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ORIGINAL PAPER

A Dynamic View of the Challenge-Hindrance Stressor Framework: a Meta-Analysis of Daily Diary Studies

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Abstract

Are some daily job stressors good for employees? The challenge-hindrance stressor framework (CHSF) attempts to shed light on this question by categorizing stressors according to their ability to facilitate (challenge stressors) or inhibit (hindrance stressors) growth and achievement. According to the CHSF, challenge stressors should be associated with increased performance, but also with increased strain which subsequently hurts performance. Conversely, hindrance stressors should be associated with reduced performance both directly and indirectly via strain. Prior meta-analytic investigations have focused on more stable job stressors (using cross-sectional or longitudinal primary studies), and found contradicting resulted in support of the CHSF predictions. In the current meta-analysis, we tested the validity of the CHSF using a more dynamic view of stressors, by applying it to short-term, daily experiences of stressors, strains, and performance outcomes. Results from 78 unique samples indicated that at the within-person level, hindrance stressors have both a direct and an indirect (via strain) short-term effect on performance. Challenge stressors have a positive direct effect on performance but a negative indirect effect via strain. Furthermore, we examined two performance indicators separately: task performance and organizational citizenship behaviors (OCB). The results revealed that challenge stressors have a stronger positive association with OCB than with task performance. Hindrance stressors exhibited the opposite pattern, a stronger negative association with task performance than with OCB. The results of this study suggest that all daily stressors result in strain, which negatively relates to performance, though challenge stressors also have some positive effects on daily performance.

Keywords Meta-analysis · Diary-study · Work stress · Challenge-hindrance · Performance

Introduction

There has been a longstanding interest in how stressful working conditions, or stressors (defined here as perceived workplace conditions or demands that require coping efforts) relate to employee well-being and performance, with numerous meta-analyses examining these relationships (Pindek et al., 2017). Meta-analytic evidence suggests that regardless of the specific type of stressor, high levels of job stressors predict high levels of strains such as anxiety, emotional exhaustion, and physical symptoms (LePine et al., 2005; Podsakoff et al., 2007). However, the associations between job stressors and positively valenced outcomes such as job performance have been less consistent, and a key theory used to explain the unique pattern of relationships between job stressors and negative versus positive outcomes has been the challenge-hindrance stressor framework (CHSF; LePine, 2022). This framework, first introduced by Cavanaugh et al. (2000), distinguishes between challenge stressors, defined as work-demands that can facilitate growth and achievement (e.g., workload, job complexity, and responsibility), and hindrance stressors, defined as work-demands that constrain growth and achievement (e.g., role conflict, mistreatment, and organizational constraints or "red tape"). Challenge stressors are theorized to facilitate performance directly, but also hurt performance indirectly by increasing strain levels, whereas hindrance stressors should

Additional supplementary materials may be found here by searching on article title https://osf.io/collections/jbp/discover

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inhibit performance both directly and indirectly via strain (LePine et al., 2005; Podsakoff et al., 2023).

The popularity and impact of the CHSF over the past several decades is widely acknowledged among scholars (O'Brien & Beehr, 2019), and an early meta-analysis provided support for it (LePine et al., 2005). However, the CHSF has been criticized for mixed and inconsistent findings, including in a recent meta-analysis that replicated its proposed direct effects on performance for hindrance stressors, but found near-zero relationships for challenge stressors (Mazzola & Disselhorst, 2019). This has led scholars to call for a reshaping of the existing paradigm (Horan et al., 2020). Some scholars have argued that the discrepancies, at least in part, can be attributed to boundary conditions such as social support or control (O'Brien & Beehr, 2019). Others have pointed to the issue of relying on a priori categorizations of whether a stressor is a challenge or a hindrance rather than directly measuring individuals' appraisals of the stressors they encounter as challenging or hindering (Horan et al., 2020). Though we agree there are likely important roles for boundary conditions as well as individuals' appraisals, in the current study we advance a different argument. Instead of answering calls to reshape the existing paradigm, we highlight a key component of the CHSF that has been largely overlooked: the dynamic nature of stressful work conditions.

