



Feeling exhausted or vigorous in anticipation of high workload? The role of worry and planning during the evening

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In this diary study, we focused on the anticipatory phase of the stress process. We investigated how work-related worry and planning during the evening relate to next-morning exhaustion and vigour, respectively. Moreover, we examined how afternoon workload anticipation is related to next-morning exhaustion versus next-morning vigour, depending on worry and planning in the evening. A sample of 112 employees took part in a daily diary study with three daily measurement occasions over two consecutive workweeks. Results of multilevel regression analyses showed that work-related worry during the evening was positively related to next-morning exhaustion. Moreover, worry interacted with workload anticipation in predicting next-morning exhaustion: On days when worry was high, workload anticipation was positively related to next-morning exhaustion. Work-related planning was not related to next-morning vigour and did not interact with workload anticipation in predicting next-morning vigour. Our study suggests that work-related worry is an important factor in the anticipatory phase of the stress process.

Practitioner points

- On days when employees worry about their next workday during the evening, high workload may already be associated with employees' well-being even before employees are facing it.
- Worry about one's next workday is associated with lower well-being in the next morning, while planning one's next workday is not associated with next-morning well-being.
- In anticipation of high workload, employees should refrain from worry about work during leisure time, for instance by engaging in absorbing leisure activities.

High workload may have consequences for well-being even before employees are actually facing it, that is during the anticipatory phase. Laboratory research shows that people feel stressed when anticipating a stressful event (Gaab, Rohleder, Nater, & Ehlert, 2005; Waugh, Panage, Mendes, & Gotlib, 2010) and experience affective and cardiovascular reactions (Feldman, Cohen, Hamrick, & Lepore, 2004) as well as increased cortisol levels (Kirschbaum, Pirke, & Hellhammer, 1993). How employees feel in anticipation of high

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workload may differ according to their anticipatory coping efforts. On the one hand, employees may worry about their next workday, which may result in feelings of strain before the workday has even started. On the other hand, high workload is often appraised as a challenge (Prem, Ohly, Kubicek, & Korunka, 2017) that is associated with the potential for personal growth and development, for instance when meeting a deadline or finishing an important project (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). Thus, employees may also feel energized in anticipation of high workload if they engage in more adaptive anticipatory coping efforts such as planning.

In job stress research, this anticipatory phase of the stress process as well as its possible consequences for employee well-being has only rarely been addressed (Biggs, Brough, & Drummond, 2017; Brosschot, Gerin, & Thayer, 2006; Meurs & Perrewé, 2011). Past research largely looked at how exposure to work stressors is followed by short-term (Ilies, Dimotakis, & De Pater, 2010) and longer-term (Ford *et al.*, 2014) consequences for employee well-being. However, anticipatory processes likely play a major role in daily work life: In many jobs, tasks and assignments are scheduled ahead (Mohammed & Nadkarni, 2011), which implies that they are preceded by an anticipatory phase.

In this study, we investigate the anticipatory phase of the job stress process based on transactional stress theory (Biggs *et al.*, 2017; Lazarus & Folkman, 1984) and cognitive activation theory of stress (Meurs & Perrewé, 2011; Ursin & Eriksen, 2004), which state that the stress process begins with an anticipatory phase during which people anticipate stressors they expect to have in the future. Using a daily diary design, we examine how workload anticipation is related to next-morning exhaustion and next-morning vigour, depending on anticipatory coping efforts. Anticipatory coping efforts are directed at a future event that is relatively certain to occur in the near future (Schwarzer & Taubert, 2002). Specifically, we examine work-related worry and planning during the evening as two types of cognitive coping efforts. We argue that work-related worry during the evening is a more maladaptive coping effort that consumes energy and may contribute to next-morning exhaustion. Conversely, we argue that work-related planning during the evening is a more functional coping effort that may energize employees and contribute to next-morning vigour.

We propose that workload anticipation is only related to next-morning well-being if employees think about their work during the anticipatory phase. Thus, we examine work-related worry and planning as day-specific boundary conditions that occur during leisure time and that allow workload anticipation to translate into next-morning exhaustion or vigour, respectively. We argue that workload anticipation is positively associated with next-morning exhaustion if employees worry about work during the evening. Conversely, we propose that workload anticipation is positively associated with next-morning vigour if employees plan their workday during the evening. Put differently, we investigate on which days employees feel exhausted and on which days they feel vigorous in anticipation of high workload. Because of the opposing effects of worry and planning, anticipating a high workload *per se* should be unrelated to exhaustion and vigour.

Our study contributes to the literature in several ways. First, our study extends job stress research within the framework of transactional stress theory (Biggs *et al.*, 2017; Lazarus & Folkman, 1984) by examining the anticipatory phase of the stress process. In job stress research, this phase has been largely neglected (Brosschot, Pieper, & Thayer, 2005; Meurs & Perrewé, 2011). Thus, theoretical understanding of employees' stress experience currently lacks knowledge on how stressors that employees *anticipate* to have in the future are related to well-being. By explicitly studying day-specific conditions under which workload *anticipation* relates to well-being in the next morning, we enhance

knowledge on employee well-being during the anticipatory phase of the stress process. Studying the anticipatory phase is important because it helps to better understand how daily work stressors impact well-being – even before employees are actually facing them. Specifically, by investigating when workload anticipation relates to employee well-being in the next morning depending on anticipatory coping efforts, we answer calls for research on the anticipatory phase in a field setting with regard to real-life stressors (Brosschot *et al.*, 2005).

Second, we enhance knowledge on the role of anticipatory coping efforts (i.e., worry and planning) for well-being. The majority of coping research within the framework of transactional stress theory has focused on how people cope with past or present stressors (Biggs *et al.*, 2017). However, coping efforts aimed at future events are negatively related to burnout (Nizielski, Hallum, Schütz, & Lopes, 2013) and might thus be a protective factor in the development of burnout. By examining how day-specific anticipatory coping efforts are related to morning well-being, we enhance knowledge on how anticipatory coping efforts may promote or hinder well-being during this phase of the stress process. Moreover, by examining planning and its relation to next-morning vigour, we answer calls to examine positive affective outcomes of coping with stressful situations (Biggs *et al.*, 2017; Folkman & Moskowitz, 2000, 2004).

Finally, we contribute to research on employees' daily well-being in the morning, which is associated with well-being and behaviour throughout the workday. Feeling vital and well-rested in the morning may translate into high engagement (ten Brummelhuis & Bakker, 2012), task performance (Binnewies, Sonnentag, & Mojza, 2009), and proactivity (Schmitt, Belschak, & Den Hartog, 2016) throughout the workday. In contrast, feeling depleted in the morning is related to lower work engagement throughout the workday (Lanaj, Johnson, & Barnes, 2014). Identifying predictors of these morning states helps understand the conditions under which employees start their workdays in a more energetic versus a more depleted state. Specifically, by examining work-related worry and planning as predictors of these morning states, we contribute to research on short-term well-being consequences of these anticipatory coping efforts. Figure 1 shows our research model.

Conceptual background: The anticipatory phase of the stress process

The stress process begins with an anticipatory phase before a stressful event that is likely or certain to occur in the near future (Folkman & Lazarus, 1985; Lazarus & Folkman, 1984). During this anticipatory phase, physiological and cognitive arousal may occur (Brosschot *et al.*, 2005; Ursin & Eriksen, 2004). In anticipation of a stressor, people appraise the demands and possibilities associated with the future event: For instance, during the anticipatory phase of a college examination, students experience challenge and threat emotions and seek information regarding the examination (Folkman & Lazarus, 1985). Laboratory research showed that the anticipation of stressful events plays a key role for the physiological stress response: Anticipatory appraisal of a stressor is the most important determinant of the cortisol stress response when facing the stressor later on (Gaab *et al.*, 2005). Moreover, stressor anticipation is followed by a similar pattern of cardiovascular reactions as the actual experience of the stressor (Waugh *et al.*, 2010), suggesting that anticipating a stressor may have similar physiological consequences as the actual experience of a stressful event.

