Journal of Organizational Behavior

WILEY

Journal of Organizational Behavior

RESEARCH ARTICLE OPEN ACCESS

Through Rested Eyes: The Relevance of Sleep for Dynamic Changes and Stable Differences in Employees' Stress Appraisals

Jette Völker[1] | Monika Wiegelmann[1] | Miriam Schilbach[2]

[1]School of Social Sciences, Department of Psychology, University of Mannheim, Mannheim, Germany | [2]Faculty of Psychology and Neuroscience, Department of Work and Social Psychology, Maastricht University, Maastricht, the Netherlands

Correspondence: Jette Völker (jette.voelker@uni-mannheim.de)

Received: 12 March 2025 | **Revised:** 27 February 2026 | **Accepted:** 4 March 2026

Keywords: chronotype | sleep | stress appraisals | trajectories | transactional stress theory

ABSTRACT

Even though stress appraisals determine employees' states and behaviors at work, knowledge of their antecedents is limited. This research project integrates sleep research into the transactional stress theory to explain how sleep, as a key factor shaping employees' resource availability, relates to employees' appraisals of their job demands. We examine relationships between sleep characteristics (sleep duration, sleep quality, and chronotype) and stress appraisals (challenge, hindrance, and threat) at the intraindividual and interindividual levels. In the main study (144 employees, 937 days, and 2428 surveys), we used an experience sampling design to examine the relevance of sleep for dynamic within-person fluctuations (i.e., morning levels and within-day changes) and stable between-person differences (i.e., mean during the experience sampling phase) in stress appraisals. In an additional sample for robustness checks (278 employees), we tested the replicability of stable between-person relationships using a two-wave design. Results revealed that sleep quality is linked to more favorable appraisals (i.e., lower hindrance and threat appraisals and partly higher challenge appraisal). Furthermore, daily sleep quality and employees' chronotype related to dynamic within-day changes in threat appraisals (i.e., trajectories). Accordingly, we underscore the role of sleep for employees' functioning at work by explicitly connecting sleep to the stress appraisal process.

Most employees encounter potentially stressful job demands daily (e.g., workload and interpersonal conflicts; Sonnentag et al. 2025). Importantly, the way employees cognitively appraise these demands varies. While one employee may appraise them as challenging with a potential for personal development, another employee may see them as hindering their success, or threatening their well-being (i.e., between-person differences). Additionally, appraisals may vary between situations. An employee might view stressful experiences as challenging on a Monday but threatening on a Tuesday (i.e., within-person differences; Lazarus and Folkman 1987; Tuckey et al. 2015). Research shows that these subjective appraisals relate to individual and organizational outcomes over and above (objective) job demands, both at the within- and between-person levels (Ma et al. 2021; Searle and Auton 2015). For example, although hindrance and threat appraisals have been associated with detrimental outcomes such as higher strain and lower performance (e.g., Chen et al. 2024; LePine et al. 2016; Tuckey et al. 2015),

A change in affiliation has occurred since this research was conducted: Monika Wiegelmann now works at the Boston Consulting Group. Proportions of this article were presented at the 39th Annual Conference of the Society for Industrial and Organizational Psychology (SIOP) in Chicago, USA, the 53rd Congress of the German Psychological Society (DGPs) in Vienna, Austria, and the 85th Annual Meeting of the Academy of Management in Copenhagen, Denmark. We thank Sabine Sonnentag for her invaluable support during this project, Julia Iser-Potempa for her helpful feedback on earlier versions of this article, as well as Hannah Quast, Kendra Hons, Laura Kaufmann, and Yun-Loe (Laura) Lai for their help during data collection. Data and analysis codes are available at https://osf.io/9xqwm.

challenge appraisal may positively relate to strain (e.g., Webster et al. 2011) but also to positive outcomes such as work engagement and performance (e.g., Kaltiainen et al. 2020; Ma et al. 2021). Accordingly, the way employees appraise demands at work is closely linked to their work-related psychological states and behaviors.

Regarding the antecedents of cognitive appraisals, research has focused on specific job demands such as time pressure, cognitive demands, and role ambiguity, showing that these demands may be appraised as challenging, hindering, and threatening (e.g., Kronenwett and Rigotti 2022; Prem et al. 2017; Schilbach et al. 2023; Webster et al. 2011). Although this research provides valuable insights into the appraisal patterns associated with specific job demands, it does not account for other factors that may relate to more favorable appraisal patterns (i.e., challenge rather than hindrance and threat appraisal). This is an unfortunate oversight because promoting more favorable stress appraisals is of core theoretical and practical interest (LePine 2022). With this research project, we thus aim to add to the understanding of why within- and between-person differences in stress appraisals occur, investigating the relationships between sleep-related parameters and stress appraisal patterns at work.

The transactional stress theory (Lazarus and Folkman 1984) suggests that stress appraisals depend on the availability of resources in the context of a stressful situation. Despite first studies on the role of resource-restoring experiences and activities (Barber et al. 2014; Casper and Wehrt 2022; Roswag et al. 2023), "research on contextual factors and individual differences is just beginning" (LePine 2022, 235) and "additional research is needed to fully understand (...) the impact the resources have on the (...) appraisal process" (LePine 2022, 235). We want to enter this discussion and further refine the understanding of how resource availability might relate to stress appraisals. Hence, using transactional stress theory as an overarching theoretical model, we propose that sleep, which is "one of the major physiological means of restitution" (Åkerstedt et al. 2009, 206), relates to stress appraisals. We anchor this proposition in the framework of Mullins et al. (2014), which links sleep to work-related experiences via the availability of cognitive and affective resources. Integrating the phenomenon of this sleep-induced availability of resources (Mullins et al. 2014) into the transactional stress theory (Lazarus and Folkman 1984) suggests that sleep determines employees' resource availability and thereby relates to their stress appraisals (Barber et al. 2010, 2014).

We test this main premise uncovering the sleep-appraisal relationship from three different perspectives. First, we draw upon physiological insights from sleep research (Mullins et al. 2014) to argue that employees' daily sleep duration and sleep quality relate to whether they appraise their work as challenging, hindering, or threatening *in the morning*. Thereby, we add to research focusing on daily fluctuations and situational antecedents of stress appraisals (Casper and Wehrt 2022; Jamieson et al. 2022; Roswag et al. 2023). Shedding light on the role of daily sleep for morning stress appraisal levels is especially important because morning experiences can relate to well-being and experiences during the entire workday (Sonnentag et al. 2025).

Second, we go beyond employees' appraisals during one specific time of day (e.g., Casper and Wehrt 2022; Roswag et al. 2023) and take *a dynamic and temporal perspective*. Even though the "conceptualization and measurement of stress is replete with temporal issues" (McGrath and Beehr 1990, 93), the factor of time is commonly overlooked in the stress process (with few exceptions, e.g., Mühlenmeier et al. 2022; Rosen et al. 2020). Specifically, although the dynamic nature of stress appraisals is implied in theory (Lazarus and Folkman 1984), previous research has failed to address temporal dynamics and commonly assessed appraisals at single and/or arbitrary points in time. By investigating systematic changes in stress appraisals within the day (e.g., decreasing trajectories from morning to after work), we paint a more nuanced picture of how appraisals change in alignment with sleep-related parameters, which represents a more rigorous test of the transactional stress theory (Lazarus and Folkman 1984; Swider et al. 2024). At the same time, we refine the growing conversation focusing on systematic changes in employees' well-being within the day (Hülsheger 2016; Lee et al. 2023; Wiegelmann et al. 2023) by investigating whether stress-related processes yield similar changes. In addition to accounting for the temporality of stress appraisals, we also consider time in relation to sleep by including employees' chronotypes, meaning their preferred timing of sleep (Roenneberg et al. 2003), as a key sleep characteristic.

Third, beyond daily changes, we further highlight the relevance of *individual differences* in the sleep-appraisal relationship (LePine 2022), answering calls to systematically investigate whether intraindividual (i.e., within-person) and interindividual (i.e., between-person) associations between sleep and work differ (Crain et al. 2018). Stress appraisals also have a stable between-person component such that employees have a general tendency to appraise job demands in a certain way (LePine et al. 2016). Additionally, sleep also unfolds its relevance for resource availability and work-related experiences at the interindividual level (Crain et al. 2018). Importantly, although employees might flexibly counteract a single bad night's sleep (e.g., with breaks during the workday), prolonged low-sleep quality might be more difficult to endure (Mullins et al. 2014). Although we do not a priori hypothesize different relationships at the intraindividual and interindividual levels, examining both is necessary to provide a holistic understanding of how sleep matters for stress appraisals (Crain et al. 2018). All in all, we offer a comprehensive examination of the sleep-appraisal relationship from both intraindividual and interindividual perspectives, thereby advancing research on stress appraisals (see Figure 1).

1 | Integrating Sleep Into Stress Appraisal Processes

Following the transactional stress theory (Lazarus and Folkman 1984), a stress reaction results from the interaction between a person and their environment. Specifically, the properties of a person and their environment dynamically interact such that stress reactions can take different shapes for different individuals and situations. A central step of this stress process is an evaluation process, also called primary appraisals. During primary appraisals, individuals evaluate whether a

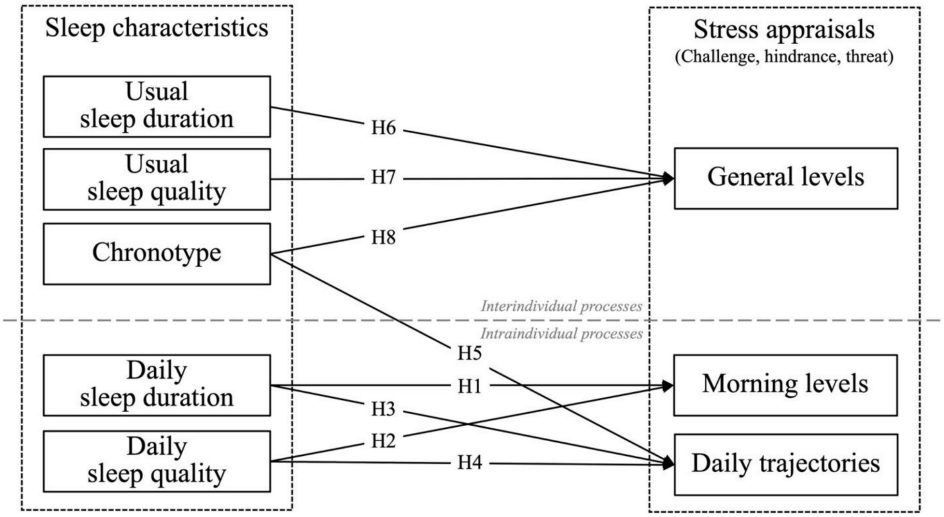

FIGURE 1 | Conceptual model.

situation is of relevance for their personal well-being. If so, they may perceive the situation as benign or stressful (Lazarus and Folkman 1984, 1987).

In case of the perception of a situation as stressful, individuals may appraise it in three different ways: as challenge, as hindrance, or as threat (Tuckey et al. 2015). In the work context, challenge appraisal means that employees evaluate their job demands to be stressful while offering the potential for personal growth, mastery, and success (Lazarus and Folkman 1984, 1987; LePine et al. 2016). Hindrance appraisal refers to evaluating job demands as stressful and as comprising obstacles that hinder employees' personal growth, mastery, and success (LePine et al. 2016; Tuckey et al. 2015). Finally, in case of threat appraisal, employees evaluate their job demands as bringing along potential for adverse consequences, personal harm, and loss (Lazarus and Folkman 1984, 1987; Tuckey et al. 2015). Although hindrance appraisal was not originally included in the transactional stress theory, researchers have further accounted for this third appraisal form following the introduction of the challenge-hindrance framework (Cavanaugh et al. 2000). Tuckey et al. (2015) emphasize that hindrances and threats represent qualitatively distinct stress appraisals. Although the former prevent a positive outcome from occurring (e.g., task completion), the latter are intrinsically aversive and directly relate to personal harm such as a loss of self-esteem (see also Searle and Tuckey 2017). Hence, we include challenge, hindrance, and threat appraisals. Note that we focus on employees' general appraisals, that is, how individuals appraise their overall job demands. Although this does not provide information on which specific demands (e.g., time pressure) drive stress appraisals, it offers insights into how (multiple) work demands are perceived during a specific period (see also e.g., Casper and Wehrt 2022; Roswag et al. 2023; Schilbach et al. 2020).

Organizational stress research has increasingly highlighted the relevance of investigating appraisals of job demands (Mazzola and Disselhorst 2019). Previous research has demonstrated that appraisal processes are crucial for the adaptability of the stress response, above and beyond job demands (Ma et al. 2021; Searle and Auton 2015). Thereby, challenge appraisals are broadly categorized as favorable, while hindrance and threat appraisals are categorized as unfavorable. Empirical studies consistently find that challenge appraisals positively relate to positive work outcomes such as work engagement (Roswag et al. 2023) and performance (LePine et al. 2016). In contrast, hindrance and threat appraisals tend to have the opposite relationships with these outcomes, with hindrance appraisal further positively relating to counterproductive work behaviors (Schilbach et al. 2020) and threat appraisal further positively relating to anxiety (Roswag et al. 2023; Tuckey et al. 2015). Hence, the way employees appraise their job demands plays a crucial role for their experiences and behavior at work.

