Cognitive Appraisal of Work Intensification

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Abstract

Due to economic and technological changes, work has intensified over the past few decades. This intensification of work takes a toll on employees' well-being and job satisfaction. To explain the effects of work intensification on its outcomes we draw on the transactional stress model and examine the mediating role of cognitive appraisal. Furthermore, we examined whether a favorable participative climate influences the relation between work intensification and its appraisal. In Study 1, mediation analyses of 2-wave panel data ($N = 253$) supported the hypothesized mediating effect of cognitive appraisal on the relationship between work intensification and emotional exhaustion and job satisfaction, respectively. The cross-sectional Study 2 ($N = 932$) provided support for the salient role of cognitive appraisal in the relationship of work intensification to its outcomes. Moreover, data from Study 2 revealed that a favorable participative climate serves as a resource in the relationship between work intensification and cognitive appraisal. Additionally, results of a moderated mediation analysis showed that a favorable participative climate weakens the indirect effect of work intensification on its outcomes. Our studies emphasize the importance of promoting a favorable participative climate in organizations to better manage the work intensification resulting from economic and technological changes.

Keywords: work intensification, cognitive appraisal, challenge-hindrance framework, transactional theory of stress, moderated mediation analyses

Cognitive Appraisal of Work Intensification

The world of work has changed considerably in recent decades. New technologies, globalized markets, and organizational changes are challenging organizations and altering employees' working conditions (Cascio, 1995). Nowadays employees report an intensification of the pace of work (Parent-Thirion et al., 2012). Consequently, it is argued that work intensification represents a serious issue in numerous occupations. This trend should be taken seriously since work intensification is an important work demand taking extensive toll on employees' well-being. For instance, work intensification is associated with strain and reduced job satisfaction (Green, 2001, 2004; Korunka, Kubicek, Paškvan, & Ulferts, in press).

Although the consequences of work intensification have been analyzed, little is known about the underlying processes that explain why work intensification increases strain and reduces job satisfaction. In line with the transactional theory of stress (Lazarus & Folkman, 1984), we propose that cognitive appraisal mediates the effect of work intensification on strain (i.e., emotional exhaustion) and job satisfaction, respectively. Furthermore, it is still unknown which resources have the potential to influence the relation between work intensification and its appraisal. Recent research indicates that participative climate operates as an important resource as it enables employees to cope with work intensification through increased participation and the provision of information (Bordia, Hobman, Jones, Gallois, & Callan, 2004; Van de Heuvel, Demerouti, Bakker, & Schaufeli, 2013). However, to our knowledge, these relationships have not yet been tested.

The purpose of this two-study paper is threefold. First, using longitudinal data from service sector employees (Study 1), we examine the role of cognitive appraisal in the relation between work intensification and emotional exhaustion and job satisfaction, respectively. Second, using cross-sectional data (Study 2), we aim to generalize the mediating role of cognitive appraisal based on another service sector sample. Third, we explore whether a

participative climate influences the cognitive appraisal of work intensification in a favorable way.

Work Intensification

Due to global changes, work intensity has increased over the last few decades (Green, 2001, 2004; Valeyre, 2004). Globalization, increased competition and new technologies as examples of changing organizational contexts lead to downsizing, outsourcing and increasing performance expectations (Landsbergis, 2003; Sparks, Faragher, & Cooper, 2001). These changes, however, put more pressure on employees and trigger work intensification (Kubicek, Paškvan, & Korunka, in press). Analyzing international datasets (European Working Condition Survey and the International Social Survey Programme) such an overall increase in work intensity (i.e., work intensification) has been observed in most European countries and the United States (Olsen, Kalleber, & Nesheim, 2010; Parent-Thirion et al., 2012) making work intensification a global work issue.

Combining prior research (Green, 2004; Kubicek et al., in press), we define work intensification as a multifaceted construct characterized by the need to work at increasing speed, perform several tasks simultaneously, or reduce idle time. Work intensification has to be differentiated from prolonged work hours (work extension). Longer work hours do not directly imply that work itself has intensified; they could arise from a long-hours culture (Chatzitheochari & Arber, 2009). This differentiation between work intensification and extension is in line with research showing a decline in work hours, but an increase in work intensity (Green, 2001).

Work intensification leads to increased productivity and economic profitability (e.g., Green, 2001; Valeyre, 2004). In contrast to these benefits for organizations, work intensification has primarily negative effects on employees. For example, work intensification increases strain and decreases job satisfaction (Green, 2001, 2004; Korunka et al., in press).

The challenge-hindrance framework (e.g., Cavanaugh, Boswell, Roehling, & Boudreau, 2000) provides a theoretical foundation for examining such negative effects of work intensification. It distinguishes between two types of demands, namely challenge and hindrance demands (Van den Broeck, De Cuyper, & De Witte, 2010), and between two types of outcomes, namely well-being and work outcomes (Widmer, Semmer, Kälén, Jacobshagen, & Meier, 2012). Challenge demands are perceived as stressful, but as obstacles which may be overcome fostering individuals' motivation (LePine, Podsakoff, & LePine, 2005). Hindrance demands are defined as work-related demands that cannot be overcome; consequently, they interfere with work achievement and thwart motivation (LePine et al., 2005). Well-being (in particular negative well-being) is typically operationalized by strain indicators, such as emotional exhaustion (LePine, LePine, & Jackson, 2004). Work outcomes refer to behaviors, such as performance (LePine et al., 2005), or to job-related attitudes, such as job satisfaction (Webster, Beehr, & Love, 2011). Challenge demands, although promoting strain, are associated with positive work outcomes (LePine et al., 2005). In contrast, hindrance demands increase strain and decrease positive work outcomes (Podsakoff, LePine, & LePine, 2007). Transferring these concepts to the field of this study, work intensification can be considered a hindrance demand, since it promotes strain and is negatively related to positive work outcomes such as job satisfaction. Although recent research (Korunka et al., in press) supports the view that work intensification functions as a hindrance demand, it is not yet known whether cognitive appraisal processes are indeed the underlying psychological mechanisms linking work intensification to its outcomes.