Workload is a prevalent stressor that refers to having to work hard and having a lot to do (Spector, Chen, & O'Connell, 2000). The amount of work to be accomplished varies between persons as well as within persons (Ilies *et al.*, 2007). Moreover, the level of

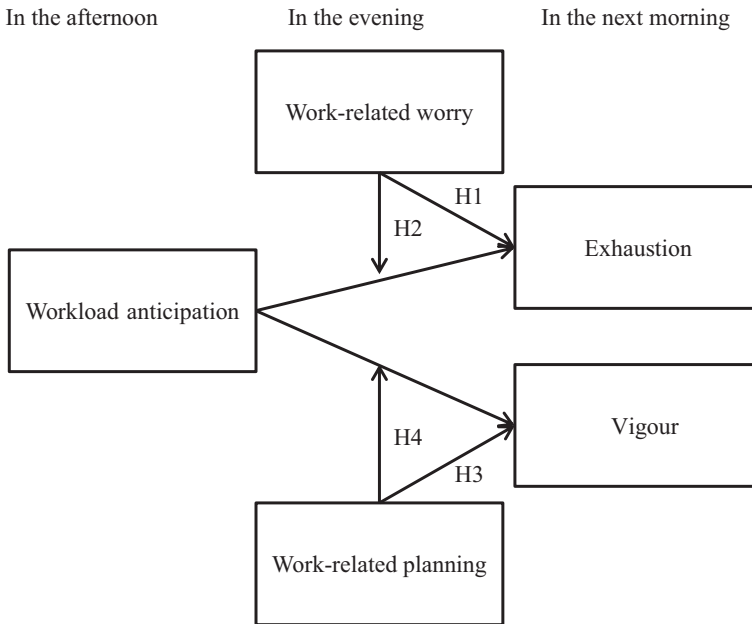


Figure 1. Overview of hypotheses.

workload to be managed during 1 day is often foreseeable for employees and thus preceded by an anticipatory phase (Biggs *et al.*, 2017). In many cases, employees know how many tasks need to be finished or how many appointments they have on that specific day. Thus, in the present study we focus on day-specific workload anticipation that we define as the amount of work employees expect to have throughout their next workday and the expected pace required to handle it (Spector & Jex, 1998). In the same way as *experienced* workload, *workload anticipation* refers to a subjective assessment of an objective work characteristic (Sonnentag & Frese, 2003). Past research suggests that employees' well-being may be impaired during the anticipatory phase of the stress process. For instance, weekend recovery starts fading out on Sunday evening, possibly because employees anticipate the upcoming week's workload (Hülshager *et al.*, 2014; Rook & Zijlstra, 2006). Moreover, morning workday appraisals are related to end-of-workday affect and task performance (Grawitch, Granda, & Barber, 2008), suggesting that expectations regarding the workday may have affective as well as behavioural consequences for employees' daily work.

Coping efforts aimed at future events are termed future-oriented coping efforts as opposed to reactive coping efforts which refer to events that have happened or are currently happening (Folkman & Moskowitz, 2004; Reuter & Schwarzer, 2009). Future-oriented coping includes preventive, proactive, and anticipatory coping (Reuter & Schwarzer, 2009). Preventive coping refers to efforts to prepare for uncertain events that might occur in the long-term with the aim of building up resources that may help to dampen the impact of these events. Proactive coping refers to building up resources for upcoming challenges that are associated with the potential for personal growth and development (Greenglass, Schwarzer, Jakubiec, Fiksenbaum, & Taubert, 1999). Finally, anticipatory coping efforts refer to efforts to deal with a future stressor that is certain or fairly certain to occur in the near future. The anticipated stressor may carry a potential risk of harm or loss and may be appraised as challenging, threatening, or having benefits. Thus,

anticipatory coping efforts can be seen as the management of potential risks to prevent or deal with a future stressor or to maximize its potential benefits (Schwarzer & Taubert, 2002). While some studies examined proactive and preventive coping (Drummond & Brough, 2016; Moring, Fuhrman, & Zauszniewski, 2011), research on anticipatory coping efforts is scarce. In the present research, we focus on the anticipatory phase of the stress process in the job context by examining how anticipatory coping efforts (i.e., work-related worry and planning) relate to employee well-being in the next morning as well as their role in the relationship between workload anticipation and next-morning well-being. Importantly, whereas workload anticipation refers to an assessment of the next workday with regard to the amount of work needing to be accomplished, worry and planning refer to cognitive coping efforts that may occur during the evening. Thus, whereas workload anticipation refers to an *assessment* of what could happen on the next day, anticipatory coping efforts refer to *efforts* initiated to deal with what could happen.

We suggest that in anticipation of high workload, people may feel both exhausted (i.e., experiencing a deactivated negative affective state) and energized (i.e., experiencing an activated positive affective state). Past research showed that positive and negative affective states may co-occur even during highly stressful times (Folkman & Moskowitz, 2004) and that positive affective states may serve adaptive purposes such as increased flexibility in thinking and problem-solving as well as processing of information (see Folkman & Moskowitz, 2000, for an overview). Different coping strategies seem to be differentially related to the experience of positive and negative affective states (Folkman & Moskowitz, 2004). Specifically, active coping efforts such as problem-solving were consistently related to positive mood but less consistently related to negative mood in a sample of persons who cared for ill partners (Moskowitz, Folkman, Collette, & Vittinghoff, 1996). Thus, we examine work-related worry as a more maladaptive coping effort in relation to next-morning exhaustion and work-related planning as a more adaptive coping effort in relation to next-morning vigour.

Moreover, we examine work-related worry and planning as day-specific moderators of the relationship between workload anticipation and next-morning well-being. How stressors relate to well-being is dependent on how people respond to them, suggesting a moderating effect of coping reactions (Pearlin, Menaghan, Lieberman, & Mullan, 1981). For instance, work demands are more strongly related to low health if employees use less direct coping (Parkes, 1990). Similarly, cognitive activation theory of stress states that stressors are unlikely to be related to well-being if they are not occurring together with prolonged cognitive activation of the same brain regions that are activated when dealing with a stressor that is actually present (e.g., worry; Brosschot, Verkuil, & Thayer, 2010). Particularly during the anticipatory phase, cognitive processes such as worry are argued to play a crucial role (Brosschot *et al.*, 2006) as they may allow future stressors to impair employees' well-being before they are actually present.

In line with this reasoning, we argue that during the anticipatory phase of the stress process, workload anticipation may only be related to employees' well-being if employees worry about or plan the next workday during the evening. Specifically, we argue that worry and planning might on some evenings but not on others because persons may have more or less opportunities to engage in them – irrespective of the amount of workload they anticipate for the next day. For instance, on some days people may engage in physical exercise (Feuerhahn, Sonnentag, & Woll, 2014) or engage in joint activities with partners (Hahn, Binnewies, & Dormann, 2014) that prevent them from thinking about work during leisure time. Similarly, employees might worry about or plan their next workday on days when they do not anticipate high levels of workload. For instance, employees might worry

about their next workday when they need to solve a difficult problem that is not necessarily accompanied by high workload or they might worry about having to deal with a difficult customer. Also, employees might plan their next workday irrespective of the amount of work that needs to be done on that specific day: For instance, employees might have a variety of tasks to manage on a given workday and thus plan their next day during the evening even though this variety of tasks does not necessarily imply a high workload. Taken together, we argue that work-related worry and planning are necessary conditions for workload anticipation to be related to employee well-being during the anticipatory phase of the stress process and examine them as moderators of the relationship between workload anticipation and next-morning well-being.