Despite the far-reaching consequences of stress appraisals, knowledge of their antecedents that goes beyond specific demands (e.g., Prem et al. 2017; Schilbach et al. 2023; Webster et al. 2011) is limited. From a theoretical point of view, Lazarus and Folkman (1984) have suggested that the evaluation of the manageability of situations is linked to stress appraisals. Specifically, employees evaluate whether they have the necessary resources to encounter stressful situations during a secondary appraisal process. If employees perceive the situation to be likely manageable, they appraise the situation as more favorable (Lazarus and Folkman 1984, 1987). In support of this idea, first studies have demonstrated that resource-restoring experiences and activities favorably relate to appraisal processes (Casper and Wehrt 2022; Roswag et al. 2023).

Building on the proposition that stress appraisals depend on resource availability, we argue that sleep can be an antecedent of stress appraisals. Sleep is essential for human functioning and regulated by two interacting processes (Borbély 1982; Borbély et al. 2016). The first process is a homeostatic process and refers to a sleep debt that increases the longer humans are awake. The second process is a circadian process and refers to rhythmic variation (so-called circadian rhythms) in a wide range of physiological parameters (e.g., core body temperature; Hofstra and de Weerd 2008) during the day. As these two processes interact, they jointly determine the human

sleep–wake rhythm and hence human resource availability. The circadian process governs the period during which sleep will be initiated and the homeostatic process leads to sleep initiation in this period if the sleep debt reaches its upper boundary (Borbély 1982; Borbély et al. 2016).

To account for both homeostatic and circadian aspects of sleep, we draw on three core dimensions of sleep health: (1) the duration of, (2) the subjective quality of, and (3) the preferred timing of sleep. First, sleep duration refers to the number of hours that employees spend sleeping per night. Second, sleep quality refers to a subjective evaluation of their sleep. Third, sleep timing refers to the temporal placement of sleep within a day (Buysse 2014). Individual differences in preferred sleep timing and circadian processes are also referred to as chronotypes (Roenneberg et al. 2003). While earlier chronotypes experience their peaks in activation earlier during the day, later chronotypes have a delayed sleep–wake rhythm (Adan et al. 2012; Roenneberg et al. 2003). Sleep duration, sleep quality, and chronotype are important sleep characteristics used in organizational sleep research covering both homeostatic and circadian aspects of sleep (Borbély 1982; Litwiller et al. 2017; Mullins et al. 2014).

In delineating the relationship between sleep and work, we draw upon the framework on sleepiness at work from Mullins et al. (2014). This framework describes that sleep characteristics such as sleep duration, sleep quality, and circadian rhythms determine employees' levels of sleepiness (i.e., a need to sleep), which in turn matter for the workplace via "physiologically based cognitive and affective transmitters" (Mullins et al. 2014, 1100). Specifically, both homeostatic and circadian aspects of sleep determine the availability of cognitive (e.g., effective information processing) and affective (e.g., positive emotions) resources, which are needed for effective functioning at the workplace (Mullins et al. 2014). Thus, integrating employees' resource availability determined by homeostatic and circadian aspects of sleep regulation into the transactional stress theory (Lazarus and Folkman 1984; Mullins et al. 2014) suggests that sleep relates to the stress appraisal process by changing the perceived manageability of situations (Barber et al. 2010, 2014; Barber and Munz 2011).

To provide a comprehensive overview of the sleep-appraisal relationship, we differentiate between two different levels of analysis (Crain et al. 2018). On the one hand, employees may sleep worse than usual for one night and appraise their work as less challenging than usual on the following day or at specific time points within the following day (intraindividual variation; Casper and Wehrt 2022; Podsakoff et al. 2019). On the other hand, an employee who generally sleeps worse could report lower levels of challenge appraisals compared to others (interindividual variation; LePine et al. 2016; Podsakoff et al. 2019). Sleep is generally expected to relate to resource availability across different levels of analysis such that, for example, both one single night of sleeping better than usual as well as stable higher levels of sleep quality should positively relate to resource availability (Crain et al. 2018) and thus favorable appraisals. Accordingly, we expect sleep to show similar relational patterns to employees' stress appraisals both intraindividually and interindividually.

1.1 | Intraindividual Perspective: Predicting Dynamic Fluctuations in Stress Appraisals

Regarding dynamic fluctuations in stress appraisals, we suggest that the benefits of daily sleep duration and quality are most prominent in the morning and tend to wear off over the course of the day (i.e., fade-out effects; Hülsheger 2016; Wiegelmann et al. 2023). After a night of sleeping sufficiently long and well, employees recover transient cognitive and affective resources (Mullins et al. 2014) that are linked to the perceived manageability of stressful situations and thus relate to more favorable appraisal processes (Lazarus and Folkman 1984). Specifically, sleep duration and sleep quality are associated with higher levels of cognitive resources such as information processing, inhibitory control, or learning capacity (Chuah et al. 2010; Curcio et al. 2006; Leong and Chee 2023), increasing the likelihood of challenge appraisals but decreasing the likelihood of hindrance and threat appraisals. Similarly, longer and better daily sleep relate to lower reactivity to negative events and higher reactivity to positive events, along with more positive and less negative affect (Chuah et al. 2010; Kühnel et al. 2021; Scott and Judge 2006; Sin et al. 2020), making positively toned challenge appraisals more likely and negatively toned hindrance and threat appraisals less likely. Accordingly, longer daily sleep duration and better sleep quality should be associated with higher levels of challenge appraisal and lower levels of hindrance and threat appraisals in the morning.

Hypothesis 1. *Daily sleep duration positively relates to* (*a*) *challenge appraisal and negatively relates to* (*b*) *hindrance and* (*c*) *threat appraisals in the morning.*

Hypothesis 2. *Daily sleep quality positively relates to* (*a*) *challenge appraisal and negatively relates to* (*b*) *hindrance and* (*c*) *threat appraisals in the morning.*

However, over the course of the day, the availability of these transient cognitive and affective resources likely systematically changes (Mullins et al. 2014). Specifically, as days with higher sleep duration and sleep quality are characterized by higher levels of resource availability in the morning, employees are motivated to actively invest these resources into work in the form of effort and engagement (Hobfoll 1989; Rivkin et al. 2023; Zijlstra et al. 2014). This reflects an intentional process where employees optimally use their higher levels of cognitive and affective resources to initiate goal-directed behaviors at work (Zijlstra et al. 2014). As employees invest effort into their work, their cognitive and affective resources naturally decrease during the day (Meijman and Mulder 1998). As such, efficient recovery processes typically relate to higher morning levels, but steeper decreases in the availability of cognitive and affective resources during the day (Arnold and Sonnentag 2023; Lee et al. 2023; Wiegelmann et al. 2023). Transferring these results to stress appraisals suggests that the benefits of daily sleep duration and sleep quality fade-out over the course of the day. For example, employees' cognitive wakefulness might decrease more strongly on days with higher sleep duration and sleep quality (Arnold and Sonnentag 2023), continuously decreasing cognitive capabilities needed to appraise work as more challenging, less hindering, and less threatening throughout the day.

In contrast, on days with lower sleep duration and sleep quality, employees want to prevent further resource loss (Hobfoll 1989; Zijlstra et al. 2014). Limited resource availability might result in inertia of negative emotions (De Longis et al. 2022) as well as tendencies to avoid further effort and energy investment (Blaise et al. 2024). Accordingly, on days with lower sleep duration and sleep quality, employees fail to break out of the negative cycle and sustain low levels of cognitive and affective resources during the day. As such, ineffective recovery processes typically relate to low morning levels of cognitive and affective resources, which then stay consistently low during the day (Arnold and Sonnentag 2023; Lee et al. 2023; Wiegelmann et al. 2023). This will prompt rather stable but low levels of challenge appraisals and high levels of hindrance and threat appraisals during the day. Please note that all hypotheses referring to systematic changes during the day are tested based on moderation analyses (i.e., sleep moderating the relationship between the time of day and appraisals). Hence, we hypothesize the expected relationship between the time of day and the appraisals (i.e., daily trajectories) depending on higher versus lower levels of the moderators (i.e., the sleep characteristics):

Hypothesis 3. *Daily sleep duration moderates the relationship between time of day and (a) challenge, (b) hindrance, and (c) threat appraisals. On days with longer sleep duration, challenge appraisal decreases more strongly, and hindrance and threat appraisals increase more strongly across the day.*

Hypothesis 4. *Daily sleep quality moderates the relationship between time of day and (a) challenge, (b) hindrance, and (c) threat appraisals. On days with higher sleep quality, challenge appraisal decreases more strongly, and hindrance and threat appraisals increase more strongly across the day.*

Concerning employees' chronotypes, we suggest that the benefits of employees' circadian preferences align with the time of the day (i.e., synchrony effects: Kühnel et al. 2022). Specifically, humans experience peaks in cognitive and affective resources at their optimal times during the day (i.e., in the morning for earlier chronotypes and in the evening for later chronotypes; Adan et al. 2012; Mullins et al. 2014). For example, earlier chronotypes experience higher inhibitory control as well as memory and learning in the morning, and this relationship reverses over the course of the day in favor of later chronotypes (Adan et al. 2012; Schmidt et al. 2007). Similarly, earlier chronotypes report higher levels of self-efficacy and positive affect as well as less emotional reactivity to negative events earlier in the day (Kühnel et al. 2022; Tucker et al. 2012). Integrating these assumptions, we suggest synchrony effects such that earlier chronotypes show a decrease in challenge appraisal and an increase in hindrance and threat appraisal from the morning to later in the day as their resource levels decline. For later chronotypes, who experience their resource peaks later in the day, we expect the opposite patterns such that they experience an increase in challenge appraisal as well as a decrease in hindrance and threat appraisals as the day progresses and their resources increase.[1]

Hypothesis 5. *Chronotype moderates the relationship between time of day and (a) challenge, (b) hindrance, and (c) threat appraisals. For earlier chronotypes, challenge appraisal decreases and hindrance and threat appraisals increase across the day. For later chronotypes, these daily patterns are reversed.*

1.2 | Interindividual Perspective: Predicting Stable Differences in Stress Appraisals

In addition to the dynamic within-person fluctuations, stable between-person differences in sleep are expected to be associated with employees' stress appraisal tendencies. Similar to the daily fluctuations, employees who usually sleep longer and better restore more cognitive and affective resources that may allow them to appraise their work more favorably (Lazarus and Folkman 1984; Mullins et al. 2014). For one, the short-term benefits of multiple good nights of sleep might accumulate over longer periods, resulting in enduringly high levels of cognitive and affective resources (Durmer and Dinges 2005; Lee 2022). However, the stable sleep-appraisal relationship might not only result from an accumulation of transient states but also other processes might be at play regarding perceived efficacy to encounter stressful situations (Lazarus and Folkman 1984; Liu and Li 2018). Specifically, employees who generally sleep better and longer seem to have an optimistic growth-focused mindset enabling them to appraise stressful situations as challenges (Hamilton et al. 2007; Lau et al. 2015). Additionally, longer sleep duration and higher sleep quality are related to decreased long-term emotional reactivity to negative events and anxiety as well as increased perceptions of controllability (Alvaro et al. 2013; Morin et al. 2003; Zohar et al. 2005), facilitating appraisals of work to be less hindering and threatening because employees anticipate fewer negative consequences. Similarly, Barber et al. (2014) have demonstrated that poor sleep habits (i.e., low sleep hygiene) relate to a composite score of higher hassle/threat stress appraisals. Taken together, we suggest that the longer and the better employees sleep in general, the more favorable they appraise their work:

Hypothesis 6. *Individuals with longer usual sleep duration report higher levels of (a) challenge appraisal and lower levels of (b) hindrance and (c) threat appraisal in general.*

Hypothesis 7. *Individuals with higher usual sleep quality report higher levels of (a) challenge appraisal and lower levels of (b) hindrance and (c) threat appraisal in general.*

Regarding employees' chronotypes, we suggest that earlier chronotypes generally report more favorable appraisals due to stable higher levels of cognitive and affective resources (Mullins et al. 2014). Work-life is oriented toward the preferred timing of earlier chronotypes, thereby disadvantaging later chronotypes. Consequently, later chronotypes often experience circadian misalignment between their social rhythm (i.e., rhythm required by their work schedule) and their biological preferences (i.e., rhythm following their chronotype), which goes along with considerable resource losses (Roenneberg, et al. 2019; Wittmann et al. 2006). Due to this advantage, earlier chronotypes seem to approach their work with a more favorable affective attitude (Antúnez et al. 2015; Au and Reece 2017), relating to higher levels of challenge appraisal. Additionally, earlier chronotypes report higher cognitive resources in terms of competency and effectiveness in handling stressful situations (You et al. 2020) as well as higher inhibitory control (Kang et al. 2015), possibly

being linked to lower levels of hindrance and threat appraisals. Thus, given these differences in general levels of resource availability between chronotypes, we assume that earlier chronotypes appraise their work more favorably:

Hypothesis 8. *Earlier chronotypes report higher levels of* (*a*) *challenge appraisal and* (*b*) *hindrance and* (*c*) *threat appraisal in general*.

2 | Methods

2.1 | Procedure and Sample

We collected data within a 2-week experience sampling study in Germany in October and November 2022. Data were collected as part of a larger research project focusing on the interplay of sleep and work (Völker and Wiegelmann 2025). All data and analysis codes are available at: https://osf.io/9xqwm/. We recruited participants with the help of four undergraduate psychology students and online via social media platforms (e.g., Facebook, Twitter, and LinkedIn). Regarding inclusion criteria, participants had to be employed for at least 30 h per week (Monday to Friday), excluding participants who worked in (night) shifts and self-employed individuals. As an incentive for participation, employees could take part in a lottery of vouchers for a large online retailer (100€ in total). Participants first received a general survey and then completed three surveys per day throughout two workweeks (in the morning, during the lunch break, and after work). The invitation to all surveys was sent at individualized time points which participants chose during the registration process (i.e., individualized according to their individual wake-up time, lunch break, and end of work).