The Mediating Effects of Cognitive Appraisal

In recent decades, a growing number of studies have shown that job demands and resources are related to employee well-being (cf., Bakker & Demerouti, 2007). Most of this research showed by relying on the Job Demands Resources Model (JD-R) that the effects of

demands and resources on well-being are explained by two different underlying psychological processes, namely a health impairment (e.g., energy depletion) and a motivational process (e.g., Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). To better capture the complexity of today's working world, the JD-R model has been extended with regard to challenge and hindrance demands (Van den Broeck et al., 2010). To provide a more in-depth explanation of the effect of challenge and hindrance demands on employee well-being, one could draw on theories such as the transactional theory of stress (Lazarus & Folkman, 1984) and include cognitive appraisal as an important mechanism (i.e., process) explaining why external stressors lead to individual outcomes in terms of well-being (Webster et al., 2011). Cognitive appraisal is defined as an individual evaluation of a situation and "can be most readily understood as the process of categorizing an encounter, and its various facets, with respect to its significance for well-being" (Lazarus & Folkman, 1984, p. 31). Accordingly, an individual's cognitive appraisal should mediate the effects of the demand on strain and other outcomes (Lazarus & Folkman, 1984). In fact, it has been shown that the relationships between stressors and strains as well as between stressors and work-related outcomes are, in part mediated by cognitive appraisal (Gomes, Faria, & Gonçalves, 2013; Searle & Auton, 2015; Webster et al., 2011).

Combining these considerations, it follows that the effect of work intensification on emotional exhaustion as a form of strain (Maslach, Schaufeli, & Leiter, 2001) and on job satisfaction as a work-related outcome should be mediated by the cognitive appraisal of work intensification. Indeed, Webster et al. (2011) showed that the hindrance appraisal of demands partially mediated their relationship to emotional exhaustion and job (dis)satisfaction. Accordingly, we argue that cognitive appraisal as an individual evaluation explains why work intensification as a stressor has outcomes of psychological significance and hence make the following hypotheses (see Figure 1):

Hypothesis 1: Cognitive appraisal of work intensification mediates the relationship between work intensification and emotional exhaustion. In detail, work intensification is appraised as a hindrance and this hindrance appraisal in turn increases emotional exhaustion.

Hypothesis 2: Cognitive appraisal of work intensification mediates the relationship between work intensification and job satisfaction. In detail, work intensification is appraised as a hindrance and this hindrance appraisal in turn decreases job satisfaction.

[Figure 1]

Although there is a long tradition of measuring cognitive appraisal directly (e.g., Lazarus & Folkman, 1984), recent research has tended to take a different approach. The challenge-hindrance framework, for instance, while stating that the effect of demands on outcomes will vary depending on whether the demand is a challenge or hindrance demand, classifies challenge and hindrance demands based solely on a priori assumptions (e.g., Cavanaugh et al., 2000). While the challenge-hindrance framework remains important, a priori classifications of hindrance and challenge demands could lead to misjudgments, since the appraisal of a demand may vary between persons. For example, based on the challenge-hindrance framework, time pressure is classified as a challenge demand (Podsakoff et al., 2007). However, Bakker and Sanz-Vergel (2013) showed that eldercare workers appraise time pressure more as a hindrance than as a challenge. Given these potential differences in appraisals, Webster et al. (2011) recommend that the ‘classical’ challenge-hindrance framework needs to be extended. Following their line of argument, each demand should be directly appraised by research participants rather than being classified on the basis of an a priori consideration.

Since this suggestion is rather new in the field of organizational research, studies directly assessing appraisal and examining the mediating effect of cognitive appraisal with an

organizational focus are scarce. Even when cognitive appraisal is measured, researchers in many cases do not ask their participants to directly appraise each item; rather, their participants must appraise the whole working day or a situation without referring to any specific statement (Glaser & Hecht, 2013; Gomes et al., 2013; Ohly & Fritz, 2010). To mention just one example, Ohly and Fritz (2010) asked their study participants to appraise the whole working day (i.e., “I feel challenged”) but did not refer to either a specific situation. Other researchers measuring cognitive appraisal directly operationalized appraisals not in terms of hindrances, but rather in terms of desirability (Kim, 2008), or distress and eustress (Rodríguez, Kozusznik, & Peiró, 2013). To further develop research on cognitive appraisal and to extend the challenge-hindrance framework, we included a direct measure of cognitive appraisal for each work intensification statement in our studies.