Workload anticipation, work-related worry, and next-morning exhaustion

Worry is a future-oriented repetitive thought process accompanied by negative affect that involves recurring thoughts about possible threats, risks, and uncertainties associated with future events (Borkovec, Robinson, Pruzinsky, & DePree, 1983). It represents an attempt of mental problem-solving and preparation for future events that entail the possibility of negative outcomes (Borkovec *et al.*, 1983; Watkins, 2008) and can thus be seen as an anticipatory coping effort. People often believe that worry helps to solve problems (Zebb & Beck, 1998), and may thus engage in worry as an attempt of coping with anticipated stressors. However, worry does not seem to serve any beneficial functions people may believe it has (Stefan & David, 2013), which suggests that – while people may believe otherwise – worry is a rather maladaptive coping effort. In the present study, we focus on work-related worry, which we define as negatively valenced, repetitive thoughts regarding the next workday. For instance, work-related worry includes recurring thoughts about possible problems one might be facing on the next workday or dreads about unpleasant tasks one will have to deal with.

We propose that work-related worry during the evening is positively related to next-morning exhaustion. Exhaustion is a core dimension of burnout and refers to feeling overextended and drained by one's job demands (Maslach, Schaufeli, & Leiter, 2001). According to the job demands – resources model, exhaustion is the consequence of energy depletion caused by exposure to high job demands (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Work-related worry during the evening keeps negative aspects of one's work mentally present during off-job hours, thus prolonging negative work-related activation and arousal (Brosschot *et al.*, 2006). The cognitive representation of stressors is thought to create an action tendency causing physiological strain reactions such as increased blood pressure and cortisol levels (Brosschot *et al.*, 2006; Ottaviani *et al.*, 2016). We argue that this sustained negative activation and its associated physiological reactions deplete employees' energy levels, thus resulting in greater exhaustion. When worrying about work during the evening, employees are less likely to recover from work demands. As a consequence, worry might keep exhaustion levels from returning to baseline levels in the morning. In line with this reasoning, cross-sectional research showed that negatively valenced repetitive thoughts are associated with higher fatigue levels (Querstret & Cropley, 2012), and meta-analytic results showed that worry is associated with various physiological stress indicators (Ottaviani *et al.*, 2016). For instance, daily worry duration was associated with lower heart rate variability (Brosschot, Van Dijk, & Thayer, 2007) as well as more somatic complaints (Brosschot & Van Der Doef, 2006). Taken together, we expect that employees feel more exhausted in the morning on days when they worried more about their next workday during the evening:

Hypothesis 1: Work-related worry in the evening is positively related to next-morning exhaustion.

Moreover, we argue that on days when employees worry about their next workday during the evening, workload anticipation may deplete employees' resources before they actually have to deal with their workload. Whereas *experienced* workload is associated with increased psychological and physical efforts that deplete energy (Demerouti *et al.*, 2001; Hockey, 1997; Meijman & Mulder, 1998), we suggest that workload *anticipation* may deplete employees' energy only if the stressor is accompanied by negative activation in the form of perseverative cognition (e.g., worry). Put differently, we argue that negative cognitive activation is a necessary boundary condition that allows stressors to impair employee well-being already during the anticipatory phase. When worrying about the next workday, physiological and psychological arousal increase (Brosschot *et al.*, 2006; Ottaviani *et al.*, 2016), thus depleting energy and resulting in greater exhaustion in the next morning. Specifically, we propose that on days when employees worry about their next workday, afternoon workload anticipation is positively related to next-morning exhaustion.

Hypothesis 2: On days when work-related worry during the evening is high, workload anticipation is positively related to next-morning exhaustion.

Workload anticipation, work-related planning, and next-morning vigour

Planning refers to thoughts on how to cope with a stressor (Carver, Scheier, & Weintraub, 1989). Planning entails the preparation for an upcoming stressor (Folkman & Lazarus, 1985) whose occurrence is likely or certain and can thus be seen as an anticipatory, future-oriented coping strategy (Watkins, 2008). In this study, we focus on work-related planning during the evening that includes making a plan regarding the next workday or thinking about which steps to take to accomplish a task. We propose that work-related planning during the evening is positively related to next-morning vigour. Vigour is the core component of work engagement (Schaufeli & Bakker, 2004). It refers to a state of high motivation, resilience, and energy and is characterized by the willingness to invest effort into one's work and to persist in the face of difficulties (Schaufeli & Bakker, 2004). Specifically, morning vigour is an active, energetic state that fosters work engagement throughout the workday (ten Brummelhuis & Bakker, 2012).

We argue that on days when employees planned their next workday during the evening, they feel more vigorous in the next morning. If employees plan their next workday during the evening, they think about which steps to take to accomplish their tasks on the next workday. Having specific steps or goals, in turn, might energize employees before starting their workday. In line with this reasoning, having specific goals was associated with more energy expended when working on a task (Earley, Wojnarowski, & Prest, 1987). Moreover, planning one's next workday might facilitate reattachment to work in the morning (Sonnentag & Kühnel, 2016). Reattaching to one's work in the morning was associated with higher work engagement throughout the workday (Sonntag & Kühnel, 2016). In line with our reasoning, planning interventions in which participants learn to make specific plans to reach goals increased well-being (MacLeod, Coates, & Hetherington, 2008) and planning techniques were associated with higher work engagement at the day level (Parke, Weinhardt, Brodsky, Tangirala, & DeVoe,

2017). Taken together, we expect that employees feel more vigorous in the morning on days when they planned their next workday during the evening:

Hypothesis 3: Work-related planning in the evening is positively related to next-morning vigour.

Finally, we propose that workload anticipation is positively related to next-morning vigour on days when employees planned their next workday in the preceding evening. Past research showed that people may experience positive and energetic states such as confidence, hope, and eagerness during the anticipatory phase of the stress process (Folkman & Lazarus, 1985). Specifically, workload is often appraised as a challenge (Prem *et al.*, 2017) that – while also associated with strain – may contribute to motivation (LePine, Podsakoff, & LePine, 2005) and vigour (van den Broeck, Cuyper, Witte, & Vansteenkiste, 2010). We suggest that during the anticipatory phase, workload may be associated with higher vigour if employees engage in work-related planning because planning may increase positive expectancies regarding one's workload: When having planned the next workday, employees may think that they are able to manage their workload by putting in effort. By thinking about which specific steps to take, workload may seem more manageable and employees may feel more confident that they can accomplish it. These positive expectancies may increase motivation (LePine *et al.*, 2005; Vroom, 1967). Moreover, planning might enhance the cognitive presence of potential positive aspects: When planning how to proceed, employees are more likely to think about the goals they might achieve. Taken together, we expect that workload anticipation is positively related to next-morning vigour on days when employees planned their next workday during the evening:

Hypothesis 4: On days when work-related planning during the evening is high, workload anticipation is positively related to next-morning vigour.

Work-related worry and planning as mediators

In the transactional stress model, coping strategies have traditionally been conceptualized as a mediator linking stressors with well-being (Folkman & Lazarus, 1988; Lazarus & Folkman, 1987). Specifically, the model suggests that being exposed to a stressor may lead to coping reactions which in turn are related to well-being. In line with this reasoning, one could also argue that workload anticipation may elicit worry or planning in employees during the evening, which in turn are related to well-being in the next morning. Empirically, there is evidence for both a mediating (e.g., Folkman & Lazarus, 1988) and a moderating (e.g., Nandkeolyar, Shaffer, Li, Ekkirala, & Bagger, 2014) role of coping efforts in the stress process. In a similar vein, research on psychological detachment from work (i.e., not thinking about work during leisure time) shows that psychological detachment can act as both a mediator and a moderator of the relationship between stressors and well-being (Sonnentag & Fritz, 2015). Therefore, we will also test for indirect effects of workload anticipation on next-morning well-being via worry and planning, respectively.