In total, 200 participants registered for the study, of which 169 participated in the general survey and provided 1138 morning, 864 lunch break, and 856 after-work surveys. At the person level, we excluded 12 participants for whom we could not compute the chronotype measure[2] and seven employees who never completed the morning surveys. At the day level, we excluded surveys with indications for careless responding (e.g., no response variability; Goldammer et al. 2020), days during which employees did not work, and surveys that were completed at different times than intended (e.g., the morning survey was completed in the afternoon). Our final sample thus comprised 144 employees (Level 3), 937 days (Level 2), and 2428 surveys (Level 1). The participants were, on average, $M = 41.1$ (SD = 13.3) years old, and 68.1% were female. The sample was highly educated (51.4% held a university degree), and 31.2% lived with children in the same household. They mainly worked full time ($M = 37.3$, SD = 4.9 h per week) and in various occupations across diverse industries (e.g., as engineer, as teacher, or as consultant). The majority of participants (60.4%) worked in jobs that allowed them to work from home, such that the sample reported to work from home, on average, on $M = 1.3$ (SD = 1.72) days per week.

2.2 | Measures

We assessed employees' daily sleep duration and sleep quality in all morning surveys, employees' chronotype in the general survey, as well as current challenge, hindrance, and threat appraisals in all morning, lunch-break, and after-work surveys. All items were presented in German and translated using the back-translation method if necessary (Brislin 1970).

2.2.1 | Sleep Duration

To assess employees' daily sleep duration, they answered several questions on their daily sleep times (Monk et al. 1994; Roenneberg et al. 2003). First, to determine employees' sleep onset, they reported when they went to bed, when they were ready to sleep, and how long it took them to fall asleep. We calculated employees' sleep onset by adding the minutes needed to fall asleep to employees' time when they were ready to sleep. Second, employees indicated their wake-up time. We then calculated employees' daily sleep duration as the time span between sleep onset and waking up in decimal hours. Because we were also interested in stable between-person differences in sleep duration, we additionally calculated employees' mean sleep duration during the 10-day study period.

2.2.2 | Sleep Quality

To assess employees' daily sleep quality, we used a single-item measure ("How do you evaluate tonight's sleep?", Monk et al. 1994) which is prevalently used in organizational sleep research (e.g., Hülsheger 2016; Liu et al. 2021). Participants rated their sleep quality on a 5-point scale ranging from 1, *Very bad* to 5, *Very good*. Because we were also interested in stable between-person differences in sleep quality, we additionally calculated employees' mean sleep quality during the 10-day study period.

2.2.3 | Chronotype

To assess employees' chronotypes, we used the Munich Chronotype Questionnaire (Roenneberg et al. 2003) which relies on self-reported sleep timing on nonworkdays. Similar to the procedure to assess daily sleep duration, we asked participants to indicate when they usually go to bed, when they are ready to sleep, how long it takes them to fall asleep, and when they wake up on nonworkdays. Based on these times, we calculated employees' usual midpoint of sleep on nonworkdays (i.e., midpoint between sleep onset and waking up), which serves as an indicator of chronotype. Additionally, this index is then corrected for oversleeping (i.e., catch-up sleep) on nonworkdays (Roenneberg et al. 2003). Higher values refer to later midpoints of sleep and, accordingly, later chronotypes.

2.2.4 | Challenge, Hindrance, and Threat Appraisals

To assess employees' current challenge appraisals (e.g., "Currently, I feel like working to fulfill the demands of my job helps to improve my personal growth.") and hindrance appraisals (e.g., "Currently, I feel like working to fulfill the demands of my job thwarts my personal growth."), we used three items each from LePine et al. (2016). To assess employees' current threat appraisals (e.g., "Currently, I am worried that my job might reveal my weaknesses."), we used three

items from Drach-Zahavy and Erez (2002). All nine items were slightly adapted to fit the assessment as current states and were answered on a 5-point scale ranging from 1, *Not at all true* to 5, *Absolutely true*.

2.3 | Data-Analytic Procedure

Our data yielded a three-level structure because surveys were nested in days and persons. We applied three-level growth curve models to test our hypotheses using the lme4-package in R (v. 1.1-34; Bates et al. 2015). Before analyzing our data, we computed a time variable that we used as a predictor in the growth curve models. Because invitations to all surveys were sent at individually scheduled times, we coded time as the exact clock time when the respective surveys were filled in. Because the morning surveys were answered, on average, at $M = 7{:}27$ am (SD = 1.36 h), we used this time as the null point for the time variable. The interpretation of the intercept thus refers to stress appraisal values at participants' average morning. We followed a stepwise approach (Bliese and Ployhart 2002) and ran separate random-intercept-random-slope models with increasing complexity. We started by predicting the outcomes (i.e., challenge, hindrance, and threat appraisals, respectively) by the linear[3] time variable to model systematic changes, also referred to as trajectories, of stress appraisals during the day (Model 1). Afterwards, we added the direct relationships between the sleep characteristics and the intercepts, in our case morning levels, of stress appraisals (Model 2). In this model, we entered daily sleep duration and sleep quality to test dynamic within-person fluctuations in morning appraisal levels as well as mean sleep duration, mean sleep quality, and chronotype to investigate stable between-person differences in appraisal levels. Lastly, we added the cross-level interaction terms of the daily sleep characteristics and chronotype predicting the linear trajectories of the stress appraisals (Model 3) to investigate systematic changes in appraisals within the day. In cases of significant interaction terms, we tested simple slopes using the reghelper package (v. 1.1.2; Beiner 2023) and plotted the interaction using the ggplot2 (v. 3.4.3; Wickham 2016) and ggeffects (v. 1.3.1; Lüdecke 2018) packages in R. In all models, we used person-mean-centered day-level predictors (i.e., daily sleep duration and sleep quality) and grand-mean-centered person-level predictors (i.e., mean sleep duration, mean sleep quality, and chronotype).

Before testing our hypotheses, we ran a series of preliminary analyses. Descriptive statistics, correlations, and Cronbach's alphas of all variables are presented in Table 1. In addition, we ran null models to evaluate how much variance in the stress appraisals is attributable to the three levels. Challenge appraisal yielded 13.2% survey-level variance (i.e., Level 1), 4.1% day-level variance (i.e., Level 2), and 82.7% person-level variance (i.e., Level 3). Hindrance appraisal yielded 10.2% survey-level variance, 5.8% day-level variance, and 84.0% person-level variance. Threat appraisal yielded 12.2% survey-level variance, 3.8% day-level variance, and 84.0% person-level variance. A three-level confirmatory factor analysis exhibited a very good fit and demonstrated that challenge, hindrance, and threat appraisals can be distinguished, χ^2 (108) = 25828.478, $p < 0.001$, RMSEA = 0.023, CFI = 0.962, TLI = 0.944.

3 | Results

The results (see Table 2 for an overview) of the three-level growth curve models with challenge, hindrance, and threat appraisals as outcomes are presented in Tables 3–5, respectively.

3.1 | Intraindividual Perspective: Predicting Dynamic Fluctuations in Stress Appraisals

First, we predicted morning levels in the appraisals (Tables 3–5, Model 2). In Hypothesis 1, we suggested that daily sleep duration positively relates to challenge appraisal (H1a) and negatively relates to hindrance (H1b) and threat (H1c) appraisals in the morning. We did not find evidence that daily sleep duration related to morning challenge (Est. = −0.013, SE = 0.013, $p = 0.298$), hindrance (Est. = 0.004, SE = 0.014, $p = 0.756$), or threat (Est. = −0.007, SE = 0.010, $p = 0.515$) appraisals, providing no support for H1a–c. In Hypothesis 2, we suggested that daily sleep quality positively relates to challenge appraisal (H2a) and negatively relates to hindrance (H2b) and threat (H2c) appraisals in the morning. We found no evidence that daily sleep quality related to morning challenge appraisal (Est. = 0.018, SE = 0.016, $p = 0.248$), providing no support for H2a. However, higher daily sleep quality related to lower morning hindrance (Est. = −0.039, SE = 0.017, $p = 0.024$) and threat (Est. = −0.043, SE = 0.013, $p = 0.001$) appraisals, supporting H2b and H2c. To sum up, we found no support for Hypothesis 1 (no evidence that daily sleep duration was related to the appraisals) and partial support for Hypothesis 2 (daily sleep quality negatively related to morning hindrance and threat appraisals).

Second, we predicted daily trajectories in appraisals during the day by testing interactions between the time of day and the sleep characteristics (Tables 3–5, Model 3). In Hypothesis 3, we proposed that daily sleep duration moderates the relationship between time of day and challenge (H3a), hindrance (H3b), and threat (H3c) appraisals. H3a–c were not supported because we found no evidence that the interaction was significant regarding challenge (Est. = 0.001, SE = 0.002, $p = 0.748$), hindrance (Est. = −0.001, SE = 0.002, $p = 0.585$), and threat (Est. = −0.0003, SE = 0.002, $p = 0.886$) appraisals. In Hypothesis 4, we proposed that daily sleep quality moderates the relationship between time of day and challenge (H4a), hindrance (H4b), and threat (H4c) appraisals. H4a and H4b were not supported because we found no evidence that the interaction was significant in predicting challenge (Est. = −0.003, SE = 0.003, $p = 0.197$) and hindrance (Est. = 0.004, SE = 0.003, $p = 0.177$) appraisals. However, regarding H4c, daily sleep quality interacted with the time of day in predicting systematic changes in threat appraisal during the day (Est. = 0.007, SE = 0.002, $p = 0.003$). Specifically, threat appraisal significantly decreased on days with lower daily sleep quality (−1SD; Est. = −0.007, SE = 0.002, $p = 0.005$) but not on days with higher sleep quality (+1SD; Est = 0.003, SE = 0.002, $p = 0.263$). Looking at the interaction graph in Figure 2A suggests that not the *benefits* of *high* daily sleep quality but rather the *drawbacks* of *low* daily sleep quality faded out over the course of the day. Accordingly, the specific change pattern is only partly in line with Hypothesis 4c. In Hypothesis 5, we proposed that chronotype moderates the relationship between

TABLE 1 | Descriptive statistics, Cronbach's alphas, and intercorrelations of all variables.

		SD		α												
	M	Day	Person	Day	Person	1	2	3	4	5	6	7	8	9	10	11
1. Challenge appraisal (MO)	3.1	0.4	0.9	0.51	0.94		0.27***	0.19***	−0.02	−0.10**	−0.06	−0.08[a]	−0.06	−0.06	−0.04	0.06
2. Challenge appraisal (LB)	3.2	0.4	0.9	0.64	0.94	0.93***		0.29***	−0.05	−0.22***	−0.09*	−0.07	−0.16***	−0.15***	0.05	0.05
3. Challenge appraisal (AW)	3.1	0.4	1.0	0.59	0.95	0.95***	0.94***		−0.07	−0.11**	−0.10**	−0.11**	−0.10**	−0.06	−0.06	−0.03
4. Hindrance appraisal (MO)	2.0	0.4	1.0	0.66	0.95	−0.52***	−0.46***	−0.49***		0.42***	0.25***	0.33***	0.11**	0.08*	−0.01	−0.10**
5. Hindrance appraisal (LB)	1.9	0.4	0.9	0.60	0.96	−0.46***	−0.44***	−0.42***	0.95***		0.45***	0.13***	0.32***	0.19***	0.01	−0.04
6. Hindrance appraisal (AW)	1.9	0.4	1.0	0.69	0.95	−0.48***	−0.43***	−0.46***	0.97***	0.97***		0.09*	0.22***	0.32***	−0.01	−0.03
7. Threat appraisal (MO)	1.9	0.3	0.8	0.40	0.81	−0.41***	−0.33***	−0.37***	0.71***	0.69***	0.73***		0.21***	0.22***	−0.04	−0.17***
8. Threat appraisal (LB)	1.8	0.3	0.8	0.43	0.79	−0.36***	−0.33***	−0.32***	0.73***	0.74***	0.76***	0.93***		0.29***	−0.08*	−0.08*
9. Threat appraisal (AW)	1.9	0.3	0.9	0.42	0.83	−0.39***	−0.33***	−0.36***	0.73***	0.72***	0.75***	0.94***	0.96***		0.01	−0.01
10. Sleep duration[a]	6.9	0.8	1.1	—	—	0.10	0.07	0.10	−0.23**	−0.12	−0.18*	−0.11	−0.09	−0.07		0.28***
11. Sleep quality	3.2	0.7	0.7	—	—	0.27***	0.16	0.29***	−0.41***	−0.36***	−0.43***	−0.38***	−0.36***	−0.43***	0.29***	
12. Chronotype	3.7	—	1.0	—	—	−0.04	0.05	−0.03	0.05	−0.01	0.01	0.03	−0.03	−0.05	−0.08	−0.06

Note: Correlations below the diagonal are person-level correlations ($N = 144$). Correlations above the diagonal are day-level correlations ($N = 937$).
Abbreviations: AW, after-work survey; LB, lunch-break survey; MO, morning survey.
[a]in decimal hours.
**$p < 0.01$.
***$p < 0.001$.
*$p < 0.05$.

the time of day and challenge (H5a), hindrance (H5b), and threat (H5c) appraisals. We did not find evidence of a moderation regarding challenge (Est. = 0.001, SE = 0.002, p = 0.512) and hindrance (Est. = −0.001, SE = 0.002, p = 0.664) appraisals, contradicting H5a and H5b. Regarding H5c, chronotype moderated the relationship between the time of day and threat appraisal (Est. = −0.004, SE = 0.002, p = 0.035). Specifically, threat appraisal did not systematically change within the day for earlier chronotypes (−1SD; Est. = 0.002, SE = 0.003, p = 0.381) but significantly decreased for later chronotypes (+1SD; Est. = −0.006, SE = 0.003, p = 0.028). Accordingly, the specific change pattern (see Figure 2B) is partly in line with Hypothesis 5c. To sum up, we found limited support for Hypotheses 3 to 5 because only daily sleep quality and chronotype (no evidence for sleep duration) changed the trajectory of threat appraisal (no evidence for challenge or hindrance appraisals) during the day.[4]

TABLE 2 | Result overview.