Direct and Moderating Effects of a Participative Climate

The cognitive appraisal process is a dynamic process which is influenced by person- and situation-related factors (Lazarus & Folkman, 1984). Situation-related factors that increase the likelihood of an event being appraised as hindering are event uncertainty (Lazarus & Folkman, 1984) and lack of control (Bordia et al., 2004; Peeters, Buunk, & Schaufeli, 1995). Thus, to positively influence the cognitive appraisal process, organizations can reduce uncertainty and enhance employees’ control over the situations they encounter at work. Previous research indicates that the provision of information (Van de Heuvel et al., 2013) and participation in decision making (PDM) (e.g., Bordia et al., 2004; Lazarus & Folkman, 1984) are important situation-related resources having the potential to increase employees’ control and to diminish their uncertainty and thus to influence cognitive appraisal.

In detail, information provides employees with the opportunity to understand what might happen and to estimate its likelihood of occurrence (Lazarus & Folkman, 1984), whereas PDM fosters shared decision-making or at least some degree of influence (i.e., Mitchell,

1973). Hence, the combination of both of these resources, termed participative climate (Tetluk, Vance, & Mathieu, 1999), should influence cognitive appraisal in a favorable way. Participative climate as one facet of a broader concept of organizational climate promotes decision-making, interaction, a wide distribution of influence and shared information that in turn fosters new thinking (Anderson & West, 1998) and may reduce hindrance appraisal. We conclude:

Hypothesis 3: Employees working in a favorable participative climate appraise work intensification as less hindering.

In addition to this direct effect, resources could also support the whole cognitive appraisal process (Grüner & Pinquart, 2011). In line with transactional stress theory (Lazarus & Folkman, 1984), we expect additionally a participative climate to influence the relationship between work intensification and its appraisal in a favorable way. Indeed, previous research has shown that personal resources and job resources buffer the relationship between demands and their cognitive appraisal (Glaser & Hecht, 2013; Kim, 2008). We aim to extend this line of research by showing that a participative climate buffers effects on the cognitive appraisal of work intensification. We argue that a participative climate, since it offers the possibility for shared information and participation in decision-making (Anderson & West, 1998), enables employees to better cope with work intensification. Due to the dynamic character of work intensification, we argue that work intensification is associated with higher stress-levels compared to stable but high demands (cf., Mohr & Wolfram, 2010). Predictability has the power to influence the negative relationship of dynamic stressors (i.e., work intensification) on strains (Mohr & Wolfram, 2010). Hence, information on what is going on and the possibility for participation fosters a view of work intensification as more predictable and leads to the feeling of control. We argue (see Figure 1):

Hypothesis 4: A favorable participative climate reduces the correlation between work intensification and the cognitive appraisal of work intensification as a hindrance.

So far we have proposed that cognitive appraisal mediates the direct effects of work intensification on emotional exhaustion and on job satisfaction (Hypotheses 1 and 2), that a participative climate directly influences cognitive appraisal (Hypothesis 3) and moderates the cognitive appraisal of work intensification (Hypothesis 4). It is thus probable that a favorable participative climate dilutes the strength of the indirect effect of work intensification on its outcomes. Therefore, we predict that the indirect effect of work intensification on emotional exhaustion and on job satisfaction via cognitive appraisal should be weaker among employees working in a favorable participative climate. Employees working in a participative climate have the opportunity to confront work intensification more directly, the cognitive appraisal process becomes less important, although it remains an integral part of the stress management process. We hypothesize:

Hypothesis 5: A participative climate moderates the strength of the mediated relationship between work intensification and (a) emotional exhaustion and (b) job satisfaction (through cognitive appraisal). Specifically, the mediated relationship through cognitive appraisal will be weaker for employees working in a favorable participative climate.

The five study hypotheses each have a different research focus. With Hypotheses 1 and 2, we investigated the psychological mechanism linking work intensification to its outcomes. Forming Hypotheses 3, 4 and 5, we explored how the cognitive appraisal process can be influenced. To better address these different research focuses, we conducted two studies. In the first study, we analyze whether the effect of work intensification on strain and on job satisfaction is mediated by its cognitive appraisal (Hypotheses 1 and 2). Since this analysis

focuses on a process, longitudinal data were needed in order to allow delayed effects to arise and to ensure the presence of a real mediation. The second research focus was on how the cognitive appraisal process can be influenced study (Hypothesis 3, 4, and 5). To analyze this moderating effect, we conducted a second, cross-sectional. Furthermore, using data from the second study, we sought to generalize the mediating effect of cognitive appraisal to another service-sector sample.

Study 1: The Mediating Role of Cognitive Appraisal

Participants and Study Design

Study 1 was conducted among employees of a bank in Austria. The study was approved by management, all participants were treated anonymously, full transparency about the goals of the research was given and participation was voluntary. At both measurement points all currently employed employees of the organization were invited via e-mail to take part in the study ($N_{Population-T1} = 1,146$; $N_{Population-T2} = 1,185$). In both waves of data collection, respondents completed an online survey, but the possibility of filling out a paper-and-pencil questionnaire was also provided. At Time 1 (T1), 424; 17 months later, at Time 2 (T2), 628 questionnaires were returned (at least one item was answered for the predictor variable), resulting in satisfactory response rates (at T1 37% -, at T2 53% response rate). Participants were asked to provide a personal code, based on their date of birth, their mother's year of birth, and the initial letter of their mother's and father's first names (e.g., 2254MJ). Using this code and after checking key demographic variables (sex and age) of the matched participants, 262 people from the T1-sample could be matched over the two measurement points. To identify potential dropout problems due to panel attrition, we compared participants who dropped out after T1 ($N = 162$) with participants who could be matched ($N = 262$). Matched participants were comparable to participants who dropped out with regard to emotional

exhaustion, job satisfaction, work intensification, cognitive appraisal, age, sex, education, job tenure and working hours. Hence, no selective dropout problems occurred from T1 to T2.

