	-.044	.134	-.025	-.332	.740
Uncertainty	.337	.088	.338***	3.845	.000
Interruptions at work	.050	.099	.049	.499	.618
Concentration demands	-.070	.079	-.077	-.891	.374
Time pressure	.127	.089	.140	1.429	.155
Problems of work-organization	.067	.072	.075	.934	.351
Step 2					
(Constant)	1.381	.370		3.734	.000
Age	-.003	.005	-.040	-.547	.585
Sex (1=male)	-.043	.130	-.024	-.333	.740
Uncertainty	.274	.088	.275**	3.118	.002
Interruptions at work	.039	.097	.038	.401	.689
Concentration demands	-.087	.077	-.095	-1.127	.262
Time pressure	.047	.090	.052	.518	.605
Problems of work-organization	.011	.072	.012	.152	.879
BITS	.329	.110	.282**	3.003	.003
R <sup>2</sup> first step					.219***
$\Delta R^2$ for BITS					.043**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 164

Table 94. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.

	Dependent Variable				
	Psychosomatic Complaints (8 Items)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.772	.413		1.871	.063
Age	.004	.006	.052	.720	.472
Sex (1=male)	-.538	.156	-.259***	-3.440	.001
Uncertainty	.199	.104	.169†	1.913	.058
Interruptions at work	.086	.119	.071	.722	.471
Concentration demands	.076	.092	.071	.819	.414
Time pressure	.188	.105	.177†	1.800	.074
Problems of work-organization	.104	.085	.098	1.221	.224
Step 2					
(Constant)	.728	.447		1.626	.106
Age	.004	.006	.058	.764	.446
Sex (1=male)	-.538	.157	-.259***	-3.432	.001
Uncertainty	.193	.107	.163†	1.795	.075
Interruptions at work	.086	.120	.070	.715	.476
Concentration demands	.074	.093	.069	.795	.428
Time pressure	.179	.110	.169	1.626	.106
Problems of work-organization	.098	.088	.093	1.116	.266
BITS	.035	.132	.025	.263	.793
R <sup>2</sup> first step					.241***
$\Delta R^2$ for BITS					.000

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 160

Appendix B3

Table 95. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.

	Dependent Variable Job Satisfaction (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	5.796	.513		11.297	.000
Age	.018	.007	.187†	2.601	.010
Sex (1=male)	.090	.196	.034	.459	.647
Uncertainty	-.403	.128	-.276**	-3.145	.002
Interruptions at work	-.094	.146	-.062	-.643	.521
Concentration demands	.145	.116	.109	1.259	.210
Time pressure	-.254	.130	-.191†	-1.952	.053
Problems of work-organization	-.100	.105	-.076	-.948	.345
Step 2					
(Constant)	6.398	.542		11.797	.000
Age	.011	.007	.120	1.623	.107
Sex (1=male)	.087	.191	.033	.455	.650
Uncertainty	-.315	.129	-.215*	-2.446	.016
Interruptions at work	-.078	.142	-.052	-.549	.584
Concentration demands	.169	.113	.126	1.496	.137
Time pressure	-.142	.133	-.107	-1.069	.287
Problems of work-organization	-.019	.107	-.015	-.182	.856
BITS	-.467	.161	-.272**	-2.903	.004
R <sup>2</sup> first step					.227***
$\Delta R^2$ for BITS					.040**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 163

Table 96. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study V.

	Dependent Variable OBSE (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.915	.517		7.571	.000
Age	.011	.007	.122	1.615	.108
Sex (1=male)	.074	.199	.029	.372	.710
Uncertainty	-.471	.129	-.336***	-3.652	.000
Interruptions at work	.232	.146	.162	1.586	.115
Concentration demands	-.044	.116	-.034	-.375	.708
Time pressure	-.136	.130	-.108	-1.046	.297
Problems of work-organization	-.045	.105	-.036	-.429	.669
Step 2					
(Constant)	4.368	.554		7.889	.000
Age	.006	.007	.069	.879	.381
Sex (1=male)	.069	.197	.027	.353	.725
Uncertainty	-.406	.131	-.290**	-3.098	.002
Interruptions at work	.245	.145	.171	1.689	.093
Concentration demands	-.025	.115	-.020	-.220	.826
Time pressure	-.052	.134	-.042	-.390	.697
Problems of work-organization	.014	.108	.011	.131	.896
BITS	-.348	.163	-.213*	-2.132	.035
R <sup>2</sup> first step					.146***
$\Delta R^2$ for BITS					.025*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 163

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict) in study V.**

Table 97. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	-.362	.560		-.645	.520
Age	-.003	.007	-.023	-.414	.679
Sex (1=male)	-.127	.207	-.035	-.614	.540
Task Stressors	.035	.189	.013	.184	.854
Social Stressors (4 Items)	.075	.119	.044	.625	.533
ERI (van Yperen)	.358	.078	.345***	4.592	.000
Emotional Dissonance (1 Item)	.377	.092	.295***	4.108	.000
Work-Family-Conflict	.295	.106	.185**	2.778	.006
<b>Step 2</b>					
(Constant)	-.808	.589		-1.371	.172
Age	.001	.007	.009	.157	.875
Sex (1=male)	-.120	.204	-.033	-.589	.557
Task Stressors	-.153	.206	-.056	-.744	.458
Social Stressors (4 Items)	.042	.119	.025	.357	.721
ERI (Van Yperen)	.321	.079	.309***	4.063	.000
Emotional Dissonance (1 Item)	.360	.091	.281***	3.949	.000
Work-Family-Conflict	.292	.105	.183**	2.783	.006
BITS	.403	.182	.170*	2.212	.028
R <sup>2</sup> first step					.508***
$\Delta R^2$ for BITS					.014*

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ . N = 171

Table 98. Regressing irritation onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	-.901	.552		-1.631	.105
Age	.011	.007	.092	1.567	.119
Sex (1=male)	-.166	.203	-.049	-.821	.413
Task Stressors	.295	.188	.114	1.573	.118
Social Stressors (4 Items)	.095	.118	.059	.803	.423
ERI (Van Yperen)	-.119	.077	-.122	-1.539	.126
Emotional Dissonance (1 Item)	.232	.091	.193*	2.548	.012
Work-Family-Conflict	.788	.104	.530***	7.558	.000
<b>Step 2</b>					
(Constant)	-1.158	.586		-1.974	.050
Age	.014	.007	.112†	1.847	.067
Sex (1=male)	-.168	.202	-.049	-.828	.409
Task Stressors	.190	.204	.074	.928	.355
Social Stressors (4 Items)	.076	.119	.048	.643	.521
ERI (Van Yperen)	-.141	.079	-.144†	-1.781	.077
Emotional Dissonance (1 Item)	.221	.091	.184**	2.420	.017
Work-Family-Conflict	.785	.104	.527***	7.537	.000
BITS	.233	.182	.104	1.281	.202
R <sup>2</sup> first step					.458***
$\Delta R^2$ for BITS					.005

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ . N = 174



Appendix B3

Table 99. Regressing work-related depression onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.

	Dependent Variable				
	Work Related Depression				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.071	.294		3.648	.000
Age	-.001	.004	-.017	-.286	.775
Sex (1=male)	.137	.108	.076	1.270	.206
Task Stressors	.038	.100	.028	.385	.701
Social Stressors (4 Items)	.065	.063	.077	1.031	.304
ERI (Van Yperen)	.069	.041	.135†	1.685	.094
Emotional Dissonance (1 Item)	.218	.048	.345***	4.518	.000
Work-Family-Conflict	.204	.055	.260***	3.674	.000
Step 2					
(Constant)	.940	.312		3.013	.003
Age	.000	.004	.002	.039	.969
Sex (1=male)	.136	.108	.075	1.266	.207
Task Stressors	-.015	.109	-.011	-.141	.888
Social Stressors (4 Items)	.055	.063	.066	.875	.383
ERI (Van Yperen)	.058	.042	.113	1.385	.168
Emotional Dissonance (1 Item)	.213	.048	.336***	4.389	.000
Work-Family-Conflict	.202	.055	.257***	3.647	.000
BITS	.119	.097	.101	1.230	.220
R <sup>2</sup> first step					.448***
ΔR <sup>2</sup> for BITS					.005

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 174

Table 100. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.

	Dependent Variable				
	Job Satisfaction (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	6.631	.431		15.384	.000
Age	.010	.006	.103†	1.734	.085
Sex (1=male)	-.104	.158	-.039	-.654	.514
Task Stressors	.054	.146	.027	.365	.715
Social Stressors (4 Items)	-.216	.092	-.175*	-2.332	.021
ERI (Van Yperen)	-.145	.061	-.191*	-2.379	.019
Emotional Dissonance (1 Item)	-.256	.071	-.275***	-3.588	.000
Work-Family-Conflict	-.233	.081	-.204**	-2.864	.005
Step 2					
(Constant)	6.835	.458		14.934	.000
Age	.008	.006	.083	1.344	.181
Sex (1=male)	-.103	.158	-.039	-.650	.517
Task Stressors	.137	.160	.069	.858	.392
Social Stressors (4 Items)	-.201	.093	-.163*	-2.161	.032
ERI (Van Yperen)	-.127	.062	-.168*	-2.051	.042
Emotional Dissonance (1 Item)	-.247	.071	-.265***	-3.456	.001
Work-Family-Conflict	-.231	.081	-.201**	-2.835	.005
BITS	-.184	.142	-.107	-1.302	.195
R <sup>2</sup> first step					.444***
ΔR <sup>2</sup> for BITS					.006

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 173

## Appendix B3

Table 101. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.

	Dependent Variable Psychosomatic Complaints (8 Items)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.296	.367		.807	.421
Age	.008	.005	.109†	1.763	.080
Sex (1=male)	-.311	.133	-.145*	-2.338	.021
Task Stressors	.220	.123	.135†	1.779	.077
Social Stressors (4 Items)	.000	.078	.000	-.003	.998
ERI (Van Yperen)	-.041	.051	-.068	-.814	.417
Emotional Dissonance (1 Item)	.107	.060	.143†	1.795	.075
Work-Family-Conflict	.456	.069	.483***	6.579	.000
Step 2					
(Constant)	.307	.391		.784	.434
Age	.008	.005	.107†	1.683	.094
Sex (1=male)	-.311	.133	-.145*	-2.330	.021
Task Stressors	.224	.135	.138†	1.656	.100
Social Stressors (4 Items)	.001	.079	.001	.007	.994
ERI (Van Yperen)	-.041	.052	-.066	-.777	.439
Emotional Dissonance (1 Item)	.108	.060	.144†	1.788	.076
Work-Family-Conflict	.457	.070	.483***	6.559	.000
BITS	-.009	.121	-.007	-.078	.938
R <sup>2</sup> first step					.414***
$\Delta R^2$ for BITS					.000

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 171

Table 102. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study V.

	Dependent Variable OBSE (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.243	.493		8.603	.000
Age	.005	.006	.057	.831	.407
Sex (1=male)	.097	.181	.037	.537	.592
Task Stressors	.091	.166	.047	.545	.586
Social Stressors (4 Items)	-.145	.105	-.121	-1.389	.167
ERI (Van Yperen)	-.212	.069	-.287**	-3.074	.002
Emotional Dissonance (1 Item)	-.144	.080	-.160†	-1.788	.076
Work-Family-Conflict	-.073	.093	-.065	-.792	.430
Step 2					
(Constant)	4.207	.526		7.991	.000
Age	.006	.007	.061	.853	.395
Sex (1=male)	.097	.181	.037	.535	.593
Task Stressors	.076	.182	.039	.415	.678
Social Stressors (4 Items)	-.148	.106	-.123	-1.400	.163
ERI (Van Yperen)	-.215	.071	-.292**	-3.039	.003
Emotional Dissonance (1 Item)	-.145	.081	-.161†	-1.794	.075
Work-Family-Conflict	-.074	.093	-.066	-.795	.428
BITS	.033	.161	.020	.205	.838
R <sup>2</sup> first step					.256***
$\Delta R^2$ for BITS					.000

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 172

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, self-efficacy, and self-esteem) in study V.**

Table 103. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	6.239	.774		8.057	.000
Age	-.015	.010	-.113	-1.481	.140
Sex (1=male)	.154	.290	.042	.531	.597
Time Control	-.139	.171	-.095	-.815	.416
Method Control	-.156	.177	-.107	-.884	.378
Social Support at Work	-.238	.128	-.150†	-1.867	.064
Self-Efficacy (3 Items)	-.293	.135	-.175*	-2.166	.032
Step 2					
(Constant)	2.020	.897		2.252	.026
Age	.002	.009	.018	.264	.792
Sex (1=male)	-.020	.254	-.005	-.077	.939
Time Control	-.109	.149	-.074	-.730	.466
Method Control	-.056	.155	-.039	-.364	.716
Social Support at Work	-.123	.112	-.078	-1.094	.276
Self-Efficacy (3 Items)	-.330	.118	-.197**	-2.794	.006
BITS	1.143	.160	.491***	7.141	.000
R <sup>2</sup> first step					.126***
ΔR <sup>2</sup> for BITS					.213***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 166

Table 104. Regressing irritation onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.991	.740		6.743	.000
Age	.004	.009	.035	.455	.650
Sex (1=male)	-.374	.270	-.111	-1.386	.168
Time Control	-.034	.164	-.024	-.208	.836
Social Support at Work	-.120	.170	-.086	-.707	.481
Method Control	-.123	.121	-.082	-1.013	.312
Self-Efficacy (3 Items)	-.281	.131	-.175*	-2.141	.034
Step 2					
(Constant)	2.145	.926		2.316	.022
Age	.016	.009	.131†	1.738	.084
Sex (1=male)	-.507	.256	-.150*	-1.984	.049
Time Control	-.015	.154	-.011	-.098	.922
Method Control	-.055	.160	-.039	-.343	.732
Social Support at Work	-.028	.116	-.019	-.239	.811
Self-Efficacy (3 Items)	-.313	.124	-.195*	-2.536	.012
BITS	.768	.165	.351***	4.666	.000
R <sup>2</sup> first step					.100**
ΔR <sup>2</sup> for BITS					.108***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 168

Appendix B3

Table 105. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.

	Dependent Variable				
	Work Related Depression				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	4.899	.357		13.740	.000
Age	-.008	.005	-.125†	-1.752	.082
Sex (1=male)	.271	.130	.154*	2.088	.038
Time Control	-.149	.079	-.205†	-1.884	.061
Method Control	-.035	.082	-.049	-.430	.667
Social Support at Work	-.223	.058	-.287***	-3.840	.000
Self-Efficacy (3 Items)	-.169	.063	-.203**	-2.692	.008
Step 2					
(Constant)	3.350	.440		7.609	.000
Age	-.002	.004	-.026	-.374	.709
Sex (1=male)	.193	.121	.110	1.594	.113
Time Control	-.137	.073	-.188†	-1.874	.063
Method Control	.003	.076	.004	.034	.973
Social Support at Work	-.175	.055	-.226**	-3.213	.002
Self-Efficacy (3 Items)	-.182	.058	-.219**	-3.139	.002
BITS	.414	.078	.364***	5.316	.000
R <sup>2</sup> first step					.222***
ΔR <sup>2</sup> for BITS					.116***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 170

Table 106. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.

	Dependent Variable				
	Job Satisfaction (1 Item)				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	1.943	.539		3.603	.000
Age	.020	.007	.220**	2.978	.003
Sex (1=male)	-.255	.200	-.097	-1.277	.204
Time Control	.254	.121	.237*	2.103	.037
Method Control	.010	.125	.010	.081	.936
Social Support at Work	.286	.089	.249**	3.205	.002
Self-Efficacy (3 Items)	.127	.096	.103	1.326	.187
Step 2					
(Constant)	4.201	.668		6.289	.000
Age	.011	.007	.122†	1.708	.090
Sex (1=male)	-.151	.187	-.058	-.809	.419
Time Control	.239	.113	.223*	2.123	.035
Method Control	-.047	.116	-.045	-.406	.685
Social Support at Work	.220	.084	.192**	2.629	.009
Self-Efficacy (3 Items)	.146	.089	.119	1.640	.103
BITS	-.606	.118	-.362***	-5.116	.000
R <sup>2</sup> first step					.182***
ΔR <sup>2</sup> for BITS					.115***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 168

Appendix B3

Table 107. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.

	Dependent Variable				
	Psychosomatic Complaints (8 Items)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.788	.457		8.284	.000
Age	.004	.006	.048	.647	.519
Sex (1=male)	-.365	.166	-.170*	-2.206	.029
Time Control	.131	.101	.145	1.301	.195
Method Control	-.301	.107	-.328**	-2.810	.006
Social Support at Work	-.100	.075	-.104	-1.332	.185
Self-Efficacy (3 Items)	-.086	.080	-.085	-1.073	.285
Step 2					
(Constant)	2.541	.597		4.253	.000
Age	.009	.006	.115	1.521	.130
Sex (1=male)	-.427	.162	-.199**	-2.632	.009
Time Control	.143	.098	.158	1.451	.149
Method Control	-.274	.104	-.299**	-2.622	.010
Social Support at Work	-.058	.074	-.061	-.788	.432
Self-Efficacy (3 Items)	-.096	.078	-.095	-1.234	.219
BITS	.329	.105	.236**	3.131	.002
R <sup>2</sup> first step					.168***
$\Delta R^2$ for BITS					.049**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 166

Table 108. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study V.

	Dependent Variable				
	OBSE (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.243	.519		.469	.640
Age	.009	.007	.098	1.369	.173
Sex (1=male)	-.206	.192	-.079	-1.073	.285
Time Control	.069	.115	.065	.598	.551
Method Control	.281	.119	.267*	2.352	.020
Social Support at Work	.172	.085	.152*	2.026	.044
Self-Efficacy (3 Items)	.254	.091	.210**	2.779	.006
Step 2					
(Constant)	1.618	.675		2.396	.018
Age	.003	.007	.037	.509	.612
Sex (1=male)	-.142	.189	-.055	-.753	.453
Time Control	.057	.112	.054	.510	.611
Method Control	.248	.117	.236*	2.125	.035
Social Support at Work	.130	.084	.115	1.554	.122
Self-Efficacy (3 Items)	.266	.089	.220**	2.989	.003
BITS	-.367	.120	-.222**	-3.074	.002
R <sup>2</sup> first step					.225***
$\Delta R^2$ for BITS					.043**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 169

**Regressing well-being / strain onto illegitimate tasks under control of the best other predictors in each study (age, sex, stressors, resources) in study V.**

Table 109. Regressing feelings of resentment onto illegitimate tasks under control of the best other predictors in study V.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.583	.526		1.110	.269
Effort Reward Imbalance	.372	.070	.360***	5.322	.000
Emotion Work	.397	.085	.312***	4.656	.000
Work Family Conflict	.267	.101	.168**	2.659	.009
Self-Efficacy (3 Items)	-.222	.093	-.132*	-2.384	.018
<b>Step 2</b>					
(Constant)	.098	.554		.178	.859
Effort Reward Imbalance	.307	.074	.297***	4.153	.000
Emotion Work	.348	.086	.274***	4.034	.000
Work Family Conflict	.241	.100	.151*	2.425	.016
Self-Efficacy (3 Items)	-.245	.092	-.145**	-2.650	.009
BITS	.389	.158	.165*	2.469	.015
R <sup>2</sup> first step					.519***
$\Delta R^2$ for BITS					.018*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 166

Table 110. Regressing irritation onto illegitimate tasks under control of the best other predictors in study V.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.491	.614		.799	.425
Age	.013	.007	.108†	1.820	.071
Effort Reward Imbalance	-.074	.071	-.076	-1.042	.299
Emotion Work	.276	.088	.231**	3.142	.002
Work Family Conflict	.820	.101	.549***	8.146	.000
Self Efficacy (3 Items)	-.222	.095	-.137*	-2.344	.020
<b>Step 2</b>					
(Constant)	-.160	.667		-.240	.811
Age	.017	.007	.140*	2.338	.021
Effort Reward Imbalance	-.141	.075	-.144†	-1.865	.064
Emotion Work	.236	.088	.198**	2.681	.008
Work Family Conflict	.792	.100	.530***	7.920	.000
Self Efficacy (3 Items)	-.246	.094	-.152**	-2.620	.010
BITS	.384	.164	.172*	2.344	.020
R <sup>2</sup> first step					.458***
$\Delta R^2$ for BITS					.018*

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 169

Appendix B3

Table 111. Regressing work-related depression onto illegitimate tasks under control of the best other predictors in study V.

	Dependent Variable				
	Work-related Depression				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	2.498	.319		7.825	.000
Sex	.321	.106	.179**	3.019	.003
Effort Reward Imbalance	.064	.036	.125†	1.765	.079
Emotion Work	.217	.043	.346***	5.055	.000
Work Family Conflict	.175	.052	.222***	3.366	.001
Job Control	-.129	.047	-.164**	-2.770	.006
Social Support Work	-.112	.047	-.141*	-2.369	.019
Self-Efficacy (3 Items)	-.130	.049	-.154**	-2.646	.009
Step 2					
(Constant)	2.325	.333		6.982	.000
Sex	.312	.106	.174**	2.945	.004
Effort Reward Imbalance	.041	.038	.081	1.076	.283
Emotion Work	.200	.044	.318***	4.547	.000
Work Family Conflict	.166	.052	.211**	3.192	.002
Job Control	-.124	.047	-.157**	-2.666	.008
Social Support Work	-.114	.047	-.144*	-2.425	.016
Self-Efficacy (3 Items)	-.138	.049	-.162**	-2.796	.006
BITS	.137	.080	.117†	1.699	.091
R <sup>2</sup> first step					.517***
$\Delta R^2$ for BITS					.009†

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 169

Table 112. Regressing job satisfaction onto illegitimate tasks under control of the best other predictors in study V.

	Dependent Variable				
	Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	6.049	.406		14.891	.000
Age	.010	.006	.103†	1.739	.084
Social Stressors (4 Items)	-.183	.092	-.148*	-1.990	.048
Effort Reward Imbalance	-.140	.059	-.185*	-2.363	.019
Emotion Work	-.261	.070	-.281***	-3.724	.000
Work Family Conflict	-.165	.079	-.144*	-2.095	.038
Job Control	.169	.070	.147*	2.407	.017
Step 2					
(Constant)	6.322	.474		13.326	.000
Age	.008	.006	.088	1.450	.149
Social Stressors (4 Items)	-.165	.093	-.133†	-1.762	.080
Effort Reward Imbalance	-.120	.062	-.158†	-1.932	.055
Emotion Work	-.250	.071	-.269***	-3.534	.001
Work Family Conflict	-.157	.079	-.137*	-1.984	.049
Job Control	.168	.070	.146*	2.399	.018
BITS	-.143	.129	-.084	-1.111	.268
R <sup>2</sup> first step					.462***
$\Delta R^2$ for BITS					.004

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 168

Appendix B3

Table 113. Regressing psychosomatic complaints onto illegitimate tasks under control of the best other predictors in study V.

	Dependent Variable				
	Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.180	.399		2.960	.004
Sex	-.271	.137	-.127*	-1.977	.050
Task Stressors	.268	.111	.164*	2.407	.017
Work Family Conflict	.455	.066	.480***	6.856	.000
Self-Efficacy (3 Items)	-.125	.064	-.123†	-1.949	.053
Step 2					
(Constant)	1.204	.405		2.971	.003
Sex	-.269	.137	-.126†	-1.959	.052
Task Stressors	.293	.132	.180*	2.227	.027
Work Family Conflict	.458	.067	.483***	6.816	.000
Self-Efficacy (3 Items)	-.125	.064	-.124†	-1.947	.053
BITS	-.040	.109	-.028	-.363	.717
R <sup>2</sup> first step					.400***
$\Delta R^2$ for BITS					.000

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 166

Table 114. Regressing organization-based self-esteem onto illegitimate tasks under control of the best other predictors in study V.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	2.582	.440		5.872	.000
Effort Reward Imbalance	-.209	.056	-.283***	-3.698	.000
Emotion Work	-.156	.069	-.174*	-2.280	.024
Job Control	.277	.074	.246***	3.763	.000
Self-Efficacy (3 Items)	.252	.078	.208**	3.228	.002
Step 2					
(Constant)	2.625	.481		5.455	.000
Effort Reward Imbalance	-.203	.061	-.276***	-3.318	.001
Emotion Work	-.152	.071	-.169*	-2.138	.034
Job Control	.276	.074	.245***	3.726	.000
Self-Efficacy (3 Items)	.254	.079	.209**	3.225	.002
BITS	-.029	.133	-.017	-.220	.827
R <sup>2</sup> first step					.352***
$\Delta R^2$ for BITS					.000

Note. BITS = Bern Illegitimate Tasks Scale. OBSE = Organization-based Self-Esteem

\*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 168



**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several tasks stressors (interruptions at work, concentration demands, time pressure, uncertainty, and problems of work-organization) in study VI.**

Table 115. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.

	Dependent Variable Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	-.277	.220		-1.261	.207
Age	.003	.003	.028	1.100	.272
Sex (1=male)	.012	.063	.005	.197	.843
Uncertainty	.420	.054	.246***	7.803	.000
Interruptions at work	-.079	.051	-.051	-1.529	.127
Concentration demands	.042	.057	.024	.741	.459
Time pressure	.156	.053	.099**	2.963	.003
Problems of work-organization	.420	.052	.243***	8.146	.000
<b>Step 2</b>					
(Constant)	-.774	.211		-3.674	.000
Age	.006	.003	.051*	2.095	.036
Sex (1=male)	.049	.059	.020	.824	.410
Uncertainty	.211	.053	.124***	3.955	.000
Interruptions at work	-.118	.048	-.077*	-2.434	.015
Concentration demands	.008	.054	.004	.143	.887
Time pressure	.075	.050	.048	1.508	.132
Problems of work-organization	.242	.051	.140***	4.778	.000
BITS	.727	.058	.390***	12.552	.000
R <sup>2</sup> first step					.210***
$\Delta R^2$ for BITS					.089***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1248

Table 116. Regressing irritation onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.