	Morning appraisal levels			Daily appraisal trajectories[a]			General appraisal levels		
	Challenge	Hindrance	Threat	Challenge	Hindrance	Threat	Challenge	Hindrance	Threat
Sleep duration	×	×	×	×	×	×	×	×	×
Sleep quality	×	✓	✓	×	×	✓	✓	✓	✓
Chronotype[b]				×	×	✓	×	×	×

Note: × = Not significant (p > 0.05). ✓ = Significant (p < 0.05).
[a]The relationships reported here refer to interactions between the three sleep characteristics and time-of-day.
[b]As chronotype is a between-person predictor, we did not hypothesize its link to within-person variations in morning appraisals.

3.2 | Interindividual Perspective: Predicting Stable Differences in Stress Appraisals

Next, we turn to the results focusing on stable between-person differences (Tables 3–5, Model 2). We first examined usual sleep duration (Hypothesis 6), expecting that individuals with longer usual sleep duration would report higher levels of challenge appraisal (H6a) and lower levels of hindrance (H6b) and threat (H6c) appraisals. However, these assumptions were not supported because we did not find evidence that usual sleep duration related to challenge appraisal (Est. = 0.026, SE = 0.071, p = 0.717), hindrance appraisal (Est. = −0.087, SE = 0.073, p = 0.237), or threat appraisal (Est. = −0.004, SE = 0.061, p = 0.946). Next, we examined usual sleep quality (Hypothesis 7), expecting that individuals with higher usual sleep quality report higher levels of challenge appraisal (H7a) and lower levels of hindrance (H7b) and threat (H7c) appraisals. Usual sleep quality related to higher challenge appraisal (Est. = 0.367, SE = 0.112, p = 0.001) as well as lower hindrance appraisal (Est. = −0.569, SE = 0.116, p < 0.001) and lower threat appraisal (Est. = −0.473, SE = 0.096, p < 0.001), supporting Hypothesis 7a–c. Finally, we examined chronotype (Hypothesis 8), expecting that earlier chronotypes would report higher challenge appraisal (H8a) and lower hindrance (H8b) and threat (H8c) appraisals. These assumptions were not supported because we did not find evidence that chronotype related to challenge appraisal (Est. = −0.002, SE = 0.076, p = 0.975), hindrance appraisal (Est. = 0.011, SE = 0.078, p = 0.888), or threat appraisal (Est. = −0.005, SE = 0.065, p = 0.940). To sum up, only usual sleep quality consistently related to general appraisal levels (supporting Hypothesis 7), whereas we did not find evidence that usual sleep duration and chronotype were related to general levels of challenge, hindrance, and threat appraisals (not supporting Hypotheses 6 and 8).

3.3 | Exploratory Analyses

To further investigate the role of sleep in employees' stress appraisals, we conducted exploratory analyses.[5] Specifically, because it is not only plausible that sleep relates to the way employees appraise their work but also that employees' appraisals might relate to their sleep duration and sleep quality, we

TABLE 3 | Three-level growth curve models predicting challenge appraisal.

	Model 1			Model 2			Model 3		
Predictors	**Est.**	**SE**	***p***	**Est.**	**SE**	***p***	**Est.**	**SE**	***p***
Fixed effects									
(Intercept)	3.155	0.074	< 0.001	3.144	0.073	< 0.001	3.144	0.073	< 0.001
Time	−0.001	0.002	0.593	−0.001	0.002	0.679	−0.001	0.002	0.743
Day-level sleep duration				−0.013	0.013	0.298	−0.017	0.016	0.305
Day-level sleep quality				0.018	0.016	0.248	0.035	0.020	0.086
Person-level sleep duration				0.026	0.071	0.717	0.026	0.071	0.718
Person-level sleep quality				0.367	0.112	0.001	0.367	0.112	0.001
Person-level chronotype				−0.002	0.076	0.975	0.001	0.076	0.993
Time × day-level sleep duration							0.001	0.002	0.748
Time × day-level sleep quality							−0.003	0.003	0.197
Time × person-level chronotype							0.001	0.002	0.512
Random effects									
Day-level									
Intercept variance		0.044			0.044			0.045	
Slope variance		0.0002			0.0002			0.0002	
Intercept–slope correlation		−0.26			−0.34			−0.35	
Person-level									
Intercept variance		0.763			0.720			0.720	
Slope variance		0.0001			0.0001			0.0001	
Intercept–slope correlation		0.42			0.46			0.46	

Note: Model 1: trajectory of challenge appraisal; 144 employees, 937 days, and 2428 surveys. Model 2: sleep characteristics predicting morning challenge appraisal; 144 employees, 873 days, and 2327 surveys. Model 3: sleep characteristics moderating challenge appraisal trajectory; 144 employees, 873 days, and 2327 surveys.

addressed this question of reciprocity. We tested three versions of reversed relationships: (1) using the appraisal intercepts and trajectories extracted from the original analyses as predictors of next-night sleep duration and sleep quality, (2) using the mean appraisal levels during the day as predictors of next-night sleep duration and sleep quality, and (3) using the after-work appraisal levels as predictors of next-night sleep duration and sleep quality. In short, in these reversed models (see Tables S1 and S2) we found no evidence that the appraisals predicted next-night sleep duration. Regarding sleep quality, only the trajectory and after-work levels of challenge appraisal positively related to next-night's sleep quality. Accordingly, daily increases as well as high after-work levels of challenge appraisals were associated with better sleep the following night. Interestingly, this result pattern is contrary to the main analyses, while sleep quality related to both hindrance and threat appraisals (original model), only challenge appraisal related to sleep quality (reversed model).

3.4 | Additional Sample for Robustness Checks of Between-Person Relationships

The findings from the main study provided initial insights into the relevance of usual sleep quality for higher between-person levels of challenge appraisal as well as lower levels of hindrance and threat appraisals. However, these findings were only based on aggregated daily-diary data. With an additional sample, we aimed at testing the replicability of these between-person relationships when introducing a meaningful time lag, controlling for change over time as well as reverse relationships. To do so, we collected data using two surveys separated by 2 weeks from 278 participants via the online research platform Prolific (see Supporting Information). Overall, the results in this additional sample exactly replicated the result pattern of the between-person relationships from the main study (see Table S4). Specifically, accounting for autoregressive and reversed paths, higher sleep quality at T1 related to changes in all three appraisals from T1 to T2. The findings again supported the proposed direction of relationships because sleep related to changes in stress appraisals, but we found no evidence that stress appraisals related to changes in sleep duration or sleep quality from T1 to T2. Further mirroring the findings from the main study, we found no evidence that sleep duration and chronotype related to general levels in the appraisals (see Table S4).

With this sample, we ran two additional robustness checks. First, because we relied on a single-item sleep quality measure in the main study, we tested the replicability of findings with a more comprehensive sleep quality indicator. As sleep quality can also be defined as interruptions to sleep (e.g., Barnes et al. 2015), we

TABLE 4 | Three-level growth curve models predicting hindrance appraisal.

	Model 1			Model 2			Model 3		
Predictors	**Est.**	**SE**	***p***	**Est.**	**SE**	***p***	**Est.**	**SE**	***p***
Fixed effects									
(Intercept)	1.977	0.081	< 0.001	1.994	0.075	< 0.001	1.994	0.075	< 0.001
Time	−0.003	0.002	0.169	−0.002	0.002	0.248	−0.002	0.002	0.231
Day-level sleep duration				0.004	0.014	0.756	0.011	0.018	0.548
Day-level sleep quality				−0.039	0.017	0.024	−0.058	0.022	0.009
Person-level sleep duration				−0.087	0.073	0.237	−0.087	0.074	0.238
Person-level sleep quality				−0.569	0.116	< 0.001	−0.568	0.116	< 0.001
Person-level chronotype				0.011	0.078	0.888	0.012	0.078	0.878
Time × day-level sleep duration							−0.001	0.002	0.585
Time × day-level sleep quality							0.004	0.003	0.177
Time × person-level chronotype							−0.001	0.002	0.664
Random effects									
Day-level									
Intercept variance		0.109			0.106			0.106	
Slope variance		0.001			0.001			0.001	
Intercept–slope correlation		−0.58			−0.59			−0.59	
Person-level									
Intercept variance		0.902			0.762			0.763	
Slope variance		0.00001			0.00001			0.00001	
Intercept–slope correlation		0.16			0.84			0.72	

Note: Model 1: trajectory of hindrance appraisal; 144 employees, 937 days, and 2428 surveys. Model 2: sleep characteristics predicting morning hindrance appraisal; 144 employees, 873 days, and 2327 surveys. Model 3: sleep characteristics moderating hindrance appraisal trajectory; 144 employees, 873 days, and 2327 surveys.

used an insomnia symptoms indicator encompassing difficulty falling and staying asleep, waking up during the night, as well as waking up feeling tired (corresponding to lower sleep quality; Jenkins et al. 1988). The insomnia indicator and the single-item sleep quality measure were highly correlated ($r = -0.73$). Importantly, results using this insomnia indicator exactly mirrored the findings using the one-item sleep quality index (see Table S5). Second, due to the observed reliability issues with the stress appraisals scales used in the main study, we cross-validated our findings using a second version of the appraisals scales (see Supporting Information for details), which have been used in previous research (e.g., Tuckey et al. 2015). Importantly, although the reliability of the second version of the appraisals scales was high (α ranged between 0.89 and 0.92), results using the second version of the appraisals scales as outcomes (see Table S6) replicated the findings using the appraisals scales of the main study as outcomes.

4 | Discussion

Drawing on insights from sleep research (Mullins et al. 2014) and integrating these into the transactional stress theory (Lazarus and Folkman 1984), we investigated the relationship between sleep and employees' stress appraisals. We studied this relationship from an intraindividual (i.e., sleep predicting day-specific morning appraisals) and dynamic (i.e., sleep predicting trajectories of appraisals throughout the workday) as well as an interindividual perspective (i.e., interpersonal differences in appraisals). Results highlighted that sleep quality related to more favorable appraisals—both intraindividually (i.e., lower hindrance and threat appraisals in the morning) and interindividually (i.e., generally higher challenge and lower hindrance and threat appraisals). In addition, dynamic within-day changes in threat appraisal (i.e., trajectories) depended on daily sleep quality and employees' chronotype. Accordingly, sleep, and in particular sleep quality, is associated with stress appraisals across levels of analysis.

4.1 | Theoretical Implications

This research project offers several important implications for organizational behavior research by providing insights into the sleep-appraisal relationship from three different perspectives. First, starting with the intraindividual perspective, we demonstrate that employees' stress appraisals potentially have day-specific antecedents that extend beyond certain job demands.

TABLE 5 | Three-level growth curve models predicting threat appraisal.

	Model 1			Model 2			Model 3		
Predictors	**Est.**	**SE**	***p***	**Est.**	**SE**	***p***	**Est.**	**SE**	***p***
Fixed effects									
(Intercept)	1.867	0.067	< 0.001	1.874	0.062	< 0.001	1.877	0.062	< 0.001
Time	−0.001	0.002	0.588	−0.002	0.002	0.391	−0.002	0.002	0.266
Day-level sleep duration				−0.007	0.010	0.515	−0.005	0.013	0.711
Day-level sleep quality				−0.043	0.013	0.001	−0.075	0.017	< 0.001
Person-level sleep duration				−0.004	0.061	0.946	−0.004	0.061	0.953
Person-level sleep quality				−0.473	0.096	< 0.001	−0.472	0.096	< 0.001
Person-level chronotype				−0.005	0.065	0.940	0.006	0.065	0.930
Time × day-level sleep duration							−0.0003	0.002	0.886
Time × day-level sleep quality							0.007	0.002	0.003
Time × person-level chronotype							−0.004	0.002	0.035
Random effects									
Day-level									
Intercept variance		0.034			0.030			0.030	
Slope variance		0.0004			0.0003			0.0003	
Intercept–slope correlation		−0.32			−0.35			−0.33	
Person-level									
Intercept variance		0.616			0.528			0.527	
Slope variance		0.0001			0.0001			0.0001	
Intercept–slope correlation		0.09			0.08			0.09	

Note: Model 1: trajectory of threat appraisal; 144 employees, 937 days, and 2428 surveys. Model 2: sleep characteristics predicting morning threat appraisal; 144 employees, 873 days, and 2327 surveys. Model 3: sleep characteristics moderating threat appraisal trajectory; 144 employees, 873 days, and 2327 surveys.