Within the matched dataset, nine persons did not provide an answer to emotional exhaustion and job satisfaction, and were excluded. The final dataset consisted of 253 respondents. Their average age was 42.07 years ($SD = 8.25$). More than half of the participants were male (56%). The average job tenure was 14.45 years ($SD = 9.73$). Average weekly working hours amounted to 42.30 ($SD = 7.08$). Most of the employees had university degrees (61%), followed by employees with general qualification for university entrance (26%), vocational school degree (11%) and apprenticeship (2%). Around 17% had a leadership position.

Measures

The study was conducted among employees located in Austria. Consequently, all measures were provided in German.

Work intensification (e.g., “In the last five years, it is increasingly rare to have enough time for work tasks.”) was measured with five items using the Intensification of Job Demands Scale (Kubicek et al., in press). This measure was originally developed and validated in German. The response format ranged from 1 = *no, not at all* to 5 = *yes, completely*.

Cognitive appraisal of work intensification was measured with a scale adapted from Webster et al. (2011) and Tomasik, Silbereisen, and Pinquart (2010). The scale spans a dimension between challenge and hindrance in terms of the cognitive appraisal process. To capture the original breadth of the cognitive appraisal scale, a native speaker was consulted for scale development. Participants were asked to respond to an appraisal item for each work intensification item. In detail, after respondents indicated the amount of work intensification they had experienced, they were asked, “How do you appraise this change?” on a scale ranging from 1 = *hindrance* to 5 = *challenge* (items were recoded so that higher levels

represent hindrance appraisals). Participants reported appraisal judgments for each of the five work intensification items, resulting in a total of five appraisal items. Participants who did not report an increase in work intensity for an item were allowed to skip the corresponding appraisal item.

Job satisfaction was measured with a single item, “All in all, how satisfied are you with your job?” with a seven-step Kunin-scale response format. Previous research indicates that single items are valid to measure job satisfaction (Wanous, Reichers, & Hudy, 1997).

Emotional exhaustion was measured with five items (e.g., “I feel emotionally drained from my work.”) from the German translation of the Maslach Burnout Inventory (Büssing & Perrar, 1992). The response format ranged from 1 = *never* to 6 = *very often*.

Statistical Analyses

Hypotheses 1 and 2 required two simple mediation analyses. Baron and Kenny (1986) prescribe four conditions that should be tested in mediation analyses: (1) The independent variable (IV) must be significantly related to the dependent variable (DV) – c path, (2) the IV is related to the mediator (MED) - a path, (3) MED is significantly related to DV when controlling for IV – b path, and (4) the effect of IV on DV becomes non-significant or smaller when adding MED – c’ path. Besides the importance this procedure, it has become subject to discussion in recent years. First, the rigid requirement for a significant direct effect may be dropped as mediation can exist even if there is no significant direct relation (Preacher & Hayes, 2004; Shrout & Bolger, 2002). Second, since this procedure does not allow for direct testing of the indirect effect and has low power, recent research recommends new approaches using resampling methods (i.e., bootstrapping) to test the indirect effect more directly (Preacher & Hayes, 2004; Shrout & Bolger, 2002). Bootstrapping provides the possibility to test the indirect effect without any assumptions about the shape of the distribution and the effect is not dependent on large sample sizes (cf., Preacher & Hayes, 2004).

Based on these recommendations, we tested the mediating effect of cognitive appraisal (Hypotheses 1 and 2) by estimating one model using Mplus version 7 (Muthén & Muthén, 2012). The model consisted of six variables (work intensification T1, cognitive appraisal T1, emotional exhaustion T1, job satisfaction T1, emotional exhaustion T2 and job satisfaction T2; see Figure 1) and tested both hypotheses simultaneously. For each of the variables, we entered mean scores as manifest indicators in the model. We estimated all direct effects as obtained in Figure 1 and correlated all other variables. As recommended, we test the indirect effect of cognitive appraisal directly by using bootstrapping (10 000 resamples). Reporting the 95% bootstrapped confidence interval (CI), the indirect effect is significant when the confidence interval does not include zero.

Before starting with the analysis of the model, we performed a confirmatory factory analysis (CFA) to show that all measures represent different constructs. In the CFA model, errors of the T1 and T2 items were allowed to correlate. As assumed, the model (χ^2 (191) = 383.96; $p < .001$, CFI = .95; TLI = .94, RMSEA = .063) fit the data well.

Results

Descriptive Statistics

The means, standard deviations, correlations, and the Cronbach's Alphas of Study 1 variables are presented below the diagonal in Table 1. Internal consistencies of all scales were satisfactory. As indicated in previous research (Korunka et al., in press), work intensification was appraised as hindering ($M = 3.72$, $SD = 0.78$). In detail, since the scale of cognitive appraisal ranged from 1 = challenge to 5 = hindrance, a mean above 3 in cognitive appraisal indicated that participants appraised work intensification on average as at least slightly hindering.

[Table 1]

Test of Hypotheses

Hypothesis 1 predicted that the cognitive appraisal of work intensification mediates the effect of work intensification on emotional exhaustion. The indirect effect of work intensification via cognitive appraisal on emotional exhaustion at T2 is significant, 95% CI [0.05, 0.21], supporting Hypothesis 1.