	Dependent Variable Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	-.559	.205		-2.720	.007
Age	.009	.003	.085***	3.393	.001
Sex (1=male)	.143	.059	.061*	2.440	.015
Uncertainty	.227	.050	.138***	4.504	.000
Interruptions at work	.043	.048	.029	.896	.371
Concentration demands	.060	.053	.035	1.132	.258
Time pressure	.429	.049	.282***	8.709	.000
Problems of work-organization	.282	.048	.170***	5.837	.000
<b>Step 2</b>					
(Constant)	-.884	.203		-4.347	.000
Age	.011	.003	.101***	4.124	.000
Sex (1=male)	.167	.057	.071**	2.915	.004
Uncertainty	.091	.052	.055†	1.763	.078
Interruptions at work	.017	.047	.012	.364	.716
Concentration demands	.037	.052	.021	.712	.477
Time pressure	.376	.048	.247***	7.775	.000
Problems of work-organization	.164	.049	.099***	3.362	.001
BITS	.478	.056	.266***	8.523	.000
R <sup>2</sup> first step					.256***
$\Delta R^2$ for BITS					.041***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1245

Appendix B3

Table 117. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.

	Dependent Variable Work-Related Depression				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.797	.133		5.996	.000
Age	.002	.002	.027	1.091	.275
Sex (1=male)	.063	.038	.041†	1.646	.100
Uncertainty	.247	.033	.230***	7.579	.000
Interruptions at work	-.025	.031	-.026	-.794	.428
Concentration demands	-.067	.034	-.059†	-1.939	.053
Time pressure	.152	.032	.154***	4.798	.000
Problems of work-organization	.339	.031	.312***	10.854	.000
Step 2					
(Constant)	.497	.128		3.891	.000
Age	.003	.002	.049*	2.079	.038
Sex (1=male)	.085	.036	.055*	2.367	.018
Uncertainty	.123	.032	.114***	3.801	.000
Interruptions at work	-.049	.029	-.051†	-1.674	.094
Concentration demands	-.087	.033	-.077**	-2.670	.008
Time pressure	.105	.030	.106***	3.464	.001
Problems of work-organization	.232	.031	.214***	7.571	.000
BITS	.434	.035	.370***	12.342	.000
R <sup>2</sup> first step					.265***
$\Delta R^2$ for BITS					.080***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 1254

Table 118. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.

	Dependent Variable Psychosomatic Complaints (8 Items)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.230	.144		1.599	.110
Age	.004	.002	.061*	2.351	.019
Sex (1=male)	.237	.041	.150***	5.748	.000
Uncertainty	.120	.035	.108***	3.385	.001
Interruptions at work	.038	.034	.038	1.133	.258
Concentration demands	.079	.037	.068*	2.118	.034
Time pressure	.161	.034	.157***	4.659	.000
Problems of work-organization	.217	.034	.195***	6.434	.000
Step 2					
(Constant)	.085	.145		.588	.557
Age	.005	.002	.072**	2.774	.006
Sex (1=male)	.247	.041	.156***	6.060	.000
Uncertainty	.059	.037	.053	1.600	.110
Interruptions at work	.027	.033	.027	.795	.427
Concentration demands	.069	.037	.059†	1.856	.064
Time pressure	.137	.034	.134***	3.977	.000
Problems of work-organization	.165	.035	.148***	4.741	.000
BITS	.213	.040	.176***	5.335	.000
R <sup>2</sup> first step					.194***
$\Delta R^2$ for BITS					.018***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 1245

## Appendix B3

Table 119. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.

	Dependent Variable Job Satisfaction (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	6.516	.206		31.663	.000
Age	.004	.003	.041	1.553	.121
Sex (1=male)	-.150	.059	-.067*	-2.558	.011
Uncertainty	-.402	.051	-.254***	-7.965	.000
Interruptions at work	.098	.048	.069*	2.043	.041
Concentration demands	.123	.053	.074*	2.297	.022
Time pressure	-.099	.049	-.068*	-2.010	.045
Problems of work-organization	-.418	.048	-.262***	-8.650	.000
Step 2					
(Constant)	6.912	.201		34.371	.000
Age	.002	.003	.021	.831	.406
Sex (1=male)	-.180	.057	-.080**	-3.182	.002
Uncertainty	-.238	.051	-.150***	-4.667	.000
Interruptions at work	.131	.046	.092**	2.830	.005
Concentration demands	.150	.051	.090**	2.916	.004
Time pressure	-.036	.048	-.025	-.755	.450
Problems of work-organization	-.277	.048	-.174***	-5.743	.000
BITS	-.575	.055	-.333***	-10.396	.000
R <sup>2</sup> first step					.186***
$\Delta R^2$ for BITS					.085***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1252

Table 120. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the stressors interruptions at work, uncertainty, concentration demands, time pressure, and problems of work-organization in study VI.

	Dependent Variable OBSE (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.521	.164		27.554	.000
Age	.002	.002	.024	.912	.362
Sex (1=male)	-.085	.047	-.048†	-1.814	.070
Uncertainty	-.353	.040	-.283***	-8.758	.000
Interruptions at work	.245	.038	.220***	6.388	.000
Concentration demands	.002	.043	.002	.058	.953
Time pressure	-.069	.039	-.060†	-1.769	.077
Problems of work-organization	-.284	.039	-.226***	-7.369	.000
Step 2					
(Constant)	4.776	.163		29.337	.000
Age	.001	.002	.008	.313	.754
Sex (1=male)	-.104	.046	-.059*	-2.272	.023
Uncertainty	-.247	.041	-.198***	-5.990	.000
Interruptions at work	.266	.037	.239***	7.103	.000
Concentration demands	.020	.042	.015	.477	.634
Time pressure	-.029	.039	-.025	-.753	.452
Problems of work-organization	-.194	.039	-.154***	-4.954	.000
BITS	-.369	.045	-.272***	-8.245	.000
R <sup>2</sup> first step					.164***
$\Delta R^2$ for BITS					.043***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1252

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and several other stressors (task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict) in study VI.**

Table 121. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study VI.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	-.160	.180		-.890	.374
Age	.003	.002	.030	1.413	.158
Sex (1=male)	-.023	.053	-.009	-.430	.667
Task Stressors	-.126	.064	-.056*	-1.962	.050
Social Stressors (4 Items)	.226	.047	.134***	4.813	.000
ERI (van Yperen)	.427	.025	.481***	16.937	.000
Emotional Dissonance (1 Item)	.194	.034	.158***	5.765	.000
Work-Family-Conflict	.112	.036	.081**	3.065	.002
<b>Step 2</b>					
(Constant)	-.358	.181		-1.976	.048
Age	.004	.002	.039†	1.845	.065
Sex (1=male)	-.004	.052	-.002	-.086	.932
Task Stressors	-.238	.067	-.107***	-3.578	.000
Social Stressors (4 Items)	.189	.047	.112***	4.039	.000
ERI (Van Yperen)	.387	.026	.436***	14.940	.000
Emotional Dissonance (1 Item)	.174	.034	.142***	5.189	.000
Work-Family-Conflict	.105	.036	.076**	2.924	.004
BITS	.300	.054	.161***	5.519	.000
R <sup>2</sup> first step					.462***
$\Delta R^2$ for BITS					.013***

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ . N = 1229

Table 122. Regressing irritation onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study VI.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	-.736	.175		-4.205	.000
Age	.011	.002	.104***	4.807	.000
Sex (1=male)	.092	.051	.039†	1.810	.070
Task Stressors	.163	.062	.076**	2.617	.009
Social Stressors (4 Items)	.219	.046	.135***	4.800	.000
ERI (Van Yperen)	.042	.025	.049†	1.722	.085
Emotional Dissonance (1 Item)	.208	.033	.176***	6.331	.000
Work-Family-Conflict	.537	.035	.405***	15.128	.000
<b>Step 2</b>					
(Constant)	-.861	.178		-4.846	.000
Age	.012	.002	.110***	5.086	.000
Sex (1=male)	.104	.051	.044*	2.040	.042
Task Stressors	.092	.065	.043	1.416	.157
Social Stressors (4 Items)	.196	.046	.121***	4.269	.000
ERI (Van Yperen)	.017	.025	.020	.677	.499
Emotional Dissonance (1 Item)	.195	.033	.165***	5.929	.000
Work-Family-Conflict	.533	.035	.402***	15.080	.000
BITS	.190	.053	.106***	3.559	.000
R <sup>2</sup> first step					.449***
$\Delta R^2$ for BITS					.006***

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ . N = 1229

Appendix B3

Table 123. Regressing work-related depression onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study VI.

	Dependent Variable				
	Work-Related Depression				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	.727	.112		6.467	.000
Age	.002	.002	.035	1.636	.102
Sex (1=male)	.030	.033	.019	.900	.368
Task Stressors	-.047	.040	-.033	-1.161	.246
Social Stressors (4 Items)	.165	.029	.156***	5.630	.000
ERI (Van Yperen)	.193	.016	.346***	12.254	.000
Emotional Dissonance (1 Item)	.174	.021	.226***	8.264	.000
Work-Family-Conflict	.135	.023	.156***	5.926	.000
Step 2					
(Constant)	.593	.113		5.244	.000
Age	.003	.001	.044*	2.108	.035
Sex (1=male)	.042	.032	.027	1.289	.198
Task Stressors	-.123	.042	-.087**	-2.950	.003
Social Stressors (4 Items)	.141	.029	.132***	4.803	.000
ERI (Van Yperen)	.166	.016	.298***	10.284	.000
Emotional Dissonance (1 Item)	.160	.021	.208***	7.668	.000
Work-Family-Conflict	.131	.022	.151***	5.817	.000
BITS	.203	.034	.173***	5.983	.000
R <sup>2</sup> first step					.467***
ΔR <sup>2</sup> for BITS					.015***

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 1229

Table 123. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study VI.

	Dependent Variable				
	Job Satisfaction (1 Item)				
	B	se <sub>B</sub>	β	t	sig
Step 1					
(Constant)	6.582	.185		35.671	.000
Age	.004	.002	.035	1.476	.140
Sex (1=male)	-.126	.054	-.056*	-2.348	.019
Task Stressors	.199	.066	.096**	3.019	.003
Social Stressors (4 Items)	-.319	.048	-.204***	-6.629	.000
ERI (Van Yperen)	-.307	.026	-.374***	-11.878	.000
Emotional Dissonance (1 Item)	-.134	.035	-.118***	-3.886	.000
Work-Family-Conflict	-.087	.037	-.068*	-2.326	.020
Step 2					
(Constant)	6.769	.186		36.320	.000
Age	.003	.002	.026	1.102	.271
Sex (1=male)	-.144	.053	-.063**	-2.688	.007
Task Stressors	.305	.068	.148***	4.452	.000
Social Stressors (4 Items)	-.285	.048	-.182***	-5.909	.000
ERI (Van Yperen)	-.270	.027	-.328***	-10.125	.000
Emotional Dissonance (1 Item)	-.115	.034	-.101***	-3.342	.001
Work-Family-Conflict	-.081	.037	-.064*	-2.187	.029
BITS	-.283	.056	-.164***	-5.068	.000
R <sup>2</sup> first step					.338***
ΔR <sup>2</sup> for BITS					.014***

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10. N = 1229

Appendix B3

Table 125. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study VI.

	Dependent Variable Psychosomatic Complaints (8 Items)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.151	.130		1.159	.247
Age	.006	.002	.078***	3.258	.001
Sex (1=male)	.194	.038	.123***	5.092	.000
Task Stressors	.119	.046	.083**	2.559	.011
Social Stressors (4 Items)	.096	.034	.088**	2.831	.005
ERI (Van Yperen)	.024	.018	.043	1.339	.181
Emotional Dissonance (1 Item)	.127	.024	.160***	5.194	.000
Work-Family-Conflict	.291	.026	.327***	11.030	.000
Step 2					
(Constant)	.114	.133		.858	.391
Age	.006	.002	.081***	3.357	.001
Sex (1=male)	.197	.038	.125***	5.173	.000
Task Stressors	.098	.049	.068*	2.007	.045
Social Stressors (4 Items)	.089	.034	.082**	2.603	.009
ERI (Van Yperen)	.017	.019	.030	.897	.370
Emotional Dissonance (1 Item)	.123	.025	.155***	5.009	.000
Work-Family-Conflict	.290	.026	.326***	10.985	.000
BITS	.056	.040	.047	1.409	.159
R <sup>2</sup> first step					.323***
$\Delta R^2$ for BITS					.001

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1229

Table 126. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and task stressors, social stressors, effort-reward imbalance, emotional dissonance, and work-family conflict in study VI.

	Dependent Variable OBSE (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.334	.142		30.555	.000
Age	.003	.002	.042†	1.810	.071
Sex (1=male)	-.058	.041	-.033	-1.393	.164
Task Stressors	.303	.051	.188***	5.995	.000
Social Stressors (4 Items)	-.205	.037	-.168***	-5.529	.000
ERI (Van Yperen)	-.324	.020	-.505***	-16.304	.000
Emotional Dissonance (1 Item)	-.106	.027	-.119***	-3.976	.000
Work-Family-Conflict	.001	.029	.001	.046	.964
Step 2					
(Constant)	4.394	.144		30.412	.000
Age	.003	.002	.039†	1.646	.100
Sex (1=male)	-.063	.041	-.036	-1.526	.127
Task Stressors	.338	.053	.210***	6.363	.000
Social Stressors (4 Items)	-.194	.037	-.159***	-5.181	.000
ERI (Van Yperen)	-.312	.021	-.486***	-15.102	.000
Emotional Dissonance (1 Item)	-.099	.027	-.112***	-3.724	.000
Work-Family-Conflict	.003	.029	.003	.113	.910
BITS	-.092	.043	-.068*	-2.115	.035
R <sup>2</sup> first step					.359***
$\Delta R^2$ for BITS					.002*

Note. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1229

**Regressing well-being / strain onto illegitimate tasks under control of age, sex, and internal and external resources (time control, method control, social support at work, and self-efficacy, and self-esteem) in study VI.**

Table 127. Regressing feelings of resentment onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study VI.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	5.900	.279		21.115	.000
Age	-.003	.003	-.026	-.975	.330
Sex (1=male)	-.106	.065	-.043	-1.638	.102
Time Control	-.146	.053	-.093**	-2.737	.006
Method Control	-.256	.058	-.155***	-4.408	.000
Social Support at Work	-.400	.040	-.272***	-10.109	.000
Self-Efficacy (3 Items)	-.113	.045	-.069*	-2.512	.012
<b>Step 2</b>					
(Constant)	2.399	.326		7.369	.000
Age	.003	.003	.023	.943	.346
Sex (1=male)	-.018	.059	-.007	-.299	.765
Time Control	-.027	.048	-.017	-.561	.575
Method Control	-.208	.052	-.125***	-3.965	.000
Social Support at Work	-.253	.037	-.172***	-6.910	.000
Self-Efficacy (3 Items)	-.091	.040	-.056*	-2.255	.024
BITS	.797	.047	.427***	16.964	.000
R <sup>2</sup> first step					.172***
$\Delta R^2$ for BITS					.156***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1248

Table 128. Regressing irritation onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study VI.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	5.530	.278		19.878	.000
Age	.004	.003	.035	1.291	.197
Sex (1=male)	.048	.064	.021	.749	.454
Time Control	-.159	.053	-.105**	-2.995	.003
Social Support at Work	-.063	.058	-.040	-1.094	.274
Method Control	-.330	.039	-.233***	-8.394	.000
Self-Efficacy (3 Items)	-.185	.045	-.118***	-4.148	.000
<b>Step 2</b>					
(Constant)	2.384	.331		7.195	.000
Age	.009	.003	.081***	3.184	.001
Sex (1=male)	.127	.060	.054*	2.134	.033
Time Control	-.052	.049	-.034	-1.050	.294
Method Control	-.020	.053	-.012	-.367	.713
Social Support at Work	-.200	.037	-.141***	-5.367	.000
Self-Efficacy (3 Items)	-.166	.041	-.105***	-4.027	.000
BITS	.715	.048	.398***	14.965	.000
R <sup>2</sup> first step					.117***
$\Delta R^2$ for BITS					.135***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1245

## Appendix B3

Table 129. Regressing work-related depression onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study VI.

	Dependent Variable				
	Work-Related Depression				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	5.406	.166		32.529	.000
Age	-.002	.002	-.025	-1.000	.318
Sex (1=male)	-.018	.038	-.012	-.461	.645
Time Control	-.137	.032	-.139***	-4.336	.000
Method Control	-.198	.035	-.190***	-5.725	.000
Social Support at Work	-.265	.024	-.286***	-11.258	.000
Self-Efficacy (3 Items)	-.136	.027	-.132***	-5.085	.000
Step 2					
(Constant)	3.287	.193		17.028	.000
Age	.002	.002	.021	.941	.347
Sex (1=male)	.036	.035	.023	1.026	.305
Time Control	-.066	.029	-.066*	-2.284	.023
Method Control	-.169	.031	-.162***	-5.426	.000
Social Support at Work	-.176	.022	-.190***	-8.117	.000
Self-Efficacy (3 Items)	-.122	.024	-.119***	-5.102	.000
BITS	.482	.028	.411***	17.316	.000
R <sup>2</sup> first step					.259***
$\Delta R^2$ for BITS					.114***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1252

Table 130. Regressing job satisfaction onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study VI.

	Dependent Variable				
	Job Satisfaction (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.973	.250		3.889	.000
Age	.009	.003	.084***	3.274	.001
Sex (1=male)	-.034	.058	-.015	-.587	.557
Time Control	.099	.048	.068*	2.074	.038
Method Control	.350	.052	.229***	6.735	.000
Social Support at Work	.342	.035	.251***	9.657	.000
Self-Efficacy (3 Items)	.182	.040	.120***	4.522	.000
Step 2					
(Constant)	3.455	.304		11.360	.000
Age	.005	.003	.047†	1.938	.053
Sex (1=male)	-.096	.055	-.043†	-1.765	.078
Time Control	.015	.045	.010	.330	.742
Method Control	.316	.049	.206***	6.458	.000
Social Support at Work	.238	.034	.175***	6.964	.000
Self-Efficacy (3 Items)	.166	.038	.110***	4.395	.000
BITS	-.565	.044	-.327***	-12.868	.000
R <sup>2</sup> first step					.222***
$\Delta R^2$ for BITS					.091***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1252



# Appendix B3

Table 131. Regressing psychosomatic complaints onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study VI.

	Dependent Variable				
	Psychosomatic Complaints (8 Items)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	3.705	.190		19.507	.000
Age	.002	.002	.024	.882	.378
Sex (1=male)	.174	.044	.110***	3.948	.000
Time Control	-.088	.036	-.086*	-2.417	.016
Method Control	-.075	.039	-.069†	-1.890	.059
Social Support at Work	-.148	.027	-.156***	-5.520	.000
Self-Efficacy (3 Items)	-.109	.031	-.103***	-3.572	.000
Step 2					
(Constant)	2.034	.234		8.686	.000
Age	.004	.002	.060*	2.266	.024
Sex (1=male)	.216	.042	.136***	5.123	.000
Time Control	-.031	.035	-.030	-.879	.380
Method Control	-.051	.038	-.048	-1.364	.173
Social Support at Work	-.079	.026	-.083**	-3.003	.003
Self-Efficacy (3 Items)	-.099	.029	-.093***	-3.389	.001
BITS	.380	.034	.314***	11.249	.000
R <sup>2</sup> first step					.091***
$\Delta R^2$ for BITS					.084***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10. N = 1245

Table 132. Regressing organization-based self-esteem onto illegitimate tasks under control of age, sex, and the resources time control, method control, social support at work, and self-efficacy in study VI.

	Dependent Variable				
	OBSE (1 Item)				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	-.124	.188		-.661	.509
Age	.006	.002	.075**	3.047	.002
Sex (1=male)	.042	.044	.024	.963	.336
Time Control	-.006	.036	-.005	-.172	.863
Method Control	.260	.039	.216***	6.650	.000
Social Support at Work	.343	.027	.320***	12.870	.000
Self-Efficacy (3 Items)	.278	.030	.234***	9.203	.000
Step 2					
(Constant)	1.216	.236		5.153	.000
Age	.004	.002	.049*	2.061	.039
Sex (1=male)	.008	.042	.005	.194	.846
Time Control	-.052	.035	-.045	-1.466	.143
Method Control	.242	.038	.201***	6.362	.000
Social Support at Work	.287	.027	.268***	10.797	.000
Self-Efficacy (3 Items)	.270	.029	.227***	9.198	.000
BITS	-.305	.034	-.225***	-8.957	.000
R <sup>2</sup> first step					.289***
$\Delta R^2$ for BITS					.043***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10. N = 1252

**Regressing well-being / strain onto illegitimate tasks under control of the best other predictors in each study (age, sex, stressors, resources) in study VI.**

Table 133. Regressing feelings of resentment onto illegitimate tasks under control of the best other predictors in study VI.

	Dependent Variable				
	Feelings of Resentment				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.070	.275		3.885	.000
Social Stressors (4 Items)	.176	.047	.104***	3.759	.000
Effort Reward Imbalance	.393	.025	.443***	15.595	.000
Emotion Work	.176	.033	.143***	5.388	.000
Work Family Conflict	.068	.034	.050*	2.007	.045
Job Control	-.104	.041	-.058*	-2.534	.011
Social Support Work	-.075	.034	-.051*	-2.193	.028
Self-Efficacy (3 Items)	-.098	.036	-.060**	-2.762	.006
<b>Step 2</b>					
(Constant)	.775	.282		2.752	.006
Social Stressors (4 Items)	.140	.047	.083**	2.954	.003
Effort Reward Imbalance	.358	.026	.404***	13.616	.000
Emotion Work	.152	.033	.123***	4.609	.000
Work Family Conflict	.048	.034	.035	1.407	.160
Job Control	-.092	.041	-.051*	-2.246	.025
Social Support Work	-.076	.034	-.052*	-2.258	.024
Self-Efficacy (3 Items)	-.096	.035	-.059**	-2.732	.006
BITS	.223	.052	.120***	4.332	.000
R <sup>2</sup> first step					.471***
$\Delta R^2$ for BITS					.008***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1229

Table 134. Regressing irritation onto illegitimate tasks under control of the best other predictors in study VI.

	Dependent Variable				
	Irritation				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.446	.263		1.694	.090
Age	.010	.002	.097***	4.525	.000
Task Stressors	.223	.061	.104***	3.650	.000
Social Stressors (4 Items)	.192	.044	.118***	4.341	.000
Emotion Work	.210	.032	.177***	6.541	.000
Work Family Conflict	.519	.035	.391***	14.822	.000
Social Support Work	-.092	.033	-.065**	-2.822	.005
Self Efficacy (3 Items)	-.156	.034	-.099***	-4.544	.000
<b>Step 2</b>					
(Constant)	.290	.267		1.089	.276
Age	.011	.002	.101***	4.704	.000
Task Stressors	.149	.066	.070*	2.275	.023
Social Stressors (4 Items)	.163	.045	.100***	3.616	.000
Emotion Work	.195	.032	.165***	6.050	.000
Work Family Conflict	.512	.035	.386***	14.668	.000
Social Support Work	-.086	.033	-.061**	-2.632	.009
Self Efficacy (3 Items)	-.145	.034	-.093***	-4.223	.000
BITS	.159	.051	.089**	3.111	.002
R <sup>2</sup> first step					.460***
$\Delta R^2$ for BITS					.004**

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1229

## Appendix B3

Table 135. Regressing work-related depression onto illegitimate tasks under control of the best other predictors in study VI.

	Dependent Variable Work-Related Depression				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	2.485	.166		15.005	.000
Social Stressors (4 Items)	.111	.028	.105***	3.943	.000
Effort Reward Imbalance	.157	.015	.282***	10.353	.000
Emotion Work	.166	.020	.216***	8.479	.000
Work Family Conflict	.104	.021	.120***	5.078	.000
Job Control	-.157	.025	-.140	-6.354	.000
Social Support Work	-.083	.020	-.090	-4.073	.000
Self-Efficacy (3 Items)	-.127	.021	-.124	-5.947	.000
Step 2					
(Constant)	2.291	.169		13.543	.000
Social Stressors (4 Items)	.087	.028	.082**	3.069	.002
Effort Reward Imbalance	.134	.016	.240***	8.480	.000
Emotion Work	.150	.020	.195***	7.619	.000
Work Family Conflict	.091	.021	.105***	4.422	.000
Job Control	-.149	.025	-.132***	-6.065	.000
Social Support Work	-.085	.020	-.091***	-4.163	.000
Self-Efficacy (3 Items)	-.126	.021	-.123***	-5.944	.000
BITS	.147	.031	.125***	4.745	.000
R <sup>2</sup> first step					.515***
$\Delta R^2$ for BITS					.009***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1229

Table 136. Regressing job satisfaction onto illegitimate tasks under control of the best other predictors in study VI.

	Dependent Variable Job Satisfaction				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	4.220	.312		13.544	.000
Age	.004	.002	.041†	1.758	.079
sex	-.097	.052	-.043†	-1.846	.065
Task Stressors	.101	.060	.049†	1.669	.095
Social Stressors (4 Items)	-.247	.048	-.158***	-5.194	.000
Effort Reward Imbalance	-.261	.025	-.318***	-10.241	.000
Emotion Work	-.128	.033	-.113***	-3.835	.000
Job Control	.228	.041	.138***	5.543	.000
Social Support Work	.109	.035	.080**	3.172	.002
Self-Efficacy (3 Items)	.185	.036	.122***	5.109	.000
Step 2					
(Constant)	4.479	.315		14.208	.000
Age	.003	.002	.034	1.452	.147
sex	-.113	.052	-.050*	-2.155	.031
Task Stressors	.194	.064	.094**	3.041	.002
Social Stressors (4 Items)	-.221	.048	-.142***	-4.645	.000
Effort Reward Imbalance	-.232	.026	-.282***	-8.851	.000
Emotion Work	-.112	.033	-.099***	-3.363	.001
Job Control	.218	.041	.132***	5.322	.000
Social Support Work	.108	.034	.079**	3.154	.002
Self-Efficacy (3 Items)	.173	.036	.114***	4.790	.000
BITS	-.234	.055	-.136***	-4.282	.000
R <sup>2</sup> first step					.382***
$\Delta R^2$ for BITS					.009***

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1229

## Appendix B3

Table 137. Regressing psychosomatic complaints onto illegitimate tasks under control of the best other predictors in study VI.