Control variables

We controlled for several variables at the within-person level to exclude alternative explanations for our results. First, many studies examined the consequences of workload for well-being (Alarcon, 2011; Ilies *et al.*, 2010). One could argue that when employees anticipate high workload for the following day, they also experienced high workload

during the actual day. Thus, relationships between workload anticipation and next-morning well-being might be due to high *experienced* workload. Therefore, we control for experienced workload of the past day. Second, psychological detachment is beneficial to next-morning well-being (Sonnentag, Binnewies, & Mojza, 2008). Thus, associations of work-related worry and next-morning well-being might be due to low psychological detachment. Therefore, we control for psychological detachment. Third, morning well-being might be closely related to sleep quality (Litwiller, Snyder, Taylor, & Steele, 2017; Scott & Judge, 2006). To make sure that our predictors contribute to next-morning well-being above and beyond the effects of sleep, we control for sleep quality. Finally, in order to rule out potential suppressor effects (Querstret & Cropley, 2012), we control for work-related worry or planning, respectively, when predicting next-morning well-being.

Method

Sample and procedure

We conducted an online daily diary study over two consecutive workweeks (i.e., Monday to Friday). We recruited participants via a career-oriented social networking site. We announced the study as a study on work stress and recovery and posted advertisements including information about the study and the procedure of data collection in several groups of the social networking site, targeting various occupations and industries. As an incentive, participants who completed 80% of the daily surveys were offered an advice booklet on recovery from work and the chance to win one of two e-book readers (each worth 88 Euros).

We collected all data online with a general survey and three daily surveys (i.e., afternoon survey, bedtime survey, and next-morning survey), accessible as a computer version or a smartphone version. We instructed participants to answer the general survey before the daily surveys, the afternoon survey at the end of their workday, the bedtime survey in the evening before going to bed, and the next-morning survey in the morning before going to work. Time stamps of survey completion were automatically recorded by the survey software. Because we examined associations with next-morning well-being, participants did not answer surveys on Monday morning, Friday afternoon, and Friday evening.

In total, 261 persons registered and received information material. Of these, 235 persons answered the general survey (90.01%). We excluded 11 persons because they were self-employed. Participants received the afternoon survey at 3 p.m., the bedtime survey at 9 p.m., and the next-morning survey at 6 a.m. in the following morning. We instructed the participants to fill in the respective surveys when they finished work for the day (afternoon survey), right before they went to bed (bedtime survey) and in the morning before they started to work (next-morning survey). The remaining 222 persons filled out 1,008 afternoon surveys, 997 bedtime surveys, and 1,187 next-morning surveys. Of the 1,008 afternoon surveys, we excluded 18 surveys because participants indicated that they were either sick or on vacation on the respective day. We checked the time stamps to make sure that surveys were filled out at the correct time. Consequently, we excluded 123 afternoon surveys filled out after 8 p.m. and arrived at a final set of 867 afternoon surveys (86.01%). Of the 997 bedtime surveys, we excluded 73 surveys because they were filled out in the next morning (i.e., later than 4 a.m.). Thus, we arrived at a final set of 924 bedtime surveys (92.68%). Of the 1,187 next-morning surveys, we excluded 47 surveys because they were filled out later than 11 a.m. Thus, we arrived at a final set of 1,140 next-morning surveys (96.04%).

Finally, we matched the four surveys to each other, using the serial number assigned to each person by the survey software. This serial number allows to match several surveys to the person who filled them in while ensuring anonymity. In the final data set, we included only persons who provided at least two complete sets of daily surveys (i.e., who answered the afternoon survey, bedtime survey, and next-morning survey on at least two occasions). Thus, the final data set included 446 complete daily records, which each consisted of three measurement occasions – one report after work, one in the evening before going to bed, and one in the next morning before going to work. The final sample consisted of 112 persons who provided 3.98 daily records on average.

Participants (75.9% female) had a mean age of 37.47 years ($SD = 9.17$) and an average organizational tenure of 4.60 years ($SD = 4.97$). Participants came from various occupations and industries, such as the service sector (17.9%), manufacturing (15.2%), health and social services (9.8%), and information and communication (9.8%). Most participants had a university degree (73.2%). On average, participants worked 30.61 hr per week ($SD = 3.80$). About one third of the participants had a managerial position (38.4%).

To check for selective attrition, we tested whether participants included in the final data set differed from persons who answered the general survey but were not included in the final data set. Analyses revealed no significant differences in gender, $\chi^2(1, N = 222) = 0.706, p = .449$, age, $t(220) = 0.255, p = .799$, organizational tenure, $t(205.746) = -0.887, p = .375$, or weekly working hours, $t(208.856) = 1.545, p = .124$. Participants in the final data set had higher education levels than persons who were not included, $t(208.266) = 2.432, p = .016$.

Measures

In the general survey, we assessed demographic information. In the afternoon survey, we assessed day-specific workload anticipation (i.e., level of workload participants expected to have on their next workday) and experienced workload (i.e., level of workload participants experienced during the day). In the bedtime survey, we assessed work-related worry and planning and psychological detachment. In the next-morning survey, we assessed exhaustion, vigour, and sleep quality. All items were presented in German and answered on 5-point rating scales (1 = *not at all* and 5 = *completely*), unless indicated otherwise. The scales that were only available in English were translated to German using back-translation (Brislin, 1970). Table 1 displays descriptive information. Cronbach's alpha was calculated separately for each day and then averaged across all days.

Workload anticipation

We assessed day-specific workload anticipation with three items based on a measure by Semmer, Zapf, and Dunckel (1999). We adapted the items to measure workload *anticipation* regarding the next workday in a daily diary design. A sample item is 'Tomorrow, I will have to work faster than usual in order to accomplish my work'. Cronbach's alpha was .87, ranging from .81 to .92.

Work-related worry

We assessed worry with five items based on a measure by Flaxman, Ménard, Bond, and Kinman (2012). The original scale included items measuring both work-related worry (i.e., thoughts about future events) and rumination (i.e., thoughts about past events). For

Table 1. Descriptive statistics of all study variables

Variable	M	SD (w)	SD (b)	ICC	1	2	3	4	5	6	7	8
1. Experienced workload	2.46	0.82	0.67	.40		-.18**	-.01	.37***	.12*	.10	.12 [†]	.09
2. Psychological detachment	3.37	0.89	0.83	.46	-.33***		.06	-.13**	-.67***	-.56***	-.12 [†]	.09
3. Sleep quality	3.53	0.76	0.47	.27	-.30***	.31***		.01	-.03	-.06	-.45***	.40***
4. Workload anticipation	2.75	0.79	0.64	.40	.77***	-.29**	-.25**		.13*	.04	.09	-.05
5. Work-related worry	1.86	0.66	0.61	.46	.37***	-.69***	-.30**	.33**		.60***	.17*	-.12 [†]
6. Work-related planning	2.30	0.78	0.71	.45	.40***	-.74***	-.28**	.35***	.70***		.12 [†]	-.03
7. Next-morning exhaustion	2.59	0.64	0.76	.58	.25**	-.28**	-.48***	.27**	.43***	.21*		-.60***
8. Next-morning vigour	2.97	0.55	0.62	.56	.06	.19 [†]	.39***	.01	-.31***	.03	-.65***	

Note. Correlations at the day level are displayed above the diagonal (N = 446). Correlations at the person level are displayed below the diagonal (n = 112). Correlations at the day level were calculated with person mean-centred variables. Correlations at the person level refer to the person means. The correlations were calculated in MPLus, taking the nested data structure into account.

b = between persons; ICC = intraclass correlation; w = within persons.