[Table 2 & Figure 2]

Hypothesis 2 predicted that the relationship between work intensification and job satisfaction is mediated by cognitive appraisal. The indirect effect was significant, 95% CI [-0.27, -0.06] (see Table 2). Consequently, Hypothesis 2 was supported.

Discussion

In Study 1, we were interested in whether the effect of work intensification on its outcomes was mediated by the cognitive appraisal of work intensification. Using longitudinal data, we confirmed that cognitive appraisal mediates the effect of work intensification on emotional exhaustion, and on job satisfaction, respectively. Hence, we do not only show that work intensification is appraised as hindering, but also that its negative effects are explained by cognitive appraisal processes. This was the first study to longitudinally confirm that the negative effects of work intensification on employee strain and job satisfaction are explained by their appraisal. However, we wanted to go a step further and examine how cognitive appraisal can be influenced by organizational structure.

Study 2: The Moderating Role of a Participative Climate

Participants and Study Design

The second study was conducted among employees of two Austrian ICT companies. The same procedures regarding consent and confidentiality were applied as in Study 1. Again, all currently employed employees of both organizations were invited for study participation via e-mail ($N_{Population} = 1,320$). In total, 932 questionnaires (at least one item was answered for the

predictor variable) were returned (71% response rate). The average age of the respondents was 34.93 years ($SD = 8.95$). The majority of participants were male (66%). The average job tenure was 7.60 years ($SD = 5.90$). Average weekly working hours amounted to 41.41 ($SD = 7.52$). Most of the employees had a general qualification for university entrance (37%), followed by employees with apprenticeship (27%), vocational school degree (16%), university degree (15%), and the completion of compulsory education (6%). Around 22% had a leadership position.

Measures

Work intensification, cognitive appraisal, emotional exhaustion and job satisfaction were measured with the same scales as in Study 1.

Participative climate was measured with two items (“The management of the company is willing to consider the ideas and suggestions of its employees.”; “We are informed about important matters and procedures at our organization.”) using the short questionnaire for job analysis (KFZA; Prümper, Hartmannsgruber, & Frese, 1995). This measure was originally written in German. The response format ranged from 1 = *not at all* to 5 = *completely*.

Statistical Analyses

In a first step, we tested a simple mediation model to test Hypotheses 1 and 2. For this purpose, we again estimated a model based on manifest variables (mean scores) using Mplus version 7 (Muthén & Muthén, 2012). Since age, sex and job tenure were significantly related either to emotional exhaustion or to job satisfaction (see Table 1), we controlled for them (Becker, 2005). The model consisted of seven manifest variables (i.e., age, sex, job tenure, work intensification, emotional exhaustion and job satisfaction). We estimated all direct effects as obtained in Figure 1 and correlated all other variables. Again, bootstrapping was utilized to test the indirect effect of cognitive appraisal.

In contrast to Study 1, Study 2 additionally tested the direct and moderating effects of participative climate. Consequently, we added in a second step a direct effect of participative climate (Hypothesis 3) and an interaction effect of participative climate and work intensification (Hypothesis 4) on cognitive appraisal. Moreover, to test the moderated mediation (Hypothesis 5), we estimated an index for moderated mediation and based our results on bootstrapping analyses (Hayes, 2015). This moderated mediation procedure makes it possible to test whether the indirect effect of cognitive appraisal is contingent on participative climate.

Before starting with hypothesis testing, we again conducted a CFA. As assumed, the CFA model had acceptable fit indices ($\chi^2 (126) = 819.60$; $p < .001$, CFI = .93; TLI = .92, RMSEA = .077).

Results

Descriptive statistics

The means, standard deviations, correlations, and the Cronbach's Alphas of Study 2 variables are presented above the diagonal in Table 1. The internal consistencies of all scales were satisfactory. As assumed, work intensification was once again appraised as hindering ($M = 3.66$, $SD = 0.85$).

Test of Hypotheses

The cognitive appraisal of work intensification mediated the effect of work intensification on emotional exhaustion, 95% CI [0.26, 0.41], supporting Hypothesis 1. In detail, the direct effect of work intensification on emotional exhaustion remained significant after including the mediator, indicating a partial mediation.

The indirect effect of work intensification on job satisfaction via cognitive appraisal was significant, 95% CI [-0.43, -0.27], supporting Hypothesis 2.

[Table 3]

Hypothesis 3 predicted that employees working in a favorable participative climate appraise work intensification as less hindering. The direct effect of a participative climate on cognitive appraisal was significant, $B = -0.18$, $SE = 0.03$, $p < .001$ (see Table 3), supporting Hypothesis 3.

Hypothesis 4 predicted moderating effects of a participative climate on the cognitive appraisal process. The interaction of work intensification and participative climate was significant, $B = -0.08$, $SE = 0.03$, $p = .011$, supporting Hypothesis 4 (see Table 3). Simple slope analyses (Aiken & West, 1991) revealed that all slopes for favorable (+1 SD; $B = 0.42$; $SE = 0.05$, $p < .001$) and unfavorable (-1 SD; $B = 0.56$; $SE = 0.03$, $p < .001$) participative climate were significantly different from zero. However, in the case of a favorable participative climate, the line is less steep (see Figure 3), indicating that a favorable climate reduces the correlation between work intensification and cognitive appraisal, supporting Hypothesis 4.