	Dependent Variable				
	Psychosomatic Complaints				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.584	.170		3.435	.001
Age	.006	.002	.084***	3.523	.000
Sex	.176	.038	.112***	4.641	.000
Task Stressors	.161	.046	.112***	3.515	.000
Social Stressors (4 Items)	.098	.032	.090**	3.052	.002
Emotion Work	.131	.024	.165***	5.481	.000
Work Family Conflict	.279	.026	.314***	10.666	.000
Self-Efficacy (3 Items)	-.104	.026	-.099***	-4.077	.000
Step 2					
(Constant)	.540	.173		3.117	.002
Age	.006	.002	.086***	3.591	.000
Sex	.180	.038	.114***	4.726	.000
Task Stressors	.139	.049	.096**	2.821	.005
Social Stressors (4 Items)	.089	.033	.082**	2.699	.007
Emotion Work	.126	.024	.159***	5.221	.000
Work Family Conflict	.277	.026	.311***	10.567	.000
Self-Efficacy (3 Items)	-.101	.026	-.095***	-3.901	.000
BITS	.048	.038	.040	1.264	.207
R <sup>2</sup> first step					.331***
$\Delta R^2$ for BITS					.001

Note. BITS = Bern Illegitimate Tasks Scale. \*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1229

Table 138. Regressing organization-based self-esteem onto illegitimate tasks under control of the best other predictors in study VI.

	Dependent Variable				
	OBSE				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.877	.225		8.326	.000
Age	.004	.002	.051*	2.371	.018
Task Stressors	.200	.048	.124***	4.204	.000
Social Stressors (4 Items)	-.130	.035	-.106***	-3.708	.000
Effort Reward Imbalance	-.268	.019	-.418***	-14.085	.000
Emotion Work	-.095	.025	-.108***	-3.873	.000
Work Family Conflict	.051	.027	.052†	1.902	.057
Job Control	.099	.030	.077***	3.272	.001
Social Support Work	.167	.025	.157***	6.583	.000
Self-Efficacy (3 Items)	.274	.027	.232***	10.226	.000
Step 2					
(Constant)	1.914	.229		8.351	.000
Age	.004	.002	.050*	2.311	.021
Task Stressors	.215	.050	.133***	4.270	.000
Social Stressors (4 Items)	-.126	.035	-.103***	-3.558	.000
Effort Reward Imbalance	-.263	.020	-.411***	-13.389	.000
Emotion Work	-.093	.025	-.105***	-3.759	.000
Work Family Conflict	.052	.027	.052†	1.912	.056
Job Control	.097	.030	.075***	3.210	.001
Social Support Work	.167	.025	.157***	6.577	.000
Self-Efficacy (3 Items)	.272	.027	.231***	10.140	.000
BITS	-.036	.040	-.027	-.895	.371
R <sup>2</sup> first step					.449***
$\Delta R^2$ for BITS					.000

Note. BITS = Bern Illegitimate Tasks Scale. OBSE = Organization-based Self-Esteem

\*\*\*p $\leq$ .001, \*\*p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10. N = 1229

### Appendix B3

Table 139. Overview of the significant beta-weights regressing well-being / strain onto illegitimate tasks under control of age, sex, stressors, and resources in study II.

Study II (N = 129 - 130)							
DV	RE	IR	EX	DIS	PC	JS	OP
Age	-103†					.229**	
Sex						-.216**	.130†
TST	-.270**					.273***	
SST	.301***	.190*					-.153†
ERI	.355***	.145					-.346**
ED	.151*	.224**	.189*				
WFC	.276***					-.129	
JC	.332***					.263***	
SSW						.283***	
SEF	-.189*					.164*	
SEE	-.150†					-.338***	
IT	.177*	.115	.118	.002	-.053	-.069	-.022
R <sup>2</sup> 1 <sup>st</sup> step	.646***	.382***	.496***	.507***	.382***	.398***	.414***
ΔR <sup>2</sup> for IT	.016*	.010	.007	.000	.002	.005	.048

Note. \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, backward regression analyses selecting important other predictors in a first regression analysis (not shown), then entering these in another analysis with enter method in a first step, then entering illegitimate tasks with enter method in a second step, results of the last step are displayed. BITS=Berne illegitimate tasks scale, TS=task stressors, SS=social stressors, ERI=effort-reward imbalance, ED=emotional dissonance, WFC=work-family conflict, JC=job control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feeling of resentment, IRR=Irritation, EXH=emotional exhaustion, DIS=Disengagement PC=psychosomatic complaints, JS=job satisfaction, OBSE=organization-based self-esteem.

# Appendix B3

Table 140. Overview of the significant beta-weights regressing well-being / strain onto illegitimate tasks under control of age, sex, stressors, and resources in study III.

Study III (N = 65 - 67)					
DV	RES	IRR	PC	JS	OBSE
Age					
Sex			-.311**		.236*
TS					.339*
SS					
ERI	.273*	.361**	.183	-.373***	-.458**
ED					
JC	-.124			.169	
SSW	-.215*				
SEF					
SEE		-.336**			.199
BITS	.291*	.132	.174	-.271*	-.021
R <sup>2</sup> 1 <sup>st</sup> step	.406***	.338***	.154**	.388***	.288***
ΔR <sup>2</sup> for IT	.048*	.011	.019	.044*	.000

Note. \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, backward regression analyses selecting important other predictors in a first regression analysis (not shown), then entering these in another analysis with enter method in a first step, then entering illegitimate tasks with enter method in a second step, results of the last step are displayed. BITS=Berne illegitimate tasks scale, TS=task stressors, SS=social stressors, ERI=effort-reward imbalance, ED=emotional dissonance, WFC=work-family conflict, JC=job control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feeling of resentment, IRR=Irritation, EXH=emotional exhaustion, DIS=Disengagement PC=psychosomatic complaints, JS=job satisfaction, OBSE=organization-based self-esteem.

### Appendix B3

Table 141. Overview of significant standardized regression weights (expected direction) of the predictors sorted after dependent variables in six studies.

DV / Pred.	RES	IRR	EXH	DIS	WRD	PC	JS	OBSE	Cumulative effects of predictors
Age	2/6	2/6	1/2	1/2	0/3	1/6	1/6	1/6	9/37=24%
Sex	1/6	1/6	0/2	0/2	1/3	4/6	3/6	2/6	12/37=32%
TS	0/6	2/6	1/2	0/2	0/3	2/6	0/6	1/6	6/37=16%
SS	4/6	2/6	1/2	0/2	2/3	1/6	3/6	3/6	16/37=43%
ERI	6/6	2/6	0/2	2/2	2/3	2/6	6/6	6/6	26/37=70%
ED	4/6	4/6	0/2	1/2	3/3	3/6	3/6	3/6	21/37=57%
WFC	1/5	4/5	1/1	0/1	3/3	3/5	1/5	0/5	13/30=43%
JC	1/6	0/6	0/2	2/2	3/3	0/6	5/6	4/6	15/37=41%
SSW	3/5	1/5	0/1	0/1	3/3	0/5	2/5	1/5	10/30=33%
SEE	3/6	4/6	0/2	2/2	3/3	4/6	2/6	4/6	22/31=71%
SES	1/3	3/3	2/2	0/2	n.a.	2/3	1/3	1/3	10/19=53%
BITS	6/6 (100%)	3/6 (50%)	1/2 (50%)	1/2 (50%)	3/3 (100%)	1/6 (17%)	4/6 (67%)	1/6 (17%)	20/37=54%

*Note.* BITS=Berne illegitimate tasks scale, TS=task stressors, SS=social stressors, ERI=effort-reward imbalance, ED=emotional dissonance, WFC=work-family conflict, JC=job control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, RES=feeling of resentment, IRR=Irritation, EXH=emotional exhaustion, DIS=Disengagement PC=psychosomatic complaints, JS=job satisfaction, OBSE=organization-based self-esteem.

## **Appendix B4 – Illegitimate Tasks Over Time - Overview**

- Means, standard deviations, correlations, internal consistencies in longitudinal study I for the variables of t1 and t2.
- Means, standard deviations, correlations, internal consistencies in longitudinal study I for the variables of t1 and t3.
- Means, standard deviations, correlations, internal consistencies in longitudinal study I for the variables of t2 and t3.
- Longitudinal / synchronous regression analyses t1-t2 for study I.
- Longitudinal / synchronous regression analyses t1-t3 for study I.
- Longitudinal / synchronous regression analyses t2-t3 for study I.
- Reverse causation regression analyses t1-t2 for study I.
- Reverse causation regression analyses t1-t3 for study I.
- Reverse causation regression analyses t2-t3 for study I.
- Means, standard deviations, correlations, internal consistencies in longitudinal study II for the variables of t1 and t2.
- Longitudinal / synchronous regression analyses for study II.
- Reverse causation regression analyses t1-t2 for study II.



## Appendix B4 – List of Tables

Table 1. Means, standard deviations, correlations, internal consistencies in longitudinal study I for the variables of t1 and t2 (longitudinal data set).	6
Table 2. Means, standard deviations, correlations, internal consistencies in longitudinal study I for the variables of t1 and t3 (longitudinal data set).	7
Table 3. Means, standard deviations, correlations, internal consistencies in longitudinal study I for the variables of t2 and t3 (longitudinal data set).	8
<b>Longitudinal analyses t1-t2 for study I (under control of DV t1).</b>	9
Table 4. Regressing feelings of resentment at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	9
Table 5. Regressing irritation at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	9
Table 6. Regressing job satisfaction at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	9
Table 7. Regressing emotional exhaustion at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	10
Table 8. Regressing disengagement at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	10
Table 9. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	10
Table 10. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	11
<b>Synchronous analyses t1-t2 for study I (under control of DV t1).</b>	11
Table 11. Regressing feelings of resentment at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	11
Table 12. Regressing irritation at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	11
Table 13. Regressing job satisfaction at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	12
Table 14. Regressing emotional exhaustion at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	12
Table 15. Regressing disengagement at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	12
Table 16. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	13
Table 17. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	13
<b>Longitudinal analyses t1-t3 for study I (under control of DV t1).</b>	13
Table 18. Regressing feelings of resentment at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.	13
Table 19. Regressing irritation at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.	14
Table 20. Regressing job satisfaction at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.	14
Table 21. Regressing emotional exhaustion at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.	14
Table 22. Regressing disengagement at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.	15
Table 23. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.	15
Table 24. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.	15
<b>Synchronous analyses t1-t3 for study I (under control of DV t1).</b>	16
Table 25. Regressing feelings of resentment at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	16
Table 26. Regressing irritation at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	16
Table 27. Regressing job satisfaction at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	16
Table 28. Regressing emotional exhaustion at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	17
Table 29. Regressing disengagement at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	17
Table 30. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	17
Table 31. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	18
<b>Longitudinal analyses t1-t3 for study I (under control of DV t2).</b>	18
Table 32. Regressing feelings of resentment at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.	18
Table 33. Regressing irritation at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.	18
Table 34. Regressing job satisfaction at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.	19

Table 35. Regressing emotional exhaustion at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.	19
Table 36. Regressing disengagement at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.	19
Table 37. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.	20
Table 38. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.	20
<b>Longitudinal analyses t2-t3 for study I (under control of DV t2).</b>	20
Table 39. Regressing feelings of resentment at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.	20
Table 40. Regressing irritation at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.	21
Table 41. Regressing job satisfaction at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.	21
Table 42. Regressing emotional exhaustion at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.	21
Table 43. Regressing disengagement at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.	22
Table 44. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.	22
Table 45. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.	22
<b>Synchronous analyses t2-t3 for study I (under control of DV t2).</b>	23
Table 46. Regressing feelings of resentment at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.	23
Table 47. Regressing irritation at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.	23
Table 48. Regressing job satisfaction at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.	23
Table 49. Regressing emotional exhaustion at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.	24
Table 50. Regressing disengagement at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.	24
Table 51. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.	24
Table 52. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.	25
<b>Longitudinal analyses t2-t3 for study I (under control of DV t1).</b>	25
Table 53. Regressing feelings of resentment at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.	25
Table 54. Regressing irritation at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.	25
Table 55. Regressing job satisfaction at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.	26
Table 56. Regressing emotional exhaustion at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.	26
Table 57. Regressing disengagement at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.	26
Table 58. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.	27
Table 59. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.	27
<b>Synchronous analyses t2-t3 for study I (under control of DV t1).</b>	27
Table 60. Regressing feelings of resentment at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	27
Table 61. Regressing irritation at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	28
Table 62. Regressing job satisfaction at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	28
Table 63. Regressing emotional exhaustion at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	28
Table 64. Regressing disengagement at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	29
Table 65. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	29
Table 66. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.	29
<b>Longitudinal analyses t1-t2 for study I using the longitudinal sample (under control of DV t1).</b>	30
Table 67. Regressing feelings of resentment at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	30
Table 68. Regressing irritation at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	30
Table 69. Regressing job satisfaction at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	30
Table 70. Regressing emotional exhaustion at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	31
Table 71. Regressing disengagement at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	31

Table 72. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	31
Table 73. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	32
<b>Synchronous analyses t1-t2 for study I using the longitudinal sample (under control of DV t1).</b>	32
Table 74. Regressing feelings of resentment at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	32
Table 75. Regressing irritation at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	32
Table 76. Regressing job satisfaction at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	33
Table 77. Regressing emotional exhaustion at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	33
Table 78. Regressing disengagement at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	33
Table 79. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	34
Table 80. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	34
<b>Reversed causation analyses t1-t2 for study I (under control of DV t1).</b>	34
Table 81. Regressing illegitimate tasks at t2 onto feelings of resentment t1 under control of age, sex, DV t1.	34
Table 82. Regressing illegitimate tasks at t2 onto emotional exhaustion t1 under control of age, sex, DV t1.	35
<b>Reversed causation analyses t1-t3 for study I (under control of DV t1).</b>	35
Table 83. Regressing illegitimate tasks at t3 onto feelings of resentment t1 under control of age, sex, DV t1.	35
Table 84. Regressing illegitimate tasks at t3 onto organization-based self-esteem t1 under control of age, sex, DV t1.	35
<b>Reversed causation analyses t1-t3 for study I (under control of DV t2).</b>	36
Table 85. Regressing illegitimate tasks at t3 onto feelings of resentment t1 under control of age, sex, DV t2.	36
Table 86. Regressing illegitimate tasks at t3 onto psychosomatic complaints t1 under control of age, sex, DV t2.	36
<b>Reversed causation analyses t2-t3 for study I (under control of DV t2).</b>	36
Table 87. Regressing illegitimate tasks at t3 onto feelings of resentment t2 under control of age, sex, DV t2.	36
Table 88. Regressing illegitimate tasks at t3 onto irritation at t2 under control of age, sex, DV t2.	37
Table 89. Regressing illegitimate tasks at t3 onto psychosomatic complaints t2 under control of age, sex, DV t2.	37
<b>Reversed causation analyses t2-t3 for study I (under control of DV t1).</b>	37
Table 90. Regressing illegitimate tasks at t3 onto feelings of resentment t2 under control of age, sex, DV t1.	37
Table 91. Regressing illegitimate tasks at t3 onto irritation t2 under control of age, sex, DV t1.	38
Table 92. Regressing illegitimate tasks at t3 onto exhaustion t2 under control of age, sex, DV t1.	38
Table 93. Means, standard deviations, correlations, internal consistencies in longitudinal study II for the variables of t1 and t2 (longitudinal data set).	39
<b>Longitudinal analyses t1-t2 for study II (under control of DV t1).</b>	40
Table 94. Regressing feelings of resentment at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	40
Table 95. Regressing irritation at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	40
Table 96. Regressing job satisfaction at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	40
Table 97. Regressing emotional exhaustion at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	41
Table 98. Regressing disengagement at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	41
Table 99. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	41
Table 100. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.	42
<b>Synchronous analyses t1-t2 for study II (under control of DV t1).</b>	42
Table 101. Regressing feelings of resentment at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	42
Table 102. Regressing irritation at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	42
Table 103. Regressing job satisfaction at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	43
Table 104. Regressing emotional exhaustion at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	43
Table 105. Regressing disengagement at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	43

## Appendix B4

Table 106. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	44
Table 107. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.	44
<b>Reversed causation analyses t1-t2 for study II (under control of DV t1).</b>	44
Table 108. Regressing illegitimate tasks at t2 onto psychosomatic complaints t1 under control of age, sex, DV t1.	44

# Appendix B4

Table 1. Means, standard deviations, correlations, internal consistencies in longitudinal study I for the variables of t1 and t2 (longitudinal data set).

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>1 BITS t1</b>	2.238	.555	(.84)																				
<b>2 BITS t2</b>	2.140	.593	.601***	(.85)																			
<b>3 UNN t1</b>	2.510	.671	.924***	.558***	(.80)																		
<b>4 UNN t2</b>	2.336	.675	.562***	.894***	.560***	(.78)																	
<b>5 UNR t1</b>	1.898	.572	.827***	.492***	.548***	.406***	(.77)																
<b>6 UNR t2</b>	1.896	.691	.473***	.838***	.394***	.505***	.454***	(.85)															
<b>7 RES t1</b>	2.353	1.037	.585***	.533***	.470***	.509***	.588***	.406***	(.88)														
<b>8 RES t2</b>	2.587	1.135	.411***	.584***	.358***	.568***	.372***	.435***	.558***	(.88)													
<b>9 IRR t1</b>	2.600	.797	.386***	.353***	.274**	.196†	.440***	.442***	.483***	.293**	(.77)												
<b>10 IRR t2</b>	2.675	1.091	.308**	.374***	.148	.240*	.455***	.428***	.580***	.464***	.745***	(.89)											
<b>11 EXH t1</b>	2.007	.485	.340***	.370***	.204†	.223*	.442***	.440***	.400***	.317**	.565***	.464***	(.81)										
<b>12 EXH t2</b>	2.140	.503	.318**	.512***	.177†	.409***	.435***	.488***	.513***	.537***	.519***	.579***	.736***	(.84)									
<b>13 DIS t1</b>	1.749	.492	.495***	.405***	.462***	.413***	.401***	.276**	.487***	.323**	.091	.094	.332***	.372***	(.81)								
<b>14 DIS t2</b>	1.897	.477	.409***	.482***	.326**	.447***	.414***	.382***	.457***	.502***	.166	.196†	.457***	.550***	.719***	(.77)							
<b>15 PC t1</b>	1.767	.476	.327**	.197†	.199†	.080	.421***	.283**	.266*	.341***	.448***	.385***	.427***	.454***	.161	.315**	(.79)						
<b>16 PC t2</b>	1.840	.581	.223*	.215*	.060	.134	.399***	.251*	.359***	.471***	.467***	.569***	.333***	.531***	.126	.330***	.759***	(.85)					
<b>17 JS t1</b>	5.129	1.000	-.531***	-.378***	-.479***	-.432***	-.456***	-.202†	-.529***	-.347***	-.223*	-.250*	-.294**	-.291**	-.696***	-.549***	-.146	-.178†	(.70)				
<b>18 JS t2</b>	4.797	1.223	-.307**	-.459***	-.243*	-.431***	-.313**	-.359***	-.394***	-.473***	-.126	-.253*	-.215*	-.400***	-.493***	-.686***	-.237*	-.320**	.584***	(.76)			
<b>19 OBSE t1</b>	4.252	.545	-.380***	-.253*	-.372***	-.278**	-.284**	-.148	-.383***	-.217*	-.146	-.154	-.249*	-.225*	-.463***	-.337***	-.007	.021	.512***	.269**	(.89)		
<b>20 OBSE t2</b>	4.143	.651	-.328***	-.408***	-.261*	-.413***	-.333***	-.283**	-.329***	-.452***	-.264*	-.275**	-.327**	-.429***	-.334***	-.527***	-.265*	-.283**	.427***	.495***	.566***	(.93)	
<b>21 Age</b>	40.00	10.987	-.144	-.066	-.154	.023	-.087	-.155	-.042	-.119	.104	.083	.070	-.081	-.144	-.181†	.049	-.063	.212*	.222*	.063	.149	--
<b>22 Sex</b>	--	--	-.034	.048	-.038	.026	-.018	.061	.079	.114	.177†	.123	.043	-.065	-.048	-.085	-.027	-.072	-.029	-.104	.046	-.005	.103

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=90-91

BITS= illegitimate tasks, UNN=unnecessary tasks, UNR=unreasonable tasks, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PC=psychosomatic complaints, OBSE=organization-based self-esteem, JS=job satisfaction, sex=dummy-coded male=1, female=0.

# Appendix B4

Table 2. Means, standard deviations, correlations, internal consistencies in longitudinal study I for the variables of t1 and t3 (longitudinal data set).

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>1 BITS t1</b>	2.336	.659	(.89)																				
<b>2 BITS t3</b>	2.234	.574	.638***	(.82)																			
<b>3 UNN t1</b>	2.600	.719	.945***	.626***	(.81)																		
<b>4 UNN t3</b>	2.458	.709	.546***	.892***	.588***	(.79)																	
<b>5 UNR t1</b>	2.005	.699	.906***	.549***	.718***	.401**	(.83)																
<b>6 UNR t3</b>	1.953	.643	.531***	.782***	.448***	.414**	.551***	(.80)															
<b>7 RES t1</b>	2.762	1.213	.629***	.581***	.549***	.370**	.628***	.658***	(.90)														
<b>8 RES t3</b>	2.766	1.225	.504***	.640***	.409**	.493***	.543***	.610***	.570***	(.89)													
<b>9 IRR t1</b>	2.848	.915	.514***	.446***	.426**	.368**	.542***	.390**	.591***	.437**	(.80)												
<b>10 IRR t3</b>	3.005	1.137	.418**	.496***	.320*	.328*	.475***	.546***	.691***	.698***	.685***	(.87)											
<b>11 EXH t1</b>	2.208	.474	.525***	.330*	.470***	.234	.509***	.340*	.456***	.343*	.658***	.496***	(.78)										
<b>12 EXH t3</b>	2.271	.481	.543***	.440**	.514***	.278†	.491***	.501***	.484***	.494***	.376**	.529***	.677**	(.81)									
<b>13 DIS t1</b>	1.844	.550	.482***	.248†	.576***	.196	.281†	.229	.445**	.185	.088	.105	.264†	.311*	(.85)								
<b>14 DIS t3</b>	1.969	.443	.486***	.493***	.504***	.433**	.384**	.396**	.402**	.545***	.036	.341*	.229	.544***	.662***	(.75)							
<b>15 PC t1</b>	1.794	.543	.515***	.350*	.420**	.351*	.552***	.220	.335*	.224	.564***	.386**	.476***	.317*	.191	.202	(.85)						
<b>16 PC t3</b>	1.921	.653	.506***	.509***	.453***	.474***	.490***	.371**	.441**	.433**	.401**	.568***	.444**	.612***	.309*	.467***	.748***	(.89)					
<b>17 JS t1</b>	4.854	1.325	-.461***	-.127	-.508***	-.073	-.325*	-.155	-.479***	-.258†	-.203	-.214	-.302*	-.354*	-.679***	-.457***	-.101	-.225	(.85)				
<b>18 JS t3</b>	4.797	1.346	-.333*	-.398**	-.360*	-.311*	-.243†	-.372**	-.361*	.580***	-.027	-.319*	-.274†	-.473***	-.465***	-.780***	.021	-.301*	.542***	(.84)			
<b>19 OBSE t1</b>	4.080	.643	-.373**	-.039	-.357*	.036	-.331*	-.129	-.409**	-.113	-.223	-.104	-.237	-.255†	-.406**	-.214	.028	-.043	.671***	.132	(.90)		
<b>20 OBSE t3</b>	4.115	.644	-.399**	-.425**	-.404**	-.336*	-.335*	-.390**	-.495***	-.671***	-.282†	-.438**	-.302*	-.511***	-.389**	-.607***	.003	-.353*	.595***	.674***	.501***	(.93)	
<b>21 Age</b>	41.52	11.049	-.171	-.052	-.207	-.041	-.097	-.049	-.005	.000	-.116	-.126	-.108	-.090	-.138	-.079	.004	-.087	.279†	.140	.086	.092	--
<b>22 Sex</b>	--	--	-.061	.117	-.070	.088	-.038	.113	.046	-.022	.330*	.162	.119	-.070	-.158	-.115	.058	-.076	.065	.001	.050	.021	.162

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=46-48

BITS= illegitimate tasks, UNN=unnecessary tasks, UNR=unreasonable tasks, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PC=psychosomatic complaints, OBSE=organization-based self-esteem, JS=job satisfaction, sex=dummy-coded male=1, female=0.

# Appendix B4

Table 3. Means, standard deviations, correlations, internal consistencies in longitudinal study I for the variables of t2 and t3 (longitudinal data set).