Specifically, the quality of the previous night's sleep related to whether employees appraised their work demands as hindering or threatening the following morning. This aligns with our theorizing suggesting that sleep quality is linked to the perceived manageability of demands, likely by shaping the availability of cognitive and affective resources, thus relating to more favorable stress appraisals (Lazarus and Folkman 1984, 1987). Moreover, it highlights that sleep quality and resource restoration processes can more generally (see also Casper and Wehrt 2022) matter for how employees start their workday, with such starting points being essential for organizational behaviors (e.g., interaction avoidance), employee well-being (e.g., positive affect), work engagement, and task performance throughout the day (Rothbard and Wilk 2011; Sonnentag et al. 2020; Woolum et al. 2017). Given these notable associations with employees' optimal functioning and well-being at work, identifying day-specific antecedents that relate to morning appraisals is essential, both for individual employees and organizations (Casper and Wehrt 2022). Going one step further, the result pattern provides nuanced insights into the role of sleep quality in relating to employees' morning appraisals. Specifically, although daily sleep quality was related to morning hindrance and threat appraisals, we found no evidence that daily sleep quality was associated with morning challenge appraisal. This fits theoretical perspectives that assign sleep a maintenance rather than a growth function (Barnes et al. 2023). Thus, high-quality sleep may matter to prevent negative states and maintain daily human functioning (i.e., relationships with lower hindrance and threat appraisals) but not so much for daily processes that precede personal growth (i.e., no evidence for relationships with challenge appraisal).

Second, moving beyond appraisals at one specific point of the day, we take a dynamic perspective by analyzing the link between sleep and trajectories of systematic changes of appraisals throughout the workday. Specifically, regarding threat appraisal, we found systematic changes within a day that were dependent upon employees' daily sleep quality and chronotype. Our results underscore that the benefits and drawbacks of sleep quality can fade-out during the day. Similar to result patterns of previous research (Arnold and Sonnentag 2023; Hülsheger 2016; Wiegelmann et al. 2023), the relevance of high-sleep quality for threat appraisal was most pronounced in the morning while the trajectories faded out as the day progressed. However, contrary to our assumptions, not the *benefits* of *high* sleep quality but rather the *drawbacks* of *low* sleep quality, faded out during the day, with low- and high-sleep quality trajectories of threat appraisals overlapping towards the end of the workday (see Figure 2a). Thus, high-quality

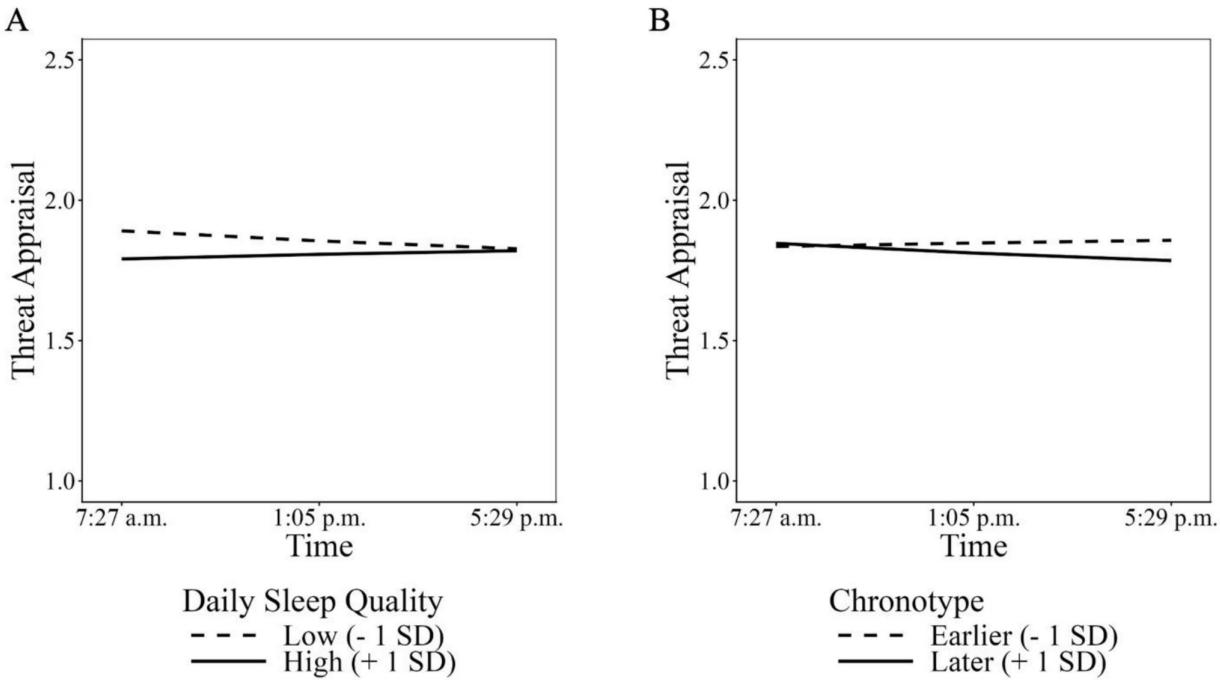

FIGURE 2 | Cross-level interaction of daily sleep quality (Panel A) and person-level chronotype (Panel B) predicting the trajectory of threat appraisal during the day. *Note.* The *y*-axis was rescaled for better visibility of the trajectories. Threat appraisal was assessed using a 5-point Likert scale ranging from 1 to 5. The tick marks on the *x*-axis correspond to the sample's average start times of the three (morning, lunch break, and end of work) daily surveys.

sleep appears to relate to lower levels of threat appraisal throughout the day, again pointing towards a maintenance function of sleep (Barnes et al. 2023). Our results further reveal that threat appraisal can depend on synchrony with employees' chronotypes. Interestingly, while threat appraisal did not systematically change during the day for earlier chronotypes, later chronotypes experienced a decrease in threat appraisal. These findings add to a growing body of research suggesting that synchrony effects between chronotype and time of the day matter for peaks in well-being and performance during the day (Guarana, et al. 2021; Kühnel et al. 2022; Wiegelmann et al. 2023). Integrating both findings regarding daily trajectories, we underscore that stress appraisals should not be studied as static snapshots at single points in time but instead as dynamic and temporal processes. This provides a more direct test of the fluctuating nature of stress reactions implied in theory (Lazarus and Folkman 1984; McGrath and Beehr 1990).

Third, taking an interindividual perspective, our results show that usual sleep quality relates to stable between-person differences in challenge, hindrance, and threat appraisals. Mirroring our theoretical reasoning, this suggests that high usual sleep quality supplies employees with a higher resource pool that enables them to appraise their work more favorably (Lazarus and Folkman 1984, 1987). Interestingly, while we found no evidence for within-person associations between sleep quality and challenge appraisal (see above), usual sleep quality was related to enduringly higher between-person levels of challenge appraisal. Again, taking up the human sustainability perspective (Barnes et al. 2023), these findings could indicate that interindividual differences in sleep might indeed serve a growth function. Specifically, the enduringly high resource pool provided by consistently sleeping well may enable employees to focus on their personal development and expansion (i.e., associations with challenge appraisal), while daily benefits of sleep seem to rather contribute to maintenance functions (i.e., associations with hindrance and threat appraisals). Thereby, we provide further insights that the intraindividual and interindividual associations between sleep and work can differ (Crain et al. 2018). Accordingly, for the stress response process, it is not only necessary to consider employees' day-to-day variations in sleep (i.e., within-person fluctuations) but also general levels of sleep (i.e., between-person differences). Put differently, this result pattern also underlines that stress appraisal processes have both personal and situational antecedents that need to be considered in future research (LePine 2022).

Taken together, by integrating insights from sleep research (Mullins et al. 2014) into the transactional stress theory (Lazarus and Folkman 1984), we draw attention to sleep as a physiologically driven antecedent relating to the stress appraisal process. Across all perspectives and levels of analysis, we show that sleep, in particular sleep quality, relates to more favorable appraisals. These findings answer calls in the literature (LePine 2022), underscoring the relevance of resource availability and the need to integrate physiologically driven processes into transactional stress theory to gain more holistic insights into the processes that link to stress response patterns. We further advance organizational stress and sleep research by highlighting that sleep not only acts as a buffer to prevent demand-induced strain (e.g., Diestel et al. 2015) but is already associated with the way that demands are appraised. This also adds to the ongoing debate about reciprocal associations between job demands and strain. Specifically, recent meta-analytic results outline that the effect of burnout (i.e., a state of low resource availability) on subsequent job demands (strain effect) is considerably higher than

the effect of job demands on subsequent burnout (stressor effect; Guthier et al. 2020). Our findings suggest that unfavorable stress appraisal processes resulting from low resource availability (i.e., impaired sleep) might drive these patterns (cf. Guthier et al. 2020).

Additionally, aligning with the growing emphasis on temporality in organizational behavior research (Swider et al. 2024), our findings underscore the need to explicitly integrate time into transactional stress theorizing. We modeled primary appraisals as unfolding trajectories across the day, but temporal considerations may extend beyond appraisal dynamics. For instance, job demands differ with regards to when they occur and how long they persist, which may be associated with how employees appraise these demands. Demands encountered later in the day, after resources have been depleted, may elicit more negative appraisals (e.g., Dunn and Taylor 2014), whereas demands that linger over multiple days may progressively shift from challenge to hindrance or threat appraisal (e.g., Li et al. 2022). Accordingly, further incorporating time into the core components of transactional stress theory can deepen our understanding of how and when stress responses evolve and the dynamic factors that drive these changes.

Finally, some of the assumptions for which we found no evidence also provide interesting implications. Our results were rather consistent linking sleep quality and appraisals, but we found little evidence regarding the other sleep characteristics. The result pattern regarding chronotype seems to suggest that chronotype unfolds its relevance only regarding synchrony effects for threat appraisals (i.e., relating to the trajectories within a day), but we found no evidence directly linking later chronotypes with less favorable appraisal levels. However, as in similar studies assessing convenience samples (e.g., Kühnel et al. 2022; Wiegelmann et al. 2023), we want to note that later chronotypes and especially extreme chronotype manifestations were underrepresented in our study compared to the general population (Roenneberg, et al. 2019). This range restrictions in chronotype might have resulted in an underestimation of the relevance of chronotype for appraisals (Sackett and Yang 2000). The result pattern comparing sleep quality and duration fits previous findings showing that sleep quality relates stronger to perceptions and affective outcomes than sleep duration (Litwiller et al. 2017). Hence, our findings may inform open questions regarding which specific outcomes are related to sleep quality versus sleep duration (Crain et al. 2018) by showing that sleep quality seems to be more relevant in the human stress process. However, future research drawing on sufficiently large samples across analytical levels is needed to assess the robustness and replicability of these findings.

4.2 | Limitations and Directions for Future Research

We hope that the limitations of this research project inspire future research to continue investigating this topic. One central limitation refers to the measures. We assessed all constructs using self-reports, raising concerns about common-method bias (Podsakoff et al. 2003). Future research could employ objective measures to alleviate these concerns, such as using actigraphy to assess sleep (Kühnel et al. 2021). Relatedly, our assessment of stress appraisals referred to general evaluations of one's job demands. Thereby, we neglected the role of specific job demands, which each could be appraised differently, and which may further interact to affect each other's appraisal (Schilbach et al. 2023). Measuring general stress appraisals may further have contributed to the high concentration of variance at the between-person level, as they may more heavily reflect an individual's general appraisal tendencies (see also, e.g., Raper and Brough 2021). Daily-diary studies focusing on specific job demands (e.g., time pressure, Kern et al. 2023; performance pressure, Mitchell et al. 2019), by contrast, commonly report a more balanced variance distribution across levels of analysis, underscoring the dynamic nature of appraisals. Accordingly, future research could adopt more fine-grained assessments and consider specific job demands when studying the multilevel sleep-appraisal relationship.

Additionally, we deem it worthwhile to test the directionality of the associations in greater detail. Our additional analyses only provided limited evidence for reversed relationships such that we mostly did not find evidence that stress appraisals related to sleep characteristics (except for daily increases and higher after-work levels in challenge appraisal predicting sleep quality). However, the study's design and analyses do not allow for causal conclusions because of their correlational nature. Thus, this study can provide first insights but coming to final conclusions on the directionality of the sleep-appraisal relationships is out of its scope. From a theoretical point of view, it still seems possible that stress appraisals also predict sleep duration and quality, for example, via prolonged activation and rumination (Brosschot et al. 2005). Accordingly, employing longitudinal studies with multiple surveys combined with analysis methods such as the random-intercept cross-lagged panel model (Hamaker et al. 2015) would be important to investigate reciprocity in future research.

With respect to theory, we have argued that stress appraisals depend on cognitive and affective resources but did not actually include these resources in our analytical models. Hence, we encourage future research to more strictly test the role of resources in the stress-appraisal relationship at both the intraindividual and interindividual levels (Crain et al. 2018). For example, as research has demonstrated that changes in energetic states also systematically relate to recovery processes (Hülsheger 2016; Lee et al. 2023; Wiegelmann et al. 2023), it is plausible that exhaustion of cognitive and affective resources explains the associations between daily sleep characteristics and daily stress appraisal trajectories. To that end, future research could model parallel trajectories of cognitive and affective resources and stress appraisals during the day (see, e.g., Hülsheger et al. 2022, for a similar procedure).

Concerning the assessment of sleep, we focused on sleep duration, sleep quality, and chronotype as characteristics that we deemed especially relevant for stress appraisal processes. However, sleep is a complex physiological process that can be described by a range of additional characteristics such as continuity or efficiency (Buysse 2014). Future research could extend our results to a broader range of sleep characteristics to better display the complex phenomenon of sleep and its relations to

stress appraisals. Thereby, it might be helpful to employ person-centered approaches (e.g., latent profile analyses) to investigate the relevance of different combinations of sleep characteristics for employees' stress appraisals (see, e.g., Gatari et al. 2023).