[Figure 3]

In accordance with Hypotheses 5a and 5b, the moderated mediation index was significant for emotional exhaustion, 95% CI [-0.08, -0.01], and for job satisfaction, 95% CI [0.01, 0.07] (see Table 3). As hypothesized, the strength of the mediated relationship between work intensification and emotional exhaustion and job satisfaction through cognitive appraisal is weaker for employees working in a favorable participative climate. Specifically, the unstandardized indirect effects were $B = 0.24$, $SE = 0.04$, $p < .001$ (H5a), and $B = -0.22$, $SE = 0.04$, $p < .001$ (5b) at one standard deviation above the mean of participative climate, and $B = 0.32$, $SE = 0.04$, $p < .001$ (5a) and $B = -0.29$, $SE = 0.04$, $p < .001$ (H5b) at one standard deviation below the mean.

General Discussion

Employees nowadays report higher levels of time pressure than in previous years (Parent-Thirion et al., 2012). Findings that work intensification is associated with increased strain and reduced job satisfaction (Green, 2004) have indicated that work intensification is a serious problem in the world of work. In this study, we wanted to go a step further than previous studies and explain the process that links work intensification to its outcomes. To achieve this, we investigated the mediating role of cognitive appraisal as a means of understanding how work intensification leads to strain and job (dis)satisfaction and tested this relationship with both cross-sectional and longitudinal data.

We show not only that work intensification is appraised as hindering, but also that its negative effects are explained by cognitive appraisal processes. Indeed, both studies showed that the relationship between work intensification and emotional exhaustion as well as job satisfaction is mediated by cognitive appraisal. Consequently, our study highlights the importance of cognitive appraisal in explaining the process of how a demand leads to strain and work-related outcomes. This is particularly the case with regard to the relation of work intensification and job satisfaction. In detail, in Study 1 work intensification at T1 was not correlated with job satisfaction at T2, indicating that no relationship between these variables exists. However, after including cognitive appraisal as a mediator it became obvious that it is not the demand per se but its individual perception as a hindrance that is an important mechanism linking it to job satisfaction over time. This is in line with the transactional stress model (Lazarus & Folkman, 1984), which argues that individual perceptions are important processes explaining why some individuals are negatively influenced by demands while others are not.

In the cross-sectional study, the indirect effect of cognitive appraisal did not fully explain the relationship between work intensification and emotional exhaustion. One would expect

work intensification, as a hindrance demand, to require effort expenditure and to at least to some extent drain employees' energy (Van den Broeck et al., 2010). In addition to the mediating effect of cognitive appraisal, demands may still have a direct impact on strain (Webster et al., 2011). Similarly, Baron and Kenny (1986) have proposed that in psychological research multiple mediators explaining overall effects are probable. Thus, based on the cross-sectional data, we conclude that cognitive appraisal only partially explains the effect of work intensification on emotional exhaustion. Still, the indirect effect of cognitive appraisal on the relationship between work intensification and emotional exhaustion is theoretically significant. Future studies might measure besides cognitive appraisal an energy depleting effect to explain the underlying processes more closely.

It is assumed that when demands exceed an individual's resources, a mismatch occurs that makes a hindrance appraisal and the occurrence of stress more likely. This is the first study showing that a participative climate has an important and positive influence on cognitive appraisal. Previous research already showed that persons who report more self-efficacy also appraise conflicts as less threatening (Glaser & Hecht, 2013). Hence it would be interesting to analyze the effect of job-related – and personal resources simultaneously on cognitive appraisal.

Job-related resources such as a participative climate are also important when it comes to the relationship between demands and their appraisal. We showed that a favorable participative climate reduces the correlation between work intensification and cognitive appraisal. The results of the moderation analyses support the assumptions made by previous research describing cognitive appraisal as a dynamic process that can be influenced by situation- and person-related factors (Lazarus & Folkman, 1984). It seems that a favorable participative climate provides employees with the opportunity to exert control and reduces

uncertainty (Van de Heuvel et al., 2013), which in turn influences the whole cognitive appraisal process in a favorable way.

We showed that in the case of an unfavorable participative climate, cognitive appraisal becomes more important, as indicated by a stronger indirect effect. We argue that employees working in an organization with a low participative climate have no opportunities to actively influence their organizational context or at least suffer from low information transfer, which in both cases impedes their ability to cope with stressful working conditions (cf., Somech, 2010). Thus, under both circumstances cognitive appraisal becomes more important for coping with work demands, since employees have no opportunity to directly deal with demands using provided information or by taking direct action. These results give first insights into the process of cognitive appraisal and how it can be influenced.

Research Strengths and Limitations

The major strengths of both studies are that they extend previous research by explaining the process of how work intensification leads to its outcomes using longitudinal and cross-sectional data. By combining previous research on the effects of work intensification (Green, 2001, 2004; Korunka et al., in press) with the transactional theory of stress (Lazarus & Folkman, 1984), we showed that the effects of work intensification on emotional exhaustion and job satisfaction are explained by workers' cognitive appraisal. Moreover, we introduced participative climate as a resource influencing the cognitive appraisal process in a favorable way. We were the first to show that a participative climate has a direct and moderating effect on the cognitive appraisal. Moreover, having found the hypothesized effects in two different samples (i.e., banking and ICT), we may speculate that they are generalizable to other fields.