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>1 BITS t2</b>	2.225	.669	(.88)																				
<b>2 BITS t3</b>	2.259	.592	.830***	(.84)																			
<b>3 UNN t2</b>	2.419	.757	.915***	.769***	(.84)																		
<b>4 UNN t3</b>	2.510	.706	.685***	.908***	.695***	(.80)																	
<b>5 UNR t2</b>	1.982	.746	.858***	.700***	.577***	.500***	(.84)																
<b>6 UNR t3</b>	1.946	.648	.774***	.820***	.634***	.504***	.759***	(.80)															
<b>7 RES t2</b>	2.792	1.228	.612***	.660***	.579***	.515***	.501***	.655***	(.92)														
<b>8 RES t3</b>	2.805	1.285	.595***	.624***	.531***	.479**	.528***	.633***	.664***	(.90)													
<b>9 IRR t2</b>	2.955	1.234	.452**	.520***	.339*	.411**	.483***	.510***	.686***	.572***	(.92)												
<b>10 IRR t3</b>	2.964	1.160	.494***	.526***	.374*	.383*	.523***	.561***	.721***	.729***	.811***	(.89)											
<b>11 EXH t2</b>	2.220	.493	.594***	.586***	.506***	.464**	.556***	.573***	.742***	.485***	.656***	.591***	(.82)										
<b>12 EXH t3</b>	2.244	.498	.584***	.496***	.469**	.356*	.584***	.535***	.551***	.530***	.373*	.524***	.587***	(.83)									
<b>13 DIS t2</b>	1.996	.508	.400**	.358*	.402**	.301†	.297†	.321*	.445**	.234	.208	.174	.571***	.462**	(.81)								
<b>14 DIS t3</b>	2.004	.453	.549***	.509***	.523***	.408**	.445**	.492***	.513***	.566***	.188	.397**	.390*	.617***	.641***	(.76)							
<b>15 PC t2</b>	1.888	.633	.356*	.461**	.220	.375*	.440**	.438**	.566***	.385*	.635***	.586***	.547***	.363*	.324*	.260†	(.86)						
<b>16 PC t3</b>	1.940	.667	.435**	.569***	.331*	.501***	.459**	.489***	.617***	.471**	.561***	.617***	.563***	.648***	.469**	.452**	.802***	(.89)					
<b>17 JS t2</b>	4.685	1.368	-.441**	-.343*	-.499***	-.263†	-.257	-.348*	-.455**	-.307†	-.269†	-.277†	-.495***	-.438**	-.744***	-.631***	-.297†	-.305*	(.79)				
<b>18 JS t3</b>	4.720	1.397	-.462**	-.403**	-.456**	-.274†	-.355*	-.455**	-.445**	-.600***	-.228	-.397**	-.382*	-.530***	-.493***	-.778***	-.133	-.286†	.604***	(.85)			
<b>19 OBSE t2</b>	4.082	.675	-.362*	-.243	-.373*	-.258†	-.258†	-.149	-.425**	-.344*	-.412**	-.289†	-.581***	-.331*	-.564***	-.216	-.301†	-.277†	.521***	.257	(.93)		
<b>20 OBSE t3</b>	4.088	.646	-.541***	-.472**	-.564***	-.406**	-.376*	-.417	-.530***	-.737***	-.418**	-.527***	-.533***	-.544***	-.467**	-.629***	-.268†	-.364*	.581***	.695***	.642***	(.92)	
<b>21 Age</b>	42.05	11.223	.033	-.089	.122	-.139	-.088	.006	.063	-.011	.042	-.062	-.128	-.042	-.169	-.146	-.180	-.115	.177	.224	-.009	.113	--
<b>22 Sex</b>	--	--	.036	.094	-.015	.102	.092	.055	-.032	-.031	.232	.160	.018	-.047	-.257†	-.126	-.061	-.042	.036	-.020	.070	.040	.185

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=40-42

BITS= illegitimate tasks, UNN=unnecessary tasks, UNR=unreasonable tasks, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PC=psychosomatic complaints, OBSE=organization-based self-esteem, JS=job satisfaction, sex=dummy-coded male=1, female=0.

**Longitudinal analyses t1-t2 for study I (under control of DV t1).**

Table 4. Regressing feelings of resentment at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Feelings of Resentment t2				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.507	.448		3.363	.001
DV t1	.601	.096	.548***	6.253	.000
Age	-.011	.009	-.104	-1.179	.241
Sex (1=male)	.196	.199	.087	.986	.327
<b>Step 2</b>					
(Constant)	1.104	.596		1.851	.068
DV t1	.531	.118	.484***	4.481	.000
Age	-.009	.009	-.091	-1.028	.307
Sex (1=male)	.216	.200	.096	1.081	.283
BITS t1	.228	.222	.111	1.025	.308
R <sup>2</sup> first step					.330***
$\Delta R^2$ for BITS					.008

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 92

Table 5. Regressing irritation at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Irritation t2				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	-.004	.378		-.011	.991
DV t1	1.025	.102	.738***	10.086	.000
Age	.001	.007	.006	.088	.930
Sex (1=male)	.009	.161	.004	.057	.955
<b>Step 2</b>					
(Constant)	-.037	.485		-.077	.939
DV t1	1.020	.112	.735***	9.086	.000
Age	.001	.007	.008	.107	.915
Sex (1=male)	.011	.162	.005	.068	.946
BITS t1	.017	.159	.009	.109	.913
R <sup>2</sup> first step					.547***
$\Delta R^2$ for BITS					.000

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 92

Table 6. Regressing job satisfaction at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Job Satisfaction t2				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.926	.617		1.502	.137
DV t1	.679	.107	.558***	6.360	.000
Age	.013	.010	.115	1.301	.197
Sex (1=male)	-.241	.209	-.100	-1.155	.251
<b>Step 2</b>					
(Constant)	.907	1.057		.858	.393
DV t1	.681	.126	.559***	5.405	.000
Age	.013	.010	.115	1.294	.199
Sex (1=male)	-.241	.210	-.100	-1.145	.255
BITS t1	.005	.223	.002	.023	.982
R <sup>2</sup> first step					.361***
$\Delta R^2$ for BITS					.000

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 91



## Appendix B4

Table 7. Regressing emotional exhaustion at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Emotional Exhaustion t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.847	.196		4.312	.000
DV t1	.779	.074	.747***	10.487	.000
Age	-.006	.003	-.120 <sup>†</sup>	-1.675	.097
Sex (1=male)	-.073	.072	-.072	-1.012	.314
Step 2					
(Constant)	.789	.234		3.370	.001
DV t1	.766	.080	.734***	9.619	.000
Age	-.005	.003	-.114	-1.560	.122
Sex (1=male)	-.072	.073	-.071	-.988	.326
BITS t1	.032	.070	.035	.460	.646
R <sup>2</sup> first step					.562***
$\Delta R^2$ for BITS					.001

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 91

Table 8. Regressing disengagement at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Disengagement t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.878	.199		4.404	.000
DV t1	.678	.073	.699***	9.286	.000
Age	-.004	.003	-.090	-1.186	.239
Sex (1=male)	-.018	.071	-.019	-.251	.803
Step 2					
(Constant)	.821	.226		3.624	.000
DV t1	.655	.084	.676***	7.762	.000
Age	-.004	.003	-.086	-1.121	.265
Sex (1=male)	-.018	.071	-.019	-.253	.801
BITS t1	.041	.074	.048	.545	.587
R <sup>2</sup> first step					.516***
$\Delta R^2$ for BITS					.002

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 91

Table 9. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Psychosomatic Complaints t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.419	.208		2.020	.046
DV t1	.933	.083	.765***	11.200	.000
Age	-.005	.004	-.095	-1.389	.168
Sex (1=male)	-.046	.079	-.040	-.579	.564
Step 2					
(Constant)	.517	.254		2.038	.045
DV t1	.952	.088	.781***	10.774	.000
Age	-.005	.004	-.103	-1.477	.143
Sex (1=male)	-.047	.079	-.041	-.592	.555
BITS t1	-.052	.077	-.049	-.675	.502
R <sup>2</sup> first step					.591***
$\Delta R^2$ for BITS					.002

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 92

# Appendix B4

Table 10. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Organization-based Self-Esteem t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.034	.482		2.147	.035
DV t1	.672	.104	.560***	6.430	.000
Age	.007	.005	.118	1.346	.182
Sex (1=male)	-.066	.113	-.051	-.582	.562
Step 2					
(Constant)	1.555	.661		2.353	.021
DV t1	.624	.112	.520***	5.552	.000
Age	.006	.005	.105	1.190	.237
Sex (1=male)	-.068	.113	-.052	-.600	.550
BITS t1	-.127	.111	-.109	-1.148	.254
R <sup>2</sup> first step					.335***
$\Delta R^2$ for BITS					.010

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 92

## Synchronous analyses t1-t2 for study I (under control of DV t1).

Table 11. Regressing feelings of resentment at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Feelings of Resentment t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.513	.450		3.364	.001
DV t1	.599	.097	.547***	6.198	.000
Age	-.011	.009	-.104	-1.176	.243
Sex (1=male)	.184	.200	.081	.917	.361
Step 2					
(Constant)	.366	.498		.736	.464
DV t1	.370	.105	.338***	3.535	.001
Age	-.009	.008	-.086	-1.061	.292
Sex (1=male)	.174	.184	.077	.945	.347
BITS t2	.756	.183	.395***	4.130	.000
R <sup>2</sup> first step					.327***
$\Delta R^2$ for BITS					.111***

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 91

Table 12. Regressing irritation at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Irritation t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.004	.371		.010	.992
DV t1	1.021	.100	.746***	10.234	.000
Age	.001	.007	.007	.094	.925
Sex (1=male)	-.022	.158	-.010	-.141	.889
Step 2					
(Constant)	-.390	.435		-.897	.372
DV t1	.957	.106	.699***	9.047	.000
Age	.002	.007	.020	.280	.780
Sex (1=male)	-.021	.157	-.009	-.132	.896
BITS t2	.237	.140	.129 <sup>†</sup>	1.692	.094
R <sup>2</sup> first step					.555***
$\Delta R^2$ for BITS					.014 <sup>†</sup>

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 91

## Appendix B4

Table 13. Regressing job satisfaction at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

Dependent Variable Job Satisfaction t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.932	.620		1.503	.137
DV t1	.678	.107	.557***	6.308	.000
Age	.013	.010	.115	1.298	.198
Sex (1=male)	-.248	.211	-.102	-1.175	.243
Step 2					
(Constant)	2.765	.844		3.277	.002
DV t1	.551	.111	.452***	4.972	.000
Age	.013	.009	.117	1.379	.171
Sex (1=male)	-.217	.202	-.089	-1.075	.285
BITS t2	-.561	.184	-.272**	-3.051	.003
R <sup>2</sup> first step					.361***
$\Delta R^2$ for BITS					.063**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 90

Table 14. Regressing emotional exhaustion at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

Dependent Variable Emotional Exhaustion t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.858	.194		4.418	.000
DV t1	.773	.073	.748***	10.512	.000
Age	-.006	.003	-.121 <sup>†</sup>	-1.688	.095
Sex (1=male)	-.085	.072	-.085	-1.188	.238
Step 2					
(Constant)	.523	.201		2.600	.011
DV t1	.668	.074	.647***	9.040	.000
Age	-.004	.003	-.088	-1.303	.196
Sex (1=male)	-.102	.067	-.102	-1.523	.132
BITS t2	.231	.061	.271***	3.780	.000
R <sup>2</sup> first step					.567***
$\Delta R^2$ for BITS					.062***

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 90

Table 15. Regressing disengagement at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

Dependent Variable Disengagement t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.862	.198		4.345	.000
DV t1	.686	.073	.706***	9.439	.000
Age	-.004	.003	-.089	-1.180	.241
Sex (1=male)	-.028	.071	-.029	-.394	.695
Step 2					
(Constant)	.644	.208		3.091	.003
DV t1	.597	.078	.615***	7.677	.000
Age	-.003	.003	-.079	-1.079	.284
Sex (1=male)	-.048	.069	-.050	-.689	.493
BITS t2	.172	.064	.213**	2.668	.009
R <sup>2</sup> first step					.527***
$\Delta R^2$ for BITS					.037**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 90

Appendix B4

Table 16. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable Psychosomatic Complaints t2				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.423	.209		2.022	.046
DV t1	.931	.084	.763***	11.062	.000
Age	-.005	.004	-.096	-1.380	.171
Sex (1=male)	-.048	.080	-.041	-.599	.551
<b>Step 2</b>					
(Constant)	.310	.245		1.266	.209
DV t1	.915	.086	.750***	10.637	.000
Age	-.005	.004	-.090	-1.299	.197
Sex (1=male)	-.052	.080	-.045	-.653	.515
BITS t2	.062	.069	.063	.891	.376
R <sup>2</sup> first step					.588***
$\Delta R^2$ for BITS					.004

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 91

Table 17. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable Organization-based Self-Esteem t2				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.044	.483		2.164	.033
DV t1	.670	.105	.561***	6.397	.000
Age	.007	.005	.118	1.345	.182
Sex (1=male)	-.056	.114	-.043	-.490	.626
<b>Step 2</b>					
(Constant)	2.070	.560		3.698	.000
DV t1	.587	.103	.491***	5.703	.000
Age	.006	.005	.103	1.225	.224
Sex (1=male)	-.032	.109	-.025	-.298	.767
BITS t2	-.303	.095	-.276**	-3.198	.002
R <sup>2</sup> first step					.335***
$\Delta R^2$ for BITS					.071**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 91

**Longitudinal analyses t1-t3 for study I (under control of DV t1).**

Table 18. Regressing feelings of resentment at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable Feelings of Resentment t3				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.216	.691		1.760	.085
DV t1	.573	.125	.573***	4.574	.000
Age	.001	.014	.009	.073	.942
Sex (1=male)	-.130	.309	-.053	-.420	.676
<b>Step 2</b>					
(Constant)	.398	.870		.457	.650
DV t1	.416	.161	.416*	2.585	.013
Age	.005	.014	.046	.362	.719
Sex (1=male)	-.103	.305	-.042	-.337	.738
BITS t1	.460	.304	.246	1.510	.138
R <sup>2</sup> first step					.328***
$\Delta R^2$ for BITS					.035

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 47

Appendix B4

Table 19. Regressing irritation at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Irritation t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.746	.665		1.122	.268
DV t1	.872	.146	.702***	5.960	.000
Age	-.003	.012	-.034	-.301	.765
Sex (1=male)	-.145	.268	-.064	-.540	.592
Step 2					
(Constant)	.567	.751		.755	.454
DV t1	.820	.177	.660***	4.630	.000
Age	-.003	.012	-.029	-.258	.798
Sex (1=male)	-.105	.280	-.047	-.377	.708
BITS t1	.122	.232	.071	.527	.601
R <sup>2</sup> first step					.474***
$\Delta R^2$ for BITS					.003

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 48

Table 20. Regressing job satisfaction at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Job Satisfaction t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	2.186	.812		2.693	.010
DV t1	.555	.134	.546***	4.145	.000
Age	-.001	.016	-.007	-.055	.957
Sex (1=male)	-.089	.343	-.033	-.261	.796
Step 2					
(Constant)	2.964	1.321		2.244	.030
DV t1	.506	.150	.498**	3.383	.002
Age	-.001	.016	-.012	-.088	.930
Sex (1=male)	-.097	.345	-.036	-.280	.781
BITS t1	-.220	.293	-.108	-.749	.458
R <sup>2</sup> first step					.295***
$\Delta R^2$ for BITS					.009

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 48

Table 21. Regressing emotional exhaustion at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Emotional Exhaustion t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.763	.341		2.238	.030
DV t1	.709	.115	.691***	6.177	.000
Age	.001	.005	.012	.104	.917
Sex (1=male)	-.131	.107	-.137	-1.216	.231
Step 2					
(Constant)	.580	.344		1.689	.099
DV t1	.577	.131	.562***	4.418	.000
Age	.002	.005	.036	.324	.747
Sex (1=male)	-.106	.105	-.111	-1.009	.319
BITS t1	.179	.092	.248†	1.943	.059
R <sup>2</sup> first step					.476***
$\Delta R^2$ for BITS					.043†

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 47

Appendix B4

Table 22. Regressing disengagement at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Disengagement t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.963	.283		3.404	.001
DV t1	.535	.094	.665***	5.683	.000
Age	.001	.005	.015	.127	.900
Sex (1=male)	.002	.103	.003	.022	.982
Step 2					
(Constant)	.729	.306		2.381	.022
DV t1	.450	.104	.559***	4.338	.000
Age	.002	.005	.040	.349	.729
Sex (1=male)	-.004	.101	-.004	-.038	.970
BITS t1	.151	.085	.226 <sup>†</sup>	1.766	.085
R <sup>2</sup> first step					.439***
$\Delta R^2$ for BITS					.039 <sup>†</sup>

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 47

Table 23. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Psychosomatic Complaints t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.384	.346		1.110	.273
DV t1	.999	.134	.748***	7.480	.000
Age	-.004	.006	-.073	-.722	.474
Sex (1=male)	-.080	.131	-.062	-.613	.543
Step 2					
(Constant)	.205	.388		.529	.600
DV t1	.909	.160	.681***	5.694	.000
Age	-.003	.006	-.053	-.513	.611
Sex (1=male)	-.073	.131	-.057	-.559	.579
BITS t1	.122	.119	.124	1.019	.314
R <sup>2</sup> first step					.570***
$\Delta R^2$ for BITS					.010

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 47

Table 24. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Organization-based Self-Esteem t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.883	.633		2.973	.005
DV t1	.504	.135	.498***	3.739	.001
Age	.004	.008	.069	.510	.612
Sex (1=male)	-.001	.174	-.001	-.006	.995
Step 2					
(Constant)	2.875	.875		3.286	.002
DV t1	.413	.144	.408**	2.870	.006
Age	.002	.008	.030	.224	.824
Sex (1=male)	-.008	.171	-.006	-.045	.964
BITS t1	-.223	.138	-.233	-1.612	.115
R <sup>2</sup> first step					.256**
$\Delta R^2$ for BITS					.044

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 46

**Synchronous analyses t1-t3 for study I (under control of DV t1).**

Table 25. Regressing feelings of resentment at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

	Dependent Variable Feelings of Resentment t3				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.216	.691		1.760	.085
DV t1	.573	.125	.573***	4.574	.000
Age	.001	.014	.009	.073	.942
Sex (1=male)	-.130	.309	-.053	-.420	.676
<b>Step 2</b>					
(Constant)	-.402	.774		-.519	.607
DV t1	.293	.138	.293*	2.127	.039
Age	.005	.013	.045	.393	.696
Sex (1=male)	-.230	.277	-.094	-.829	.412
BITS t3	1.018	.294	.480***	3.458	.001
R <sup>2</sup> first step					.328***
$\Delta R^2$ for BITS					.149***

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 47

Table 26. Regressing irritation at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

	Dependent Variable Irritation t3				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.746	.665		1.122	.268
DV t1	.872	.146	.702***	5.960	.000
Age	-.003	.012	-.034	-.301	.765
Sex (1=male)	-.145	.268	-.064	-.540	.592
<b>Step 2</b>					
(Constant)	.082	.724		.114	.910
DV t1	.737	.157	.594***	4.702	.000
Age	-.004	.011	-.035	-.325	.746
Sex (1=male)	-.125	.259	-.056	-.484	.631
BITS t3	.467	.234	.236†	1.995	.052
R <sup>2</sup> first step					.474***
$\Delta R^2$ for BITS					.045†

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 48

Table 27. Regressing job satisfaction at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

	Dependent Variable Job Satisfaction t3				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	2.186	.812		2.693	.010
DV t1	.555	.134	.546***	4.145	.000
Age	-.001	.016	-.007	-.055	.957
Sex (1=male)	-.089	.343	-.033	-.261	.796
<b>Step 2</b>					
(Constant)	4.155	1.030		4.033	.000
DV t1	.513	.126	.504***	4.083	.000
Age	-.002	.015	-.020	-.164	.871
Sex (1=male)	.029	.322	.011	.089	.930
BITS t3	-.788	.281	-.336**	-2.808	.007
R <sup>2</sup> first step					.295***
$\Delta R^2$ for BITS					.109**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 48

Appendix B4

Table 28. Regressing emotional exhaustion at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

Dependent Variable Emotional Exhaustion t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.763	.341		2.238	.030
DV t1	.709	.115	.691***	6.177	.000
Age	.001	.005	.012	.104	.917
Sex (1=male)	-.131	.107	-.137	-1.216	.231
Step 2					
(Constant)	.471	.349		1.348	.185
DV t1	.625	.116	.609***	5.407	.000
Age	.001	.005	.020	.182	.856
Sex (1=male)	-.152	.103	-.160	-1.482	.146
BITS t3	.213	.093	.257*	2.291	.027
R <sup>2</sup> first step					.476***
$\Delta R^2$ for BITS					.058*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 47

Table 29. Regressing disengagement at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

Dependent Variable Disengagement t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.963	.283		3.404	.001
DV t1	.535	.094	.665***	5.683	.000
Age	.001	.005	.015	.127	.900
Sex (1=male)	.002	.103	.003	.022	.982
Step 2					
(Constant)	.495	.289		1.711	.094
DV t1	.456	.088	.566***	5.196	.000
Age	.001	.004	.030	.285	.777
Sex (1=male)	-.052	.094	-.059	-.552	.584
BITS t3	.276	.082	.362**	3.367	.002
R <sup>2</sup> first step					.439***
$\Delta R^2$ for BITS					.119**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 47

Table 30. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

Dependent Variable Psychosomatic Complaints t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.384	.346		1.110	.273
DV t1	.999	.134	.748***	7.480	.000
Age	-.004	.006	-.073	-.722	.474
Sex (1=male)	-.080	.131	-.062	-.613	.543
Step 2					
(Constant)	-.080	.368		-.217	.830
DV t1	.860	.135	.644***	6.360	.000
Age	-.003	.006	-.054	-.565	.575
Sex (1=male)	-.125	.124	-.097	-1.011	.318
BITS t3	.306	.115	.272*	2.664	.011
R <sup>2</sup> first step					.570***
$\Delta R^2$ for BITS					.062*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 47



# Appendix B4

Table 31. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

	Dependent Variable				
	Organization-based Self-Esteem t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.883	.633		2.973	.005
DV t1	.504	.135	.498***	3.739	.001
Age	.004	.008	.069	.510	.612
Sex (1=male)	-.001	.174	-.001	-.006	.995
Step 2					
(Constant)	3.047	.686		4.445	.000
DV t1	.469	.123	.464***	3.814	.000
Age	.002	.007	.036	.294	.770
Sex (1=male)	.046	.159	.035	.287	.775
BITS t3	-.430	.137	-.383**	-3.130	.003
R <sup>2</sup> first step					.256**
$\Delta R^2$ for BITS					.143**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 46

## Longitudinal analyses t1-t3 for study I (under control of DV t2)

Table 32. Regressing feelings of resentment at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.

	Dependent Variable				
	Feelings of Resentment t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.085	.698		1.553	.129
DV t2	.692	.128	.667***	5.418	.000
Age	-.006	.014	-.049	-.390	.699
Sex (1=male)	.022	.319	.009	.070	.944
Step 2					
(Constant)	.270	.860		.313	.756
DV t2	.556	.152	.536***	3.657	.001
Age	-.001	.014	-.010	-.082	.935
Sex (1=male)	.024	.313	.009	.076	.940
BITS t1	.447	.285	.231	1.566	.126
R <sup>2</sup> first step					.443***
$\Delta R^2$ for BITS					.036

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 41

Table 33. Regressing irritation at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.

	Dependent Variable				
	Irritation t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.117	.486		2.300	.027
DV t2	.769	.090	.818***	8.514	.000
Age	-.010	.010	-.094	-.992	.327
Sex (1=male)	-.029	.225	-.013	-.128	.898
Step 2					
(Constant)	.992	.618		1.604	.117
DV t2	.752	.105	.800***	7.158	.000
Age	-.009	.010	-.089	-.914	.367
Sex (1=male)	-.014	.232	-.006	-.060	.953
BITS t1	.063	.191	.037	.333	.741
R <sup>2</sup> first step					.668***
$\Delta R^2$ for BITS					.001

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Appendix B4

Table 34. Regressing job satisfaction at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.

Dependent Variable Job Satisfaction t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.335	.854		1.562	.127
DV t2	.595	.132	.583***	4.505	.000
Age	.017	.016	.133	1.009	.319
Sex (1=male)	-.180	.360	-.065	-.501	.619
Step 2					
(Constant)	2.730	1.258		2.170	.037
DV t2	.525	.138	.514***	3.792	.001
Age	.014	.016	.116	.893	.378
Sex (1=male)	-.214	.355	-.077	-.604	.549
BITS t1	-.420	.282	-.202	-1.491	.145
R <sup>2</sup> first step					.383***
$\Delta R^2$ for BITS					.035

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 35. Regressing emotional exhaustion at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.

Dependent Variable Emotional Exhaustion t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.860	.414		2.079	.044
DV t2	.601	.133	.594***	4.502	.000
Age	.002	.006	.046	.343	.734
Sex (1=male)	-.066	.132	-.067	-.501	.619
Step 2					
(Constant)	.590	.407		1.452	.155
DV t2	.433	.144	.428**	2.996	.005
Age	.003	.006	.072	.568	.574
Sex (1=male)	-.038	.125	-.038	-.303	.763
BITS t1	.254	.107	.341*	2.377	.023
R <sup>2</sup> first step					.350***
$\Delta R^2$ for BITS					.086*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 36. Regressing disengagement at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.

Dependent Variable Disengagement t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.910	.350		2.601	.013
DV t2	.575	.115	.646***	4.986	.000
Age	-.002	.005	-.046	-.365	.717
Sex (1=male)	.044	.117	.049	.375	.710
Step 2					
(Constant)	.643	.339		1.896	.066
DV t2	.411	.123	.461**	3.339	.002
Age	-.001	.005	-.018	-.151	.881
Sex (1=male)	.025	.108	.028	.233	.817
BITS t1	.244	.091	.361*	2.688	.011
R <sup>2</sup> first step					.415***
$\Delta R^2$ for BITS					.096*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Appendix B4

Table 37. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.

	Dependent Variable				
	Psychosomatic Complaints t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.259	.348		.744	.462
DV t2	.850	.104	.807***	8.193	.000
Age	.002	.006	.030	.297	.768
Sex (1=male)	.003	.131	.002	.025	.980
Step 2					
(Constant)	-.129	.361		-.358	.723
DV t2	.711	.112	.675***	6.365	.000
Age	.003	.006	.045	.477	.636
Sex (1=male)	.020	.122	.015	.164	.871
BITS t1	.265	.105	.266*	2.514	.016
R <sup>2</sup> first step					.643***
$\Delta R^2$ for BITS					.052*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 38. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t1 under control of age, sex, DV t2.

	Dependent Variable				
	Organization-based Self-Esteem t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.286	.572		2.249	.030
DV t2	.618	.118	.645***	5.243	.000
Age	.007	.007	.124	.993	.327
Sex (1=male)	-.036	.161	-.028	-.224	.824
Step 2					
(Constant)	2.250	.812		2.772	.009
DV t2	.523	.129	.547***	4.058	.000
Age	.005	.007	.090	.724	.474
Sex (1=male)	-.044	.157	-.035	-.282	.780
BITS t1	-.215	.131	-.223	-1.639	.110
R <sup>2</sup> first step					.427***
$\Delta R^2$ for BITS					.039

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

**Longitudinal analyses t2-t3 for study I (under control of DV t2).**

Table 39. Regressing feelings of resentment at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.