[†]p < .10; *p < .05; **p < .01; ***p < .001.

our study, we phrased the items so that they only captured future-related thoughts (i.e., worry) and adapted them to the daily diary design. A sample item is 'I worried about possible problems I might have at work tomorrow'. Cronbach's alpha was .90, ranging from .87 to .94.

Work-related planning

We assessed planning with a subscale of the coping measure by Carver *et al.* (1989). This scale includes four items that we adapted to the daily measurement of planning with regard to next workday. A sample item is: 'I came up with a strategy on what to do at work tomorrow'. Cronbach's alpha was .93, ranging from .89 to .95.

Next-morning exhaustion

We measured next-morning exhaustion with four items based on the Oldenburg Burnout Inventory (Demerouti *et al.*, 2001; Demerouti, Bakker, Vardakou, & Kantas, 2003), which we adapted to measure day-specific exhaustion in the morning before going to work. A sample item is 'I already feel tired before going to work'. Cronbach's alpha was .88, ranging from .83 to .92.

Next-morning vigour

We measured next-morning vigour with three items based on the vigour subscale of the Utrecht Work Engagement Scale (Schaufeli, Bakker, & Salanova, 2006). We adapted the items in order to measure state vigour in the morning before beginning to work. The items are: 'I look forward to my work', 'I go to work bursting with energy', and 'I go to work feeling strong and vigorous'. Cronbach's alpha was .81, ranging from .70 to .89.

Control variables

In the afternoon survey, we assessed experienced workload with a scale by Semmer *et al.* (1999). A sample item is 'Today, I had to work faster than usual in order to accomplish my work'. Cronbach's alpha was .88, ranging from .79 to .92. In the bedtime survey, we assessed psychological detachment with the scale developed by Sonnentag and Fritz (2007). A sample item is 'During the evening, I distanced myself from my work'. Cronbach's alpha was .93, ranging from .91 to .95. In the next-morning questionnaire, we assessed sleep quality with one item from the Pittsburgh Sleep Quality Index (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) that has been used in dairy research before (Kühnel, Bledow, & Feuerhahn, 2016). Participants answered the item, 'How do you evaluate last night's sleep?' on a scale from 1 (*very poor*) to 4 (*very good*).

Preliminary analyses

To test the construct validity of our measures, we conducted a multilevel confirmatory factor analysis, using MPlus 7.4 (Muthén & Muthén, 1998). Results indicated that our measurement model with seven factors (i.e., experienced workload, workload anticipation, worry, planning, psychological detachment, exhaustion, and vigour) fit the data well, $\chi^2 = 621.830$, $df = 278$, $p < .001$, CFI = .949, RMSEA = .053, and was superior to alternative models. Most importantly, chi-square difference testing indicated that this

model was superior to a model with one factor for experienced workload and workload anticipation combined, Satorra–Bentler $\Delta\chi^2 = 264.218$, $\Delta df = 6$, $p < .001$, as well as to a model with one factor for exhaustion and vigour combined, Satorra–Bentler $\Delta\chi^2 = 163.210$, $df = 6$, $p < .001$, and a model with one factor for worry, planning, and psychological detachment combined, Satorra–Bentler $\Delta\chi^2 = 748.677$, $\Delta df = 11$, $p < .001$.

Analytic strategy

Our data are hierarchically structured with day-level data nested within persons. Intraclass correlations of our study variables ranged between .27 and .58 (ICC1, see Table 1), indicating that between 42% and 73% of the variables' variance is at the within-person level. Thus, multilevel modelling techniques should be used for data analysis. We tested our hypotheses with multilevel regression analyses, which take the dependence of day-level data within persons into account (Snijders & Bosker, 2012). We conducted a set of multilevel hierarchical regression analyses for each outcome in MPlus version 7.4 (Muthén & Muthén, 1998) using the %within% option of the model command and the robust maximum likelihood estimator. We centred all predictors and control variables at the person mean (i.e., group-mean centring).

Results

We tested a set of nested models for each outcome (i.e., next-morning exhaustion and next-morning vigour, respectively), starting with a null model, followed by a model that included all control variables and the main effects (Model 1), and a model with the interaction effects (Model 2). Table 2 shows the results.¹

We expected work-related worry in the evening to be positively associated with next-morning exhaustion (Hypothesis 1). In line with this hypothesis, work-related worry positively predicted next-morning exhaustion (unstandardized estimate: 0.156, $SE = .079$, $p = .049$). Furthermore, we predicted that workload anticipation would be positively related to next-morning exhaustion on days when work-related worry during the evening was high (Hypothesis 2). In line with Hypothesis 2, the interaction term of workload anticipation and worry significantly predicted morning exhaustion (unstandardized estimate: 0.189, $SE = .067$, $p = .005$). Figure 2 displays the interaction pattern. We used simple slope tests for multilevel modelling (Preacher, Curran, & Bauer, 2006) to probe the interaction effect. On days when worry was high (i.e., at +1 SD), the relationship between workload anticipation and next-morning exhaustion was positive (unstandardized estimate: 0.154, $SE = .061$, $z = 2.541$, $p = .011$). On days when worry was low (i.e., at -1 SD), the relationship between workload anticipation and next-morning exhaustion was not significant (unstandardized estimate: -0.096, $SE = .064$, $z = -1.505$, $p = .132$).

We expected that work-related planning would predict next-morning vigour (Hypothesis 3). Work-related planning was not associated with next-morning vigour (unstandardized estimate: 0.054, $SE = .045$, $p = .239$). Thus, Hypothesis 3 was rejected. Finally, we predicted that workload anticipation would be positively associated with next-morning vigour on days when work-related planning was high (Hypothesis 4). The

¹ Not including any control variables does not change the results of our hypotheses tests.

Table 2. Results of multilevel regression analyses predicting next-morning exhaustion and next-morning vigour

	Next-Morning Exhaustion				Next-Morning Vigour							
	Nullmodel		Model 1		Model 2		Nullmodel		Model 1		Model 2	
	Est	SE	Est	SE	Est	SE	Est	SE	Est	SE	Est	SE
Intercept	2.583***	.079	2.584***	.078	2.571***	.077	2.969***	.064	2.969***	.064	2.967***	.064
Experienced workload			0.066	.043	0.059	.041	0.069†	.037	0.069†	.037	0.067†	.037
Psychological detachment			0.025	.045	0.019	.045	0.015	.049	0.015	.049	0.016	.049
Sleep quality			-0.380***	.048	-0.370***	.048	0.292***	.044	0.292***	.044	0.294***	.044
Workload anticipation (WA)			0.034	.042	0.030	.043	-0.052	.039	-0.052	.039	-0.055	.041
Work-related worry			0.156*	.079	0.163*	.078	-0.113	.069	-0.113	.069	-0.110	.069
Work-related planning			0.005	.050	0.003	.051	0.054	.045	0.054	.045	0.054	.045
WA * work-related worry					0.189**	.067						
WA * work-related planning					0.312***	.029			0.244***	.024	0.243***	.024
Residual variance at day-level			0.596***	.090	0.585***	.087			0.388***	.055	0.390***	.055
Residual variance at person-level					978.408		922.044		852.602		851.990	
-2 × log likelihood (SCF)	1,075.378	(1.246)	984.688	(1.178)	(1.128)	(1.128)	(1.113)	(1.113)	(1.223)	(1.223)	(1.197)	(1.197)
Δ -2 × log likelihood (df)			79.288** (6)		9.196** (1)		54.360** (6)		54.360** (6)		0.632 (1)	