Despite the new insights that this study provides, it has, like all other studies, some limitations. One limitation of this research is that common method bias might have occurred. This shortcoming is mitigated by the fact that we confirm interaction effects that are not due

to common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In both studies, job satisfaction was measured with a single item. Research indicates that this procedure is appropriate and that single item measures are valid in the case of job satisfaction (Wanous et al., 1997). Participative climate was measured with two items. Although we used a validated short scale measure (Prümper et al., 1995), and ensured that the reliability of the scale (Cronbach's $\alpha = .72$) and the inter-item correlation ($r = 0.58$) were sufficient (Cohen, 1988; Nunnally & Bernstein, 1994), future studies might want to measure participative climate with more than two items. Furthermore, it would be interesting to measure participative climate on a team or organizational level (Anderson & West, 1998). Cognitive appraisal of work intensification was measured with one scale spanning from challenge to hindrance. Although previous research has used similar scales (Tomasik et al., 2010), further studies could measure cognitive appraisal with two separate scales (e.g., as in Rodríguez et al., 2013).

Implications

From a theoretical perspective, this study emphasizes the importance of measuring the appraisal of a demand to understand why and how demands lead to associated outcomes. Moreover, given the fact that in many organizations, downsizing has been seen as a quick move to reduce costs, we argue that associated improvements are probably only temporary. In the long run, employees have more work to do causing work intensification (Kubicek et al., in press) stress-related illness and occupational accidents (Landsbergis, 2003). Hence, from a practical perspective downsizing as a managerial strategy should be regarded with suspicion, since negative long-term effects may arise. Moreover, this study highlights the importance of job resources in cases where workers face work intensification. Thus, we encourage employers to promote resources like a participative climate to support their employees in coping with work intensification.

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Table 1.

Intercorrelations among and Cronbach's Alphas of Study 1 and Study 2 Variables

		M_{Study1}	SD_{Study1}	1	2	3	4	5	6	7	8	9	10
		M_{Study2}	SD_{Study2}										
1	Age	42.07	8.25	-	-.04	.55***	.17***	.10**	-.02	.09*	-	-	-.03
		34.93	8.95										
2	Sex	1.44	0.50	-.06	-	-.03	-.06	-.11**	-.08*	.03	-	-	.04
		1.34	0.47										
3	Job tenure	14.45	9.73	.73***	.07	-	.22***	.19***	.06	-.02	-	-	-.15***
		7.60	5.90										
4	Work intensification T1	3.35	1.04	.10	.04	.20**	(.90/.89)	.65***	.45***	-.25***	-	-	-.32***
		3.37	1.03										
5	Cognitive Appraisal T1	3.72	0.78	.10	-.05	.14*	.57***	(.89/.89)	.55**	-.40***	-	-	-.39***
		3.66	0.85										
6	Emotional exhaustion T1	2.92	1.15	.03	-.04	.06	.47***	.52**	(.92/.91)	-.52***	-	-	.34***
		3.20	1.22										
7	Job satisfaction T1	5.48	1.20	.05	-.05	.12*	-.11	-.23**	-.44**	(-/-)	-	-	.41***
		5.03	1.34										
8	Emotional exhaustion T2	3.22	1.18	.02	.03	.07	.38***	.52**	.77**	-.35**	(.90/-)	-	-
		-	-										
9	Job satisfaction T2	5.30	1.31	.07	-.00	.14*	-.09	-.28**	-.35**	.55**	-.44**	(-/-)	-
		-	-										
10	Participative climate T1	-	-	-	-	-	-	-	-	-	-	-	(-/-.72)
		2.83	0.91										

Note. Intercorrelations of Study 1 variables are presented below the diagonal, and intercorrelations of Study 2 variables are presented above the diagonal; Sex: 1 = male, 2 = female; $N_{Study1} = 253$; $N_{Study2} = 932$;

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2.

Results of Mediation Analyses of Study 1 and Study 2 (Hypotheses 1 and 2)