	Dependent Variable				
	Feelings of Resentment t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.085	.698		1.553	.129
DV t2	.692	.128	.667***	5.418	.000
Age	-.006	.014	-.049	-.390	.699
Sex (1=male)	.022	.319	.009	.070	.944
Step 2					
(Constant)	.383	.758		.505	.617
DV t2	.497	.157	.479**	3.168	.003
Age	-.005	.014	-.046	-.386	.702
Sex (1=male)	-.036	.308	-.014	.117	.907
BITS t2	.572	.287	.301†	1.995	.054
R <sup>2</sup> first step					.443***
$\Delta R^2$ for BITS					.055†

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 41

Appendix B4

Table 40. Regressing irritation at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.

Dependent Variable Irritation t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.117	.486		2.300	.027
DV t2	.769	.090	.818***	8.514	.000
Age	-.010	.010	-.094	-.992	.327
Sex (1=male)	-.029	.225	-.013	-.128	.898
Step 2					
(Constant)	.707	.544		1.302	.201
DV t2	.698	.100	.742***	7.001	.000
Age	-.010	.010	-.099	-1.058	.297
Sex (1=male)	.000	.222	.000	.000	1.000
BITS t2	.280	.179	.162	1.564	.126
R <sup>2</sup> first step					.668***
$\Delta R^2$ for BITS					.021

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 41. Regressing job satisfaction at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.

Dependent Variable Job Satisfaction t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.335	.854		1.562	.127
DV t2	.595	.132	.583***	4.505	.000
Age	.017	.016	.133	1.009	.319
Sex (1=male)	-.180	.360	-.065	-.501	.619
Step 2					
(Constant)	2.966	1.196		2.481	.018
DV t2	.472	.144	.462**	3.289	.002
Age	.020	.016	.161	1.256	.217
Sex (1=male)	-.157	.348	-.057	-.450	.655
BITS t2	-.546	.289	-.262†	-1.889	.067
R <sup>2</sup> first step					.383***
$\Delta R^2$ for BITS					.054†

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 42. Regressing emotional exhaustion at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.

Dependent Variable Emotional Exhaustion t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.860	.414		2.079	.044
DV t2	.601	.133	.594***	4.502	.000
Age	.002	.006	.046	.343	.734
Sex (1=male)	-.066	.132	-.067	-.501	.619
Step 2					
(Constant)	.829	.391		2.119	.041
DV t2	.376	.158	.372*	2.381	.023
Age	.000	.006	.006	.046	.964
Sex (1=male)	-.068	.125	-.068	-.543	.591
BITS t2	.272	.116	.365*	2.356	.024
R <sup>2</sup> first step					.350***
$\Delta R^2$ for BITS					.085*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

## Appendix B4

Table 43. Regressing disengagement at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.

Dependent Variable Disengagement t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.910	.350		2.601	.013
DV t2	.575	.115	.646***	4.986	.000
Age	-.002	.005	-.046	-.365	.717
Sex (1=male)	.044	.117	.049	.375	.710
Step 2					
(Constant)	.732	.328		2.234	.032
DV t2	.432	.118	.485***	3.677	.001
Age	-.003	.005	-.076	-.648	.521
Sex (1=male)	.000	.108	.000	.001	.999
BITS t2	.242	.086	.357**	2.822	.008
R <sup>2</sup> first step					.415***
$\Delta R^2$ for BITS					.104**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 44. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.

Dependent Variable Psychosomatic Complaints t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.259	.348		.744	.462
DV t2	.850	.104	.807***	8.193	.000
Age	.002	.006	.030	.297	.768
Sex (1=male)	.003	.131	.002	.025	.980
Step 2					
(Constant)	.053	.362		.145	.885
DV t2	.782	.109	.743***	7.174	.000
Age	.001	.006	.014	.142	.888
Sex (1=male)	-.006	.128	-.005	-.048	.962
BITS t2	.170	.102	.171	1.675	.102
R <sup>2</sup> first step					.643***
$\Delta R^2$ for BITS					.025

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 45. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t2 under control of age, sex, DV t2.

Dependent Variable Organization-based Self-Esteem t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.286	.572		2.249	.030
DV t2	.618	.118	.645***	5.243	.000
Age	.007	.007	.124	.993	.327
Sex (1=male)	-.036	.161	-.028	-.224	.824
Step 2					
(Constant)	2.538	.668		3.798	.001
DV t2	.492	.115	.514***	4.272	.000
Age	.008	.007	.131	1.150	.258
Sex (1=male)	-.009	.146	-.007	-.063	.950
BITS t2	-.346	.116	-.359**	-2.985	.005
R <sup>2</sup> first step					.427***
$\Delta R^2$ for BITS					.111**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

**Synchronous analyses t2-t3 for study I (under control of DV t2).**

Table 46. Regressing feelings of resentment at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.

	Dependent Variable Feelings of Resentment t3				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.085	.698		1.553	.129
DV t2	.692	.128	.667***	5.418	.000
Age	-.006	.014	-.049	-.390	.699
Sex (1=male)	.022	.319	.009	.070	.944
<b>Step 2</b>					
(Constant)	-.104	.875		-.118	.906
DV t2	.456	.166	.439**	2.747	.009
Age	.001	.014	.006	.048	.962
Sex (1=male)	-.097	.310	-.038	-.311	.758
BITS t3	.730	.347	.339*	2.103	.043
R <sup>2</sup> first step					.443***
$\Delta R^2$ for BITS					.061*

Note. \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N = 41

Table 47. Regressing irritation at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.

	Dependent Variable Irritation t3				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.117	.486		2.300	.027
DV t2	.769	.090	.818***	8.514	.000
Age	-.010	.010	-.094	-.992	.327
Sex (1=male)	-.029	.225	-.013	-.128	.898
<b>Step 2</b>					
(Constant)	.666	.614		1.084	.285
DV t2	.705	.105	.749***	6.709	.000
Age	-.008	.010	-.080	-.839	.407
Sex (1=male)	-.027	.224	-.012	-.119	.906
BITS t3	.256	.215	.131	1.190	.242
R <sup>2</sup> first step					.668***
$\Delta R^2$ for BITS					.012

Note. \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N = 42

Table 48. Regressing job satisfaction at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.

	Dependent Variable Job Satisfaction t3				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.335	.854		1.562	.127
DV t2	.595	.132	.583***	4.505	.000
Age	.017	.016	.133	1.009	.319
Sex (1=male)	-.180	.360	-.065	-.501	.619
<b>Step 2</b>					
(Constant)	2.831	1.262		2.243	.031
DV t2	.522	.138	.511***	3.792	.001
Age	.015	.016	.122	.945	.351
Sex (1=male)	-.122	.355	-.040	-.316	.754
BITS t3	-.501	.316	-.212	-1.585	.122
R <sup>2</sup> first step					.383***
$\Delta R^2$ for BITS					.039

Note. \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N = 42

## Appendix B4

Table 49. Regressing emotional exhaustion at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.

Dependent Variable Emotional Exhaustion t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.860	.414		2.079	.044
DV t2	.601	.133	.594***	4.502	.000
Age	.002	.006	.046	.343	.734
Sex (1=male)	-.066	.132	-.067	-.501	.619
Step 2					
(Constant)	.712	.418		1.701	.097
DV t2	.458	.161	.453**	2.843	.007
Age	.002	.006	.054	.406	.687
Sex (1=male)	-.087	.130	-.088	-.671	.506
BITS t3	.205	.134	.243	1.526	.135
R <sup>2</sup> first step					.350***
$\Delta R^2$ for BITS					.038

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 50. Regressing disengagement at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.

Dependent Variable Disengagement t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.910	.350		2.601	.013
DV t2	.575	.115	.646***	4.986	.000
Age	-.002	.005	-.046	-.365	.717
Sex (1=male)	.044	.117	.049	.375	.710
Step 2					
(Constant)	.579	.351		1.648	.108
DV t2	.460	.117	.516***	3.934	.000
Age	-.001	.005	-.027	-.226	.822
Sex (1=male)	-.017	.112	-.019	-.151	.881
BITS t3	.249	.097	.325*	2.559	.015
R <sup>2</sup> first step					.415***
$\Delta R^2$ for BITS					.088*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 51. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.

Dependent Variable Psychosomatic Complaints t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.259	.348		.744	.462
DV t2	.850	.104	.807***	8.193	.000
Age	.002	.006	.030	.297	.768
Sex (1=male)	.003	.131	.002	.025	.980
Step 2					
(Constant)	-.155	.366		-.424	.674
DV t2	.724	.110	.687***	6.605	.000
Age	.002	.006	.037	.396	.694
Sex (1=male)	-.040	.124	-.031	-.327	.745
BITS t3	.291	.116	.259*	2.502	.017
R <sup>2</sup> first step					.643***
$\Delta R^2$ for BITS					.052*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

# Appendix B4

Table 52. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t3 under control of age, sex, DV t2.

	Dependent Variable				
	Organization-based Self-Esteem t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.286	.572		2.249	.030
DV t2	.618	.118	.645***	5.243	.000
Age	.007	.007	.124	.993	.327
Sex (1=male)	-.036	.161	-.028	-.224	.824
Step 2					
(Constant)	2.484	.681		3.648	.001
DV t2	.538	.112	.562***	4.788	.000
Age	.005	.007	.086	.741	.463
Sex (1=male)	.020	.149	.016	.135	.893
BITS t3	-.359	.129	-.329**	-2.780	.009
R <sup>2</sup> first step					.427***
$\Delta R^2$ for BITS					.099**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

## Longitudinal analyses t2-t3 for study I (under control of DV t1).

Table 53. Regressing feelings of resentment at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Feelings of Resentment t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.335	.693		1.926	.062
DV t1	.678	.131	.651***	5.195	.000
Age	-.006	.014	-.055	-.434	.667
Sex (1=male)	-.084	.324	-.033	-.260	.797
Step 2					
(Constant)	.565	.773		.731	.470
DV t1	.472	.164	.453**	2.882	.007
Age	-.006	.014	-.050	-.409	.685
Sex (1=male)	-.114	.313	-.044	-.363	.719
BITS t2	.588	.298	.310 <sup>†</sup>	1.974	.056
R <sup>2</sup> first step					.422***
$\Delta R^2$ for BITS					.056 <sup>†</sup>

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 41

Table 54. Regressing irritation at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Irritation t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.645	.707		.912	.368
DV t1	.885	.162	.689***	5.477	.000
Age	-.002	.013	-.019	-.153	.879
Sex (1=male)	-.102	.294	-.044	-.346	.731
Step 2					
(Constant)	.194	.730		.265	.793
DV t1	.734	.178	.571***	4.129	.000
Age	-.004	.012	-.038	-.320	.750
Sex (1=male)	-.032	.289	-.014	-.110	.913
BITS t2	.412	.227	.238 <sup>†</sup>	1.812	.078
R <sup>2</sup> first step					.460***
$\Delta R^2$ for BITS					.044 <sup>†</sup>

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42



## Appendix B4

Table 55. Regressing job satisfaction at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.

Dependent Variable Job Satisfaction t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.683	.798		.856	.398
DV t1	.790	.136	.697***	5.825	.000
Age	.006	.015	.045	.369	.714
Sex (1=male)	-.250	.324	-.090	-.772	.445
Step 2					
(Constant)	2.104	1.095		1.920	.063
DV t1	.677	.145	.597***	4.659	.000
Age	.010	.015	.078	.656	.516
Sex (1=male)	-.220	.315	-.079	-.699	.489
BITS t2	-.471	.257	-.226 <sup>†</sup>	-1.834	.075
R <sup>2</sup> first step					.500***
$\Delta R^2$ for BITS					.042 <sup>†</sup>

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 42

Table 56. Regressing emotional exhaustion at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.

Dependent Variable Emotional Exhaustion t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.598	.366		1.635	.110
DV t1	.744	.124	.710***	6.011	.000
Age	.003	.005	.065	.542	.591
Sex (1=male)	-.148	.118	-.150	-1.253	.218
Step 2					
(Constant)	.380	.334		1.137	.263
DV t1	.587	.121	.560***	4.859	.000
Age	.001	.005	.034	.314	.755
Sex (1=male)	-.136	.106	-.138	-1.292	.205
BITS t2	.274	.084	.367**	3.242	.003
R <sup>2</sup> first step					.489***
$\Delta R^2$ for BITS					.113**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 42

Table 57. Regressing disengagement at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.

Dependent Variable Disengagement t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.064	.284		3.747	.001
DV t1	.561	.093	.701***	6.023	.000
Age	-.002	.005	-.042	-.361	.720
Sex (1=male)	-.008	.105	-.009	.080	.936
Step 2					
(Constant)	.814	.272		2.989	.005
DV t1	.451	.092	.564***	4.876	.000
Age	-.003	.004	-.068	-.636	.529
Sex (1=male)	-.034	.096	-.038	-.354	.726
BITS t2	.228	.077	.337**	2.962	.005
R <sup>2</sup> first step					.505***
$\Delta R^2$ for BITS					.095**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 42

# Appendix B4

Table 58. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Psychosomatic Complaints t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.243	.352		.692	.493
DV t1	1.047	.129	.794***	8.138	.000
Age	-.004	.006	-.073	-.740	.464
Sex (1=male)	.017	.131	.013	.130	.897
Step 2					
(Constant)	-.219	.345		-.635	.529
DV t1	.968	.118	.734***	8.225	.000
Age	-.005	.005	-.084	-.947	.350
Sex (1=male)	.002	.117	.001	.016	.987
BITS t2	.287	.089	.288**	3.238	.003
R <sup>2</sup> first step					.640***
$\Delta R^2$ for BITS					.079**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 59. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Organization-based Self-Esteem t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.963	.718		1.341	.188
DV t1	.676	.152	.587***	4.459	.000
Age	.008	.008	.145	1.091	.282
Sex (1=male)	-.069	.172	-.054	-.401	.691
Step 2					
(Constant)	2.396	.762		3.143	.003
DV t1	.537	.140	.466***	3.828	.000
Age	.009	.007	.149	1.265	.214
Sex (1=male)	-.033	.152	-.026	-.217	.829
BITS t2	-.397	.117	-.411**	-3.400	.002
R <sup>2</sup> first step					.352***
$\Delta R^2$ for BITS					.154**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

## Synchronous analyses t2-t3 for study I (under control of DV t1).

Table 60. Regressing feelings of resentment at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

	Dependent Variable				
	Feelings of Resentment t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.216	.691		1.760	.085
DV t1	.573	.125	.573***	4.574	.000
Age	.001	.014	.009	.073	.942
Sex (1=male)	-.130	.309	-.053	-.420	.676
Step 2					
(Constant)	-.402	.774		-.519	.007
DV t1	.293	.138	.293*	2.127	.039
Age	.005	.013	.045	.393	.696
Sex (1=male)	-.230	.277	-.094	-.829	.412
BITS t3	1.018	.294	.480***	3.458	.001
R <sup>2</sup> first step					.328***
$\Delta R^2$ for BITS					.149***

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 47

## Appendix B4

Table 61. Regressing irritation at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

	Dependent Variable				
	Irritation t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.746	.665		1.122	.268
DV t1	.872	.146	.702***	5.960	.000
Age	-.003	.012	-.034	-.301	.765
Sex (1=male)	-.145	.268	-.064	-.540	.592
Step 2					
(Constant)	.082	.724		.114	.910
DV t1	.737	.157	.594***	4.702	.000
Age	-.004	.011	-.035	-.325	.746
Sex (1=male)	-.125	.259	-.056	-.484	.631
BITS t3	.467	.234	.236 <sup>†</sup>	1.995	.052
R <sup>2</sup> first step					.474***
$\Delta R^2$ for BITS					.045 <sup>†</sup>

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 48

Table 62. Regressing job satisfaction at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

	Dependent Variable				
	Job Satisfaction t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	2.186	.812		2.693	.010
DV t1	.555	.134	.546***	4.145	.000
Age	-.001	.016	-.007	-.055	.957
Sex (1=male)	-.089	.343	-.033	-.261	.796
Step 2					
(Constant)	4.155	1.030		4.033	.000
DV t1	.513	.126	.504***	4.083	.000
Age	-.002	.015	-.020	-.164	.871
Sex (1=male)	.029	.322	.011	.089	.930
BITS t3	-.788	.281	-.336**	-2.808	.007
R <sup>2</sup> first step					.295***
$\Delta R^2$ for BITS					.109**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 48

Table 63. Regressing emotional exhaustion at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

	Dependent Variable				
	Emotional Exhaustion t3				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.763	.341		2.238	.030
DV t1	.709	.115	.691***	6.177	.000
Age	.001	.005	.012	.104	.917
Sex (1=male)	-.131	.107	-.137	-1.216	.231
Step 2					
(Constant)	.471	.349		1.348	.185
DV t1	.625	.116	.609***	5.407	.000
Age	.001	.005	.020	.182	.856
Sex (1=male)	-.152	.103	-.160	-1.482	.146
BITS t3	.213	.093	.257*	2.291	.027
R <sup>2</sup> first step					.476***
$\Delta R^2$ for BITS					.058*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 47

Appendix B4

Table 64. Regressing disengagement at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

Dependent Variable Disengagement t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.963	.283		3.404	.001
DV t1	.535	.094	.665***	5.683	.000
Age	.001	.005	.015	.127	.900
Sex (1=male)	.002	.103	.003	.022	.982
Step 2					
(Constant)	.495	.289		1.711	.094
DV t1	.456	.088	.566***	5.196	.000
Age	.001	.004	.030	.285	.777
Sex (1=male)	-.052	.094	-.059	-.522	.584
BITS t3	.276	.082	.362**	3.367	.002
R <sup>2</sup> first step					.439***
$\Delta R^2$ for BITS					.119**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 47

Table 65. Regressing psychosomatic complaints at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

Dependent Variable Psychosomatic Complaints t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.384	.346		1.110	.273
DV t1	.999	.134	.748***	7.480	.000
Age	-.004	.006	-.073	-.722	.474
Sex (1=male)	-.080	.131	-.062	-.613	.543
Step 2					
(Constant)	-.080	.368		-.217	.830
DV t1	.860	.135	.644***	6.360	.000
Age	-.003	.006	-.054	-.565	.575
Sex (1=male)	-.125	.124	-.097	-1.011	.318
BITS t3	.306	.115	.272*	2.664	.011
R <sup>2</sup> first step					.570***
$\Delta R^2$ for BITS					.062*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 47

Table 66. Regressing organization-based self-esteem at t3 onto illegitimate tasks at t3 under control of age, sex, DV t1.

Dependent Variable Organization-based Self-Esteem t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.883	.633		2.973	.005
DV t1	.504	.135	.498***	3.739	.001
Age	.004	.008	.069	.510	.612
Sex (1=male)	-.001	.174	-.001	-.006	.995
Step 2					
(Constant)	3.047	.686		4.445	.000
DV t1	.469	.123	.464***	3.814	.000
Age	.002	.007	.036	.294	.770
Sex (1=male)	.046	.159	.035	.287	.775
BITS t3	-.430	.137	-.383**	-3.130	.003
R <sup>2</sup> first step					.256**
$\Delta R^2$ for BITS					.143**

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 46

**Longitudinal analyses t1-t2 for study I using the longitudinal sample (under control of DV t1).**

Table 67. Regressing feelings of resentment at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable Feelings of Resentment t2				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	.921	.626		1.471	.149
DV t1	.691	.119	.686***	5.825	.000
Age	.002	.013	.023	.190	.851
Sex (1=male)	-.103	.292	-.042	-.354	.725
<b>Step 2</b>					
(Constant)	.343	.823		.417	.679
DV t1	.582	.156	.578***	3.742	.001
Age	.006	.013	.055	.443	.660
Sex (1=male)	-.079	.292	-.032	-.270	.789
BITS t1	.309	.286	.169	1.080	.287
R <sup>2</sup> first step					.475***
$\Delta R^2$ for BITS					.016

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 68. Regressing irritation at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable Irritation t2				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	-.283	.673		-.420	.677
DV t1	1.034	.154	.757***	6.719	.000
Age	.009	.012	.083	.760	.452
Sex (1=male)	-.028	.280	-.011	-.099	.922
<b>Step 2</b>					
(Constant)	-.598	.761		-.786	.437
DV t1	.941	.186	.698***	5.064	.000
Age	.010	.012	.092	.839	.407
Sex (1=male)	.044	.292	.018	.149	.882
BITS t1	.216	.240	.117	.897	.375
R <sup>2</sup> first step					.567***
$\Delta R^2$ for BITS					.009

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 69. Regressing job satisfaction at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable Job Satisfaction t2				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.121	.841		1.333	.191
DV t1	.723	.143	.651***	5.062	.000
Age	.000	.016	-.002	-.018	.986
Sex (1=male)	-.060	.341	-.022	-.176	.861
<b>Step 2</b>					
(Constant)	.995	1.465		.679	.502
DV t1	.734	.174	.661***	4.211	.000
Age	.000	.016	-.003	-.020	.984
Sex (1=male)	-.058	.346	-.022	-.169	.867
BITS t1	.033	.311	.016	.106	.916
R <sup>2</sup> first step					.421***
$\Delta R^2$ for BITS					.000

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Appendix B4

Table 70. Regressing emotional exhaustion at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Emotional Exhaustion t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.856	.380		2.254	.030
DV t1	.684	.129	.569***	5.324	.000
Age	-.002	.005	-.044	-.350	.728
Sex (1=male)	-.056	.123	-.058	-.460	.648
Step 2					
(Constant)	.685	.388		1.767	.085
DV t1	.570	.145	.550***	3.932	.000
Age	-.001	.005	-.028	-.224	.824
Sex (1=male)	-.026	.122	-.027	-.218	.829
BITS t1	.162	.102	.221	1.586	.121
R <sup>2</sup> first step					.438***
$\Delta R^2$ for BITS					.036

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 71. Regressing disengagement at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Disengagement t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.931	.282		3.300	.002
DV t1	.666	.092	.742***	7.198	.000
Age	-.002	.005	-.035	-.340	.736
Sex (1=male)	-.137	.105	-.136	-1.305	.200
Step 2					
(Constant)	.788	.307		2.568	.014
DV t1	.602	.107	.671***	5.599	.000
Age	-.001	.005	-.024	-.233	.817
Sex (1=male)	-.138	.104	-.136	-1.320	.195
BITS t1	.105	.090	.138	1.161	.253
R <sup>2</sup> first step					.611***
$\Delta R^2$ for BITS					.014

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 72. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Psychosomatic Complaints t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.306	.280		1.092	.282
DV t1	1.062	.102	.847***	10.359	.000
Age	-.008	.005	-.134	-1.615	.115
Sex (1=male)	.009	.104	.007	.086	.932
Step 2					
(Constant)	.338	.307		1.102	.278
DV t1	1.083	.129	.864***	8.378	.000
Age	-.008	.005	-.137	-1.618	.114
Sex (1=male)	.008	.106	.006	.072	.943
BITS t1	-.027	.099	-.029	-.275	.785
R <sup>2</sup> first step					.747***
$\Delta R^2$ for BITS					.001

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Appendix B4

Table 73. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Organization-based Self-Esteem t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.030	.744		1.385	.174
DV t1	.725	.157	.603***	4.620	.000
Age	.001	.008	.014	.107	.916
Sex (1=male)	-.002	.178	-.001	-.009	.993
Step 2					
(Constant)	2.131	1.035		2.059	.047
DV t1	.604	.174	.503***	3.470	.001
Age	-.001	.008	-.023	-.177	.860
Sex (1=male)	-.003	.175	-.002	-.016	.987
BITS t1	-.220	.147	-.219	-1.503	.141
R <sup>2</sup> first step					.363***
$\Delta R^2$ for BITS					.037

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

**Synchronous analyses t1-t2 for study I using the longitudinal sample (under control of DV t1).**

Table 74. Regressing feelings of resentment at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Feelings of Resentment t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.921	.626		1.471	.149
DV t1	.691	.119	.686***	5.825	.000
Age	.002	.013	.023	.190	.851
Sex (1=male)	-.103	.292	-.042	-.354	.725
Step 2					
(Constant)	.211	.701		.301	.765
DV t1	.502	.149	.498**	3.366	.002
Age	.003	.013	.028	.244	.808
Sex (1=male)	-.127	.281	-.052	-.452	.654
BITS t2	.538	.271	.293†	1.985	.055
R <sup>2</sup> first step					.475***
$\Delta R^2$ for BITS					.051†

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 75. Regressing irritation at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Irritation t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	-.283	.673		-.420	.677
DV t1	1.034	.154	.757***	6.719	.000
Age	.009	.012	.083	.760	.452
Sex (1=male)	-.028	.280	-.011	-.099	.922
Step 2					
(Constant)	-.563	.713		-.790	.435
DV t1	.940	.173	.688***	5.418	.000
Age	.008	.012	.072	.656	.516
Sex (1=male)	.016	.282	.006	.056	.955
BITS t2	.256	.222	.139	1.153	.256
R <sup>2</sup> first step					.567***
$\Delta R^2$ for BITS					.015

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

## Appendix B4

Table 76. Regressing job satisfaction at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

Dependent Variable Job Satisfaction t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.121	.841		1.333	.191
DV t1	.723	.143	.651***	5.062	.000
Age	.000	.016	-.002	-.018	.986
Sex (1=male)	-.060	.341	-.022	-.176	.861
Step 2					
(Constant)	2.493	1.163		2.144	.039
DV t1	.614	.154	.553***	3.983	.000
Age	.004	.016	.031	.237	.814
Sex (1=male)	-.031	.334	-.012	-.094	.926
BITS t2	-.455	.273	-.222	-1.668	.104
R <sup>2</sup> first step					.421***
$\Delta R^2$ for BITS					.040

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 77. Regressing emotional exhaustion at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

Dependent Variable Emotional Exhaustion t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.856	.380		2.254	.030
DV t1	.684	.129	.659***	5.324	.000
Age	-.002	.005	-.044	-.350	.728
Sex (1=male)	-.056	.123	-.058	-.460	.648
Step 2					
(Constant)	.619	.342		1.809	.079
DV t1	.514	.124	.495***	4.151	.000
Age	-.003	.005	-.078	-.702	.487
Sex (1=male)	-.044	.108	-.045	-.406	.687
BITS t2	.297	.086	.403***	3.435	.001
R <sup>2</sup> first step					.438***
$\Delta R^2$ for BITS					.136***

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42

Table 78. Regressing disengagement at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

Dependent Variable Disengagement t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.931	.282		3.300	.002
DV t1	.666	.092	.742***	7.198	.000
Age	-.002	.005	-.035	-.340	.736
Sex (1=male)	-.137	.105	-.136	-1.305	.200
Step 2					
(Constant)	.810	.294		2.754	.009
DV t1	.613	.100	.683***	6.133	.000
Age	-.002	.005	-.046	-.450	.655
Sex (1=male)	-.149	.104	-.148	-1.433	.160
BITS t2	.111	.083	.146	1.332	.191
R <sup>2</sup> first step					.611***
$\Delta R^2$ for BITS					.018

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 42



# Appendix B4

Table 79. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

Dependent Variable Psychosomatic Complaints t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.306	.280		1.092	.282
DV t1	1.062	.102	.847***	10.359	.000
Age	-.008	.005	-.134	-1.615	.115
Sex (1=male)	.009	.104	.007	.086	.932
Step 2					
(Constant)	.007	.288		.025	.980
DV t1	1.010	.098	.806***	10.292	.000
Age	-.008	.004	-.141 <sup>†</sup>	-1.815	.078
Sex (1=male)	-.001	.098	-.001	-.009	.993
BITS t2	.185	.074	.196*	2.505	.017
R <sup>2</sup> first step					.747***
$\Delta R^2$ for BITS					.037*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 42

Table 80. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

Dependent Variable Organization-based Self-Esteem t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.030	.744		1.385	.174
DV t1	.725	.157	.603***	4.620	.000
Age	.001	.008	.014	.107	.916
Sex (1=male)	-.002	.178	-.001	-.009	.993
Step 2					
(Constant)	1.787	.876		2.041	.048
DV t1	.652	.161	.542***	4.046	.000
Age	.001	.008	.016	.123	.903
Sex (1=male)	.017	.175	.013	.099	.922
BITS t2	-.210	.134	-.208	-1.564	.126
R <sup>2</sup> first step					.363***
$\Delta R^2$ for BITS					.039

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 42

## Reversed causation analyses t1-t2 for study I (under control of DV t1).

Table 81. Regressing illegitimate tasks at t2 onto feelings of resentment t1 under control of age, sex, DV t1.