We would further like to encourage future research to go beyond sleep-related parameters in investigating the antecedents of stress appraisals. We deem the consideration of situational, demand-specific characteristics as particularly important. In two experimental studies, Ohly (2019) has already outlined that situations were appraised as more challenging and less threatening when goal importance, task difficulty, and controllability were high. Future research may build on these insights, investigating their replicability in the field setting and identifying additional temporal characteristics of job demands (e.g., their chronicity; Britt et al. 2016) that may prevent potentially health-impairing appraisal patterns. By focusing on these characteristics, researchers may further highlight the role of job design, shifting some of the responsibility placed on individuals to appraise stressors favorably towards the organization.

Finally, we would like to emphasize that while challenge appraisals are commonly portrayed as positive and may enhance motivational and performance-related outcomes (e.g., Prem et al. 2017), they still occur in the context of stressor exposure and thus are likely to also be associated with undesired outcomes, such as depleted energetic and cognitive resources (e.g., Palmwood and McBride 2019). Future research should consider these potential costs, advancing our understanding on the time frame in which they occur as well as on the boundary conditions (e.g., stressor characteristics and adequate resources) that may prevent them.

4.3 | Practical Implications

Our findings bring along important practical implications. Specifically, because sleep quality was related to both within-person fluctuations and between-person differences in stress appraisals, both organizations and employees should aim at improving individuals' sleep quality. In general, adhering to sleep hygiene guidelines, for example, not consuming alcohol, tobacco, or caffeine before going to bed (Mastin et al. 2006), may improve sleep quality (Irish et al. 2015). Apart from these rather general sleep hygiene guidelines, a range of specific sleep interventions have also been evaluated in the work context. For example, blue-light filtering glasses help increase employees' daily sleep quality (Guarana, Barnes, and Ong 2021). If more chronic sleep problems exist, cognitive–behavioral therapy might be an option to increase sleep quality (Barnes et al. 2017). Importantly, organizations can also take relevant steps to increase employees' sleep quality such as, for example, training supervisors to support their subordinates' sleep (e.g., by talking about sleep and suggesting behaviors improving sleep hygiene; Brossoit et al. 2023).

At the same time, our results highlight that employees and organizations should consider the time of day when structuring important tasks and meetings. Specifically, our results resemble a growing body of evidence on synchrony effects between employees' chronotype and the time of day for work outcomes (Guarana, et al. 2021; Kühnel et al. 2022). Because threat appraisal decreased from morning until after work for later chronotypes, and given the negative impact that threat appraisal can have on outcomes such as dedication (Tuckey et al. 2015) and performance (Drach-Zahavy and Erez 2002), strategically scheduling important tasks or meetings according to circadian preferences may be beneficial for goal attainment and task completion. Relatedly, the drawbacks of low sleep quality on threat appraisal faded out over the course of the day (see also Hülsheger 2016; Wiegelmann et al. 2023), meaning that employees' daily threat appraisal decreased on days with lower sleep quality. Accordingly, and keeping in mind the potentially detrimental nature of threat appraisals, on days with poor sleep quality, employees may consider postponing important tasks to later during the day when feasible. Finally, and considering our findings as a whole, we deem it necessary to raise awareness about the relevance of circadian processes at work and hence eliminate biases favoring early birds and early morning work schedules (Völker and Wiegelmann 2025).

4.4 | Conclusion

Investigating the relationship between sleep and appraisals from three perspectives (i.e., an intraindividual, dynamic, and interindividual perspective), we have demonstrated that particularly sleep quality is linked to employees' appraisal patterns. Specifically, sleep quality was associated with lower levels of hindrance and threat appraisals and, partly, higher levels of challenge appraisals. These patterns emerged at the intra- and interindividual levels, indicating that sleep matters for daily fluctuations as well as stable between-person differences in stress appraisals. Moreover, changes in threat appraisal within the day (i.e., trajectories) were dependent upon daily sleep quality and employees' chronotypes, highlighting that the factor of time provides unique insights into the relationship between sleep and cognitive appraisal processes. Taken together, our research suggests that integrating sleep into the transactional stress theory (Lazarus and Folkman 1984) is helpful to establish relevant physiologically driven antecedents related to appraisal processes. Additionally, we underscore the role of sleep in employees' functioning at work by explicitly connecting sleep with the stress appraisal process.

Acknowledgements

Open Access funding enabled and organized by Projekt DEAL.

Funding

The authors have nothing to report.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are openly available in OSF at https://osf.io/9xqwm/.

Endnotes

[1] Please note that these assumptions refer to predicting within-person variation in appraisals. As chronotype is a person-level variable and therefore cannot *directly* account for daily fluctuations, it can only function as a cross-level moderator predicting the relationship between time of day and the appraisals. Hence, we only include chronotype as a moderating variable of the appraisal trajectories and do not propose a relationship with daily morning appraisals within this section.

[2] The chronotype measure we used (Roenneberg et al. 2003) relies on employees' midpoint of sleep on nonworkdays as an indicator of chronotype. However, this indicator only reflects employees' chronotypes if they can freely choose their sleep on nonworkdays. Accordingly, we were unable to compute chronotype for participants who indicated that they cannot freely choose their sleep times on nonworkdays (see also, e.g., Kühnel et al. 2022; Völker et al. 2023).

[3] Because at least four measurement occasions are necessary to model linear and quadratic *random* trajectories in growth curve models and we only collected three daily surveys, we focused our data analysis on linear trajectories of stress appraisals (McCoach 2010). However, as robustness check, we ran additional analyses in which we controlled for *fixed* effects of a quadratic time variable (for a similar approach, see Wiegelmann et al. 2023). Importantly, the direction and significance of all previous results remained the same compared to the models including only linear trajectories. Interestingly, results showed that threat appraisal followed a *U*-shaped trajectory (Est. = 0.001, SE = 0.00, $p = 0.003$).

[4] Because the within-person reliabilities for the appraisal scales were lower than recommended cutoff values (Yang et al. 2022), we ran robustness checks. Specifically, we used each most prototypical item (see Section 2) as single-item indicator in the analyses. Results were the same compared to the three-item scales with one exception: sleep quality only related to the intercept of the single-item indicator for threat appraisal when applying a more lenient significance criterion (i.e., at $p < 0.10$; Est. = −0.04, SE = 0.02, $p = 0.071$).

[5] As additional robustness check, we also reran all analyses including control variables. First, we controlled for temporal effects during study participation by including the day of the week, the day of data collection, as well as sine and cosine functions (Gabriel et al. 2019). Second, we controlled for negative affect in the morning to rule out response biases due to adverse mood states (Gabriel et al. 2019). Third, we controlled for daily workload and interpersonal conflicts as two frequently accounted job demands (Spector and Jex 1998). Fourth, we controlled for employees' age, gender, and tenure as person-level characteristics (Aldwin et al. 1996; Eaton and Bradley 2008). Including these controls did not change the direction or significance of our results, underlining the robustness of our findings.

References

Adan, A., S. N. Archer, M. P. Hidalgo, L. Di Milia, V. Natale, and C. Randler. 2012. "Circadian Typology: A Comprehensive Review." *Chronobiology International* 29, no. 9: 1153–1175. https://doi.org/10.3109/07420528.2012.719971.

Åkerstedt, T., P. M. Nilsson, and G. Kecklund. 2009. "Sleep and Recovery." In *Current Perspectives on Job-Stress Recovery: Research in Occupational Stress and Well Being*, edited by S. Sonnentag, P. L. Perrewé, and D. C. Ganster, 205–247. Emerald.

Aldwin, C. M., K. J. Sutton, G. Chiara, and A. S. Iip. 1996. "Age Differences in Stress, Coping, and Appraisal: Findings From the Normative Aging Study." *Journal of Gerontology* 5, no. 4: 79–188. https://doi.org/10.1093/geronb/51B.4.P179.

Alvaro, P. K., R. M. Roberts, and J. K. Harris. 2013. "A Systematic Review Assessing Bidirectionality Between Sleep Disturbances, Anxiety, and Depression." *Sleep* 36, no. 7: 1059–1068. https://doi.org/10.5665/sleep.2810.

Antúnez, J. M., J. F. Navarro, and A. Adan. 2015. "Circadian Typology Is Related to Resilience and Optimism in Healthy Adults." *Chronobiology International* 32, no. 4: 524–530. https://doi.org/10.3109/07420528.2015.1008700.

Arnold, M., and S. Sonnentag. 2023. "Time Matters: The Role of Recovery for Daily Mood Trajectories at Work." *Journal of Occupational and Organizational Psychology* 96, no. 4: 754–785. https://doi.org/10.1111/joop.12445.

Au, J., and J. Reece. 2017. "The Relationship Between Chronotype and Depressive Symptoms: A Meta-Analysis." *Journal of Affective Disorders* 218: 93–104. https://doi.org/10.1016/j.jad.2017.04.021.

Barber, L. K., and D. C. Munz. 2011. "Consistent-Sufficient Sleep Predicts Improvements in Self-Regulatory Performance and Psychological Strain." *Stress and Health* 27, no. 4: 314–324. https://doi.org/10.1002/smi.1364.

Barber, L. K., D. C. Munz, P. G. Bagsby, and E. D. Powell. 2010. "Sleep Consistency and Sufficiency: Are Both Necessary for Less Psychological Strain?" *Stress and Health* 26, no. 3: 186–193. https://doi.org/10.1002/smi.1292.

Barber, L. K., E. A. Rupprecht, and D. C. Munz. 2014. "Sleep Habits May Undermine Well-Being Through the Stressor Appraisal Process." *Journal of Happiness Studies* 15, no. 2: 285–299. https://doi.org/10.1007/s10902-013-9422-2.

Barnes, C. M., L. Lucianetti, D. P. Bhave, and M. S. Christian. 2015. ""You Wouldn't Like Me When I'm Sleepy": Leaders' Sleep, Daily Abusive Supervision, and Work Unit Engagement." *Academy of Management Journal* 58, no. 5: 1419–1437. https://doi.org/10.5465/amj.2013.1063.

Barnes, C. M., J. A. Miller, and S. Bostock. 2017. "Helping Employees Sleep Well: Effects of Cognitive Behavioral Therapy for Insomnia on Work Outcomes." *Journal of Applied Psychology* 102, no. 1: 104–113. https://doi.org/10.1037/apl0000154.

Barnes, C. M., D. T. Wagner, K. Schabram, and D. Boncoeur. 2023. "Human Sustainability and Work: A Meta-Synthesis and New Theoretical Framework." *Journal of Management* 49, no. 6: 1965–1996. https://doi.org/10.1177/01492063221131541.

Bates, D., M. Mächler, B. Bolker, and S. Walker. 2015. "Fitting Linear Mixed-Effects Models Using lme4." *Journal of Statistical Software* 67, no. 1: 1–48. https://doi.org/10.18637/jss.v067.i01.

Beiner, H. J. (2023). Reghelper: Helper Functions for Regression Analysis. https://CRAN.R-project.org/package=reghelper.

Blaise, M., A. Krispenz, and A. Bertrams. 2024. "My Precious: Development and Validation of the Conservation of Human Energy Resources Index (CHERI)." *European Journal of Work and Organizational Psychology* 33, no. 5: 688–702. https://doi.org/10.1080/1359432X.2024.2376908.

Bliese, P. D., and R. E. Ployhart. 2002. "Growth Modeling Using Random Coefficient Models: Model Building, Testing, and Illustrations." *Organizational Research Methods* 5, no. 4: 362–387. https://doi.org/10.1177/109442802237116.

Borbély, A. A. 1982. "A Two Process Model of Sleep Regulation." *Human Neurobiology* 1, no. 3: 195–204.

Borbély, A. A., S. Daan, A. Wirz-Justice, and T. Deboer. 2016. "The Two-Process Model of Sleep Regulation: A Reappraisal." *Journal of Sleep Research* 25, no. 2: 131–143. https://doi.org/10.1111/jsr.12371.

Brislin, R. W. 1970. "Back-Translation for Cross-Cultural Research." *Journal of Cross-Cultural Psychology* 1, no. 3: 185–216. https://doi.org/10.1177/135910457000100301.

Britt, T. W., W. Shen, R. R. Sinclair, M. R. Grossman, and D. M. Klieger. 2016. "How Much Do We Really Know About Employee Resilience?" *Industrial and Organizational Psychology* 9, no. 2: 378–404. https://doi.org/10.1017/iop.2015.107.

Brosschot, J. F., S. Pieper, and J. F. Thayer. 2005. "Expanding Stress Theory: Prolonged Activation and Perseverative Cognition." *Psychoneuroendocrinology* 30, no. 10: 1043–1049. https://doi.org/10.1016/j.psyneuen.2005.04.008.

Brossoit, R. M., L. B. Hammer, T. L. Crain, J. J. Leslie, T. E. Bodner, and K. J. Brockwood. 2023. "The Effects of a Total Worker Health Intervention on Workplace Safety: Mediating Effects of Sleep and Supervisor Support for Sleep." *Journal of Occupational Health Psychology* 28, no. 4: 263–276. https://doi.org/10.1037/ocp0000357.

Buysse, D. J. 2014. "Sleep Health: Can We Define It? Does It Matter?" *Sleep* 37, no. 1: 9–17. https://doi.org/10.5665/sleep.3298.

Casper, A., and W. Wehrt. 2022. "The Role of Recovery for Morning Cognitive Appraisal of Work Demands: A Diary Study." *Journal of Occupational Health Psychology* 27, no. 2: 207–222. https://doi.org/10.1037/ocp0000285.