Note. Regression coefficients are unstandardized estimates from Mplus. Predictors were centred at the person mean. df = degrees of freedom; Est = estimate, SCF = Scaling correction factor. †p < .10; *p < .05; **p < .01; ***p < .001

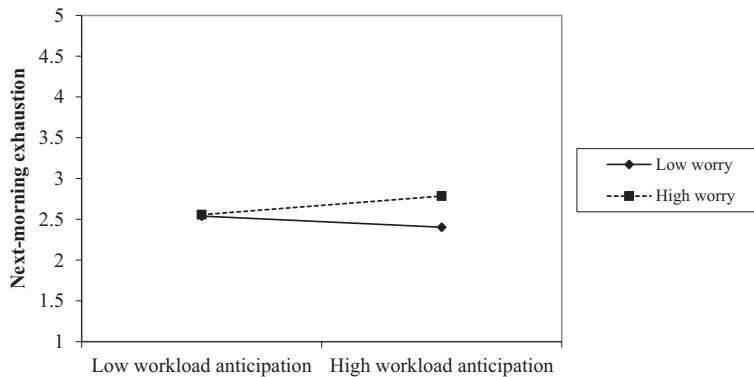


Figure 2. Interaction plot of work-related worry as a moderator of the relationship between workload anticipation and next-morning exhaustion.

interaction between workload anticipation and planning did not predict next-morning vigour (unstandardized estimate: 0.040, $SE = .052$, $p = .436$). Thus, Hypothesis 4 was not supported.

Additional analyses

In order to rule out potential alternative explanations for our results and to explore other possible relationships between our study and control variables, we conducted several additional analyses. First, as outlined in the introduction, we tested for indirect effects of workload anticipation on next-morning exhaustion and vigour via worry and planning during the evening. We conducted another set of regression analyses in which we predicted worry and planning, respectively, from workload anticipation and the control variable experienced workload. As for the paths of the indirect effect models, workload anticipation did neither predict work-related worry (estimate = 0.085, $SE = .047$, $p = .070$) nor work-related planning during the evening (estimate = 0.007, $SE = .055$, $p = .899$; see Table 3). The b paths (i.e., work-related worry and planning predicting next-morning exhaustion and vigour, respectively) are the same as from our main analyses reported above (see Table 2). We calculated the estimates for the indirect effects by multiplying the a and b paths. We then used the Monte Carlo method for obtaining confidence intervals for indirect effects with 20,000 repetitions (Selig & Preacher, 2008). Neither the indirect effect of workload anticipation via planning on next-morning vigour (estimate = 0.000, 95% CI [-0.000, 0.002]) nor of workload anticipation via worry on next-morning exhaustion (estimate = 0.013, 95% CI [-0.002, 0.039]) was significant.

Second, to rule out alternative explanations for the significant interaction effect between workload anticipation and worry when predicting next-morning exhaustion, we analysed whether next-morning exhaustion is also predicted by an interaction effect between *experienced* workload (i.e., instead of workload anticipation) and work-related worry during the evening. In this multi-level regression analysis, we included the same predictors as in the main analyses and added an interaction term between *experienced* workload and worry. The interaction term between experienced workload and worry did not predict next-morning exhaustion (estimate = 0.017, $SE = .086$, $p = .848$), whereas the interaction term between workload anticipation and worry remained significant (estimate = 0.180, $SE = .080$, $p = .025$). Also, we analysed whether next-morning

Table 3. Predicting work-related worry and planning from workload anticipation and experienced workload

	Work-Related Worry				Work-Related Planning			
	Nullmodel		Model 1		Nullmodel		Model 1	
	Est	SE	Est	SE	Est	SE	Est	SE
Intercept	1.857***	.067	1.857***	.067	2.304***	.078	2.304***	.078
Experienced workload			0.068	.053			0.093	.057
Workload anticipation			0.085 [†]	.047			0.007	.055
Residual variance at day-level			0.421***	.063			0.611***	.069
Residual variance at person-level			0.373***	.083			0.497***	.088
-2 × log likelihood (SCF)	1,052.030 (1.971)		1,043.966 (1.664)		1,205.884 (1.309)		1,202.550 (1.229)	
Δ -2 × log likelihood (df)			6.708 [†] (2)				3.005 (2)	

Note. Regression coefficients are unstandardized estimates from Mplus. Predictors were centred at the person mean.

df = degrees of freedom; Est = estimate; SCF = Scaling correction factor.

[†] $p < .10$; * $p < .05$; *** $p < .001$.

exhaustion is predicted by an interaction effect between workload anticipation and psychological detachment. We conducted another multi-level regression analysis with next-morning exhaustion as dependent variable. Again, we included the same predictors as in the main analyses and added an interaction term between workload anticipation and psychological detachment. The interaction term between workload anticipation and psychological detachment did not predict next-morning exhaustion (estimate = 0.117, $SE = .071$, $p = .098$), whereas the interaction term between workload anticipation and worry remained significant (estimate = 0.303, $SE = .087$, $p < .001$).

Third, given that worry and planning correlated positively, one could argue that planning is an adaptive response when experiencing worry.² Thus, we specified another set of multilevel regression models with the same predictor variables as in the main analyses and added a two-way interaction term between worry and planning and subsequently a three-way interaction term between workload anticipation, worry, and planning to predict exhaustion and vigour, respectively. The two-way interaction term between worry and planning did neither predict exhaustion (estimate = -0.042, $SE = .060$, $p = .486$) nor vigour (estimate = -0.040, $SE = .048$, $p = .414$). Also, the three-way interaction term between workload anticipation, worry, and planning did neither predict exhaustion (estimate = -0.127, $SE = .085$, $p = .136$) nor vigour (estimate = 0.131, $SE = .081$, $p = .107$).

Finally, we further explored the role of sleep for the hypothesized relationships. Sleep is an important opportunity for recovery (Zijlstra & Sonnentag, 2006) and is linked to energy levels in the morning (Clinton, Conway, & Sturges, 2017). Thus, sleep quality might buffer the relationships between worry and planning in the evening and next-morning well-being. Therefore, we analysed whether sleep quality moderates the hypothesized relationships. We conducted two multi-level regression analyses with next-

² We thank an anonymous reviewer for this idea.

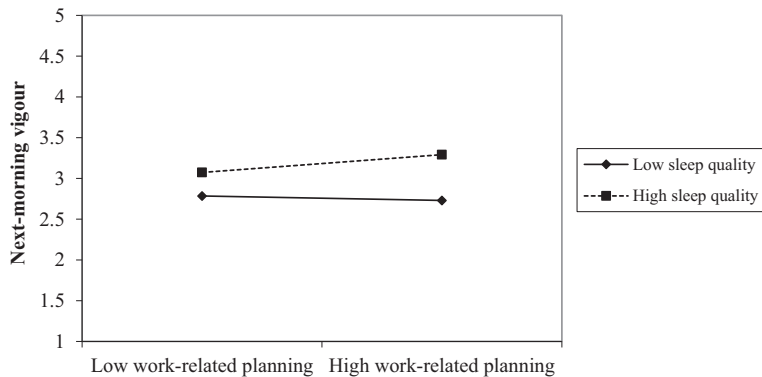


Figure 3. Interaction plot of sleep quality as a moderator of the relationship between work-related planning and next-morning vigour.

morning exhaustion and vigour as dependent variables with the same predictors as in the main analyses. For next-morning exhaustion, we added an interaction term between sleep quality and worry. This interaction term did not predict next-morning exhaustion (estimate = -0.119 , $SE = .080$, $p = .139$). For next-morning vigour, we added an interaction term between sleep quality and planning. This interaction term significantly predicted next-morning vigour (estimate = 0.134 , $SE = .056$, $p = .017$). The interaction pattern is shown in Figure 3. Simple slope tests (Preacher *et al.*, 2006) showed that when sleep quality was high (i.e., $+1 SD$), work-related planning was positively related to next-morning vigour (estimate = 0.162 , $SE = .065$, $z = 2.493$, $p = .013$). When sleep quality was low (i.e., $-1 SD$), work-related planning was unrelated to next-morning vigour (estimate = -0.042 , $SE = .058$, $z = -0.721$, $p = .471$).

