How time pressure is associated with both work engagement and emotional exhaustion: The moderating effects of resilient capabilities at work

Arian Kunzelmann
Johannes-Gutenberg-University Mainz, Germany

Thomas Rigotti
Johannes-Gutenberg-University Mainz, Germany; Leibniz Institute for Resilience Research, Mainz, Germany

Abstract
Resilience in the organizational context is a fruitful concept for understanding employees’ success in dealing with workplace adversity. Through a diary study, we have examined the interaction effects of time pressure and different work-related capabilities of resilience (i.e. emotional coping, comprehensive planning, positive reframing, and focused action) on emotional exhaustion and work engagement of employees. A sample of 79 employees (54.4% male) responded to two daily surveys (after work and before bedtime) for a period of five consecutive workdays. Results show that time pressure had a positive association with emotional exhaustion. Further, time pressure showed a positive association with work engagement, but only when considering additional personal resources. Positive reframing was positively related to work engagement on the day-level but did not moderate the link between time pressure and the outcomes. Emotional coping as well as focused action decreased sensitivity to time pressure. The results underpin the impact of different work-related capabilities of resilience and provide novel theoretical and practical implications.

Keywords
Diary study, emotional exhaustion, resilience, time pressure, work engagement

Corresponding author:
Arian Kunzelmann, Department of Work-, Organizational- and Business Psychology, Johannes-Gutenberg-University Mainz, Wallstr. 3, 55122 Mainz, Germany.
Email: arian.kunzelmann@uni-mainz.de
Introduction

Demands at work have long solely been associated with negative outcomes, for example, increases in irritation and anxiety (Ford et al., 2014). However, research within the challenge–hindrance framework demonstrated that a delineation of job demands into challenges and hindrances is important, as whilst both are associated with symptoms of strain, challenge demands also show favorable effects on employees’ motivation and well-being (Cavanaugh et al., 2000; LePine et al., 2005; Podsakoff et al., 2007). In particular, time pressure is a challenge demand that has shown positive associations with both emotional exhaustion and work engagement (e.g. Baethge et al., 2018; Prem et al., 2018; Schmitt et al., 2015).

Beyond the considerations related to the effects of challenge demands within the challenge–hindrance framework, the Job-Demands Resources theory (JD-R; Bakker and Demerouti, 2017) argues that the incorporation of personal resources contributes to a better understanding how individuals differ in their well-being. But so far, there are only few studies looking at moderation effects of personal resources for the challenge demands–outcomes links (Bakker and Demerouti, 2017; Searle and Lee, 2015). Employee resilience as a personal resource has gained increased attention in work and organizational research within past few years (King et al., 2016; Linnenluecke, 2017). Resilience can be described “as referring to positive adaptation, or the ability to maintain or regain mental health, despite experiencing adversity” (Herrman et al., 2011: 258). In recent years, a shift from considering resilience as a stable personality trait towards considering resilience as a state-like aspect which is malleable and developmental has occurred (Leipold and Greve, 2009; Luthans et al., 2007; Luthans, 2002). Coping framed as a reflection of the resilience capacity is one way to study these malleable and developmental aspects (Britt et al., 2016; Crane et al., 2019; Leipold and Greve, 2009; Soucek et al., 2015). Coping strategies are able to modulate the associations between job demands and work-related psychological outcomes and reflect a personal resource (e.g. Schmidt and Diestel, 2013; Searle and Lee, 2015). In particular, resilience consists of the ability to use different adaptive coping strategies, which enable individuals to meet contextual demands (e.g. time pressure) and result in an increase of resilient outcomes (i.e. reduced emotional exhaustion, increased work engagement; cf. Crane et al., 2019). The usage of adaptive resilient coping strategies as a personal resource may facilitate individuals’ capability to better capitalize the favorable effects of time pressure on work engagement and diminish the positive association of time pressure with emotional exhaustion, because such strategies increase the likelihood of a successful management of challenging demands (cf. Crane et al., 2019; Leipold and Greve, 2009; Searle and Lee, 2015). Soucek et al. (2015) suggested different capabilities of resilience (i.e. emotional coping, comprehensive planning, focused action, and positive reframing), defined as adaptive coping strategies when facing challenging workplace conditions.

We investigate the interaction effects of resilient capabilities with time pressure on work engagement and emotional exhaustion. Especially, we expect that resilient capabilities buffer the positive association between time pressure and emotional exhaustion and boost the association between time pressure and work engagement. This study uses the JD-R model (Bakker and Demerouti, 2017) and the challenge–hindrance...
framework of occupational stress (Cavanaugh et al., 2000) as major guiding frameworks. As time pressure, emotional exhaustion, and work engagement can fluctuate daily (e.g. Baethge et al., 2018; Tuckey et al., 2015; Xanthopoulou et al., 2008), we aimed to address our research questions within a diary study.

This study contributes and goes beyond previous empirical studies in three ways. First, we investigate resilient capabilities as delineable coping strategies not only within the health-impairment process, rather we also investigate interactions in the motivational process. This approach contributes to the JD-R model as we expand the concept of personal resources to include resilience capacities. Second, this study contributes to refinements within the challenge–hindrance framework by considering the impact of resilient capabilities as a boundary condition to illuminate the ambivalent nature of time pressure. A recent meta-analysis showed that the investigation of additional boundary conditions is necessary, as the inherent assumptions of the challenge–hindrance framework especially related to the positive effects of challenge demands need to be extended (Mazzola and Disselhorst, 2019). Third, by considering certain coping strategies as a reflection of employee’s resilience capacity, we contribute to resilience research within the occupational context. Resilience research and especially the instruments used to assess resilience like the Connor–Davidson Resilience Scale (CD-RISC; Connor and Davidson, 2003) or the Brief Resilience Scale (BRS; Smith et al., 2008) consider an overall capacity of employees resilience that may not accommodate how this capacity can be developed and expanded specifically. An investigation of resilient capabilities has also practical merit, as it illuminates the meaning of specific strategies that can be used for the development or adjustment of targeted resilience training intervention programs within organizations. Beyond this, the study findings provide insights for managers, for example, which specific strategies should be utilized and promoted to maintain an optimal psychological functioning of employees, especially when they face a high amount of challenging job demands like time pressure.

**Effects of job demands and resources on work engagement and strain**

The Job Demands–Resources theory (Bakker et al., 2014; Bakker and Demerouti, 2007) suggests that every occupation has its own factors associated with job stress, which can be classified in two distinct categories (i.e. job demands and job resources). Job demands consist of physical, psychological, organizational or social aspects, which require physical and/or psychological effort resulting in increased psychological and/or physiological costs (Bakker and Demerouti, 2017). Job resources are characterized as psychological, social, physical, or organizational aspects which stimulate personal growth, reduce experienced job demands and the associated costs, and may be functional in achieving work-related goals (Bakker et al., 2014). The JD-R suggests that job demands and job resources elicit two underlying psychological processes, namely a health-impairment and a motivational process (Bakker et al., 2014). The health-impairment process states that experienced job demands (e.g. high workload, emotional demands) drain employee’s resources leading to a lack of energy and causes health impairments. Contrary to this, the motivational process is based on the assumption that available job resources
have a motivational potential and therefore result in increased work engagement and performance, and decreased symptoms of strain (Bakker et al., 2014; Bakker and Demerouti, 2017).