Dependent Variable Illegitimate Tasks at t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.623	.304		2.050	.023
DV t1	.646	.092	.605***	7.011	.000
Age	.001	.005	.014	.163	.871
Sex (1=male)	.079	.101	.067	.784	.435
Step 2					
(Constant)	.677	.295		2.299	.023
DV t1	.476	.110	.445***	4.306	.000
Age	.000	.005	.005	.061	.951
Sex (1=male)	.049	.099	.042	.498	.620
RES t1	.154	.059	.269**	2.617	.010
R <sup>2</sup> first step					.366***
$\Delta R^2$ for RES					.047**

Note. RES=feelings of resentment, \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 91

Appendix B4

Table 82. Regressing illegitimate tasks at t2 onto emotional exhaustion t1 under control of age, sex, DV t1.

Dependent Variable Illegitimate Tasks at t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.623	.304		2.050	.043
DV t1	.646	.092	.605***	7.011	.000
Age	.001	.005	.014	.163	.871
Sex (1=male)	.079	.101	.067	.784	.435
Step 2					
(Constant)	.380	.321		1.184	.240
DV t1	.576	.097	.539***	5.943	.000
Age	.000	.005	-.008	-.088	.930
Sex (1=male)	.070	.100	.059	.703	.484
EXH t1	.225	.110	.184*	2.048	.044
R <sup>2</sup> first step					.366***
$\Delta R^2$ for EXH					.030*

Note. EXH=emotional exhaustion, \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 91

**Reversed causation analyses t1-t3 for study I (under control of DV t1).**

Table 83. Regressing illegitimate tasks at t3 onto feelings of resentment t1 under control of age, sex, DV t1.

Dependent Variable Illegitimate Tasks at t3					
	B	se <sub>B</sub>	$\beta$	t	Sig
Step 1					
(Constant)	.734	.378		1.943	.058
DV t1	.570	.101	.653***	5.668	.000
Age	.002	.006	.035	.301	.765
Sex (1=male)	.172	.131	.151	1.311	.197
Step 2					
(Constant)	.807	.369		2.190	.034
DV t1	.413	.127	.474**	3.252	.002
Age	.000	.006	.009	.076	.939
Sex (1=male)	.150	.128	.131	1.171	.248
RES t1	.131	.068	.277†	1.930	.060
R <sup>2</sup> first step					.433***
$\Delta R^2$ for RES					.045†

Note. RES=feelings of resentment, \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 48

Table 84. Regressing illegitimate tasks at t3 onto organization-based self-esteem t1 under control of age, sex, DV t1.

Dependent Variable Illegitimate Tasks at t3					
	B	se <sub>B</sub>	$\beta$	t	Sig
Step 1					
(Constant)	.734	.378		1.943	.058
DV t1	.570	.101	.653***	5.668	.000
Age	.002	.006	.035	.301	.765
Sex (1=male)	.172	.131	.151	1.311	.197
Step 2					
(Constant)	-.243	.633		-.384	.703
DV t1	.642	.105	.736***	6.121	.000
Age	.002	.006	.031	.272	.787
Sex (1=male)	.166	.128	.145	1.299	.201
OBSE t1	.201	.106	.225†	1.894	.065
R <sup>2</sup> first step					.433***
$\Delta R^2$ for OBSE					.044†

Note. OBSE=organization-based self-esteem, \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 48

**Reversed causation analyses t1-t3 for study I (under control of DV t2).**

Table 85. Regressing illegitimate tasks at t3 onto feelings of resentment t1 under control of age, sex, DV t2.

Dependent Variable Illegitimate Tasks at t3					
	B	se <sub>B</sub>	$\beta$	t	Sig
Step 1					
(Constant)	.860	.260		3.304	.002
DV t2	.735	.077	.831***	9.505	.000
Age	-.007	.005	-.133	-1.490	.144
Sex (1=male)	.104	.104	.089	.997	.325
Step 2					
(Constant)	.882	.246		3.593	.001
DV t2	.589	.095	.665***	6.197	.000
Age	-.008	.004	-.146†	-1.744	.089
Sex (1=male)	.111	.099	.095	1.132	.265
RES t1	.126	.052	.259*	2.408	.021
R <sup>2</sup> first step					.710***
$\Delta R^2$ for RES					.039*

Note. RES=feelings of resentment, \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N = 42

Table 86. Regressing illegitimate tasks at t3 onto psychosomatic complaints t1 under control of age, sex, DV t2.

Dependent Variable Illegitimate Tasks at t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.860	.260		3.304	.002
DV t2	.735	.077	.831***	9.505	.000
Age	-.007	.005	-.133	-1.490	.144
Sex (1=male)	.104	.104	.089	.997	.325
Step 2					
(Constant)	.502	.292		1.720	.094
DV t2	.699	.075	.791***	9.331	.000
Age	-.006	.004	-.122	-1.446	.157
Sex (1=male)	.115	.099	.098	1.165	.251
PC t1	.229	.099	.196*	2.306	.027
R <sup>2</sup> first step					.710***
$\Delta R^2$ for PC					.036*

Note. PC=psychosomatic complaints, \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N = 42

**Reversed causation analyses t2-t3 for study I (under control of DV t2).**

Table 87. Regressing illegitimate tasks at t3 onto feelings of resentment t2 under control of age, sex, DV t2.

Dependent Variable Illegitimate Tasks at t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.860	.260		3.304	.002
DV t2	.735	.077	.831***	9.505	.000
Age	-.007	.005	-.133	-1.490	.144
Sex (1=male)	.104	.104	.089	.997	.325
Step 2					
(Constant)	.845	.244		3.463	.001
DV t2	.593	.092	.671***	6.472	.000
Age	-.008	.004	-.147†	-1.761	.087
Sex (1=male)	.124	.098	.105	1.263	.215
RES t2	.126	.050	.262*	2.520	.016
R <sup>2</sup> first step					.710***
$\Delta R^2$ for RES					.042*

Note. RES=feelings of resentment, \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N = 42

Appendix B4

Table 88. Regressing illegitimate tasks at t3 onto irritation at t2 under control of age, sex, DV t2.

Dependent Variable Illegitimate Tasks at t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.860	.260		3.304	.002
DV t2	.735	.077	.831***	9.505	.000
Age	-.007	.005	-.133	-1.490	.144
Sex (1=male)	.104	.104	.089	.997	.325
Step 2					
(Constant)	.786	.257		3.058	.004
DV t2	.667	.085	.754***	7.881	.000
Age	-.007	.005	-.130	-1.505	.141
Sex (1=male)	.060	.105	.051	.573	.570
IRR t2	.083	.047	.172†	1.754	.088
R <sup>2</sup> first step					.710***
$\Delta R^2$ for IRR					.022†

Note. IRR=irritation. \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, N = 42

Table 89. Regressing illegitimate tasks at t3 onto psychosomatic complaints t2 under control of age, sex, DV t2.

Dependent Variable Illegitimate Tasks at t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.860	.260		3.304	.002
DV t2	.735	.077	.831***	9.505	.000
Age	-.007	.005	-.133	-1.490	.144
Sex (1=male)	.104	.104	.089	.997	.325
Step 2					
(Constant)	.599	.287		2.088	.044
DV t2	.679	.080	.767***	8.430	.000
Age	-.005	.005	-.100	-1.141	.261
Sex (1=male)	.113	.101	.096	1.113	.273
PC t2	.165	.086	.176†	1.904	.065
R <sup>2</sup> first step					.710***
$\Delta R^2$ for PC					.026†

Note. PC=psychosomatic complaints, \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, N = 42

**Reversed causation analyses t2-t3 for study I (under control of DV t1).**

Table 90. Regressing illegitimate tasks at t3 onto feelings of resentment t2 under control of age, sex, DV t1.

Dependent Variable Illegitimate Tasks at t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.800	.390		2.054	.047
DV t1	.607	.105	.687***	5.793	.000
Age	-.001	.006	-.012	-.097	.923
Sex (1=male)	.184	.140	.157	1.316	.196
Step 2					
(Constant)	.837	.342		2.450	.019
DV t1	.397	.109	.450***	3.638	.001
Age	-.004	.006	-.077	-.716	.478
Sex (1=male)	.190	.123	.162	1.548	.130
RES t2	.209	.059	.433***	3.538	.001
R <sup>2</sup> first step					.480***
$\Delta R^2$ for RES					.131***

Note. RES=feelings of resentment, \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, N = 42

Appendix B4

Table 91. Regressing illegitimate tasks at t3 onto irritation t2 under control of age, sex, DV t1.

Dependent Variable Illegitimate Tasks at t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.800	.390		2.054	.047
DV t1	.607	.105	.687***	5.793	.000
Age	-.001	.006	-.012	-.097	.923
Sex (1=male)	.184	.140	.157	1.316	.196
Step 2					
(Constant)	.772	.379		2.036	.049
DV t1	.503	.117	.570***	4.300	.000
Age	-.001	.006	-.028	-.242	.810
Sex (1=male)	.110	.142	.094	.773	.445
IRR t2	.116	.064	.242†	1.802	.080
R <sup>2</sup> first step					.480***
$\Delta R^2$ for IRR					.042†

Note. IRR=irritation. \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, N = 42

Table 92. Regressing illegitimate tasks at t3 onto exhaustion t2 under control of age, sex, DV t1.

Dependent Variable Illegitimate Tasks at t3					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.800	.390		2.054	.047
DV t1	.607	.105	.687***	5.793	.000
Age	-.001	.006	-.012	-.097	.923
Sex (1=male)	.184	.140	.157	1.316	.196
Step 2					
(Constant)	.228	.428		.533	.597
DV t1	.467	.112	.529***	4.157	.000
Age	.001	.006	.010	.085	.933
Sex (1=male)	.156	.131	.133	1.190	.242
EXH t2	.387	.152	.322*	2.548	.015
R <sup>2</sup> first step					.480***
$\Delta R^2$ for EXH					.078*

Note. EXH=emotional exhaustion, \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, N = 42

# Appendix B4

Table 93. Means, standard deviations, correlations, internal consistencies in longitudinal study II for the variables of t1 and t2 (longitudinal data set).

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>1</b> BITS t1	2.411	.582	(.85)																				
<b>2</b> BITS t2	2.326	.653	.617***	(.88)																			
<b>3</b> UNN t1	2.718	.684	.928***	.519***	(.80)																		
<b>4</b> UNN t2	2.561	.735	.523***	.942***	.464***	(.85)																	
<b>5</b> UNR t1	2.026	.606	.851***	.601***	.593***	.475***	(.79)																
<b>6</b> UNR t2	2.033	.677	.629***	.891***	.496***	.688***	.659***	(.78)															
<b>7</b> RES t1	2.739	1.232	.528***	.281*	.440***	.194†	.520***	.346**	(.89)														
<b>8</b> RES t2	2.758	1.154	.434***	.569***	.324**	.510***	.481***	.542***	.569***	(.91)													
<b>9</b> IRR t1	3.125	.968	.392***	.167	.373***	.156	.321**	-.150	.384***	.226*	(.81)												
<b>10</b> IRR t2	3.028	1.117	.455***	.488***	.405***	.429***	.412***	.478***	.363***	.534***	.646***	(.90)											
<b>11</b> EXH t1	2.247	.575	.478***	.413***	.406***	.366***	.459***	.400***	.548***	.414***	.345**	.389***	(.73)										
<b>12</b> EXH t2	2.270	.590	.196†	.542***	.131	.554***	.239*	.424***	.207†	.548***	.245*	.498***	.447***	(.74)									
<b>13</b> DIS t1	1.852	.569	.281*	.231*	.263*	.231*	.236*	.188	.529***	.317**	.151	.120	.533***	.245*	(.69)								
<b>14</b> DIS t2	1.763	.610	.273*	.528***	.201†	.540***	.306*	.413***	.362***	.496***	.328**	.476***	.385***	.743***	.381***	(.84)							
<b>15</b> PC t1	2.072	.658	.330**	.389***	.242*	.276*	.371***	.470***	.419***	.396***	.417***	.457***	.520***	.530***	.233*	.469***	(.74)						
<b>16</b> PC t2	2.141	.758	.339**	.467***	.291*	.397***	.321**	.474***	.372***	.445***	.411***	.598***	.421***	.618***	.189	.586***	.768***	(.87)					
<b>17</b> JS t1	4.713	1.033	-.395***	-.212†	-.405***	-.230*	-.286*	-.149	-.515***	-.092	-.260*	-.151	-.521***	-.132	-.617***	-.221†	-.248*	-.226†	(.66)				
<b>18</b> JS t2	4.688	1.018	-.267*	-.574***	-.242*	-.580***	-.236*	-.458***	-.351**	-.460***	-.247*	-.495***	-.365***	-.597***	-.336**	-.635***	-.458***	-.600***	.318**	(.72)			
<b>19</b> OBSE t1	3.870	.751	-.286*	-.219†	-.262*	-.185	-.247*	-.226*	-.420***	-.192†	-.124	-.018	-.388***	-.222†	-.384***	-.297**	-.349**	-.279*	.299**	.161	(.92)		
<b>20</b> OBSE t2	3.947	.725	-.210†	-.360***	-.204†	-.326**	-.166	-.339**	-.419***	-.532***	-.185	-.321**	-.242*	-.375***	-.387***	-.402***	-.295**	-.331**	.201†	.520***	.372***	(.92)	
<b>21</b> Age	41.913	9.105	.094	-.178	-.139	-.240*	-.007	-.060	-.179	-.076	.011	-.040	-.065	-.131	-.053	-.078	-.005	-.131	.241*	.239*	.142	.114	--
<b>22</b> Sex	--	--	.218†	.085	.218†	.058	.163	.107	.227*	.052	.058	.119	.023	.095	.002	-.086	-.092	-.029	-.120	.007	.079	.015	.138

Note. Pearson Correlations (2-tailed) \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, cronbach's alpha in parentheses, N=74-76

BITS= illegitimate tasks, UNN=unnecessary tasks, UNR=unreasonable tasks, RES=feelings of resentment, IRR=irritation, EXH=emotional exhaustion, DIS=disengagement, PC=psychosomatic complaints, OBSE=organization-based self-esteem, JS=job satisfaction, sex=dummy-coded male=1, female=0.

**Longitudinal analyses t1-t2 for study II (under control of DV t1).**

Table 94. Regressing feelings of resentment at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Feelings of Resentment t2				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	1.171	.634		1.847	.069
DV t1	.554	.097	.592***	5.722	.000
Age	.005	.013	.042	.412	.682
Sex (1=male)	-.212	.271	-.080	-.782	.437
<b>Step 2</b>					
(Constant)	.495	.735		.674	.503
DV t1	.462	.109	.494***	4.244	.000
Age	.006	.013	.046	.461	.646
Sex (1=male)	-.273	.269	-.103	-1.012	.315
BITS t1	.394	.225	.200 <sup>†</sup>	1.752	.084
R <sup>2</sup> first step					.325***
$\Delta R^2$ for BITS					.028 <sup>†</sup>

Note. \*\*\*p<sub>≤</sub>.001, \*\* p<sub>≤</sub>.01, \*p<sub>≤</sub>.05, †p<sub>≤</sub>.10, N = 75

Table 95. Regressing irritation at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Irritation t2				
	B	se <sub>B</sub>	$\beta$	t	Sig
<b>Step 1</b>					
(Constant)	.876	.579		1.512	.135
DV t1	.738	.104	.642***	7.121	.000
Age	-.007	.011	-.058	-.636	.527
Sex (1=male)	.203	.233	.079	.870	.387
<b>Step 2</b>					
(Constant)	.052	.655		.079	.937
DV t1	.632	.109	.549***	5.772	.000
Age	-.003	.011	-.026	-.298	.767
Sex (1=male)	.058	.233	.023	.250	.803
BITS t1	.459	.189	.239*	2.426	.018
R <sup>2</sup> first step					.425***
$\Delta R^2$ for BITS					.045*

Note. \*\*\*p<sub>≤</sub>.001, \*\* p<sub>≤</sub>.01, \*p<sub>≤</sub>.05, †p<sub>≤</sub>.10, N = 75

Table 96. Regressing job satisfaction at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Job Satisfaction t2				
	B	se <sub>B</sub>	$\beta$	t	sig
<b>Step 1</b>					
(Constant)	2.409	.711		3.391	.001
DV t1	.281	.116	.284*	2.425	.018
Age	.020	.013	.174	1.487	.142
Sex (1=male)	.140	.277	.058	.505	.615
<b>Step 2</b>					
(Constant)	3.480	.998		3.489	.001
DV t1	.216	.123	.218 <sup>†</sup>	1.758	.083
Age	.019	.013	.164	1.416	.161
Sex (1=male)	.231	.281	.096	.822	.414
BITS t1	-.327	.216	-.187	-1.515	.134
R <sup>2</sup> first step					.136*
$\Delta R^2$ for BITS					.028

Note. \*\*\*p<sub>≤</sub>.001, \*\* p<sub>≤</sub>.01, \*p<sub>≤</sub>.05, †p<sub>≤</sub>.10, N = 73

## Appendix B4

Table 97. Regressing emotional exhaustion at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Emotional Exhaustion t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.569	.395		3.967	.000
DV t1	.454	.107	.445***	4.228	.000
Age	-.006	.007	-.092	-.863	.391
Sex (1=male)	-.102	.143	-.076	-.715	.477
Step 2					
(Constant)	1.594	.434		3.670	.000
DV t1	.463	.124	.454***	3.746	.000
Age	-.006	.007	-.093	-.868	.388
Sex (1=male)	-.096	.150	-.071	-.643	.522
BITS t1	-.019	.127	-.018	-.147	.883
R <sup>2</sup> first step					.218***
$\Delta R^2$ for BITS					.000

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 75

Table 98. Regressing disengagement at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Disengagement t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.209	.395		3.060	.003
DV t1	.401	.116	.378***	3.453	.001
Age	-.003	.007	-.050	-.450	.654
Sex (1=male)	-.078	.153	-.056	-.511	.611
Step 2					
(Constant)	.808	.456		1.772	.081
DV t1	.344	.120	.324**	2.879	.005
Age	-.002	.007	-.027	-.248	.805
Sex (1=male)	-.147	.157	-.106	-.939	.351
BITS t1	.205	.121	.198†	1.691	.095
R <sup>2</sup> first step					.151**
$\Delta R^2$ for BITS					.033†

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 75

Table 99. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

Dependent Variable Organization-based Self-Esteem t2					
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	2.337	.474		4.935	.000
DV t1	.378	.099	.416***	3.839	.000
Age	.005	.008	.067	.612	.542
Sex (1=male)	-.043	.160	-.029	-.272	.787
Step 2					
(Constant)	2.537	.626		4.054	.000
DV t1	.366	.102	.402***	3.574	.001
Age	.004	.008	.062	.558	.579
Sex (1=male)	-.021	.167	-.014	-.127	.899
BITS t1	-.063	.128	-.057	-.492	.624
R <sup>2</sup> first step					.185**
$\Delta R^2$ for BITS					.003

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 75



Table 100. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t1 under control of age, sex, DV t1.

	Dependent Variable				
	Psychosomatic Complaints t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.673	.325		2.070	.042
DV t1	.913	.086	.777***	10.610	.000
Age	-.011	.006	-.133 <sup>†</sup>	-1.801	.076
Sex (1=male)	.071	.129	.041	.549	.585
Step 2					
(Constant)	.481	.380		1.267	.209
DV t1	.882	.092	.751***	9.598	.000
Age	-.010	.006	-.123	-1.645	.105
Sex (1=male)	.033	.135	.019	.246	.806
BITS t1	.103	.106	.079	.972	.335
R <sup>2</sup> first step					.620***
$\Delta R^2$ for BITS					.005

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 75

### Synchronous analyses t1-t2 for study II (under control of DV t1).

Table 101. Regressing feelings of resentment at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Feelings of Resentment t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.171	.634		1.847	.069
DV t1	.554	.097	.592***	5.722	.000
Age	.005	.013	.042	.412	.682
Sex (1=male)	-.212	.271	-.080	-.782	.437
Step 2					
(Constant)	-.741	.649		1.142	.257
DV t1	.452	.085	.483***	5.344	.000
Age	.014	.011	.108	1.245	.217
Sex (1=male)	-.284	.231	-.108	-1.231	.222
BITS t2	.814	.154	.463***	5.304	.000
R <sup>2</sup> first step					.325***
$\Delta R^2$ for BITS					.194***

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 75

Table 102. Regressing irritation at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Irritation t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.876	.579		1.512	.135
DV t1	.738	.104	.642***	7.121	.000
Age	-.007	.011	-.058	-.636	.527
Sex (1=male)	.203	.233	.079	.870	.387
Step 2					
(Constant)	-.783	.605		-1.293	.200
DV t1	.662	.091	.575***	7.248	.000
Age	.003	.010	.021	.255	.799
Sex (1=male)	.082	.203	.032	.403	.688
BITS t2	.682	.139	.400***	4.924	.000
R <sup>2</sup> first step					.425***
$\Delta R^2$ for BITS					.148***

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, <sup>†</sup>p $\leq$ .10, N = 75

## Appendix B4

Table 103. Regressing job satisfaction at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Job Satisfaction t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	2.409	.711		3.391	.001
DV t1	.281	.116	.284*	2.425	.018
Age	.020	.013	.174	1.487	.142
Sex (1=male)	.140	.277	.058	.505	.615
Step 2					
(Constant)	5.030	.755		6.659	.000
DV t1	.197	.098	.199*	2.012	.048
Age	.010	.011	.091	.920	.361
Sex (1=male)	.293	.233	.121	1.256	.213
BITS t2	-.840	.150	-.542***	-5.592	.000
R <sup>2</sup> first step					.136*
$\Delta R^2$ for BITS					.272***

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 73

Table 104. Regressing emotional exhaustion at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Emotional Exhaustion t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.569	.395		3.967	.000
DV t1	.454	.107	.445***	4.228	.000
Age	-.006	.007	-.092	-.863	.391
Sex (1=male)	-.102	.143	-.076	-.715	.477
Step 2					
(Constant)	.907	.392		2.312	.024
DV t1	.276	.106	.270*	2.590	.012
Age	-.001	.006	-.019	-.191	.849
Sex (1=male)	-.169	.131	-.125	-1.295	.200
BITS t2	.393	.096	.437***	4.097	.000
R <sup>2</sup> first step					.218***
$\Delta R^2$ for BITS					.151***

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 75

Table 105. Regressing disengagement at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Disengagement t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.209	.395		3.060	.003
DV t1	.401	.116	.378***	3.453	.001
Age	-.003	.007	-.050	-.450	.654
Sex (1=male)	-.078	.153	-.056	-.511	.611
Step 2					
(Constant)	.197	.405		.487	.628
DV t1	.289	.104	.273**	2.775	.007
Age	.003	.007	.038	.388	.699
Sex (1=male)	-.160	.135	-.115	-1.187	.239
BITS t2	.445	.093	.481***	4.787	.000
R <sup>2</sup> first step					.151**
$\Delta R^2$ for BITS					.209***

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 75

Appendix B4

Table 106. Regressing organization-based self-esteem at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Organization-based self-esteem t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	2.337	.474		4.935	.000
DV t1	.378	.099	.416***	3.839	.000
Age	.005	.008	.067	.612	.542
Sex (1=male)	-.043	.160	-.029	-.272	.787
Step 2					
(Constant)	3.244	.586		5.540	.000
DV t1	.327	.097	.360***	3.363	.001
Age	.002	.008	.023	.212	.833
Sex (1=male)	.010	.156	.007	.063	.950
BITS t2	-.265	.107	-.269*	-2.479	.016
R <sup>2</sup> first step					.185**
$\Delta R^2$ for BITS					.066*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 75

Table 107. Regressing psychosomatic complaints at t2 onto illegitimate tasks at t2 under control of age, sex, DV t1.