Cavanaugh, M. A., W. R. Boswell, M. V. Roehling, and J. W. Boudreau. 2000. "An Empirical Examination of Self-Reported Work Stress Among U.S. Managers." *Journal of Applied Psychology* 85, no. 1: 65–74. https://doi.org/10.1037/0021-9010.85.1.65.

Chen, Q., M. Chen, L. Lin, and X. Bai. 2024. "The Challenge-Hindrance-Threat Appraisal Framework and the Differential Effects on Employees' Work Well-Being and Behaviors." *Behavioral Sciences* 14, no. 9: 734. https://doi.org/10.3390/bs14090734.

Chuah, L. Y. M., F. Dolcos, A. K. Chen, H. Zheng, S. Parimal, and M. W. L. Chee. 2010. "Sleep Deprivation and Interference by Emotional Distracters." *Sleep* 33, no. 10: 1305–1313. https://doi.org/10.1093/sleep/33.10.1305.

Crain, T. L., R. M. Brossoit, and G. G. Fisher. 2018. "Work, Nonwork, and Sleep (WNS): A Review and Conceptual Framework." *Journal of Business and Psychology* 33, no. 6: 675–697. https://doi.org/10.1007/s10869-017-9521-x.

Curcio, G., M. Ferrara, and L. De Gennaro. 2006. "Sleep Loss, Learning Capacity and Academic Performance." *Sleep Medicine Reviews* 10, no. 5: 323–337. https://doi.org/10.1016/j.smrv.2005.11.001.

De Longis, E., G. Alessandri, S. Sonnentag, and P. Kuppens. 2022. "Inertia of Negative Emotions at Work: Correlates of Inflexible Emotion Dynamics in the Workplace." *Applied Psychology* 71, no. 2: 380–406. https://doi.org/10.1111/apps.12325.

Diestel, S., W. Rivkin, and K. H. Schmidt. 2015. "Sleep Quality and Self-Control Capacity as Protective Resources in the Daily Emotional Labor Process: Results From Two Diary Studies." *Journal of Applied Psychology* 100, no. 3: 809–827. https://doi.org/10.1037/a0038373.

Drach-Zahavy, A., and M. Erez. 2002. "Challenge Versus Threat Effects on the Goal-Performance Relationship." *Organizational Behavior and Human Decision Processes* 88, no. 2: 667–682. https://doi.org/10.1016/S0749-5978(02)00004-3.

Dunn, J. S., and C. E. Taylor. 2014. "Cardiovascular Reactivity to Stressors: Effect of Time of Day?" *Chronobiology International* 31, no. 2: 166–174. https://doi.org/10.3109/07420528.2013.833517.

Durmer, J. S., and D. F. Dinges. 2005. "Neurocognitive Consequences of Sleep Deprivation." *Seminars in Neurology* 25, no. 1: 117–129. https://doi.org/10.1055/s-2005-867080.

Eaton, R. J., and G. Bradley. 2008. "The Role of Gender and Negative Affectivity in Stressor Appraisal and Coping Selection." *International Journal of Stress Management* 15, no. 1: 94–115. https://doi.org/10.1037/1072-5245.15.1.94.

Gabriel, A. S., N. P. Podsakoff, D. J. Beal, et al. 2019. "Experience Sampling Methods: A Discussion of Critical Trends and Considerations for Scholarly Advancement." *Organizational Research Methods* 22, no. 4: 969–1006. https://doi.org/10.1177/1094428118802626.

Gatari, E., B. P. I. Fleuren, F. R. H. Zijlstra, and U. R. Hülsheger. 2023. "Sweet Dreams Are Made of This: A Person-Centered Approach Toward Understanding the Role of Sleep in Chronic Fatigue." *Journal of Occupational Health Psychology* 28, no. 4: 205–223. https://doi.org/10.1037/ocp0000355.

Goldammer, P., H. Annen, P. L. Stöckli, and K. Jonas. 2020. "Careless Responding in Questionnaire Measures: Detection, Impact, and Remedies." *Leadership Quarterly* 31, no. 4: 101384. https://doi.org/10.1016/j.leaqua.2020.101384.

Guarana, C. L., C. M. Barnes, and W. J. Ong. 2021. "The Effects of Blue-Light Filtration on Sleep and Work Outcomes." *Journal of Applied Psychology* 106, no. 5: 784–796. https://doi.org/10.1037/apl0000806.

Guarana, C. L., C. M. Barnes, J. W. Ryu, and R. Crawley. 2021. "A Chronotype Circadian Model of Charismatic Leadership Expressions and Perceptions." *Leadership Quarterly* 32, no. 6: 101509. https://doi.org/10.1016/j.leaqua.2021.101509.

Guthier, C., C. Dormann, and M. C. Voelkle. 2020. "Reciprocal Effects Between Job Stressors and Burnout: A Continuous Time Meta-Analysis of Longitudinal Studies." *Psychological Bulletin* 146, no. 12: 1146–1173. https://doi.org/10.1037/bul0000304.

Hamaker, E. L., R. M. Kuiper, and R. P. P. P. Grasman. 2015. "A Critique of the Cross-Lagged Panel Model." *Psychological Methods* 20, no. 1: 102–116. https://doi.org/10.1037/a0038889.

Hamilton, N. A., C. A. Nelson, N. Stevens, and H. Kitzman. 2007. "Sleep and Psychological Well-Being." *Social Indicators Research* 82, no. 1: 147–163. https://doi.org/10.1007/s11205-006-9030-1.

Hobfoll, S. E. 1989. "Conservation of Resources: A New Attempt at Conceptualizing Stress." *American Psychologist* 44, no. 3: 513–524. https://doi.org/10.1037/0003-066X.44.3.513.

Hofstra, W. A., and A. W. de Weerd. 2008. "How to Assess Circadian Rhythm in Humans: A Review of Literature." *Epilepsy & Behavior* 13, no. 3: 438–444. https://doi.org/10.1016/j.yebeh.2008.06.002.

Hülsheger, U. R. 2016. "From Dawn Till Dusk: Shedding Light on the Recovery Process by Investigating Daily Change Patterns in Fatigue." *Journal of Applied Psychology* 101, no. 6: 905–914. https://doi.org/10.1037/apl0000104.

Hülsheger, U. R., S. Uitdewilligen, F. R. H. Zijlstra, and A. Walkowiak. 2022. "Blue Monday, Yellow Friday? Investigating Work Anticipation as an Explanatory Mechanism and Boundary Conditions of Weekly Affect Trajectories." *Journal of Occupational Health Psychology* 26, no. 4: 359–376. https://doi.org/10.1037/ocp0000330.

Irish, L. A., C. E. Kline, H. E. Gunn, D. J. Buysse, and M. H. Hall. 2015. "The Role of Sleep Hygiene in Promoting Public Health: A Review of Empirical Evidence." *Sleep Medicine Reviews* 22: 23–36. https://doi.org/10.1016/j.smrv.2014.10.001.

Jamieson, S. D., M. R. Tuckey, Y. Li, and A. D. Hutchinson. 2022. "Is Primary Appraisal a Mechanism of Daily Mindfulness at Work?" *Journal of Occupational Health Psychology* 27, no. 4: 377–391. https://doi.org/10.1037/ocp0000324.

Jenkins, C. D., B.-A. Stanton, S. J. Niemcryk, and R. M. Rose. 1988. "A Scale for the Estimation of Sleep Problems in Clinical Research." *Journal of Clinical Epidemiology* 41, no. 4: 313–321. https://doi.org/10.1016/0895-4356(88)90138-2.

Kaltiainen, J., J. Lipponen, M. Fugate, and M. Vakola. 2020. "Spiraling Work Engagement and Change Appraisals: A Three-Wave Longitudinal Study During Organizational Change." *Journal of Occupational Health Psychology* 25, no. 4: 244–258. https://doi.org/10.1037/ocp0000163.

Kang, J. I., C. I. Park, S. Y. Sohn, H. W. Kim, K. Namkoong, and S. J. Kim. 2015. "Circadian Preference and Trait Impulsivity, Sensation-Seeking and Response Inhibition in Healthy Young Adults." *Chronobiology International* 32, no. 2: 235–241. https://doi.org/10.3109/07420528.2014.965313.

Kern, M., N. K. Semmer, and A. Baethge. 2023. "Energized or Distressed by Time Pressure? The Role of Time Pressure Illegitimacy." *European*

Journal of Work and Organizational Psychology 32, no. 4: 575–598. https://doi.org/10.1080/1359432X.2023.2198708.

Kronenwett, M., and T. Rigotti. 2022. "All's Well That Ends Well!? Moderating Effects of Goal Progress on the Relation Between Challenge and Hindrance Appraisal and Well-Being." *Journal of Managerial Psychology* 37, no. 5: 444–466. https://doi.org/10.1108/JMP-11-2019-0618.

Kühnel, J., R. Bledow, and M. Kiefer. 2022. "There Is a Time to Be Creative: The Alignment Between Chronotype and Time of Day." *Academy of Management Journal* 65, no. 1: 218–247. https://doi.org/10.5465/amj.2019.0020.

Kühnel, J., S. Diestel, and K. G. Melchers. 2021. "An Ambulatory Diary Study of Mobile Device Use, Sleep, and Positive Mood." *International Journal of Stress Management* 28, no. 1: 32–45. https://doi.org/10.1037/str0000210.

Lau, E. Y. Y., C. Harry Hui, S. F. Cheung, and J. Lam. 2015. "Bidirectional Relationship Between Sleep and Optimism With Depressive Mood as a Mediator: A Longitudinal Study of Chinese Working Adults." *Journal of Psychosomatic Research* 79, no. 5: 428–434. https://doi.org/10.1016/j.jpsychores.2015.09.010.

Lazarus, R. S., and S. Folkman. 1984. *Stress, Appraisal, and Coping*. Springer.

Lazarus, R. S., and S. Folkman. 1987. "Transactional Theory and Research on Emotions and Coping." *European Journal of Personality* 1: 141–169.

Lee, F. C., J. M. Diefendorff, M. T. Nolan, and J. P. Trougakos. 2023. "Emotional Exhaustion Across the Workday: Person-Level and Day-Level Predictors of Workday Emotional Exhaustion Growth Curves." *Journal of Applied Psychology* 108, no. 10: 1662–1679. https://doi.org/10.1037/apl0001095.

Lee, S. 2022. "Naturally Occurring Consecutive Sleep Loss and Day-to-Day Trajectories of Affective and Physical Well-Being." *Annals of Behavioral Medicine* 56, no. 4: 393–404. https://doi.org/10.1093/abm/kaab055.

Leong, R. L. F., and M. W. L. Chee. 2023. "Understanding the Need for Sleep to Improve Cognition." *Annual Reviews of Psychology* 74: 27–57. https://doi.org/10.1146/annurev-psych-032620.

LePine, M. A. 2022. "The Challenge-Hindrance Stressor Framework: An Integrative Conceptual Review and Path Forward." *Group and Organization Management* 47, no. 2: 223–254. https://doi.org/10.1177/10596011221079970.

LePine, M. A., Y. Zhang, E. R. Crawford, and B. L. Rich. 2016. "Turning Their Pain to Gain: Charismatic Leader Influence on Follower Stress Appraisal and Job Performance." *Academy of Management Journal* 59, no. 3: 1036–1059. https://doi.org/10.5465/amj.2013.0778.

Li, P., T. W. Taris, and M. C. W. Peeters. 2022. "Today's Challenge May Be Tomorrow's Hindrance (And Vice Versa): Longitudinal Changes in Employee's Appraisals of Job Demands and Their Outcomes." *Journal of Occupational and Organizational Psychology* 95, no. 2: 521–549. https://doi.org/10.1111/joop.12384.

Litwiller, B., L. A. Snyder, W. D. Taylor, and L. M. Steele. 2017. "The Relationship Between Sleep and Work: A Meta-Analysis." *Journal of Applied Psychology* 102, no. 4: 682–699. https://doi.org/10.1037/apl0000169.

Liu, C., and H. Li. 2018. "Stressors and Stressor Appraisals: The Moderating Effect of Task Efficacy." *Journal of Business and Psychology* 33, no. 1: 141–154. https://doi.org/10.1007/s10869-016-9483-4.

Liu, H., Y. Ji, and S. B. Dust. 2021. ""Fully Recharged" Evenings? The Effect of Evening Cyber Leisure on Next-Day Vitality and Performance Through Sleep Quantity and Quality, Bedtime Procrastination, and Psychological Detachment, and the Moderating Role of Mindfulness." *Journal of Applied Psychology* 106, no. 7: 990–1006. https://doi.org/10.1037/apl0000818.

Lüdecke, D. 2018. "ggeffects: Tidy Data Frames of Marginal Effects From Regression Models." *Journal of Open Source Software* 3, no. 26: 772. https://doi.org/10.21105/joss.00772.

Ma, J., Y. Peng, and B. Wu. 2021. "Challenging or Hindering? The Roles of Goal Orientation and Cognitive Appraisal in Stressor-Performance Relationships." *Journal of Organizational Behavior* 42, no. 3: 388–406. https://doi.org/10.1002/job.2503.

Mastin, D. F., J. Bryson, and R. Corwyn. 2006. "Assessment of Sleep Hygiene Using the Sleep Hygiene Index." *Journal of Behavioral Medicine* 29, no. 3: 223–227. https://doi.org/10.1007/s10865-006-9047-6.

Mazzola, J. J., and R. Disselhorst. 2019. "Should We Be "Challenging" Employees? A Critical Review and Meta-Analysis of the Challenge-Hindrance Model of Stress." *Journal of Organizational Behavior* 40, no. 8: 949–961. https://doi.org/10.1002/job.2412.