Strain, within the JD-R model is mostly operationalized with burnout, and motivation with work engagement (Bakker et al., 2014). Work engagement seems to be affected by personal resources and is strongly related to task and contextual performance (Bakker et al., 2014; Christian and Slaughter, 2011; Knight et al., 2017), whereas burnout seems to be caused by high work-related demands (Maslach and Jackson, 1984). Job burnout is characterized by dimensions of emotional exhaustion (i.e. reduced level of energy), depersonalization (i.e. callous responses toward clients or coworkers), and reduced personal accomplishment (i.e. decline in personal or occupational achievements; Maslach and Jackson, 1984). Emotional exhaustion is considered as the core component and proxy of the burnout syndrome, related with several health-impairments such as reduced emotional and physiological functioning and is frequently associated with mood and anxiety disorders (Tuithof et al., 2017). The concept of work engagement is characterized as a positive energetic state that consists of vigor, dedication, and absorption. Employees who feel engaged are enthusiastic and immersed in doing their work (Bakker et al., 2008).

However, some scholars showed that certain job demands are also linked to favorable job outcomes, such as job satisfaction, and provided a distinction into challenge and hindrance demands (Cavanaugh et al., 2000). This distinction into two different categories of job demands was also supported in several meta-analyses (e.g. Crawford et al., 2010; LePine et al., 2005; Podsakoff et al., 2007). Van den Broeck et al. (2010) showed that differentiating job demands into challenges and hindrances is a valid extension of the JD-R model.

The challenge–hindrance framework: Time pressure as antecedent of work engagement and emotional exhaustion

The challenge–hindrance framework of occupational stress states that challenge and hindrance demands require additional resources and efforts, and are therefore associated with an increase in emotional exhaustion, whereas challenge demands are also positively associated with work engagement (Boswell et al., 2004; Crawford et al., 2010). Challenge demands act as a double-edged sword as they affect the motivational and strain process simultaneously (e.g. LePine et al., 2005; Podsakoff et al., 2007). In particular, time pressure seems to be associated with both processes. Previous studies showed that time pressure is positively associated with work engagement (Baethge et al., 2018; Schmitt et al., 2015) and emotional exhaustion (Leinhos et al., 2018; Prem et al., 2018). Time pressure defined as “subjective perceptions that the time to complete one’s work is not enough or that in order to complete one’s work one needs to work faster than usual” (Stiglbauer, 2018: 64) represents a typical challenge demand based on its ambivalent effects (e.g. Prem et al., 2018; Widmer et al., 2012). For example, Widmer et al. (2012) reported not only a positive association between time pressure and strain, but also between time pressure and well-being. The proposed motivational effects of time pressure can be explained...
by the expectancy theory (Vroom, 1964). Vroom (1964) argues that demands are associated with beliefs related to the ratio of efforts and the probability of successful meeting such demands. Moreover, demands are linked with beliefs about the relationship between successful meeting demands and expected outcomes which are to a certain degree valued or attractive. Time pressure may be positively related to work engagement as individuals perceive a positive association between the efforts and the likelihood of successfully meeting this demand, resulting in experiences of personal accomplishment. This assumption is also in line with the JD-R theory that certain job demands may trigger employees to invest additional efforts to fulfill achievements and may therefore also play a motivational role and affect the motivational process (Bakker and Demerouti, 2017). However, the JD-R theory (Bakker and Demerouti, 2017) posits that job demands, even when being challenging, still require and drain physical and/or mental resources of individuals, contributing to an increase in subjectively experienced symptoms of strain. Thus, time pressure may be positively associated with emotional exhaustion as it also requires and depletes individual resources, reflecting the proposed health-impairment process caused through the exposure to job demands (cf. Bakker and Demerouti, 2017).

Based on theoretical considerations and the findings about the influences of time pressure, we propose a positive relationship of time pressure with emotional exhaustion on the day-level. Further, as time pressure has the potential to trigger a motivational process as well (e.g. Baethge et al., 2018), we expect a positive relationship of time pressure with work engagement within daily observations. Investigating the effects of time pressure on work-related outcomes in a day-level design is based on its fluctuating effects on emotional exhaustion and work engagement when considering intraindividual variations (within-person effects; e.g. Baethge et al., 2018; Prem et al., 2018). Combining our assumptions about the potential of time pressure to trigger emotional exhaustion and work engagement simultaneously, and considering intraindividual variations, we propose:

**Hypothesis 1**: Time pressure experienced at the end of the workday shows a positive association with emotional exhaustion before bedtime.

**Hypothesis 2**: Time pressure experienced at the end of the workday shows a positive association with work engagement before bedtime.

**The construct of resilience in the workplace**

Employee resilience can be defined as “the capacity of employees to utilize resources in order to continually adapt and flourish at work, even when faced with adversity” (Kuntz et al., 2016: 460). However, the investigation of resilience in the workplace has just begun to attract attention compared to other psychological disciplines, such as clinical or developmental psychology (King et al., 2016). Concerning the conceptualizations of resilience, some consider it as a stable personality trait or as a capacity that is helpful for individuals to cope successfully with adversity (Fletcher and Sarkar, 2013; Jackson et al., 2007). Referring to Luthans et al. (2007), resilience has dynamic aspects as well that can
be developed through interventions (see also Leipold and Greve, 2009; Luthar et al., 2000; Southwick et al., 2014).

The concept of resilience is not new in the field of challenge–hindrance research. For example, Min et al. (2015) investigated the moderating effect of psychological capital (as a higher order factor of resilience; cf. Luthans et al., 2007) on the stressor–strain relationship in a sample of employees. They found a buffering effect for challenge and hindrance stressors in association with job burnout when psychological capital was high. Crane and Searle (2016) conducted a longitudinal study with two measuring time points in which they found resilience to have a mediating role over time as well as a moderating role, such that resilience measured at the second time point moderated the relationship of time point one stressors on time point two strain (Crane and Searle, 2016). Additionally, the construct of resilience has also been investigated applying JD-R theory. For example, Cooke et al. (2019) showed a positive indirect effect between high performance work systems and employee engagement via employee resilience among employees working in the Chinese banking industry. Wang et al. (2017) were also able to find a positive relationship between employee resilience and work engagement, consistent with the theoretical considerations of the JD-R model, such that resources predict motivational outcomes (e.g. engagement, flourishing; Bakker and Demerouti, 2017). A recent study showed that adverse job demands (i.e. workplace bullying) have a positive relationship with emotional exhaustion via employee resilience (Anasori et al., 2020). Using JD-R theory in combination with the construct of resilience as personal resource, scholars have so far mostly investigated resilience as predictor and/or mediator (e.g. Anasori et al., 2020; Bernabé and Botia, 2016; Cooke et al., 2019; Wang et al., 2017). However, the JD-R model also states that personal resources may interact with job demands known as the buffer hypothesis (Bakker and Demerouti, 2007). Recent refinements in JD-R theory (Bakker and Demerouti, 2017) supported the initial idea that personal resources can buffer the negative impact of job demands on strain and that they may boost favorable effects of challenging demands.

**Resilient capabilities as moderators**

In the following, we argue that resilient capabilities moderate the effects of time pressure on emotional exhaustion and work engagement. Especially, we focus on adaptive work-related coping strategies as coping reflects an aspect of employees’ resilience capacity (Britt et al., 2016; Crane et al., 2019). Leipold and Greve (2009) argued that combinations of individual responses that occur in a specific situational context which may result in positive adaptation, need to be considered within resilience research. Thus, they argue that resilience does not only reflect stable personality traits, but also specific coping processes. In the context of employee resilience research, Soucek et al. (2015) as well as Kuntz et al. (2016) addressed this issue and highlighted a capability-related operationalization of employee resilience. Resilient capabilities at work can be considered as specific coping mechanisms (Soucek et al., 2015).