In our final set of additional analyses, we examined the possibility that asking participants about work-related worry and planning may have created measurement reactivity (Barta, Tennen, & Litt, 2012), such that participants worried or planned more because they were asked about it daily. An indicator of measurement reactivity are linear increases in the respective variables over the course of the study (Barta *et al.*, 2012). In our case, this would imply that employees worried or planned more over the course of the study which might also be accompanied by a lack of psychological detachment. Thus, we conducted three sets of multilevel regression analyses with worry, planning, and psychological detachment as the respective outcome variables and day of participation as predictor variable. Day of participation did neither predict work-related worry (estimate: -0.006 , $SE = .013$; $p = .662$), nor work-related planning (estimate: -0.029 , $SE = .016$; $p = .060$), nor psychological detachment from work (estimate = 0.015 , $SE = .017$, $p = .394$).³

Discussion

We investigated the anticipatory phase of the stress process from a day-level perspective. On the one hand, we expected work-related worry during the evening to be positively related to next-morning exhaustion and workload anticipation to be positively related to next-morning exhaustion on days when work-related worry was high. On the other hand,

³ The complete results of the additional analyses are available as online supporting information.

we expected that work-related planning during the evening would be positively related to next-morning vigour and that workload anticipation would be positively related to next-morning vigour on days when work-related planning was high. Results showed that work-related worry during the evening was positively associated with next-morning exhaustion. Moreover, on days when employees worried about their next workday during the evening, workload anticipation was positively related to next-morning exhaustion. Work-related planning, however, was not associated with next-morning vigour and did not interact with workload anticipation in predicting next-morning vigour. Our study suggests that anticipatory processes play a role for employee well-being. Importantly, our results imply that anticipatory processes may play a unique role for morning well-being that persists when controlling for experienced workload, psychological detachment, and sleep quality. Earlier research suggested that anticipatory processes may impair weekend recovery (Hülshager *et al.*, 2014; Rook & Zijlstra, 2006). Our research explicitly shows that anticipatory processes are related to morning well-being and have several implications for job stress research.

Workload anticipation, work-related worry, and next-morning exhaustion

As expected, work-related worry was positively related to next-morning exhaustion, suggesting that worry about the next workday depletes employees' energy levels. Because we controlled for psychological detachment during the evening, our results show that the associations of work-related worry with next-morning exhaustion are not simply due to a lack of psychological detachment. Thus, our results might imply that it is the repetitive and negatively valenced nature of worry that depletes employees' energy. In line with this reasoning, work-related thoughts during leisure time that are not repetitive and of neutral or positive valence do not contribute to employees' exhaustion (e.g., positive work reflection; Fritz & Sonnentag, 2006) or are even associated with lower fatigue (e.g., problem-solving pondering; Querstret & Cropley, 2012).

Second, while many studies have shown that worry is associated with physiological stress indicators (see Ottaviani *et al.*, 2016, for a meta-analysis), our study shows that work-related worry is also associated with subjective well-being in the morning. Thus, work-related worry in the evening seems to play a role for the state in which employees start their workday in the next morning. Third, because worry is exclusively future-oriented, our results show how anticipatory thought processes are associated with employees' day-specific well-being. Researchers have discussed the possibility that anticipatory thought processes are related to employees' recovery throughout the workweek (Hülshager *et al.*, 2014; Rook & Zijlstra, 2006) while not explicitly examining them. Taking a day-level perspective, we investigated the role of anticipatory thought processes for morning well-being and showed that evening worry is associated with next-morning exhaustion. Therefore, our results suggest that anticipatory thought processes indeed play a role for employee well-being.

Also in line with our hypothesis, our results show that if employees worry about their next workday during the evening, workload anticipation is positively associated with next-morning exhaustion. This finding implies that worry about the next workday might allow the next day's workload to impair well-being before it is actually present. This result is in line with theoretical reasoning that ascribes repetitive thought processes an important role during the anticipatory phase of the stress process (Brosschot *et al.*, 2006) as well as laboratory research showing that stressors may already impair well-being during anticipation (Berns *et al.*, 2006; Kirschbaum *et al.*, 1993). Our results extend past research

by showing that a daily-life stressor such as workload (as opposed to stressors in laboratory settings) can also be associated with impaired well-being during the anticipatory phase if employees worry about their next workday during the evening. Specifically, whereas many studies have shown that high workload is related to exhaustion (Bakker, Demerouti, & Sanz-Vergel, 2014), presumably because dealing with high workload is associated with physiological and psychological costs (Demerouti *et al.*, 2001; Hockey, 1997), our study shows that workload *anticipation* may also contribute to exhaustion. Importantly, we showed that this association persists even when controlling for experienced workload of the preceding day. Thus, our findings imply that high workload may already have negative consequences for employee well-being during the anticipatory phase if accompanied by work-related worry. Taken together, our results point to a problematic situation: When employees worry about their next workday for which they anticipate high workload, they are already exhausted in the morning before starting work. However, on these days in particular, employees need all their energy and strength in order to manage the workload they will face.

Workload anticipation, work-related planning, and next-morning vigour

Work-related planning during the evening was not associated with next-morning vigour. These results are in contrast to research from between-person studies in which problem-solving pondering (i.e., a similar thought process) was associated with higher work engagement (Bennett, Gabriel, Calderwood, Dahling, & Trougakos, 2016). In line with the reasoning of these studies, we argued that work-related planning would energize employees and thus be related to higher vigour in the next-morning. However, our results suggest that work-related planning during the evening does not put employees into an energized state in the next-morning. There might be several reasons for this non-significant finding. First, perhaps constructive forms of work-related thoughts are only associated with higher engagement between but not within persons: One could argue that constructively thinking about work may have positive ramifications for employees' general work engagement whereas it might not be energizing at the day-level. Anticipatory coping efforts during the evening – whether constructive or not – keep work-related issues present during leisure time (Brosschot *et al.*, 2006) and may thus further tax resources (Hobfoll, 1989). When employees plan their next workday during leisure time, they are unlikely to relax, which could help replenish resources (Sonnentag & Fritz, 2007). In line with this reasoning, experimental research shows that both constructive (i.e., problem-solving) and unconstructive (i.e., perseverative cognition) repetitive thoughts are associated with higher blood pressure (see Ottaviani *et al.*, 2017, for a meta-analysis), suggesting that thinking about work during leisure time may activate employees and thus cost further resources. However, it is worth noting that work-related planning was neither positively nor negatively related to next-morning vigour, suggesting that while planning might not be beneficial to employees' morning vigour, it also does not seem to be detrimental to it. Additionally, our post-hoc analyses showed that work-related planning during the evening was positively related to next-morning vigour when sleep quality was high. Thus, work-related planning may indeed have the potential to put employees into an energized state in the next morning, but only if employees slept well through the night. This finding is in line with the reasoning that planning may cost further resources when employees engage in it during leisure time. However, having a good night's sleep might compensate this resource loss and make it possible for work-related planning to unfold its energizing potential.