McCoach, D. B. 2010. "Using Time-Varying Covariates in Multilevel Growth Models." *Frontiers in Psychology* 1: 1496. https://doi.org/10.3389/fpsyg.2010.00017.

McGrath, J. E., and T. A. Beehr. 1990. "Time and the Stress Process: Some Temporal Issues in the Conceptualization and Measurement of Stress." *Stress Medicine* 6, no. 2: 93–104. https://doi.org/10.1002/smi.2460060205.

Meijman, T. F., and G. Mulder. 1998. "Psychological Aspects of Workload." In *Handbook of Work and Organizational Psychology*, edited by T. F. Meijman, G. Mulder, P. J. D. Drenth, H. Thierry, and C. J. de Wolff, 2nd ed., 5–33. Psychology Press.

Mitchell, M. S., R. L. Greenbaum, R. M. Vogel, M. B. Mawritz, and D. J. Keating. 2019. "Can You Handle the Pressure? The Effect of Performance Pressure on Stress Appraisals, Self-Regulation, and Behavior." *Academy of Management Journal* 62, no. 2: 531–552. https://doi.org/10.5465/amj.2016.0646.

Monk, T. H., C. F. Reynolds, D. J. Kupfer, et al. 1994. "The Pittsburgh Sleep Diary." *Journal of Sleep Research* 3, no. 2: 111–120. https://doi.org/10.1111/j.1365-2869.1994.tb00114.x.

Morin, C. M., S. Rodrigue, and H. Ivers. 2003. "Role of Stress, Arousal, and Coping Skills in Primary Insomnia." *Psychosomatic Medicine* 65, no. 2: 259–267. https://doi.org/10.1097/01.PSY.0000030391.09558.A3.

Mühlenmeier, M., T. Rigotti, A. Baethge, and T. Vahle-Hinz. 2022. "The Ups and Downs of the Week: A Person-Centered Approach to the Relationship Between Time Pressure Trajectories and Well-Being." *Journal of Occupational Health Psychology* 27, no. 3: 286–298. https://doi.org/10.1037/ocp0000306.

Mullins, H. M., J. M. Cortina, C. L. Drake, and R. S. Dalal. 2014. "Sleepiness at Work: A Review and Framework of How the Physiology of Sleepiness Impacts the Workplace." *Journal of Applied Psychology* 99, no. 6: 1096–1112. https://doi.org/10.1037/a0037885.

Ohly, S. 2019. "Characteristics of Challenging Situations: Two Policy-Capturing Studies." *Journal of Managerial Psychology* 34, no. 3: 170–183. https://doi.org/10.1108/JMP-06-2018-0232.

Palmwood, E. N., and C. A. McBride. 2019. "Challenge vs. Threat: The Effect of Appraisal Type on Resource Depletion." *Current Psychology* 38, no. 6: 1522–1529. https://doi.org/10.1007/s12144-017-9713-6.

Podsakoff, N. P., T. M. Spoelma, N. Chawla, and A. S. Gabriel. 2019. "What Predicts Within-Person Variance in Applied Psychology Constructs? An Empirical Examination." *Journal of Applied Psychology* 104, no. 6: 727–754. https://doi.org/10.1037/apl0000374.

Podsakoff, P. M., S. B. MacKenzie, J. Y. Lee, and N. P. Podsakoff. 2003. "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies." *Journal of Applied Psychology* 88, no. 5: 879–903. https://doi.org/10.1037/0021-9010.88.5.879.

Prem, R., S. Ohly, B. Kubicek, and C. Korunka. 2017. "Thriving on Challenge Stressors? Exploring Time Pressure and Learning Demands

as Antecedents of Thriving at Work." *Journal of Organizational Behavior* 38, no. 1: 108–123. https://doi.org/10.1002/job.2115.

Raper, M. J., and P. Brough. 2021. "Seeing Into the Future: The Role of Future-Oriented Coping and Daily Stress Appraisal in Relation to a Future Stressor." *Stress and Health* 37, no. 1: 186–197. https://doi.org/10.1002/smi.2984.

Rivkin, W., S. Diestel, J. Stollberger, and C. Sacramento. 2023. "The Role of Regulatory, Affective, and Motivational Resources in the Adverse Spillover of Sleep in the Home Domain to Employee Effectiveness in the Work Domain." *Human Relations* 76, no. 2: 199–232. https://doi.org/10.1177/00187267211052469.

Roenneberg, T., L. K. Pilz, G. Zerbini, and E. C. Winnebeck. 2019. "Chronotype and Social Jetlag: A (Self-) Critical Review." *Biology* 8, no. 3: Article 54. https://doi.org/10.3390/biology8030054.

Roenneberg, T., A. Wirz-Justice, and M. Merrow. 2003. "Life Between Clocks: Daily Temporal Patterns of Human Chronotypes." *Journal of Biological Rhythms* 18, no. 1: 80–90. https://doi.org/10.1177/0748730402239679.

Rosen, C. C., N. Dimotakis, M. S. Cole, et al. 2020. "When Challenges Hinder: An Investigation of When and How Challenge Stressors Impact Employee Outcomes." *Journal of Applied Psychology* 105, no. 10: 1181–1206. https://doi.org/10.1037/apl0000483.

Roswag, M., S. Abdel Hadi, J. A. Häusser, and A. Mojzisch. 2023. "Running Toward my Challenges: Day-Level Effects of Physical Activity Before Work on Appraisal of the Upcoming Workday and Employee Well-Being." *Journal of Occupational Health Psychology* 28, no. 5: 310–324. https://doi.org/10.1037/ocp0000360.

Rothbard, N. P., and S. L. Wilk. 2011. "Waking Up on the Right or Wrong Side of the Bed: Start-of-Workday Mood, Work Events, Employee Affect, and Performance." *Academy of Management Journal* 54, no. 5: 959–980. https://doi.org/10.5465/amj.2007.0056.

Sackett, P. R., and H. Yang. 2000. "Correction for Range Restriction: An Expanded Typology." *Journal of Applied Psychology* 85, no. 1: 112–118. https://doi.org/10.1037/0021-9010.85.1.112.

Schilbach, M., M. Arnold, A. Baethge, and T. Rigotti. 2023. "Hindrance Demands as a Boundary Condition to the Appraisal of Challenge Demands." *Anxiety, Stress, & Coping* 36, no. 4: 434–443. https://doi.org/10.1080/10615806.2022.2108019.

Schilbach, M., A. Baethge, and T. Rigotti. 2020. "Why Employee Psychopathy Leads to Counterproductive Workplace Behaviours: An Analysis of the Underlying Mechanisms." *European Journal of Work and Organizational Psychology* 29, no. 5: 693–706. https://doi.org/10.1080/1359432X.2020.1739650.

Schmidt, C., F. Collette, C. Cajochen, and P. Peigneux. 2007. "A Time to Think: Circadian Rhythms in Human Cognition." *Cognitive Neuropsychology* 24, no. 7: 755–789. https://doi.org/10.1080/02643290701754158.

Scott, B. A., and T. A. Judge. 2006. "Insomnia, Emotions, and Job Satisfaction: A Multilevel Study." *Journal of Management* 32, no. 5: 622–645. https://doi.org/10.1177/0149206306289762.

Searle, B. J., and J. C. Auton. 2015. "The Merits of Measuring Challenge and Hindrance Appraisals." *Anxiety, Stress and Coping* 28, no. 2: 121–143. https://doi.org/10.1080/10615806.2014.931378.

Searle, B. J., and M. R. Tuckey. 2017. "Differentiating Challenge, Hindrance, and Threat in the Stress Process." In *The Routledge Companion to Wellbeing at Work*, edited by C. Cooper and M. Leiter, 25–36. Routledge. https://doi.org/10.4324/9781315665979-3.

Sin, N. L., J. H. Wen, P. Klaiber, O. M. Buxton, and D. M. Almeida. 2020. "Sleep Duration and Affective Reactivity to Stressors and Positive Events in Daily Life." *Health Psychology* 39, no. 12: 1078–1088. https://doi.org/10.1037/hea0001033.

Sonnentag, S., K. Eck, C. Fritz, and J. Kühnel. 2020. "Morning Reattachment to Work and Work Engagement During the Day: A Look at Day-Level Mediators." *Journal of Management* 46, no. 8: 1408–1435. https://doi.org/10.1177/0149206319829823.

Sonnentag, S., J. Völker, and W. Wehrt. 2025. "Good and Bad Days at Work: A Descriptive Review of Day-Level and Experience-Sampling Studies." *Journal of Organizational Behavior* 46, no. 2: 207–226. https://doi.org/10.1002/job.2796.

Spector, P. E., and S. M. Jex. 1998. "Development of Four Self-Report Measures of Job Stressors and Strain: Interpersonal Conflict at Work Scale, Organizational Constraints Scale, Quantitative Workload Inventory, and Physical Symptoms Inventory." *Journal of Occupational Health Psychology* 3, no. 4: 356–367. https://doi.org/10.1037/1076-8998.3.4.356.

Swider, B. W., J. Yang, and M. Wang. 2024. "The Use of Trajectories in Management Research: A Review and Insights for Future Research." *Journal of Management* 50, no. 6: 2012–2045. https://doi.org/10.1177/01492063231207341.

Tucker, A. M., R. Feuerstein, P. Mende-Siedlecki, K. N. Ochsner, and Y. Stern. 2012. "Double Dissociation: Circadian Off-Peak Times Increase Emotional Reactivity; Aging Impairs Emotion Regulation via Reappraisal." *Emotion* 12, no. 5: 869–874. https://doi.org/10.1037/a0028207.

Tuckey, M. R., B. J. Searle, C. M. Boyd, A. H. Winefield, and H. R. Winefield. 2015). Hindrances Are Not Threats: Advancing the Multidimensionality of Work Stress. *Journal of Occupational Health Psychology*, 20(2), 131–147. https://doi.org/10.1037/a0038280.

Völker, J., A. Casper, T. J. S. Koch, and S. Sonnentag. 2023. "It's a Match: The Relevance of Matching Chronotypes for Dual-Earner Couples' Daily Recovery From Work." *Journal of Occupational Health Psychology* 28, no. 3: 174–191. https://doi.org/10.1037/ocp0000351.

Völker, J., and M. Wiegelmann. 2025. "The Early Bird Catches the Worm: Assessing Implicit Theories on Circadian Processes at Work." *Journal of Occupational Health Psychology* 30, no. 2: 98–117. https://doi.org/10.1037/ocp0000400.

Webster, J. R., T. A. Beehr, and K. Love. 2011. "Extending the Challenge-Hindrance Model of Occupational Stress: The Role of Appraisal." *Journal of Vocational Behavior* 79, no. 2: 505–516. https://doi.org/10.1016/j.jvb.2011.02.001.

Wickham, H. 2016. *ggplot2: Elegant Graphics for Data Analysis*. Springer.

Wiegelmann, M., J. Völker, and S. Sonnentag. 2023. "Sleep Has Many Faces: The Interplay of Sleep and Work in Predicting Employees' Energetic State Over the Course of the Day." *Journal of Occupational Health Psychology* 28, no. 1: 52–63. https://doi.org/10.1037/ocp0000345.

Wittmann, M., J. Dinich, M. Merrow, and T. Roenneberg. 2006. "Social Jetlag: Misalignment of Biological and Social Time." *Chronobiology International* 23, no. 1–2: 497–509. https://doi.org/10.1080/07420520500545979.

Woolum, A., T. Foulk, K. Lanaj, and A. Erez. 2017. "Rude Color Glasses: The Contaminating Effects of Witnessed Morning Rudeness on Perceptions and Behaviors Throughout the Workday." *Journal of Applied Psychology* 102, no. 12: 1658–1672. https://doi.org/10.1037/apl0000247.

Yang, L. Q., W. Wang, P. H. Huang, and A. Nguyen. 2022. "Optimizing Measurement Reliability in Within-Person Research: Guidelines for Research Design and R Shiny Web Application Tools." *Journal of Business and Psychology* 37, no. 6: 1141–1156. https://doi.org/10.1007/s10869-022-09803-5.

You, M., S. Laborde, F. Dosseville, A. Salinas, and M. S. Allen. 2020. "Associations of Chronotype, Big Five, and Emotional Competences With Perceived Stress in University Students." *Chronobiology*

International 37, no. 7: 1090–1098. https://doi.org/10.1080/07420528.2020.1752705.

Zijlstra, F. R. H., M. Cropley, and L. W. Rydstedt. 2014. "From Recovery to Regulation: An Attempt to Reconceptualize 'Recovery From Work'." *Stress and Health* 30, no. 3: 244–252. https://doi.org/10.1002/smi.2604.

Zohar, D., O. Tzischinsky, R. Epstein, and P. Lavie. 2005. "The Effects of Sleep Loss on Medical Residents' Emotional Reactions to Work Events: A Cognitive-Energy Model." *Sleep* 28, no. 1: 47–54. https://doi.org/10.1093/sleep/28.1.47.

Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Table S1:** Results of reversed model (appraisals as predictors) with sleep duration as outcome. **Table S2:** Results of reversed model (appraisals as predictors) with sleep quality as outcome. **Table S3:** Descriptive statistics, Cronbach's alphas, and intercorrelations of all variables (additional data set). **Table S4:** Results of single-level path analysis including autoregressive and cross-lagged paths (additional data set). **Table S5:** Results of single-level path analysis using insomnia symptoms as sleep-quality indicator (additional data set). **Table S6:** Results of single-level path analysis using the second version of the appraisals scales (additional data set).