Coping has been defined as “cognitive and behavioral efforts a person makes to manage demands that tax or exceed his or her personal resources” (Lazarus, 1991: 5). The transactional theory of stress (Lazarus and Folkman, 1984) differentiates between
problem-focused and emotion-focused coping. Problem-focused coping consists of strategies that directly aim at altering or managing the stressors itself through targeted actions (e.g. problem definition, looking for alternative solutions), whereas emotion-focused coping is directed toward the regulation of the emotional response caused by harm or threat (e.g. reappraisal, selective attention; Folkman and Lazarus, 1980; Lazarus and Folkman, 1984). Consistent with the definition of personal resources (cf. Bakker and Demerouti, 2017), some work-related coping strategies labeled as resilient capabilities are consistently positively associated with other measures of resilience (see Soucek et al., 2015 for an overview). Based on the conservation of resources (COR) theory (Hobfoll, 1989), we propose that individuals who have a higher capacity in using resilient capabilities in the workplace are able to buffer the assumed positive association between time pressure and emotional exhaustion. The COR theory is based on the idea that individuals seek to maintain, protect, and accumulate resources they value. Strain develops when individuals perceive a threatened loss of resources or an imbalance between resource gain and resource investment through experiencing adverse environmental circumstances. To prevent loss of resources or imbalances, individuals employ personal resources or call on resources from their environment (Hobfoll, 1989, 2001, 2011). In this regard, it is worthwhile that resources not only have the possibility to protect individuals from loss of resources, rather they also have the potential to promote positive work-related behaviors (Hobfoll, 2011). Additionally, the systematic self-reflection model of resilience strengthening (Crane et al., 2019) argues that the resilience capacity consists of resources, characteristics, and an utilization of coping strategies that are able to modulate the relationships between stressors and psychological outcomes.

Work-related resilient capabilities can be differentiated into four adaptive coping strategies: emotional coping, positive reframing, comprehensive planning, and focused action (Soucek et al., 2015). These four capabilities can be assigned into the traditional delineation of coping strategies, such that emotional coping and positive reframing are emotion-focused strategies, whereas comprehensive planning and focused action are problem-focused (cf. Lazarus and Folkman, 1984; Soucek et al., 2015). Although we assume that each of these capabilities moderate the effects of time pressure on emotional exhaustion and work engagement, and that emotion-focused coping and problem-focused coping can occur simultaneously, it is important to consider the functions of various coping types separately (Folkman and Lazarus, 1980; Lazarus and Folkman, 1984). Accordingly, these four adaptive strategies are related to each other, but represent unique and delineable constructs (Soucek et al., 2015).

Emotional coping is about effectively handling one’s own emotional reactions when experiencing adverse working conditions (Soucek et al., 2015). Based on the systematic self-reflection model of resilience strengthening (Crane et al., 2019) the usage of one’s own emotion regulatory repertoire demonstrates an important component of the resilience capacity. Consistent with the process model of emotional regulation (Gross, 1999, 2015), emotional coping reflects an aspect of response modulation as it directly influences the behavioral and/or physiological components of the emotional response. Gross (1999, 2015) states that individuals who employ strategies of emotion regulation can decrease negative and increase positive states and emotions. Thus, employees high in
emotional coping may be more able to regulate their emotional response, resulting in a decrease in emotional exhaustion and an increase in work engagement compared to those low in emotional coping.

Positive reframing focuses on understanding that problems at work are possibilities to introduce and develop personal abilities (Soucek et al., 2015). Positive reframing can also be integrated into the model of emotional regulation (Gross, 2015), as it refers to a cognitive change related to the appraisal of a situation and altering its emotional impact. This emotion-focused coping strategy is equivalent to reappraisal as it changes the meaning of a situation (Lazarus and Folkman, 1984). Gross (2015) states that such a cognitive change can be used to down-regulate negative and up-regulate positive emotions which is also considered within the transactional theory of stress (Lazarus and Folkman, 1984). Thus, employees high in positive reframing may report lower emotional exhaustion and an increase in work engagement when they are faced with time pressure, as they are able to consider it as an opportunity for personal development.

Comprehensive planning is characterized through actions of planning and searching for different solutions for problems at work and can be considered as a proactive problem-focused coping strategy (Benight et al., 1999; Soucek et al., 2015). The match-principle (De Jonge and Dormann, 2006) may be useful to theoretically explain the assumed buffering effect of this coping strategy for the association between time pressure and emotional exhaustion. De Jonge and Dormann (2006) showed that the likelihood of moderating effects of resources depends on the degree to which such resources match with demands. Studies showed that an active problem-focused coping strategy decreases the effects of job demands on emotional exhaustion (Schmidt and Diestel, 2013) and psychological distress (Shimazu and Kosugi, 2003). However, Searle and Lee (2015) showed that proactive coping not only buffered the association between challenge demands and burnout, rather it also boosted the favorable effects of challenge demands on work engagement. This is in line with the COR theory such that individuals also invest resources to gain future resources (Hobfoll, 2011).

Focused action is the ability to pursue persistently solutions for problems at work and to resist distractions, and can therefore also be considered as a proactive problem-focused strategy (Searle and Lee, 2015; Soucek et al., 2015). As previous studies showed that active coping strategies moderate the associations between job demands and psychological strain (Schmidt and Diestel, 2013; Searle and Lee, 2015; Shimazu and Kosugi, 2003), there may be also a high match between this personal resource and time pressure, leading to a decrease in emotional exhaustion (cf. De Jonge and Dormann, 2006). Like the proposed boosting effect related to comprehensive planning, we would also assume that focused action increases the favorable effects of experienced time pressure as employees may also employ this strategy to accumulate their resource reservoirs (cf. Hobfoll, 2011). Thus, we assume that employees high in employing comprehensive planning and focused action may show a decrease in the association between time pressure and emotional exhaustion, as there is a high match between these two personal resources and time pressure as challenge demand. Further, we assume a boosting effect between time pressure and work engagement for employees high in these resources.

Pollard and Kennedy (2007) have reported that coping appears relatively stable over time. We also assume that resilient capabilities mostly vary between individuals and less
between situations. We propose that resilient capabilities (between-level) buffer the association between time pressure and emotional exhaustion, as emotional coping and positive reframing may enable individuals to down-regulate negative emotional states (cf. Gross, 2015) and comprehensive planning and focused action may demonstrate a high match with time pressure (cf. De Jonge and Dormann, 2006; Schmidt and Diestel, 2013). Additionally, we assume a boosting effect for the association between time pressure and work engagement for emotional coping and positive reframing regarding the process model of emotion regulation (Gross, 2015) and for comprehensive planning and focused action based on the principle of resource gain proposed by Hobfoll (2011). Figure 1 illustrates our assumed research model. To summarize, we hypothesize:

**Hypothesis 3**: Resilient capabilities, that is, (a) emotional coping, (b) comprehensive planning, (c) positive reframing, and (d) focused action weaken the positive association between time pressure rated after work and emotional exhaustion before bedtime.

**Hypothesis 4**: Resilient capabilities, that is, (a) emotional coping, (b) comprehensive planning, (c) positive reframing, and (d) focused action strengthen the positive association between time pressure rated after work and work engagement before bedtime.