The CHSF, like many work stress theories, builds a conceptual framework in which an employee first perceives and appraises a situation as stressful, which in turn initiates a response such as emotional strain or reduced performance. Despite this episodic account of the stress process in theory (i.e., episodic exposure to a stressor leading to short-term strain and short-term reduced performance), most studies examining the associations between challenge and hindrance stressors and their outcomes assume that long-term or repeated exposure to stressors will result in long-term consequences. As such, these studies have largely used cross-sectional or longitudinal designs that assess individuals' relatively stable levels of job stressors, well-being, and performance, with questions often capturing their general work experiences. Although this accumulation is a reasonable assumption both theoretically and empirically (e.g., Ford et al., 2014), it is not the most direct interpretation or test of the theory. Fortunately, there have been a growing number of studies employing daily diary designs that adopt a more episodic approach to studying the job stress process (Ohly et al., 2010; Spector & Pindek, 2016). These studies assess the experience of stressors and outcomes such as strains or performance on a series of consecutive workdays, allowing for a comparison of within-person experiences and an examination of potential short-term outcomes that are better aligned with stress theories. Thus far, however, meta-analyses have primarily analyzed CHSF at a between-person level of analysis, despite the fact that its tenets are best interpreted and investigated using a within-person framework.

Therefore, the current meta-analysis seeks to highlight a neglected aspect to the growing dialogue around CHSF by investigating whether its tenets are supported in studies that adopt a more episodic/dynamic view of work experiences: namely, daily diary studies. Specifically, we examine the direct and indirect (via strain) short-term relationships between the two types of stressors (challenge and hindrance) and performance at the within-person level. An additional goal of this meta-analysis is to examine these relationships using a comparison of two dimensions of positive employee performance: task performance and organizational citizenship behaviors (OCBs; Borman & Motowidlo, 1997). We focus on these two performance variables because they are widely studied, central facets of job performance (Podsakoff et al., 2023), and because these two dimensions are closely related to the conceptual underpinnings of the challenge and hindrance stressors constructs as situations that either facilitate or inhibit growth and achievement. This meta-analysis therefore explores an important yet neglected aspect in refining the CHSF: the direct and indirect (via strain) within-person short-term effects of challenge and hindrance stressors.

The Challenge Hindrance-Stressor Framework

Since its introduction over twenty years ago, the CHSF has become a highly influential theoretical framework within the job stress literature. It was first proposed by Cavanaugh et al. (2000) and is rooted in the transactional model of stress (Lazarus & Folkman, 1984), which argues that appraisals are key in determining whether a situation is stressful, and how individuals subsequently respond. The CHSF also draws on work by Selye (1976) distinguishing "negative" from "positive" stress (i.e., "distress vs. "eustress").

The CHSF offers a parsimonious and highly practical distinction between its two categories of stressors. Challenge stressors are purported to present an opportunity for growth and personal accomplishment and should therefore have a positive effect on employee outcomes. Hindrance stressors, on the other hand, are posited to thwart goal accomplishment, and should therefore have a detrimental effect on employee outcomes. Of important note is the fact that these categorizations assume that certain types of work experiences are generally appraised by employees as threatening valued goals (i.e., "hindrances"), whereas other circumstances are generally appraised as opportunities to accomplish valued goals (i.e., "challenges"). Importantly, most of the empirical studies using this framework have been conducted at the between-person level. The CHSF's approach of a priori categorizing stressors as hindrance or challenge stressors, although practical, has been criticized as being overly simplistic. For example, in a cross-sectional study, Webster et al. (2011) directly measured employee

appraisals and found that workload (a challenge stressor) and role ambiguity (a hindrance stressor) were perceived as both a challenge and a hindrance simultaneously. Another study found that organizational constraints (a hindrance stressor) fostered both challenge and hindrance appraisals, and these appraisals explained the near-zero overall association between constraints and performance (Pindek & Spector, 2016a). Moreover, there are inconsistencies regarding the stressor-performance relationship: a recent meta-analysis (Mazzola & Disselhorst, 2019) employed an added methodological constraint, limiting included studies to those with stressors identified as challenge or hindrance stressors in the CHSF. They found near-zero associations between challenge stressors and both task performance and OCB, thus failing to replicate earlier meta-analytic findings (LePine et al., 2005).