Mediation	B	SE	p	Bootstrapped 95% CI	
				LL	UL
<i>Study 1 (longitudinal sample): Direct and total effects on emotional exhaustion T2 and job satisfaction T2</i>					
Step 1a: Emotional exhaustion T2 regressed on work intensification T1 (c1 path)	0.03	0.06	.678	-0.10	0.15
Step 1b: Job satisfaction T2 regressed on work intensification T1 (c2 path)	-0.03	0.08	.738	-0.19	0.13
Step 2: Cognitive appraisal T1 regressed on work intensification T1 (a path)	0.42	0.05	< .001	0.31	0.52
Step 3a: Emotional exhaustion T2 regressed on cognitive appraisal T1 (b1 path)	0.28	0.09	.002	0.10	0.45
Step 3b: Job satisfaction T2 regressed on cognitive appraisal T1 (b2 path)	-0.35	0.12	.003	-0.58	-0.13
Step 4a: Emotional exhaustion T2 reg. on work intensification T1, controlling for appraisal T1 (c1' path)	-0.06	0.06	.349	-0.19	0.06
Step 4b: Job satisfaction T2 regressed on work intensification T1, controlling for appraisal T1 (c2' path)	0.12	0.08	.173	-0.05	0.28
Emotional exhaustion T1 on emotional exhaustion T2	0.72	0.06	< .001	0.60	0.82
Job satisfaction T1 on job satisfaction T2	0.56	0.08	< .001	0.41	0.71
<i>Indirect effect on emotional exhaustion T2 (a path * b1 path)</i>	0.12	0.04	.003	0.05	0.21
<i>Indirect effect on job satisfaction T2 (a path * b2 path)</i>	-0.15	0.06	.007	-0.27	-0.06
<i>Study 2 (cross-sectional sample): Direct and total effects on emotional exhaustion and job satisfaction</i>					
Step 1a: Emotional exhaustion regressed on work intensification (c1 path)	0.55	0.04	< .001	0.48	0.63
Step 1b: Job satisfaction regressed on work intensification (c2 path)	-0.35	0.05	< .001	-0.44	-0.25
Step 2: Cognitive appraisal regressed on work intensification (a path)	0.54	0.03	< .001	0.48	0.59
Step 3a: Emotional exhaustion regressed on appraisal (b1 path)	0.62	0.06	< .001	0.50	0.73
Step 3b: Job satisfaction regressed on appraisal (b2 path)	-0.64	0.07	< .001	-0.78	-0.51
Step 4a: Emotional exhaustion regressed on work intensification, controlling for appraisal (c1' path)	0.22	0.05	< .001	0.12	0.33
Step 4b: Job satisfaction regressed on work intensification, controlling for appraisal (c2' path)	-0.00	0.06	.955	-0.12	0.12
Sex on emotional exhaustion	-0.05	0.08	.491	-0.20	0.10
Age on emotional exhaustion	-0.01	0.01	.008	-0.02	-0.00
Job Tenure on emotional exhaustion	-0.00	0.01	.835	-0.02	0.01
Sex on job satisfaction	0.02	0.09	.803	-0.19	0.16
Age on job satisfaction	-0.02	0.01	< .001	0.01	0.03
Job Tenure on job satisfaction	-0.00	0.01	.686	-0.02	0.02
<i>Indirect effect on emotional exhaustion (a path * b1 path)</i>	0.33	0.04	< .001	0.26	0.41
<i>Indirect effect on job satisfaction (a path * b2 path)</i>	-0.35	0.04	< .001	-0.43	-0.27

Note. CI = confidence interval; LL = lower limit, UL = upper limit. $N_{Study1} = 253$; $N_{Study2} = 930$.

Table 3.

Results of Moderated Mediation Analysis of Study 2 (Hypotheses 3, 4 and 5)

<i>Moderated Mediation Model</i>													
<i>DV (mediator variable model):</i>				Cognitive appraisal									
				Bootstrapped 95% CI									
				<i>B</i>	<i>SE</i>	<i>p</i>	<i>LL</i>	<i>UL</i>					
Work intensification				0.49	0.03	< .001	0.43	0.54					
Participative climate				-0.18	0.03	< .001	-0.23	-0.12					
Work intensification × participative climate				-0.08	0.03	.011	-0.14	-0.02					
<i>DV (dependent variable model):</i>				Emotional exhaustion			Job satisfaction						
				Bootstrapped 95% CI			Bootstrapped 95% CI						
				<i>B</i>	<i>SE</i>	<i>p</i>	<i>LL</i>	<i>UL</i>	<i>B</i>	<i>SE</i>	<i>p</i>	<i>LL</i>	<i>UL</i>
Cognitive appraisal				0.57	0.06	< .001	0.46	0.69	-0.51	0.07	< .001	-0.65	-0.38
Work intensification				0.25	0.05	< .001	0.15	0.36	-0.08	0.06	.205	-0.19	0.05
Sex				-0.06	0.08	.455	-0.21	0.09	-0.01	0.09	.924	-0.18	0.16
Age				-0.01	0.01	.006	-0.02	-0.00	0.02	0.01	< .001	0.01	0.03
Job tenure				-0.00	0.01	.910	-0.02	0.01	-0.01	0.01	.576	-0.03	0.01
<i>Moderated Mediation</i>				-0.04	0.02	.010	-0.08	-0.01	0.04	0.02	.015	0.01	0.07
<i>Conditional indirect effect of a participative climate</i>				Bootstrapped 95% CI			Bootstrapped 95% CI						
				<i>B</i>	<i>SE</i>	<i>p</i>	<i>LL</i>	<i>UL</i>	<i>B</i>	<i>SE</i>	<i>p</i>	<i>LL</i>	<i>UL</i>
Unfavorable participative climate (- 1 SD)				0.32	0.04	< .001	0.25	0.39	-0.29	0.04	< .001	-0.37	-0.21
Favorable participative climate (+ 1 SD)				0.24	0.04	< .001	0.17	0.32	-0.22	0.04	< .001	-0.30	-0.15

Note. DV = dependent variable, CI = confidence interval; *LL* = lower limit, *UL* = upper limit. *N* = 932

Figure 1. Hypothesized model for Study 1 (black lines) and Study 2 (adding the grey lines).

Note. In the longitudinal study (Study 1), we controlled for emotional exhaustion T1 and job satisfaction T1, respectively; in the cross-sectional study (Study 2), we controlled for age, sex and job tenure.

Figure 2. Research models based on the results of the mediation analyses of Study 1 (upper model) and Study 2 (lower model).

Note. Standardized regression weights are presented. In Study 1, we controlled for emotional exhaustion T1 and job satisfaction T1 in Study 1 and for sex, age, and job tenure in Study 2.

$N_{Study1} = 253$, $N_{Study2} = 930$.

** $p < .01$. *** $p < .001$.

Figure 3. The moderating effect of a participative climate.

Note. All independent, moderation and control variables were mean-centered. $N_{Study2} = 932$.