**Methods**

**Procedure and sample**

We collected data through private networks with an online-survey including detailed information about the aim of the study, procedure and voluntariness to inform
participants and to reduce noncompliance, which is an often discussed problem within diary study designs (Ohly et al., 2010). The study received ethics approval from the local ethics committee (2017-013). The link to access the general survey was distributed via e-mail or was implemented in posts on social media platforms. The general survey was assessed between one to three weeks before start of the diary study, measuring sociodemographic variables (e.g. gender, age, educational level, leadership responsibility) and resilient capabilities as variables on the between-person level. Participants had the possibility to choose one out of three different weeks for starting time of the daily assessment. For the daily study, we instructed participants to complete a survey two times per day, after finishing work and before bedtime. According to Nägel et al. (2015), we separated in this diary study the assessment of stressors (assessed after work) and the investigated dependent variables (before bedtime) to systematically decrease a potential common method bias (cf. Podsakoff et al., 2003).

A total of 137 individuals participated in the general questionnaire and provided 842 occasions on day-level consisting of 432 day-level occasions after work and 410 day-level occasions before bedtime. We excluded individuals who had missing data equaling 30% in the general questionnaire for the relevant variables, following recommendations by Hair et al. (1998). After matching and applying exclusion criteria, our final sample consisted of 294 days nested in 79 individuals and an average cluster size of 3.72. Within this final sample of 79 participants (54.4% male), mean age was 36.11 years ($SD = 9.41$), mean working time of hours per week was 38.96 hours ($SD = 7.26$), average job experience was 11.89 years ($SD = 10.00$), most of them worked in the private sector (65.8%). Educational level was quite high: 60.8% had a college degree, 17.7% had a lower secondary degree, 12.7% had a higher vocational education, 3.8% had a doctoral degree, 2.5% had no formal educational qualification, and the remaining 2.5% indicated none of the selectable educational levels was applicable. To determine if any attrition bias was evident for our measures between the participants who participated in the diary study and the participants who participated in the general questionnaire only, we conducted a series of independent $t$ tests and chi-square tests for the between person variables. All tests indicated a non-significant difference between the responders and non-responders (gender: $p = 0.06$; education: $p = 0.07$; age: $p = 0.44$; emotional coping: $p = 0.29$; comprehensive planning: $p = 0.82$; positive reframing: $p = 0.14$; focused action: $p = 0.27$).

**Measures**

We used abbreviated scales to reduce the burden of answering longer questionnaires on multiple working days, which follows recommendations by Ohly et al. (2010). All items and instructions were presented in German.

*Time pressure* was assessed with three items in an adapted version after each working day from the instrument for stress-oriented job analysis (Semmer et al., 1999). A sample item is “Today I was pressed for time.” Items were answered on a 5-point scale ranging from “strongly disagree” to “strongly agree.” Cronbach’s alpha ranged between 0.90 and 0.96 on day-level.

*Emotional exhaustion* was assessed with three items from the German version of the Maslach-Burnout-Inventory (MBI; Büssing and Perrar, 1992) before bedtime to capture
emotional exhaustion. Items were answered on a 5-point scale ranging from “strongly disagree” to “strongly agree” and a sample item is “Today I felt emotional exhausted through my work.” Cronbach’s alpha ranged between 0.67 and 0.86 on day-level.

Work engagement was measured with nine adapted items on a 5-point scale from “strongly disagree” to “strongly agree” by a shortened version of the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2006) before bedtime. A sample item is “Today I felt bursting with energy at my work.” Cronbach’s alpha ranged between 0.81 and 0.94 on day-level.

Resilient capabilities were assessed in the general questionnaire as level-2 construct from a validated German scale developed by Soucek et al. (2015) with 16 items. This scale was used, because it was specifically developed for the working context and able to capture concrete capabilities of resilience (Soucek et al., 2015). Further, other established scales like the Connor–Davidson Resilience Scale (Connor and Davidson, 2003) focuses on trait aspects of resilience, which was not intended to investigate in our study. Items were answered on a 7-point scale ranging from “not agree at all” to “strongly agree.” Every sub-dimension was captured with four items. One sample item for emotional coping is “I can control my anger even during critical situations at work” (α = 0.82), and for comprehensive planning, “I approach difficult tasks at work by considering different paths of action” (α = 0.80). A sample item for positive reframing is “I view work problems as an opportunity to contribute my abilities” (α = 0.88), and for focused action, “If I am working on solving a problem at work, I do not get easily distracted” (α = 0.79). To determine if the different facets were distinct from each other, we ran a set of confirmatory factor analyses (CFAs) comparing the proposed four factor model with a one-factor model. Results of the CFAs showed a superior fit of the four factor model (χ² = 133.50, df = 98, RMSEA = 0.07, CFI = 0.94, TLI = 0.92, AIC = 3744.45) over the one-factor model (χ² = 297.91, df = 104, RMSEA = 0.15, CFI = 0.66, TLI = 0.61, AIC = 3896.85; Δχ² = 164.4, Δdf = 6, p < 0.001).

Control variables. As stated by Smrtnik Vitulić and Prosen (2016) coping strategies vary between different levels of education, which calls for the inclusion of educational level as a covariate. We further controlled for age and gender based on previous empirical findings, that these demographic characteristics effect coping processes (Folkman and Lazarus, 1980). Additionally, we included psychological capital as a trait measure of resilience, in order to test for incremental validity of the four capabilities of resilience. We used the positive psychological capital (PsyCap) scale from Luthans et al. (2007) with a constructed and validated version in German language (Lorenz et al., 2016). The PsyCap scale entailed twelve items ranging on a 7-point scale (1 = not agree at all, 7 = strongly agree) and was also assessed in the general questionnaire. One sample item is “When I’m in a difficult situation, I can usually find my way out of it” (α = 0.86). We are aware that these control variables on the between-person level do not affect within-person relationships in our model, they might however still share variance with the facets of resilient capabilities (also on the between-level) as well as the outcome variables.

Linking to existing findings about suppressor effects through the negative variation of challenge stressors (Baethge et al., 2018; Widmer et al., 2012), we conducted models with controlling for emotional exhaustion for the assumed association between time
pressure and work engagement. Based on this assumption, we also controlled for work engagement in models with emotional exhaustion as our dependent variable (vice versa condition).

**Data analysis**

For data analysis, we used the software Mplus Version 7.3 (Muthén and Muthén, 1998–2012) with maximum likelihood (ML) estimation, which has shown to be a suitable estimator to produce approximate estimates in multilevel-models (Browne and Draper, 2006). Following recommendations by Ohly et al. (2010), we used group-mean centering for time pressure and grand-mean centering for the between-level variables.

We conducted multilevel-confirmatory factor analyses (MCFAs) with Mplus 7.3 (Muthén and Muthén, 1998–2012) to determine if our hypothesized seven-factor model fits data better in comparison with a three- or one-factor model. For conducting the different MCFAs, all daily measured latent constructs were defined at the within- and between-level. Further, resilient capabilities were only defined at the between-level (level 2) because of the single measurement of the items. Results of the MCFAs showed a better fit of the hypothesized seven-factor model ($\chi^2 = 887.49$, $df = 500$, RMSEA = 0.05, CFI = 0.87, TLI = 0.85, AIC = 13134.4) in comparison with a three-factor model with resilient capabilities loading on the same factor ($\chi^2 = 1084.20$, $df = 515$, RMSEA = 0.06, CFI = 0.81, TLI = 0.79, AIC = 13289.7; $\Delta\chi^2 = 196.71$, $\Delta df = 15$, $p < 0.001$), and a one-factor model ($\chi^2 = 2015.07$, $df = 524$, RMSEA = 0.10, CFI = 0.49, TLI = 0.45, AIC = 14133.9; $\Delta\chi^2 = 1127.58$, $\Delta df = 24$, $p < 0.001$).