	Dependent Variable				
	Psychosomatic Complaints t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	.673	.325		2.070	.042
DV t1	.913	.086	.777***	10.610	.000
Age	-.011	.006	-.133†	-1.801	.076
Sex (1=male)	.071	.129	.041	.549	.585
Step 2					
(Constant)	.285	.364		.783	.436
DV t1	.834	.092	.710***	9.095	.000
Age	-.008	.006	-.099	-1.345	.183
Sex (1=male)	.026	.127	.015	.206	.838
BITS t2	.201	.093	.173*	2.165	.034
R <sup>2</sup> first step					.620***
$\Delta R^2$ for BITS					.024*

Note. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 75

**Reversed causation analyses t1-t2 for study II (under control of DV t1).**

Table 108. Regressing illegitimate tasks at t2 onto psychosomatic complaints t1 under control of age, sex, DV t1.

	Dependent Variable				
	Illegitimate Tasks at t2				
	B	se <sub>B</sub>	$\beta$	t	sig
Step 1					
(Constant)	1.052	.398		2.646	.010
DV t1	.687	.108	.612***	6.380	.000
Age	-.008	.007	-.116	-1.233	.221
Sex (1=male)	-.045	.144	-.030	-.310	.757
Step 2					
(Constant)	.815	.402		2.027	.046
DV t1	.601	.112	.535***	5.367	.000
Age	-.009	.007	-.127	-1.380	.172
Sex (1=male)	.002	.142	.002	.017	.987
PC t1	.215	.097	.213*	2.213	.030
R <sup>2</sup> first step					.394***
$\Delta R^2$ for PC					.040*

Note. PC=psychosomatic complaints. \*\*\*p $\leq$ .001, \*\* p $\leq$ .01, \*p $\leq$ .05, †p $\leq$ .10, N = 75

## Appendix B5 – Effort-Reward Imbalance as a Mediator – Overview

- Effort-reward imbalance acting as a mediator between illegitimate tasks and well-being / strain in cross-sectional studies I to VI
- Effort-reward imbalance acting as a mediator between illegitimate tasks and well-being / strain in longitudinal study I
- Effort-reward imbalance acting as a mediator between illegitimate tasks and well-being / strain in longitudinal study II

## Appendix B5 – List of Tables

Table 1. Effort-reward imbalance acting as a mediator between illegitimate tasks and well-being / strain in cross-sectional studies I to VI.	2
Table 2. Effort-Reward Imbalance acting as a mediator between illegitimate tasks and well-being / strain in longitudinal study I.	4
Table 3. Effort-Reward Imbalance acting as a mediator between illegitimate tasks and well-being / strain in longitudinal study II.	12

## Appendix B5

Table 1. Effort-reward imbalance acting as a mediator between illegitimate tasks and well-being / strain in cross-sectional studies I to VI.

IV	Med	DV	IV – MED				IV – DV				MED – DV				IV/MED – DV					Sobel		
BITS	ERI		$R^2$	$B$	$Se_B$	$\beta$	$R^2$	$B$	$Se_B$	$\beta$	$R^2$	$B$	$Se_B$	$\beta$	$R^2$	$B_{IV}$	$Se_B$	$\beta$	$B_{MED}$	$Se_B$	$\beta$	
		Study I	.25	1.00	.13	.50***																
		Study II	.45	1.33	.13	.65***																
		Study III	.36	1.10	.18	.60***																
		Study IV	.25	.23	.01	.49***																
		Study V	.31	1.29	.15	.57***																
		Study VI	.35	1.25	.05	.60***																
		Study I					.31	1.00	.11	.54***	.36	.53	.05	.59***	.45	.61	.12	.33***	.39	.06	.43***	4.94***
		Study II					.39	1.10	.13	.58***	.50	.63	.06	.68***	.53	.46	.15	.24**	.48	.07	.52***	5.68***
		Study III					.33	1.00	.17	.58***	.29	.51	.09	.54***	.39	.68	.20	.40***	.28	.11	.30*	2.32*
		Study IV					.25	.95	0.6	.48***	.29	2.13	.12	.52***	.36	.60	.06	.30***	1.52	.13	.37***	10.42***
		Study V					.28	1.23	.16	.52***	.38	.62	.06	.60***	.43	.63	.17	.27***	.47	.07	.46***	5.27***
		Study VI					.27	.97	.05	.52***	.42	.57	.02	.65***	.45	.38	.05	.21***	.47	.02	.53***	17.12***
		Study I					.15	.54	.10	.37***	.13	.25	.050	.35***	.18	.38	.11	.26***	.16	.06	.22**	2.50**
		Study II					.14	.60	.13	.37***	.08	.23	.06	.29***	.14	.52	.17	.32**	.06	.08	.08	0.74
		Study III					.16	.56	.16	.40***	.24	.38	.08	.49***	.26	.22	.19	.16	.31	.10	.40**	2.74**
		Study IV					.17	.83	.06	.41***	.19	1.80	.13	.42***	.24	.54	.07	.26***	1.25	.15	.29***	7.83***
		Study V					.16	.85	.16	.38***	.13	.32	.07	.33***	.18	.63	.19	.28***	.17	.08	.18*	2.05*
		Study VI					.22	.83	.05	.46***	.21	.39	.02	.45***	.26	.54	.06	.30***	.23	.03	.27***	7.32***
		Study I					.25	-.80	.11	-.45***	.33	-.46	.05	-.54***	.38	-.44	.12	-.25***	-.36	.06	-.41***	-4.71***
		Study II					.24	-.57	.12	-.35***	.32	-.37	.06	-.46***	.33	-.15	.15	-.09	-.32	.08	-.40***	-3.71***
		Study III					.31	-.96	.17	-.56***	.36	-.56	.09	-.60***	.42	-.54	.20	-.32**	-.39	.11	-.41***	-3.04**
		Study IV					.21	-.87	.06	-.45***	.25	-1.98	.12	-.49***	.31	-.53	.06	-.28***	-1.44	.13	-.36***	-9.97***
		Study V					.19	-.69	.12	-.40***	.24	-.35	.05	-.45***	.27	-.36	.14	-.21*	-.26	.06	-.34***	-3.85***
		Study VI					.20	-.77	.04	-.44***	.29	-.44	.02	-.53***	.31	-.34	.05	-.20***	-.34	.02	-.41***	-14.05***
		Study I					.19	.36	.05	.44***	.12	.14	.03	.34***	.21	.29	.06	.36***	.07	.03	.17*	2.22*
		Study II					.25	.36	.05	.49***	.25	.18	.03	.49***	.30	.23	.07	.30***	.11	.03	.29**	3.44***
		Study III																				
		Study IV																				
		Study V																				
		Study VI																				
		Study I					.28	.40	.05	.48***	.29	.20	.03	.49***	.36	.27	.06	.32***	.14	.03	.33***	3.97***
		Study II					.14	.20	.06	.27***	.24	.15	.03	.42***	.24	.01	.07	.01	.15	.04	.42***	3.51***
		Study III																				
		Study IV																				
		Study V																				
		Study VI																				

## Appendix B5

IV	Med	DV	IV – MED				IV – DV				MED – DV				IV/MED – DV				Sobel
Study I	Psychosomatic Complaints		.13	.31	.06	.35***	.06	.10	.03	.23**	.13	.28	.07	.32***	.03	.03	.07	0.98	
Study II			.10	.26	.08	.28***	.19	.19	.04	.41***	.19	.01	.10	.01	.19	.05	.41***	3.55***	
Study III			.15	.26	.10	.29*	.17	.15	.05	.31**	.18	.14	.12	.16	.11	.07	.22	1.50	
Study IV			.13	.41	.04	.33***	.20	1.13	.08	.43***	.22	.20	.04	.16***	.92	.09	.35***	9.33***	
Study V			.14	.43	.10	.31***	.16	.20	.04	.33***	.18	.24	.12	.17*	.14	.05	.23**	2.65**	
Study VI			.15	.45	.03	.37***	.16	.22	.02	.38***	.19	.27	.04	.22***	.14	.02	.25***	6.74***	
Study I	Organisation-based Self-Esteem		.18	-.43	.07	-.41***	.32	-.29	0.3	-.55***	.34	-.19	.07	-.18*	-.24	.04	-.46***	4.71***	
Study II			.11	-.30	.09	-.27***	.22	-.24	.04	-.44***	.22	.03	.11	.03	-.25	.05	-.46***	4.47***	
Study III			.05	-.20	.15	-.17	.16	-.25	.07	-.38***	.17	.11	.17	.09	-.29	.09	-.43**	2.82**	
Study IV			.15	-.48	.04	-.38***	.18	-1.11	.08	-.42***	.22	-.28	.04	-.23***	-.82	.09	-.31***	-8.46***	
Study V			.10	-.51	.12	-.30***	.23	-.34	.05	-.46***	.23	-.10	.14	-.06	-.32	.06	-.43***	-4.51***	
Study VI			.14	-.50	.04	-.37***	.32	-.36	.02	-.56***	.32	-.07	.04	-.05†	-.34	.02	-.53***	-15.05***	
Study I	Job-related Depression																		
Study II																			
Study III																			
Study IV			.21	.55	.04	.45***	.32	1.42	.07	.56***	.36	.28	.04	.23***	1.13	.08	.45***	12.03***	
Study V			.19	.52	.08	.44***	.24	.25	0.3	.48***	.28	.28	.09	.24**	.18	.04	.35***	3.97***	
Study VI			.29	.63	.03	.54***	.37	.34	.01	.61***	.41	.32	.03	.27***	.25	.02	.45***	11.17***	

Note. Sobel-test with Goodman I Equation, Regression analyses controlled for age and sex, N=143-147; BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance; IV = independent variable; DV = dependent variable; MED = mediator variable, \*\*\*p≤.001, \*\*p≤.01, \*p≤.05, †p≤.10, N = 189 – 190 (Study I); N = 142 – 146 (Study II); N = 73 – 75 (Study III); N = 881 (Study IV); N = 179 – 184 (Study V); N = 1248 – 1254 (Study VI)

## Appendix B5

Table 2. Effort-Reward Imbalance acting as a mediator between illegitimate tasks and well-being / strain in longitudinal study I.

IV	Med	DV	IV – MED				IV – DV				MED – DV				IV/MED – DV						Sobel	
BITS	ERI		R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B <sub>IV</sub>	Se <sub>B</sub>	β	B <sub>MED</sub>	Se <sub>B</sub>	β	
Study I t1			.25	1.00	.13	.50***																
Study I t2			.28	1.06	.19	.51***																
Study I t3			.32	1.43	.32	.57***																
Study I t1-t2			.34	1.18	.18	.57***																
Mediator t1																						
Study I t1-t2			.24	1.04	.21	.47***																
Mediator t2																						
Study I t1-t3			.26	1.02	.28	.51***																
Mediator t2																						
Study I t1-t3			.27	1.15	.29	.52***																
Mediator t3																						
Study I t2-t3			.20	.88	.29	.44**																
Mediator t2																						
Study I t2-t3			.26	1.14	.31	.51***																
Mediator t3																						
Study I t1-t2			.34	1.19	.18	.57***																
Mediator t1																						
Control DV t1																						
Study I t1-t2			.53	.16	.20	.07																
Mediator t2																						
Control DV t1																						
Study I t1-t3			.61	-.07	.28	-.04																
Mediator t2																						
Control DV t1																						
Study I t1-t3			.52	.22	.31	.10																
Mediator t3																						
Control DV t1																						
Study I t2-t3			.20	.88	.29	.44**																
Mediator t2																						
Control DV t2																						
Study I t2-t3			.66	.44	.24	.20†																
Mediator t3																						
Control DV t2																						

## Appendix B5

IV	Med	DV	IV – MED			IV – DV			MED – DV			IV/MED – DV					Sobel						
BITS	ERI		R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B <sub>IV</sub>	Se <sub>B</sub>	β	B <sub>MED</sub>	Se <sub>B</sub>	β		
Study I t1							.31	1.00	.11	.54***	.36	.53	.05	.59***	.45	.61	.12	.33***	.39	.06	.43***	4.94***	
Study I t2							.36	1.10	.17	.57***	.34	.51	.08	.56***	.45	.75	.18	.39***	.33	.09	.36***	3.03**	
Study I t3							.42	1.38	.25	.65***	.54	.62	.09	.74***	.62	.74	.25	.35**	.46	.10	.54***	3.17***	
Study I t1-t2 Mediator t1		Feelings of Resentment					.19	.83	.20	.41***	.19	.40	.10	.40***	.23	.53	.24	.26*	.25	.11	.26*	2.13*	
Study I t1-t2 Mediator t2							.19	.83	.20	.41***	.34	.51	.08	.56***	.36	.38	.20	.19†	.43	.09	.47***	3.40***	
Study I t1-t3 Mediator t2							.29	1.04	.27	.54***	.23	.45	.14	.48**	.34	.76	.31	.40*	.26	.15	.28†	1.52	
Study I t1-t3 Mediator t3							.26	.97	.25	.52***	.54	.62	.09	.74***	.56	.32	.23	.17	.54	.10	.65***	3.16***	
Study I t2-t3 Mediator t2							.36	1.14	.25	.60***	.23	.45	.14	.48**	.42	.92	.27	.48**	.25	.14	.27†	1.48	
Study I t2-t3 Mediator t3							.36	1.14	.25	.60***	.59	.65	.09	.77***	.65	.52	.22	.28*	.53	.10	.63***	2.99**	
Study I t1-t2 Mediator t1								.34	.23	.22	.11	.34	.12	.11	.12	.34	.16	.24	.08	.10	.11	.10	
Study I t1-t2 Mediator t2								.34	.23	.22	.11	.43	.34	.09	.37***	.43	.07	.21	.03	.33	.09	.37***	
Study I t1-t3 Mediator t2								.44	.37	.32	.19	.43	.10	.16	.11	.45	.35	.33	.18	.07	.16	.08	
Study I t1-t3 Mediator t3								.36	.46	.30	.25	.57	.51	.11	.61***	.57	.17	.26	.09	.49	.11	.59***	
Study I t2-t3 Mediator t2							.50	.57	.29	.30†	.45	.09	.15	.09	.50	.56	.29	.30†	.07	.15	.07		
Study I t2-t3 Mediator t3							.50	.57	.29	.30†	.66	.49	.11	.58***	.67	.34	.24	.18	.46	.11	.54***	1.64	
Control DV t1																							
Control DV t2																							



## Appendix B5

IV	Med	DV	IV – MED			IV – DV			MED – DV			IV/MED – DV						Sobel				
BITS	ERI		R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B <sub>IV</sub>	Se <sub>B</sub>	β	B <sub>MED</sub>	Se <sub>B</sub>	β	
Study I t1							.15	.54	.10	.37***	.13	.25	.05	.35***	.18	.39	.11	.26***	.16	.06	.22**	2.50*
Study I t2							.16	.69	.18	.38***	.25	.43	.08	.49***	.27	.32	.20	.18	.35	.10	.40***	2.93**
Study I t3							.27	.94	.26	.48***	.45	.50	.09	.63***	.47	.34	.27	.17	.42	.11	.54***	2.86**
Study I t1-t2							.13	.65	.20	.33**	.16	.36	.09	.38***	.18	.34	.24	.17	.26	.11	.28*	2.20*
Mediator t1																						
Study I t1-t2							.13	.65	.20	.33**	.25	.43	.08	.49***	.26	.26	.21	.13	.37	.09	.42***	3.13***
Mediator t2																						
Study I t1-t3							.21	.74	.25	.43**	.28	.43	.12	.50***	.32	.40	.28	.23	.33	.14	.38*	1.93†
Mediator t2																						
Study I t1-t3							.22	.72	.23	.42**	.45	.50	.09	.63***	.46	.20	.23	.12	.45	.10	.57***	2.93**
Mediator t3																						
Study I t2-t3							.28	.85	.24	.49***	.28	.43	.12	.50***	.37	.59	.25	.34*	.30	.13	.35*	1.78†
Mediator t2																						
Study I t2-t3							.28	.85	.24	.49***	.45	.50	.09	.65***	.49	.38	.24	.22	.42	.11	.54***	2.60**
Mediator t3																						
Study I t1-t2							.55	.02	.16	.01	.57	.17	.07	.17*	.58	-.24	.18	-.12	.22	.08	.23**	
Mediator t1																						
Control DV t1																						
Study I t1-t2							.55	.02	.16	.01	.62	.26	.06	.29***	.63	-.24	.16	-.12	.29	.07	.33***	
Mediator t2																						
Control DV t1																						
Study I t1-t3							.47	.14	.25	.08	.54	.26	.10	.30*	.54	-.11	.26	-.06	.28	.11	.32*	
Mediator t2																						
Control DV t1																						
Study I t1-t3							.48	.12	.23	.07	.64	.35	.08	.44***	.65	-.25	.21	-.14	.39	.09	.49***	
Mediator t3																						
Control DV t1																						
Study I t2-t3							.69	.28	.18	.16	.67	.01	.10	.01	.69	.29	.19	.17	-.03	.11	-.04	
Mediator t2																						
Control DV t2																						
Study I t2-t3							.69	.28	.18	.16	.72	.22	.08	.28*	.72	.15	.18	.09	.19	.09	.25*	
Mediator t3																						
Control DV t2																						

## Appendix B5

IV	Med	DV	IV – MED			IV – DV			MED – DV			IV/MED – DV					Sobel					
BITS	ERI		R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B <sub>IV</sub>	Se <sub>B</sub>	β	B <sub>MED</sub>	Se <sub>B</sub>	β	
Study I t1							.25	-.80	.11	-.45***	.33	-.46	.05	-.54***	.38	-.44	.12	-.25***	-.36	.06	-.41***	-4.71***
Study I t2							.26	-.90	.19	-.44***	.34	-.53	.09	-.53***	.38	-.48	.21	-.23*	-.41	.10	-.41***	-3.27***
Study I t3							.17	-.93	.32	-.40**	.29	-.48	.12	-.52***	.30	-.35	.37	-.15	-.40	.14	-.43**	-2.37*
Study I t1-t2							.14	-.62	.22	-.28**	.18	-.36	.10	-.34***	.19	-.30	.26	-.14	-.28	.13	-.26*	-2.03*
Mediator t1																						
Study I t1-t2							.14	-.62	.22	-.28**	.34	-.53	.09	-.53***	.34	-.10	.22	-.04	-.50	.10	-.51***	-3.48***
Mediator t2																						
Study I t1-t3							.19	-.79	.31	-.38*	.31	-.53	.14	-.51***	.33	-.33	.33	-.16	-.45	.16	-.43**	-2.18*
Mediator t2																						
Study I t1-t3							.12	-.65	.29	-.32*	.29	-.48	.12	-.52***	.29	-.14	.31	-.07	-.45	.14	-.48**	-2.45*
Mediator t3																						
Study I t2-t3							.27	-.98	.29	-.47**	.31	-.53	.14	-.51***	.38	-.64	.30	-.30*	-.39	.15	-.37*	-1.92†
Mediator t2																						
Study I t2-t3							.27	-.98	.29	-.47**	.37	-.53	.12	-.56***	.42	-.51	.31	-.25	-.41	.14	-.44**	-2.24*
Mediator t3		Job Satisfaction																				
Study I t1-t2							.36	.01	.22	.00	.37	-.12	.10	-.12	.38	.15	.25	.07	-.16	.11	-.15	
Mediator t1																						
Control DV t1																						
Study I t1-t2							.36	.01	.22	.00	.46	-.34	.09	-.35***	.47	.26	.22	.12	-.37	.09	-.38***	
Mediator t2																						
Control DV t1																						
Study I t1-t3							.50	-.00	.30	.00	.53	-.22	.14	-.21	.54	.15	.30	.07	-.24	.15	-.23	
Mediator t2																						
Control DV t1																						
Study I t1-t3							.30	-.22	.29	-.11	.40	-.33	.12	-.36**	.40	.10	.30	.05	-.35	.14	-.38*	
Mediator t3																						
Control DV t1																						
Study I t2-t3							.44	-.55	.29	-.26†	.42	-.25	.17	-.24	.46	-.47	.30	-.23	-.19	.17	-.18	
Mediator t2																						
Control DV t2																						
Study I t2-t3							.44	-.55	.29	-.26†	.51	-.37	.12	-.39**	.52	-.26	.30	-.12	-.32	.13	-.34	-1.40
Mediator t3																						
Control DV t2																						

Appendix B5

IV	Med	DV	IV – MED			IV – DV			MED – DV				IV/MED – DV					Sobel				
BITS	ERI		R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B <sub>IV</sub>	Se <sub>B</sub>	β	B <sub>MED</sub>	Se <sub>B</sub>	β	
Study I t1							.19	.36	.05	.44***	.12	.14	.03	.34***	.21	.29	.06	.36***	.07	.03	.17*	2.22*
Study I t2							.27	.44	.08	.52***	.27	.21	.04	.52***	.36	.30	.09	.35***	.14	.04	.34***	2.93**
Study I t3							.21	.37	.11	.45**	.24	.16	.05	.48***	.29	.21	.13	.26	.11	.05	.34*	1.94†
Study I t1-t2							.11	.28	.09	.31**	.22	.20	.04	.46***	.22	.07	.11	.07	.18	.05	.42***	3.13***
Mediator t1																						
Study I t1-t2							.11	.28	.09	.31**	.27	.21	.04	.52***	.28	.08	.10	.09	.19	.04	.47***	3.39***
Mediator t2																						
Study I t1-t3							.30	.41	.10	.55***	.19	.16	.05	.43**	.33	.33	.12	.44**	.08	.06	.21	1.21
Mediator t2																						
Study I t1-t3							.30	.39	.09	.54***	.24	.16	.05	.48***	.35	.29	.11	.40**	.10	.05	.28†	1.74†
Mediator t3																						
Study I t2-t3							.35	.44	.10	.59***	.19	.16	.05	.43**	.39	.37	.11	.49**	.08	.05	.22	1.36
Mediator t2																						
Study I t2-t3		Emotional Exhaustion					.35	.44	.10	.59***	.25	.17	.05	.50***	.40	.34	.11	.45**	.09	.05	.27†	1.57
Mediator t3																						
Study I t1-t2							.56	.03	.07	.04	.60	.10	.03	.22**	.61	-.09	.08	-.10	.12	.04	.27**	
Mediator t1																						
Control DV t1																						
Study I t1-t2							.56	.03	.07	.04	.62	.11	.03	.27***	.62	-.06	.07	-.07	.12	.03	.30***	
Mediator t2																						
Control DV t1																						
Study I t1-t3							.54	.20	.10	.27*	.50	.05	.05	.13	.54	.19	.10	.25†	.02	.05	.04	
Mediator t2																						
Control DV t1																						
Study I t1-t3							.52	.18	.09	.25†	.53	.09	.04	.25*	.55	.12	.10	.17	.07	.04	.19	
Mediator t3																						
Control DV t1																						
Study I t2-t3							.44	.27	.12	.37*	.36	.05	.06	.14	.44	.26	.12	.35†	.03	.06	.09	
Mediator t2																						
Control DV t2																						
Study I t2-t3							.44	.27	.12	.37*	.43	.10	.05	.31*	.47	.21	.12	.28†	.07	.05	.22	1.02
Mediator t3																						
Control DV t2																						

## Appendix B5

IV	Med	DV	IV – MED			IV – DV			MED – DV			IV/MED – DV						Sobel				
BITS	ERI		R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B <sub>IV</sub>	Se <sub>B</sub>	β	B <sub>MED</sub>	Se <sub>B</sub>	β	
Study I t1							.28	.40	.05	.48***	.29	.20	.03	.49***	.36	.27	.06	.32***	.14	.03	.33***	3.97***
Study I t2							.26	.38	.08	.48***	.39	.23	.03	.61***	.43	.19	.08	.24*	.19	.04	.49***	3.58***
Study I t3							.27	.39	.10	.51***	.41	.19	.04	.62***	.44	.17	.11	.23	.15	.04	.50***	2.83**
Study I t1-t2 Mediator t1							.19	.33	.08	.39***	.24	.19	.04	.46***	.27	.17	.10	.19†	.14	.05	.35**	2.55**
Study I t1-t2 Mediator t2							.19	.33	.08	.39***	.39	.23	.03	.61***	.41	.12	.08	.14	.21	.04	.54***	3.57***
Study I t1-t3 Mediator t2							.36	.39	.09	.58***	.39	.20	.04	.60***	.49	.25	.09	.37*	.14	.05	.42**	2.17*
Study I t1-t3 Mediator t3							.24	.32	.09	.48***	.41	.19	.04	.62***	.44	.14	.09	.22	.16	.04	.51***	2.77**
Study I t2-t3 Mediator t2							.34	.38	.09	.56***	.39	.20	.04	.60***	.50	.25	.09	.36**	.15	.04	.44**	2.31*
Study I t2-t3 Mediator t3		Disengagement					.34	.38	.09	.56***	.44	.19	.04	.64***	.51	.21	.09	.32*	.14	.04	.48***	2.49*
Study I t1-t2 Mediator t1							.52	.04	.07	.05	.53	.06	.04	.14†	.53	-.02	.08	-.02	.06	.04	.15	
Study I t1-t2 Mediator t2							.52	.04	.07	.05	.61	.14	.03	.36***	.62	-.06	.07	-.06	.14	.03	.38***	
Study I t1-t3 Mediator t2							.57	.21	.09	.31*	.57	.10	.05	.30*	.60	.16	.09	.24†	.08	.05	.23†	
Study I t1-t3 Mediator t3							.48	.15	.09	.23†	.61	.14	.03	.45***	.61	.02	.08	.03	.14	.04	.44***	
Study I t2-t3 Mediator t2							.52	.24	.09	.36**	.46	.11	.06	.32†	.54	.22	.09	.32*	.08	.06	.23	1.17
Study I t2-t3 Mediator t3							.52	.24	.09	.36**	.60	.14	.03	.47***	.63	.13	.08	.19	.12	.04	.39**	1.50