Contrary to our hypothesis, our findings suggest that planning the next workday during the evening does not help employees to feel vigorous in the morning when anticipating high workload. Past research conceptualizing workload as a challenge stressor argued that challenge stressors are related to higher vigour because they are associated with personal growth and goal attainment (van den Broeck *et al.*, 2010). We argued that work-related planning during the anticipatory phase increases the cognitive availability of these potential positive outcomes of workload as well as the expectancy to reach them. One possible reason for this non-significant finding could be that in order for workload to be associated with vigour, employees need to experience these positive outcomes. Put differently, perhaps workload is only associated with vigour *after* task completion. In line with this reasoning, planning intervention studies argue that planning is associated with higher well-being because it enhances goal attainment, perceived goal progress, and engagement with one's tasks (MacLeod *et al.*, 2008). All of these mechanisms, however, cannot yet occur when *anticipating* high workload. Thus, perhaps possible consequences of work-related planning can only manifest later in the process: For instance, having planned one's next workday during the evening might be associated with higher engagement while actually working on one's tasks throughout the workday.

Limitations and directions for future research

As most empirical research, our study has some limitations. First, our participants were asked daily about their worry and planning during the evening. Asking participants about their work-related thoughts during the evening every day may lead to measurement reactivity (Barta *et al.*, 2012) such that participants worry or plan more during the evening simply because they were asked, thus resulting in artificially high levels of the focal variables. While our additional analyses did not suggest that measurement reactivity existed in our study, we cannot completely rule out this possibility. However, as worry and planning did not increase over the course of the study, we are relatively confident that measurement reactivity does not pose a major threat to our study results. Second, using self-report measures increases the risk of common-method bias (Podsakoff, MacKenzie, & Podsakoff, 2012). However, assessing predictor, moderator, and outcome variables at different measurement points (i.e., afternoon, evening, morning), minimizes the risk of such a bias because participants are less likely to remember their answers from previous surveys (Podsakoff *et al.*, 2012). Moreover, interaction effects are unlikely to be influenced by common-method bias (Siemsen, Roth, & Oliveira, 2010). Still, future studies could include other-rated measures such as supervisor-rated workload or morning well-being assessed by a family member. Third, study participants were predominantly female and well-qualified, which may limit the generalizability of our study results. For instance, worry and planning one's next workday might be more prevalent in professional occupations where employees face higher job complexity than in non-professional occupations (Morgeson & Humphrey, 2006). Thus, future research could use more heterogenic samples in order to make sure that the study results are generalizable. Finally, our hypotheses regarding work-related worry and next-morning well-being were guided by the idea that worry about work during the evening depletes employees' resources. However, we did not explicitly examine this potential mediating mechanism. Future studies should investigate whether worry is associated with next-morning exhaustion via the depletion of emotional or cognitive resources.

Our study provides several avenues for further research. First, future research could enhance knowledge on the role of anticipatory processes in the job stress process. We examined how anticipatory thought processes and workload anticipation relate to energetic aspects of employees' next-morning well-being (i.e., exhaustion and vigour). Past research showed that employees' morning experiences and states are important for work engagement throughout the workday. An important question for further studies would be how anticipatory processes preceding one's workday relate to behaviour throughout the workday. For instance, planning one's next workday might be related to better task performance throughout the workday, because it might help regulate attention towards one's tasks (Beal, Weiss, Barros, & MacDermid, 2005).

Second, our results showed that work-related worry plays an important role for employees' well-being during the anticipatory phase of the stress process. Further research should identify predictors of work-related worry: Under which conditions do employees worry about their next workday during the evening and under which conditions do they refrain from worry? Because trait worry only accounts for a small part of the variance in worry duration and frequency in daily life (Verkuil, Brosschot, & Thayer, 2007), future studies should identify day-specific predictors of the occurrence of evening worry with regard to the workplace as well as leisure time. For instance, because worry is thought to emerge when people experience uncertainty (Borkovec *et al.*, 1983), workday characteristics associated with uncertainty (e.g., role ambiguity) may contribute to worry during leisure time.

Finally, future studies should examine under which conditions employees experience positive well-being during the anticipatory phase. Our results suggest that the relationships regarding positive well-being indicators are complex in nature with planning not directly predicting next-morning vigour but only when sleep quality was high. Thus, future studies should identify anticipatory coping strategies that are more directly linked to well-being during the anticipatory phase. For instance, perhaps strategies involving more positive affect than planning might be a promising avenue. Specifically, optimistic thought processes – perhaps as a form of future-oriented positive reappraisal – might help employees to feel vigorous during the anticipatory phase of the stress process.

Practical implications

Our study yields several practical implications. First, our results suggest that – under certain conditions – workload may already be associated with impaired employee well-being during the anticipatory phase of the stress process. Thus, both employees and organizations should be aware that workload may not only be associated with impaired well-being after having dealt with it but also during the time that precedes it. Specifically, during phases preceding high workload such as a day during which many tasks have to be dealt with or a labour-intensive phase of a project, leaders should encourage their employees to still make time for recovery during evenings and weekends (Sonnentag, Venz, & Casper, 2017).

Second, our results showed that work-related worry during the evening plays an important role during the anticipatory phase of the stress process. For employees, these findings imply that they should refrain from work-related worry during leisure time, especially on days when anticipating a high workload for the upcoming day. However, as worry occurs involuntarily (Borkovec *et al.*, 1983), this might not simply be achievable by recommending employees not to worry. One possibility would be for employees to engage in absorbing leisure activities, especially when anticipating high workload. For

instance, physical exercise is positively related to psychological detachment from work-related thoughts (Feuerhahn *et al.*, 2014). Additionally, employees could engage in joint activities with partners such as sharing a meal, which may foster psychological detachment from work (Hahn *et al.*, 2014). Moreover, techniques from cognitive-behavioural therapy such as the thought stopping technique may help to prevent worry (Bakker, 2009). This technique instructs persons to say ‘stop’ mentally or out loud when they find themselves worrying. In the following, persons should turn their attention towards other thoughts or actions in order for the negative thoughts not to return. However, not only employees themselves can prevent worry from occurring during leisure time but organizations and leaders may also want to help prevent their employees from worrying during leisure time. For instance, leaders could make sure that employees have the necessary resources in order to successfully manage their workload such that employees will feel like they are able to manage the high workload they are facing (i.e., foster secondary appraisal; Lazarus & Folkman, 1984). Also, leaders could increase employees’ self-efficacy beliefs (Bandura, 1977) by reminding them of past situations in which they managed a high workload. If employees believe in their capabilities to manage their workload, they might be less likely to worry about work during the evening.

Finally, our results showed that planning one’s next workday during the evening is associated with higher next-morning vigour when sleep quality is high. This result implies that when employees plan their next workday during the evening, they should make efforts to sleep well during the night. For instance, employees could follow sleep-hygiene recommendations such as avoiding caffeine late in the day and adhering to regular sleep timing (Irish, Kline, Gunn, Buysse, & Hall, 2015).

Conclusion

In this diary study, we examined the anticipatory phase of the stress process. Results showed that work-related worry during evening hours is associated with higher next-morning exhaustion. Moreover, worry during the evening interacted with workload anticipation to predict exhaustion in the next morning, suggesting that worry might enable future work stressors to impair employee well-being even before they are actually present. Planning one’s workday during the evening was positively related to next-morning vigour given high sleep quality.

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Supporting Information

The following supporting information may be found in the online edition of the article:

Table S1. Results of multilevel regression analyses predicting next-morning exhaustion from other possible interaction effects.

Table S2. Results of multilevel regression analyses predicting next-morning exhaustion from the three-way interaction between workload anticipation, worry, and planning.

Table S3. Results of multilevel regression analyses predicting next-morning vigour from the three-way interaction between workload anticipation, worry, and planning.

Table S4. Results of multilevel regression analyses predicting next-morning exhaustion and vigour from interaction effects between sleep quality, worry, and planning.

Table S5. Results of multilevel regression analyses predicting worry, planning, and psychological detachment from day of participation.