Following recommendations by Aguinis et al. (2013), we performed a comparison of random slope and fixed slope models to further decide if we can continue in estimating cross-level interactions. The random slope models for regressing work engagement, respectively emotional exhaustion on time pressure fit the data better in comparison with the fixed slope models (work engagement: $\Delta -2 \times LL = 17.45$, $p < 0.001$; emotional exhaustion: $\Delta -2 \times LL = 4.53$, $p = 0.04$), indicating that for both outcomes estimation of cross-level interactions are appropriate.

**Preliminary analyses**

Table 1 shows the means, standard deviations, correlations, and the level-1 intraclass correlations (ICC). Focusing on the dependent variables, there was a within-person-variance (1-ICC) of 48% for emotional exhaustion and 52% for work engagement, indicating that a multilevel approach for data analysis was appropriate (refer to column 4 in Table 1). Further, time pressure had a significant correlation with emotional exhaustion on day-level ($r = 0.27$, $p < 0.001$) and on the between-level ($r = 0.32$, $p = 0.05$). Emotional exhaustion was negatively correlated with work engagement on the between-level ($r = -0.48$, $p < 0.001$) and on the day-level ($r = -0.41$, $p = 0.01$). Interestingly, only two resilient capabilities showed significant correlations with the dependent variables such that emotional coping ($r = -0.29$, $p = 0.01$) and positive reframing ($r = -0.26$, $p = 0.03$) were negatively correlated with emotional exhaustion and positively correlated with work engagement ($r = 0.47$, $p < 0.001$ and $r = 0.54$, $p < 0.001$, respectively).
Table 1. Descriptive statistics, day-level variance, and correlations.

<table>
<thead>
<tr>
<th>Within-person variables</th>
<th>Mean</th>
<th>SD</th>
<th>1-ICC</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.51</td>
<td>2.17</td>
<td>2.89</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.02</td>
<td>0.86</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Time pressure</td>
<td>2.52</td>
<td>0.29</td>
<td></td>
<td>71%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Emotional exhaustion</td>
<td>2.23</td>
<td>0.29</td>
<td>48%</td>
<td></td>
<td>0.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Work engagement</td>
<td>2.87</td>
<td>0.24</td>
<td>52%</td>
<td></td>
<td>0.15</td>
<td></td>
<td></td>
<td>0.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between-person variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Emotional coping</td>
<td>5.11</td>
<td>0.98</td>
<td>0.18</td>
<td></td>
<td>0.18</td>
<td></td>
<td></td>
<td>0.29</td>
<td></td>
<td>0.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Comprehensive planning</td>
<td>5.34</td>
<td>0.96</td>
<td>0.04</td>
<td></td>
<td>0.08</td>
<td></td>
<td></td>
<td>0.12</td>
<td></td>
<td>0.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Positive reframing</td>
<td>5.10</td>
<td>1.16</td>
<td>0.20</td>
<td></td>
<td>0.26</td>
<td></td>
<td></td>
<td>0.54</td>
<td></td>
<td>0.58</td>
<td></td>
<td>0.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Focused action</td>
<td>4.83</td>
<td>1.05</td>
<td>0.24</td>
<td></td>
<td>0.18</td>
<td></td>
<td></td>
<td>0.19</td>
<td></td>
<td>0.49</td>
<td></td>
<td>0.33</td>
<td></td>
<td>0.38</td>
</tr>
<tr>
<td>8. Psychological capital</td>
<td>5.31</td>
<td>0.77</td>
<td>0.14</td>
<td></td>
<td>0.33</td>
<td></td>
<td></td>
<td>0.53</td>
<td></td>
<td>0.57</td>
<td></td>
<td>0.46</td>
<td></td>
<td>0.55</td>
</tr>
<tr>
<td>9. Age</td>
<td>36.11</td>
<td>9.41</td>
<td>0.24</td>
<td>0.05</td>
<td>0.05</td>
<td></td>
<td></td>
<td>0.04</td>
<td></td>
<td>0.02</td>
<td></td>
<td>0.11</td>
<td></td>
<td>0.08</td>
</tr>
<tr>
<td>10. Gendera</td>
<td></td>
<td></td>
<td>0.12</td>
<td></td>
<td>0.12</td>
<td></td>
<td></td>
<td>0.16</td>
<td></td>
<td>0.04</td>
<td></td>
<td>0.14</td>
<td></td>
<td>0.14</td>
</tr>
<tr>
<td>11. Educational levelb</td>
<td></td>
<td></td>
<td>0.14</td>
<td></td>
<td>0.05</td>
<td></td>
<td></td>
<td>0.04</td>
<td></td>
<td>0.10</td>
<td></td>
<td>0.04</td>
<td></td>
<td>0.13</td>
</tr>
</tbody>
</table>

Correlations above the diagonal among the daily, within-person variables (N = 294 observations). Correlations below the diagonal are between-person correlations (N = 79).

ICC: variance at person level (intraclass correlation); 1-ICC: percentage of variance at day-level.

*a0 = Female, 1 = Male. b1 = No formal educational qualification, 2 = lower secondary degree, 3 = higher vocational education, 4 = college degree, 5 = doctoral degree.

Numbers in bold indicate $p < 0.05$ for between-person and within-person correlations.
Results

Table 2 shows the results of multilevel analyses for time pressure predicting emotional exhaustion. Model 1 showed a significant improvement over the null model ($\Delta -2 \times \log = 10.12, df = 5, p = 0.02$) after entering the control variables. The control variable work engagement was significant in this model ($\beta = -0.28, p < 0.001$). In Model 2 time pressure and the different capabilities of resilience were included to estimate the main effects. This Model showed also a significant increase over Model 1 ($\Delta -2 \times \log = 15.49, df = 10, p < 0.001$) and time pressure significantly predicts emotional exhaustion ($\beta = 0.20, p < 0.001$), supporting Hypothesis 1. Interestingly, comprehensive planning also showed a significant positive relation to emotional exhaustion ($\beta = 0.22, p = 0.045$), whereas the other sub dimensions did not significantly predict emotional exhaustion (emotional coping, $\beta = -0.08, p = 0.47$; positive reframing, $\beta = -0.03, p = 0.74$; focused action, $\beta = -0.03, p = 0.77$). Model 3 includes the interaction effects of time pressure with the different capabilities of resilience on emotional exhaustion. This Model showed a significant improvement over Model 2 ($\Delta -2 \times \log = 5.99, df = 4, p < 0.001$). Model 3 showed one significant interaction effect with time pressure and emotional coping ($\gamma = -0.22, p = 0.001$), whereas the remaining interactions with comprehensive planning ($\gamma = 0.09, p = 0.14$), positive reframing ($\gamma = 0.03, p = 0.65$), and focused action ($\gamma = 0.00, p = 0.98$) were not significant. To thoroughly understand the significant interaction effect, we applied additional simple slope tests through an online HLM calculator (Preacher, 2018). As conditional values of the moderator, we chose one standard deviation below and above the mean. For low emotional coping, the simple slope for time pressure predicting emotional exhaustion is significant, with a positive sign ($z = 2.47, p = 0.01$). For high emotional coping, the simple slope is not significant ($z = 1.38, p = 0.17$; see Figure 2). The results of this interaction effect are consistent with Hypothesis 3a. As this was the only interaction effect we found, results only partially supported Hypothesis 3.