## Appendix B5

IV	Med	DV	IV – MED			IV – DV			MED – DV			IV/MED – DV					Sobel						
BITS	ERI		R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B <sub>IV</sub>	Se <sub>B</sub>	β	B <sub>MED</sub>	Se <sub>B</sub>	β		
Study I t1							.13	.31	.06	.35***	.06	.10	.03	.23**	.13	.28	.07	.32***	.03	.03		.07	0.98
Study I t2							.05	.21	.10	.22*	.16	.19	.05	.40***	.16	.02	.11	.02	.18	.05		.39***	2.99**
Study I t3							.28	.59	.15	.52***	.25	.22	.06	.48***	.33	.41	.18	.36*	.13	.07		.28†	1.68†
Study I t1-t2							.05	.23	.11	.22*	.10	.16	.05	.31**	.11	.06	.13	.06	.14	.06		.28*	2.18*
Mediator t1																							
Study I t1-t2							.05	.23	.11	.22*	.16	.19	.05	.40***	.17	.04	.12	.04	.18	.05		.38***	2.87**
Mediator t2																							
Study I t1-t3							.36	.60	.13	.60***	.26	.25	.07	.50***	.42	.46	.15	.46**	.13	.07		.27†	1.61
Mediator t2																							
Study I t1-t3							.26	.50	.13	.50***	.25	.22	.06	.48***	.33	.34	.15	.34*	.14	.07		.31*	1.74†
Mediator t3																							
Study I t2-t3							.21	.44	.14	.44**	.26	.25	.07	.50***	.32	.27	.15	.27†	.19	.08		.38*	1.81†
Mediator t2																							
Study I t2-t3		Psychosomatic Complaints					.21	.44	.14	.44**	.26	.22	.06	.49***	.30	.26	.16	.26	.16	.07		.36*	1.89†
Mediator t3																							
Study I t1-t2							.59	-.05	.08	-.05	.60	.06	.04	.12†	.62	-.17	.09	-.16†	.10	.04		.21*	
Mediator t1																							
Control DV t1																							
Study I t1-t2							.59	-.05	.08	-.05	.61	.08	.03	.16*	.63	-.14	.08	-.13†	.10	.04		.21**	
Mediator t2																							
Control DV t1																							
Study I t1-t3							.66	.19	.12	.19	.72	.15	.05	.30**	.72	.03	.12	.04	.14	.05		.29**	
Mediator t2																							
Control DV t1																							
Study I t1-t3							.63	.31	.12	.27*	.66	.14	.04	.30**	.66	-.05	.12	-.05	.15	.05		.32**	
Mediator t3																							
Control DV t1																							
Study I t2-t3							.67	.17	.10	.17	.64	.10	.05	.20†	.69	.12	.11	.12	.08	.05		.16	
Mediator t2																							
Control DV t2																							
Study I t2-t3							.70	.29	.12	.26*	.68	.09	.05	.21*	.69	.10	.11	.10	.08	.05		.17	1.11
Mediator t3																							
Control DV t2																							
Study I t1		Organization-based self-esteem					.18	-.43	.07	-.41***	.32	-.29	.03	-.55***	.34	-.19	.07	-.18*	-.24	.04		-.46***	-4.71***

## Appendix B5

IV	Med	DV	IV – MED				IV – DV				MED – DV				IV/MED – DV						Sobel	
BITS	ERI		R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B <sub>IV</sub>	Se <sub>B</sub>	β	B <sub>MED</sub>	Se <sub>B</sub>	β	
Study I t2		Organization-based self-esteem	.18	-.44	.11	-.40***	.31	-.28	.05	-.54***	.33	-.19	.11	-.17†	-.24	.06	-.45***	-3.22***				
Study I t3			.19	-.48	.16	-.43**	.32	-.24	.06	-.56***	.33	-.17	.18	-.15	-.21	.07	-.47**	-2.45*				
Study I t1-t2			.12	-.37	.12	-.31**	.18	.23	.06	-.40***	.19	-.15	.14	-.13	-.19	.07	-.33**	-2.48*				
Mediator t1																						
Study I t1-t2			.12	-.37	.12	-.31**	.31	-.28	.05	-.54***	.31	-.09	.12	-.08	-.26	.05	-.50***	-3.55***				
Mediator t2																						
Study I t1-t3			.23	-.45	.14	-.47**	.35	-.28	.06	-.58***	.39	-.22	.15	-.23	-.23	.07	-.47**	-2.39*				
Mediator t2																						
Study I t1-t3			.16	-.38	.14	-.40**	.32	-.24	.06	-.56***	.33	-.13	.15	-.13	-.21	0.7	-.49**	-2.35*				
Mediator t3																						
Study I t2-t3			.31	-.53	.13	-.55***	.35	-.28	.06	-.58***	.46	-.35	.13	-.36*	-.21	.07	-.43**	-2.08*				
Mediator t2																						
Study I t2-t3			.31	-.53	.13	-.55***	.41	-.27	.05	-.63***	.48	-.29	.13	-.30*	-.21	.06	-.48***	2.49*				
Mediator t3																						
Study I t1-t2			.35	-.13	.11	-.11	.36	-.10	.05	-.18†	.36	-.03	.13	-.03	-.10	.06	-.17					
Mediator t1																						
Control DV t1																						
Study I t1-t2			.35	-.13	.11	-.11	.47	-.21	.04	-.39***	.47	.05	.11	.04	-.21	.05	-.41***					
Mediator t2																						
Control DV t1																						
Study I t1-t3			.40	-.24	.14	-.25†	.48	-.19	.07	-.40**	.48	-.12	.14	-.12	.17	.07	-.35*					
Mediator t2																						
Control DV t1																						
Study I t1-t3			.40	-.43	.14	-.38**	.44	-.20	.05	-.45***	.44	-.01	.14	-.01	-.19	.06	-.44**					
Mediator t3																						
Control DV t1																						
Study I t2-t3			.54	-.35	.12	-.36**	.52	-.17	.06	-.35*	.58	-.27	.12	-.28*	-.12	.06	-.26†	-1.61				
Mediator t2																						
Control DV t2																						
Study I t2-t3			.53	-.36	.13	-.33**	.66	-.21	.04	-.50***	.67	-.15	.11	-.16	-.19	.05	-.43***	-1.61				
Mediator t3																						
Control DV t2																						

Note. Sobel-test with Goodman I Equation, Regression analyses controlled for age and sex. BITS = Bern Illegitimate Tasks Scale; ERI = Effort-Reward-Imbalance; IV = independent variable; DV = dependent variable; MED = mediator variable, \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, N=189-190 (Study I t1); N=90-91 (Study I t2); N=46-48 (Study III t3); N=90-91 (Study I t1-t2, Mediator t1); N=90-91 (Study I t1-t2, Mediator t2); N=41-42 (Study I t1-t3, Mediator t2); N=46-48 (Study I t1-t3, Mediator t3); N=41-42 (Study I t2-t3, Mediator t2); N=41-42 (Study I t2-t3, Mediator t3); N= 91-92 (Study I t1-t2, Mediator t1, Control DV t1); N=91-92 (Study I t1-t2, Mediator t2, Control DV t1); N=41-42 (Study I t1-t3, Mediator t2, Control DV t1); N=46-48 (Study I t1-t3, Mediator t3, Control DV t1); N=41-42 (Study I t2-t3, Mediator t2, Control DV t2); N=41-42 (Study I t2-t3, Mediator t3, Control DVt2).

## Appendix B5

Table 3. Effort-Reward Imbalance acting as a mediator between illegitimate tasks and well-being / strain in longitudinal study II.

IV	Med	DV	IV – MED				IV – DV				MED – DV				IV/MED – DV				Sobel			
BITS	ERI		R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B <sub>IV</sub>	Se <sub>B</sub>	β	B <sub>MED</sub>	Se <sub>B</sub>	β	
Study II t1			.25	1.00	.13	.50***																
Study II t2			.53	1.39	.16	.72***																
Study II t1-t2			.42	1.35	.21	.61***																
Mediator t1																						
Study II t1-t2			.26	1.06	.23	.49***																
Mediator t2																						
Study II t1-t2			.42	1.35	.21	.61***																
Mediator t1																						
Control DV t1																						
Study II t1-t2			.41	.36	.26	.17																
Mediator t2																						
Control DV t1																						
Study II t1							.31	1.00	.11	.54***	.36	.53	.05	.59***	.45	.61	.12	.33***	.39	.06	.43***	4.94***
Study II t2							.32	1.00	.18	.57***	.39	.57	.09	.63***	.42	.43	.24	.25†	.41	.12	.45***	3.16***
Study II t1-t2							.19	.85	.22	.43***	.22	.42	.10	.47***	.25	.46	.27	.23†	.29	.12	.32*	2.24*
Mediator t1																						
Study II t1-t2							.19	.85	.22	.43***	.39	.57	.09	.63***	.41	.33	.21	.17	.50	.10	.55***	3.35***
Mediator t2																						
Study II t1-t2																						
Mediator t1							.35	.39	.23	.20†	.33	.12	.13	.13	.35	.37	.25	.19	.03	.14	.03	
Control DV t1																						
Study II t1-t2																						
Mediator t2							.35	.39	.23	.20†	.53	.44	.08	.49***	.53	-.01	.21	-.00	.44	.09	.49***	
Control DV t1																						
Study II t1							.15	.54	.10	.37***	.13	.25	.05	.35***	.18	.38	.11	.26***	.16	.06	.22**	2.50*
Study II t2							.25	.85	.18	.50***	.34	.52	.09	.59***	.36	.28	.24	.16	.41	.12	.47***	3.16***
Study II t1-t2							.22	.90	.21	.47***	.13	.32	.10	.36**	.23	.76	.27	.40**	.10	.12	.12	0.82
Mediator t1																						
Study II t1-t2							.22	.90	.21	.47***	.34	.52	.09	.59***	.38	.45	.21	.24*	.42	.10	.48***	3.07**
Mediator t2																						
Study II t1-t2																						
Mediator t1							.47	.46	.19	.24*	.03	.15	.09	.17†	.47	.39	.23	.20†	.05	.10	.06	0.49
Control DV t1																						
Study II t1-t2																						
Mediator t2							.47	.46	.19	.24*	.59	.38	.07	.43***	.59	.12	.18	.06	.36	.08	.41***	
Control DV t1																						

## Appendix B5

IV	Med	DV	IV – MED				IV – DV				MED – DV				IV/MED – DV						Sobel	
BITS	ERI		R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B <sub>IV</sub>	Se <sub>B</sub>	β	B <sub>MED</sub>	Se <sub>B</sub>	β	
Study II t1							.25	-.80	.11	-.45***	.33	-.46	.05	-.54***	.38	-.44	.12	-.25***	-.36	.06	-.41***	-4.71***
Study II t2							.35	-.86	.15	-.55***	.39	-.47	.08	-.59***	.42	-.42	.21	-.27*	-.32	.11	-.40**	2.74**
Study II t1-t2							.12	-.45	.20	-.26*	.14	-.24	.09	-.30*	.15	-.20	.25	-.11	-.19	.12	-.23	-1.52
Mediator t1																						
Study II t1-t2							.12	-.45	.20	-.26*	.39	-.47	.08	-.59***	.39	.07	.19	.04	-.49	.09	-.61***	3.48***
Mediator t2		Job Satisfaction																				
Study II t1-t2							.16	-.33	.22	-.19	.17	-.16	.11	-.21	.17	-.20	.26	-.11	-.11	.13	-.14	
Mediator t1																						
Control DV t1																						
Study II t1-t2							.16	-.33	.22	-.19	.42	-.45	.08	-.57***	.43	.16	.20	.09	-.48	.09	-.60***	
Mediator t2																						
Control DV t1																						
Study II t1							.26	.46	.07	.51***	.25	.23	.03	.51***	.31	.29	.09	.32***	.13	.04	.30**	2.97**
Study II t2							.31	.50	.09	.55***	.29	.25	.05	.53***	.35	.31	.13	.35*	.13	.07	.28*	1.80†
Study II t1-t2							.06	.21	.12	.21†	.06	.09	.06	.20†	.07	.14	.15	.14	.06	.07	.12	0.84
Mediator t1																						
Study II t1-t2							.06	.21	.12	.21†	.29	.25	.05	.53***	.29	-.06	.12	-.06	.26	.05	.56***	3.41***
Mediator t2		Exhaustion																				
Study II t1-t2							.22	-.02	.13	-.02	.22	-.05	.06	-.10	.23	.03	.14	.03	-.06	.07	-.12	
Mediator t1																						
Control DV t1																						
Study II t1-t2							.22	-.02	.13	-.02	.34	.19	.05	.41***	.36	-.18	.12	-.18	.22	.05	.46***	
Mediator t2																						
Control DV t1																						
Study II t1							.16	.33	.07	.35***	.30	.24	.03	.51***	.30	.04	.09	.04	.23	.04	.49***	4.58***
Study II t2							.29	.50	.10	.54***	.32	.27	.05	.57***	.36	.25	.13	.28†	.18	.07	.38**	2.45*
Study II t1-t2							.09	.30	.12	.29*	.14	.18	.05	.38***	.15	.10	.15	.09	.15	0.7	.32*	2.01*
Mediator t1																						
Study II t1-t2							.09	.30	.12	.29*	.32	.27	.05	.57***	.32	.02	.12	.02	.27	.05	.56***	3.47***
Mediator t2		Disengagement																				
Study II t1-t2							.19	.21	.12	.20†	.19	.11	.06	.24†	.20	.12	.15	.12	.08	.08	.16	0.98
Mediator t1																						
Control DV t1																						
Study II t1-t2							.18	.21	.12	.20†	.36	.24	.05	.50***	.36	-.02	.12	-.02	.24	.06	.50***	
Mediator t2																						
Control DV t1																						



## Appendix B5

IV	Med	DV	IV – MED			IV – DV			MED – DV			IV/MED – DV						Sobel				
BITS	ERI		R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B	Se <sub>B</sub>	β	R <sup>2</sup>	B <sub>IV</sub>	Se <sub>B</sub>	β	B <sub>MED</sub>	Se <sub>B</sub>	β	
Study II t1							.09	.29	.09	.28***	.17	.21	.04	.41***	.17	.20	.11	.02	.20	.05	.40***	4.53***
Study II t2							.22	.54	.12	.46***	.32	.34	.06	.56***	.33	.14	.17	.12	.28	.09	.48***	2.91**
Study II t1-t2							.13	.46	.15	.35**	.19	.26	.07	.43***	.20	.18	.18	.14	.21	.08	.35*	2.41*
Mediator t1																						
Study II t1-t2		Psychosomatic Complaints					.13	.46	.15	.35**	.32	.34	.06	.56***	.33	.13	.15	.10	.31	.07	.52***	3.15***
Mediator t2																						
Study II t1-t2							.63	.10	.11	.08	.63	.05	.05	.08	.63	.07	.13	.05	.03	.06	.05	
Mediator t1																						
Control DV t1																						
Study II t1-t2							.63	.10	.11	.08	.65	.13	.05	.22*	.65	.01	.11	.01	.13	.05	.21*	
Mediator t2																						
Control DV t1																						
Study II t1							.18	-.43	.07	-.41***	.32	-.29	0.3	-.55***	.34	-.19	.07	-.18*	-.24	.04	-.46***	4.71***
Study II t2							.14	-.40	.13	-.36**	.26	-.29	.06	-.51***	.26	.02	.17	.02	-.30	.09	-.52***	-3.09***
Study II t1-t2							.06	-.27	.15	-.22†	.16	-.22	.06	-.39***	.16	.05	.18	.04	-.24	.08	-.42**	-2.69**
Mediator t1																						
Study II t1-t2		Organization-based					.06	-.27	.15	-.22†	.26	-.29	.06	-.51***	.27	.05	.15	.04	-.30	.07	-.53***	-3.10***
Mediator t2		Self-Esteem																				
Study II t1-t2							.15	-.14	.15	-.12	.20	-.16	.07	-.28*	.20	.05	.18	.04	-.17	.09	-.30†	
Mediator t1																						
Control DV t1																						
Study II t1-t2							.15	-.14	.15	-.12	.32	-.25	.06	-.44***	.33	.13	.15	.10	-.28	.07	-.49***	
Mediator t2																						
Control DV t1																						

Note. Sobel-test with Goodman I Equation, Regression analyses controlled for age and sex, N=143-147; BITS = Bern Illegitimate Tasks Scale; ERI=Effort-Reward-Imbalance; IV=independent variable; DV=dependent variable; MED=mediator variable, \*\*\*p≤.001, \*\* p≤.01, \*p≤.05, †p≤.10, N=142-146 (Study II t1); N=75 (Study II t2); N=75 (Study II t1-t2, Mediator t1); N=75 (Study II t1-t2, Mediator t2); N=75 (Study II t1-t2, Mediator t1, Control DV t1); N =73 -75 (Study II t1-t2, Mediator t2, Control DV t1).

## Appendix B6 – Illegitimate Stressors and Well-Being - Overview

- Factor analysis for perceived illegitimacy of the situation
- Factor analysis for the scales perceived illegitimacy and feelings of resentment of the situation combined
- Means, standard deviations, and correlations among all variables involved in multilevel-analyses

## Appendix B6 – List of Tables

<b>Factor analysis for perceived illegitimacy of the situation</b> .....	2
Table 1. Factor analysis for perceived illegitimacy of the situation. ....	2
Table 2. Factor loadings for perceived illegitimacy of the situation.....	2
<b>Factor analysis for the scales perceived illegitimacy and feelings of resentment of the situation combined</b> .....	3
Table 3. Factor analysis for the scales situational resentment and perceived illegitimacy of the situation. ....	3
Table 4. Factor loadings for the scales situational resentment and perceived illegitimacy of the situation. ....	3
<b>Means, standard deviations, and correlations among all variables involved in multilevel-analyses</b> .....	4
Table 5. Means, standard deviations, correlations among variables in study II, multi-level analyses, part I.....	4
Table 6. Means, standard deviations, correlations among variables in study II, multi-level analyses, part II.....	5
Table 7. Means, standard deviations, correlations among variables in study II, multi-level analyses, part III.....	6

**Factor analysis for perceived illegitimacy of the situation**

Table 1. Factor analysis for perceived illegitimacy of the situation.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.134	51.670	51.670	4.134	51.670	51.670
2	1.303	16.282	67.952	1.303	16.282	67.952
3	.676	8.453	76.405			
4	.496	6.199	82.604			
5	.448	5.596	88.200			
6	.364	4.556	92.756			
7	.328	4.102	96.858			
8	.251	3.142	100.000			

*Note.* Extraction method principal component analysis (rotation method varimax with Kaiser normalization), N=413.

Table 2. Factor loadings for perceived illegitimacy of the situation.

	Component	
	1	2
Unnecessarily		.859
Incorrect	.814	
Gratuitous		.740
Improper	.757	
Avoidable		.838
Illegitimate	.838	
Meaningless	.341	.545
Intolerable	.792	.320

*Note.* Rotated component matrix, rotation converged in 3 iterations.

**Factor analysis for the scales perceived illegitimacy and feelings of resentment of the situation combined**

Table 3. Factor analysis for the scales situational resentment and perceived illegitimacy of the situation.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.326	42.172	42.172	6.326	42.172	42.172
2	1.790	11.934	54.106	1.790	11.934	54.106
3	1.185	7.902	62.008	1.185	7.902	62.008
4	.896	5.974	67.981			
5	.734	4.893	72.874			
6	.580	3.866	76.740			
7	.544	3.629	80.370			
8	.512	3.416	83.786			
9	.446	2.972	86.757			
10	.428	2.854	89.611			
11	.386	2.572	92.183			
12	.335	2.236	94.419			
13	.307	2.047	96.466			
14	.286	1.904	98.370			
15	.244	1.630	100.000			

Note. Extraction method principal component analysis (rotation method varimax with Kaiser normalization), N=408.

Table 4. Factor loadings for the scales situational resentment and perceived illegitimacy of the situation.

	Component		
	1	2	3
Unnecessary		.286	.801
Incorrect		.739	
Gratuitous		.252	.709
Improper	.371	.582	
Avoidable		.364	.758
Illegitimate		.831	
Meaningless		.590	.468
Intolerable	.329	.750	.267
Indignation	.610		.453
Rancor	.590		.434
Anger	.452		.679
Unfairness	.630	.436	
Disappointment	.701		
Grievance	.691		
Hurt	.701		

Note. Rotated component matrix, rotation converged in 6 iterations.

**Means, standard deviations, and correlations among all variables involved in multilevel-analyses**

Table 5. Means, standard deviations, correlations among variables in study II, multi-level analyses, part I.

	<b>M</b>	<b>SD</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>
<b>1</b> BITS	2.49	.628															
<b>2</b> TS	3.07	.470	.436***														
<b>3</b> SS	.000	.663	.388***	.420***													
<b>4</b> ERI	3.36	1.31	.616***	.471***	.460***												
<b>5</b> WFC	2.88	.801	.244***	.479***	.241***	.268***											
<b>6</b> ED	3.01	.680	.425***	.419***	.369***	.432***	.187***										
<b>7</b> JC	3.32	1.04	-.105*	.153**	-.238***	-.229***	.187***	-.204***									
<b>8</b> SSW	3.73	.624	-.260***	-.178***	-.421***	-.419***	.029	-.399***	.288***								
<b>9</b> SEF	4.51	.718	-.151**	-.014	-.103*	-.112*	-.015	-.172***	.277***	.131**							
<b>10</b> SEE	3.92	.536	-.169***	-.102*	-.242***	-.205***	-.108*	-.140**	.207***	.269***	.509***						
<b>11</b> ILL	3.30	.969	.160***	-.183***	.240***	.259***	.014	.066	-.149**	-.129**	.018	-.017					
<b>12</b> Stress	3.10	1.35	.279***	.239***	.238***	.269***	.146**	.232***	-.130**	-.161***	-.104*	-.119*	.233***				
<b>13</b> WeBe	3.25	.799	-.243***	-.180***	-.204***	-.259***	-.111*	-.168***	.007	.137**	.113*	.079	-.259***	-.481***			
<b>14</b> SiRe	3.44	1.35	.301***	.215***	.331***	.348***	.113*	.131**	-.175***	-.122*	-.045	.028	.648***	.446***	-.427***		
<b>15</b> Age	40.01	9.86	-.064	.237***	.098*	-.114*	.141**	.059	.103*	-.011	.103*	.112*	-.057	-.024	-.013	-.119*	
<b>16</b> Sex			.142**	.131**	.165***	.069	.063	-.058	.327***	-.090†	.110*	-.063	-.031	.035	-.116*	.040	.183***

Note. Pearson Correlations (2-tailed) \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N=398 - 428

BITS= illegitimate tasks, TS=task stressors (index), SS=social stressors, ERI=effort-reward imbalance, WFC=work-family conflict, ED=emotional dissonance, JC=job control (index), SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, ILL= perceived illegitimacy of situation, Stress=stressfulness of situation, WeBe= situational well-being, SiRe=situational resentments, sex=dummy-coded male=1, female=0.

Appendix B6

Table 6. Means, standard deviations, correlations among variables in study II, multi-level analyses, part II.

	<b>M</b>	<b>SD</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>
<b>1</b> BITS	2.49	.628											
<b>2</b> UN	2.78	.684	.461***										
<b>3</b> IW	3.54	.745	.154**	.229***									
<b>4</b> CD	3.25	.799	.275***	.341***	.312***								
<b>5</b> TP	3.67	.782	.149**	.197***	.482***	.412***							
<b>6</b> POW	2.40	.731	.368***	.469***	.036	.189***	.026						
<b>7</b> ILL	3.30	.969	.160***	.224***	.052	.105*	.057	.152**					
<b>8</b> Stress	3.10	1.35	.279***	.231***	.187***	.055	.183***	.101*	.233***				
<b>9</b> WeBe	3.25	.799	-.243***	-.167***	-.188***	-.029	-.047	-.150**	-.259***	-.481***			
<b>10</b> SiRe	3.44	1.35	.301***	.256***	.098*	.112*	.137**	.097*	.648***	.446***	-.427***		
<b>11</b> Age	40.01	9.86	-.064	.145**	.232***	.190***	.165***	.046	-.057	-.024	-.013	-.119*	
<b>12</b> Sex			.142**	.238***	-.140**	.144**	.072	.108*	-.031	.035	-.116*	.040	.183***

Note. Pearson Correlations (2-tailed) \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N=400-428

BITS= illegitimate tasks, UN=uncertainty, IW=interruptions at work, CD=concentration demands, TP=time pressure, POW=problems with the organization of work, ILL= perceived illegitimacy of situation, Stress=stressfulness of situation, WeBe= situational well-being, SiRe=situational resentments, sex=dummy-coded male=1, female=0.

Appendix B6

Table 7. Means, standard deviations, correlations among variables in study II, multi-level analyses, part III.

	<b>M</b>	<b>SD</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>1</b> MC	3.61	.978										
<b>2</b> TC	3.04	1.21	.807***									
<b>3</b> SSW	3.73	.624	.335***	.224***								
<b>4</b> SEF	4.51	.718	.253***	.271***	.131**							
<b>5</b> SEE	3.92	.536	.179***	.212***	.269***	.509***						
<b>6</b> ILL	3.30	.969	-.134**	-.148**	-.129**	.018	-.017					
<b>7</b> Stress	3.10	1.35	-.139**	-.111*	-.161***	-.104*	-.119*	.233***				
<b>8</b> WeBe	3.25	.799	.044	-.023	.137**	.113*	-.079	-.259***	-.481***			
<b>9</b> SiRe	3.44	1.35	-.147**	-.182***	-.122*	-.045	-.028	.648***	.446***	-.427***		
<b>10</b> Age	40.01	9.86	.018	.163***	-.011	.103*	.112*	-.057	-.024	-.013	-.119*	
<b>11</b> Sex			.266***	.347***	-.090†	.110*	-.063	-.031	-.035	-.116*	.040	.183***

Note. Pearson Correlations (2-tailed) \*\*\* $p \leq .001$ , \*\*  $p \leq .01$ , \* $p \leq .05$ , † $p \leq .10$ , N=398-428

MC=method control, TC=time control, SSW=social support at work, SEF=self-efficacy, SEE=self-esteem, ILL=perceived illegitimacy of situation, Stress=stressfulness of situation, WeBe= situational well-being, SiRe=situational resentments, sex=dummy-coded male=1, female=0.