Table 3 shows the results for time pressure predicting work engagement. Model 1 includes the control variables and showed a significant improvement over the null model ($\Delta -2 \times \log = 19.17, df = 5, p < 0.001$). The control variables psychological capital ($\beta = 0.29, p < 0.001$) and emotional exhaustion ($\beta = -0.15, p < 0.001$) were significant. In Model 2 time pressure and the different capabilities of resilience to estimate the main effects on work engagement are included. This Model showed a significant improvement over Model 1 ($\Delta -2 \times \log = 23.72, df = 10, p < 0.001$). Contrary to Hypothesis 2, time pressure did not significantly predict work engagement ($\beta = -0.08, p = 0.21$), whereas comprehensive planning was negatively ($\beta = -0.14, p = 0.04$) and positive reframing positively related ($\beta = 0.16, p = 0.001$) to work engagement on day-level. Thus, Hypothesis 2 was not supported. Model 3 showed a significant improvement over Model 2 ($\Delta -2 \times \log = 6.26, df = 4, p < 0.001$) after entering the interaction terms of time pressure with the four capabilities of resilience. In this final model we had a significant positive effect of time pressure on work engagement ($\beta = 0.70, p = .01$) and two significant interactions with time pressure and emotional coping ($\gamma = -0.12, p = 0.03$) and focused action ($\gamma = -0.10, p = 0.04$). However, the remaining interactions with comprehensive planning ($\gamma = 0.04, p = 0.40$), and positive reframing ($\gamma = 0.05, p = 0.30$) were not
<table>
<thead>
<tr>
<th>Variables</th>
<th>Null model</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>SE</td>
<td>Estimate</td>
<td>SE</td>
</tr>
<tr>
<td>Intercept</td>
<td>2.22***</td>
<td>0.08</td>
<td>3.00***</td>
<td>0.24</td>
</tr>
<tr>
<td>Gendera</td>
<td>−0.11</td>
<td>0.16</td>
<td>−0.12</td>
<td>0.17</td>
</tr>
<tr>
<td>Age</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Educationb</td>
<td>−0.02</td>
<td>0.08</td>
<td>−0.00</td>
<td>0.08</td>
</tr>
<tr>
<td>PsyCap</td>
<td>−0.18</td>
<td>0.10</td>
<td>−0.20</td>
<td>0.11</td>
</tr>
<tr>
<td>Work engagement</td>
<td>−0.28***</td>
<td>0.08</td>
<td>−0.28**</td>
<td>0.10</td>
</tr>
<tr>
<td>Time pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional coping</td>
<td>−0.08</td>
<td>0.11</td>
<td>−0.11</td>
<td>0.11</td>
</tr>
<tr>
<td>Comprehensive planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive reframing</td>
<td>−0.03</td>
<td>0.09</td>
<td>−0.01</td>
<td>0.09</td>
</tr>
<tr>
<td>Focused action</td>
<td>−0.03</td>
<td>0.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time pressure × emotional coping</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time pressure × comprehensive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time pressure × positive reframing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time pressure × focused action</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(-2 \times \log)</td>
<td>331.54</td>
<td></td>
<td>321.42*</td>
<td></td>
</tr>
<tr>
<td>(\Delta -2 \times \log)</td>
<td>10.12</td>
<td></td>
<td>15.49</td>
<td></td>
</tr>
<tr>
<td>(\Delta df)</td>
<td>5</td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Level 1 variance</td>
<td>0.37</td>
<td></td>
<td>0.36</td>
<td></td>
</tr>
<tr>
<td>Level 2 variance</td>
<td>0.41</td>
<td></td>
<td>0.32</td>
<td></td>
</tr>
</tbody>
</table>

\(N = 292\) observations, \(N = 79\) participants.

Unstandardized regression coefficients are reported. Time pressure (level-1 predictor) was group-mean centered; level-2 variables were grand-mean centered.

\(a^0 = \text{Female}, 1 = \text{Male}\). \(b^1 = \text{No formal educational qualification, 2 = lower secondary degree, 3 = higher vocational education, 4 = college degree, 5 = doctoral degree}\).

\(*p < 0.05, **p < 0.01, ***p < 0.001\).
Table 3. Multilevel estimates for time pressure predicting work engagement.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Null model</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>SE</td>
<td>Estimate</td>
<td>SE</td>
</tr>
<tr>
<td>Intercept</td>
<td>2.87***</td>
<td>0.06</td>
<td>3.22***</td>
<td>0.10</td>
</tr>
<tr>
<td>Gender^a</td>
<td>0.10</td>
<td>0.10</td>
<td>0.08</td>
<td>0.09</td>
</tr>
<tr>
<td>Age</td>
<td>-0.01</td>
<td>0.01</td>
<td>-0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Education^b</td>
<td>-0.05</td>
<td>0.05</td>
<td>-0.04</td>
<td>0.05</td>
</tr>
<tr>
<td>PsyCap</td>
<td>0.29***</td>
<td>0.07</td>
<td>0.20**</td>
<td>0.07</td>
</tr>
<tr>
<td>Emotional exhaustion</td>
<td>-0.15***</td>
<td>0.04</td>
<td>-0.20**</td>
<td>0.07</td>
</tr>
<tr>
<td>Time pressure</td>
<td></td>
<td></td>
<td>-0.08</td>
<td>0.05</td>
</tr>
<tr>
<td>Emotional coping</td>
<td></td>
<td></td>
<td>0.09</td>
<td>0.06</td>
</tr>
<tr>
<td>Comprehensive planning</td>
<td>-0.14*</td>
<td>0.06</td>
<td>-0.14*</td>
<td>0.06</td>
</tr>
<tr>
<td>Positive reframing</td>
<td>0.16**</td>
<td>0.05</td>
<td>0.15**</td>
<td>0.05</td>
</tr>
<tr>
<td>Focused action</td>
<td>-0.09</td>
<td>0.05</td>
<td>-0.08</td>
<td>0.05</td>
</tr>
<tr>
<td>Time pressure × emotional coping</td>
<td></td>
<td></td>
<td>-0.12*</td>
<td>0.05</td>
</tr>
<tr>
<td>Time pressure × comprehensive planning</td>
<td></td>
<td></td>
<td>0.04</td>
<td>0.05</td>
</tr>
<tr>
<td>Time pressure × positive reframing</td>
<td></td>
<td></td>
<td>0.05</td>
<td>0.04</td>
</tr>
<tr>
<td>Time pressure × focused action</td>
<td></td>
<td></td>
<td>-0.10*</td>
<td>0.05</td>
</tr>
<tr>
<td>-2 × log</td>
<td>250.46</td>
<td></td>
<td>231.29***</td>
<td></td>
</tr>
<tr>
<td>(\Delta) -2 × log</td>
<td>19.17</td>
<td></td>
<td>23.72</td>
<td></td>
</tr>
<tr>
<td>(\Delta df)</td>
<td>5</td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Level 1 variance</td>
<td>0.22</td>
<td></td>
<td>0.21</td>
<td></td>
</tr>
<tr>
<td>Level 2 variance</td>
<td>0.20</td>
<td></td>
<td>0.12</td>
<td></td>
</tr>
</tbody>
</table>

\(N = 294\) observations, \(N = 79\) participants.

Unstandardized regression coefficients are reported. Time pressure (level-1 predictor) was group-mean centered; level-2 variables were grand-mean centered.

^a \(0 = \text{Female}, 1 = \text{Male}\). \(^b\) \(1 = \text{No formal educational qualification}, 2 = \text{lower secondary degree}, 3 = \text{higher vocational education}, 4 = \text{college degree}, 5 = \text{doctoral degree}\).

\(p < 0.05, **p < 0.01, ***p < 0.001\).
Figure 2. Interaction between time pressure and emotional coping on emotional exhaustion.

Figure 3. Interaction between time pressure and emotional coping on work engagement.
significant. To understand the significant interaction effects thoroughly, we also applied additional simple slope analyses with one standard deviation above (high emotional coping/ focused action) and one standard deviation below (low emotional coping/ focused action) the mean. For employees low in emotional coping, the simple slope for time pressure predicting work engagement is positive and significant ($z = 4.36, p = 0.003$). For high emotional coping, the simple slope has also a positive sign, and is significant ($z = 2.15, p = 0.03$; see Figure 3). This effect is similar to the interaction of time pressure with focused action, such that for employees low in focused action the simple slope is positive and significant ($z = 2.94, p = 0.003$). Further, for employees high in focused action the simple slope was smaller, but also significant ($z = 2.23, p = 0.03$; see Figure 4). Thus, Hypotheses 4 (a) to (d) are not supported.

**Discussion**

Within this diary study, we examined the effects of resilient capabilities as a moderator within the association between time pressure on emotional exhaustion and work engagement. Time pressure was positively associated with emotional exhaustion, consistent with previous research findings (Boswell et al., 2004; Prem et al., 2018). Further, we investigated the proposed challenging effect of time pressure on work engagement. Contrary to our hypothesis and to previous research findings, we found no main effect of

![Figure 4. Interaction between time pressure and focused action on work engagement.](image-url)
time pressure experienced after work on work engagement before bedtime, even under the control of emotional exhaustion (cf. Baethge et al., 2018; Widmer et al., 2012). However, our results showed a positive effect of time pressure on work engagement after we entered the interaction effects in the final model (see Model 3 in Table 3), indicating a conditional effect. For example, Leinhos et al. (2018) showed that the positive effect of time pressure on work engagement is only present, when considering additional task-specific resources such as time control. Further, Lin et al. (2014) highlighted the meaning of challenge appraisal processes as necessary boundary condition, if challenge stressors unfold a positive potential. This is in line with Tuckey et al. (2015), who highlighted the meaning of available resources to successfully cope and prevent the development of chronic stress when experiencing challenging conditions. According to the COR theory (Hobfoll, 1989), the consideration of individual resources are important to prevent active loss of resources and to enable gain of additional resources with favorable outcomes, such as work engagement (see also Halbesleben et al., 2014). These findings contribute to ongoing JD-R research (cf. Bakker and Demerouti, 2017) in illuminating the meaning of individual strategies and how they affect the motivational process between time pressure as a job demand and work engagement as motivational outcome. Thus, our results highlight the consideration of additional personal resources, such as resilient capabilities, as boundary condition for the effect of time pressure on work engagement. Considering the interaction effects of time pressure with different resilient capabilities on emotional exhaustion, we found a buffering effect of emotional coping. The simple slope for high emotional coping showed no significant effect of time pressure on emotional exhaustion, consistent with our assumption. This means that people who have in general a higher capacity in regulating their emotions at work show no increase in emotional exhaustion when they are experiencing time pressure on day-level. As this was the only buffering effect, our hypotheses were only partially supported. However, our correlative analysis showed a negative correlation of positive reframing with emotional exhaustion. Although we found no significant interaction effect of this facet with time pressure, it could be a meaningful resource to handle stressful working conditions. Surprisingly, the results showed a positive main effect of comprehensive planning on day-level emotional exhaustion. This means that people who invest time in finding different approaches to solve complex tasks at work feel more emotionally exhausted on day-level. A plausible explanation for this effect is that the investment in strategies may also have high individual costs and could result in loss of resources (cf., Hobfoll, 1989). Conway and Terry (1992) stated that the efficacy of coping strategies interacts with the appraised controllability of an event. They found that problem-focused coping strategies are only adaptive in situations appraised as highly controllable. Thus, some coping efforts could also result in an impairment of psychological functioning or might not be as effective based on low appraised controllability of an event.

Whereas time pressure was not significantly related to work engagement, comprehensive planning and positive reframing was negatively and positively related to work engagement on day-level, respectively. These results support the theoretical assumptions that different coping efforts do not affect working outcomes in the same way (Lazarus and Folkman, 1984; Rice and Liu, 2016). People who have a capability in positive reframing are more engaged on day-level. This finding is in line with the COR theory (cf.
Hobfoll, 1989) that some personal resources have the potential to promote positive work outcomes, such as work engagement. We further found two negative interaction effects on work engagement, which were contrary to our assumptions. For low emotional coping, the simple slope of time pressure was positively related to work engagement, whereas for high emotional coping, the positive effect on work engagement was lower. This was also the case for the interaction effect between time pressure and focused action. At first glance, individuals who have a lower capability in handling negative emotional states and are not easily distracted during difficult tasks, report the typical challenging aspect of time pressure on work engagement. Additionally, individuals high in emotional coping and focused action showed a positive association of time pressure with work engagement, but this effect was smaller. What is important to keep in mind is that our findings revealed elevated emotional exhaustion when emotional coping was low. These findings are consistent with Kuntz et al. (2016) and the COR theory (Hobfoll, 1989), such that resilient capabilities, as a personal resource, protect an individual when experiencing stressful conditions. Following this, emotional coping decreased the sensitivity to stressors such as time pressure in our study. This means that employees who have a lower level of emotional coping are more sensitive to time pressure, which results in higher emotional exhaustion and work engagement, indicating a zero-sum game. Further, employees who show less focused action at work have an accelerated increase in work engagement, indicating that those react more sensitive when experiencing time pressure on day-level, comparing to those who are high in focused action. The buffering effect for emotional coping and focused action may be explained with research on the “dark side of work engagement” (cf. Bakker et al., 2011). As scholars have shown, work engagement is not only associated with positive working outcomes. For example, work engagement is positively associated with work-family conflict (Halbesleben et al., 2009), fewer health behaviors (Carse et al., 2017), and positively related with workaholism (Midje et al., 2014). Based on these findings, emotional coping and focused action may protect an individual from the potential negative effects of work engagement under time pressure and prevent a potential ongoing resource loss (cf. Hobfoll, 1989).

Theoretical implications

Unlike previous research investigating the impact of resilience with the challenge–hindrance approach (cf. Crane and Searle, 2016; Mitchell et al., 2019), our study was the first to consider different resilient capabilities at work proposed as adaptive work-related coping strategies. First, we showed that the challenging effect of time pressure on work engagement is more complex, as implied by previous studies (Hargrove et al., 2013; Mazzola and Disselhorst, 2019). Widmer et al. (2012) uncovered the challenging effect of time pressure only after controlling for strain, indicating a suppressor effect. Previous studies have often entered challenge and hindrance demands in the same model (e.g. Cavanaugh et al., 2000; Pearsall et al., 2009; Podsakoff et al., 2007), resulting in the suppression of the negative effect of challenge demands (Widmer et al., 2012). Therefore, our findings contribute to recent doubts raised regarding the proposed favorable effects of challenge demands (cf. Mazzola and Disselhorst, 2019), as we were able to show that personal resources may represent an inherent component missing in the assumptions of
the challenge–hindrance framework. Further, our results contribute to a theoretical extension of the JD-R model (Bakker and Demerouti, 2017), considering the interplay between time pressure and personal resources, and how they influence the proposed health-impairment and motivational processes of individuals. With this study, we were able to show that emotional coping affects both proposed processes and acts as an essential strategy to deal with a diminishment of resources caused through experienced time pressure. Our study underpins the assumption, that work-related coping strategies moderate the associations between job demands and psychological outcomes, contributing to an extension in JD-R theory how personal resources influence the health-impairment and motivational process (cf. Bakker and Demerouti, 2017; Searle and Lee, 2015).

Second, our study contributes to a deeper understanding of different resilient capabilities at work. Researchers have just begun to focus on personal resources within the challenge–hindrance framework. For example, Min et al. (2015) were the first who extended this theoretical framework through the meaning of psychological capital as a personal resource. As the systematic self-reflection model of resilience strengthening (Crane et al., 2019) proposed, we shed light into the meaning of different resilient capabilities and how they interact with experienced time pressure. Accordingly, Kuntz et al. (2016) as well as Britt et al. (2016) called for the investigation of individual capabilities of resilience, such as coping strategies, as reflections of employees individual resilience capacity. We contribute to this extension by focusing on resilient capabilities operationalized with a scale especially developed for the working context (cf. Soucek et al., 2015), and shed light into the meaning of different capabilities to deal with experienced time pressure. Following this, we uncovered that not all capabilities can protect an individual from negative effects of time pressure on day-level. According to the JD-R model (Bakker and Demerouti, 2017) and the systematic self-reflection model (Crane et al., 2019), the efficacy of individual strategies may change depending on the contextual demands and can be therefore effective or noneffective. With our research, we accorded to this and showed that especially emotional coping represents an effective strategy to deal with time pressure. Finally yet importantly, we applied a multilevel perspective investigating how personal resources on the between-person level (i.e. resilient capabilities) interacted with daily measured state variables (i.e. time pressure, emotional exhaustion and work engagement) addressing recent calls within JD-R research (cf. Bakker and Demerouti, 2017). Following this, our approach contributes to a better understanding how personal resources interact with job demands and psychological outcomes, considering the cross-level effects of between-person variables on within-person level associations. Thus, we would like to encourage scholars in future JD-R research to consider the effects and interplay of personal resources from another level on the health-impairment and motivational processes caused by challenging job demands (cf. Bakker and Demerouti, 2017; Mitchell et al., 2019).

**Practical implications**

Our study offers important practical implications about the influence of resilient capabilities to cope with time pressure in daily working life. We found that experienced time pressure is linked to emotional exhaustion within one working day. Over time, high time
pressure can result in chronic exhausted employees (Stiglbauer, 2018). Practitioners and especially the management should be aware of the positive association between time pressure and emotional exhaustion. The results of our study indicate that organizations must do their best to reduce the daily experienced time pressure to maintain optimal psychological functioning of their employees. Further, time pressure in this study was not identified as a typical “challenge stressor”, concluding that employees do not report a higher work engagement through the exposure to time pressure on day-level. Even if time pressure has some short-term positive effects on work engagement, no long-term positive effects are detectable, indicating that the duration of experienced time pressure may be important (Baethge et al., 2018). A possible intervention program for companies may be the implementation of the JD-R monitor as application of JD-R theory in occupational settings (cf. Bakker and Demerouti, 2017). This instrument might be helpful to sensitize employees and the management of the impact of experienced job demands and what they may cause when not sufficient job resources are available.

Organizations should not only focus on job resources, which have shown to increase individuals well-being (Schaufeli and Bakker, 2004), they should also invest efforts in the promotion of specific work-related coping strategies to maintain the psychological functioning of employees. Especially, strategies such as emotional coping and positive reframing may be primarily trained as both were positively related with work engagement and negatively with emotional exhaustion. It can be helpful to implement resilience training programs within organizations to mainly promote an increase of context-dependent emotional coping and positive reframing. Robertson et al. (2015) showed that work-based resilience training programs are useful for helping employees develop skills necessary for successful self-regulation of their emotional system. Kuntz et al. (2016) and the systematic self-reflection model of resilience strengthening (Crane et al., 2019) argue that resilient capacities can be developed and trained. According to this, it may be important to train individuals who work in high time pressure environments in emotional coping and positive reframing. Such training approaches may foster personal resources that would allow individuals to accumulate and protect their resource reservoirs when exposed to time pressure, related to the assumptions of the COR theory (cf. Hobfoll, 2011). Further, it is not advisable to implement training programs where comprehensive planning is postulated as effective strategy to enhance work engagement and decrease symptoms of emotional exhaustion, based on the findings of our study.

**Limitations and future research**

Our study has some limitations that should be mentioned. First, all data are based on self-report measures that may increase common method bias (Podsakoff et al., 2003). To minimize this bias, we collected predictor, moderator, and dependent variables with three different questionnaires at different time points. Therefore, common method variance was unlikely in our study. Nevertheless, further studies should collect data from multiple sources, including a combination of self-report and physiological parameters (e.g. blood pressure or cortisol level as indicators for stress). Future studies could also use longitudinal methodological designs with a cross-lagged approach to test reciprocal effects and to model autoregressive effects as another possibility to address problems with this kind of bias (cf. Crane and Searle, 2016)
Second, we did not capture appraisal processes of stressors in this study. Within the challenge–hindrance approach, most studies consist of an a priori classification of stressors into challenge or hindrance (e.g. Cavanaugh et al., 2000; LePine et al., 2004; Podsakoff et al., 2007). Results of previous studies showed that this a priori classification is error-prone and the consideration of appraisal processes is a necessary precondition in understanding the interplay between stressors and different working outcomes (Gerich, 2017; Webster et al., 2011). Following this, future studies should consider appraisal processes when using the challenge–hindrance approach.

Third, we only focused on the possible moderating effects of resilient capabilities on time pressure and different working outcomes. Therefore, we shed only little light into the role of resilient capabilities within the challenge–hindrance approach. Future studies should extend this research while focusing on additional stressors at work (e.g. job complexity, role ambiguity, emotional demands) and their interplay with resilient capabilities. In our view, extending this approach through capabilities of resilience at work gives us valuable insights into which coping efforts help us to handle different stressful working conditions successfully. Further, it enables us to implement targeted and evidence-based practices as recommendations for organizations in turbulent times.

Fourth, as stated by Conway and Terry (1992) the appraised controllability of an event may affect the efficiency of coping efforts. This is also in line with theoretical considerations of the systematic self-reflection model of resilience strengthening (Crane et al., 2019), such that coping as well as emotion regulatory strategies may be influenced through additional contextual demands and may therefore vary in their efficiency. Thus, future studies should address this issue and investigate how appraised controllability or other contextual demands influence the efficiency for the use of resilient capabilities related to the experience of divergent stressors on work-related outcomes.

**Conclusion**

Altogether, the results of our study shed light into the meaning of resilient capabilities at work on positive and negative working outcomes. Organizations should be aware that resilience of employees is an important resource to maintain and promote optimal psychological functioning. Further, organizational scholars should invest more into the investigation of the capacity of employee resilience at work to gain a deeper understanding of this construct. The findings of our study add not only to the meaning of personal resources within challenge–hindrance and JD-R research, rather it has also a practical impact to promote organizations occupational health.

**ORCID iD**

Arian Kunzelmann [ID] https://orcid.org/0000-0001-8864-9960

**References**