Although there are conflicting arguments as well as findings regarding the stressor-performance relationship, the associations between stressors (challenge or hindrance) and strains are more consistent. Two meta-analyses by LePine et al. (2005) and Podsakoff et al. (2007) provide evidence for positive relationships between challenge stressors and strains (both physical and psychological). With regard to positively valenced outcomes, Podsakoff et al. (2007) failed to find a significant relationship between challenge stressors and job satisfaction and affective organizational commitment, though significant negative relationships were found between hindrance stressors and those job attitudes. The more recent meta-analysis by Mazzola and Disselhorst (2019) largely replicated these results. Therefore, the stressor-strain relationship appears to be consistent for both challenge and hindrance stressors.

Interestingly, the debate on the usefulness of the CHSF, together with the inconsistent findings for the stressor-performance relationships and the more consistent findings for the stressor-strain relationships, has been based mostly on findings from primary studies that are cross-sectional or longitudinal (Spector & Pindek, 2016). However, the rise of daily diary designs examining short-term stress responses has finally afforded the opportunity to meta-analytically investigate the dynamic effects of challenge and hindrance stressors on performance (both directly and indirectly via strain). The daily diary design is more closely aligned with the underlying episodic perspective that characterizes the CHSF and is thus better suited to evaluate whether the tenets of the theory regarding relationships with outcome variables are supported.

The Dynamic Aspect of the Challenge Hindrance-Stressor Framework

Daily diary studies include measures that repeat every day, allowing researchers to partition the overall variations among observations into within-person variance (representing higher or lower daily levels compared to the individual's own mean) and between-person variance (representing higher or lower overall levels for an individual compared to the sample's mean). These two components are mathematically orthogonal (Enders & Tofighi, 2007) and represent theoretically different meanings. For example, a high between-person workload level indicates that there is usually a lot to do for a specific person at their job, whereas a high within-person workload level indicates that it is a particularly busy day for them. Stress theories often describe processes using a language that can be applied to both levels, but applications of these theories have for the most part been conducted at the between-person level (Pindek et al., 2019). Because of its origins in the transactional model of stress (Lazarus & Folkman, 1984), the CHSF is based on the idea that individuals first perceive a particular demand or circumstance and appraise it as stressful, and in turn this appraisal leads to negative or positive work outcomes (Cavanaugh et al., 2000). When perceiving and appraising the situation as stressful, individuals also assess whether the situation has the potential to promote personal gain or growth (i.e., a challenge stressor), or if it mainly has the potential to inhibit such growth (i.e., a hindrance stressor). This additional appraisal affects the type of coping – that is, whether it entails an increase or decrease of effort which can lead to an increase or decrease in performance (LePine et al., 2005). These ideas are applicable when an individual appraises their typical level of stressors. For example, a nurse who typically has a high workload and is usually required to work at an intense pace may experience strain outcomes such as exhaustion, but also experience skill development, personal growth (e.g., self-efficacy), and better performance overall. At the within-person level, a nurse who is working a particularly busy shift is required to work quicker and harder than normal. On that shift, this nurse may experience more exhaustion than usual, but may also increase their effort to meet this demand. It is not clear to what extent employees acclimate to their typical levels of stressors, but there is likely some adaptation (see Burgess et al., 2022), at least when this level is not extreme. Nevertheless, it is likely that upward deviations from the typical level of challenge or hindrance would be experienced as a challenge or hindrance (respectively). Using our example, the nurse who typically has a high workload may have grown accustomed to it (at least when it is not extreme), but on days with an especially high workload that present a complex challenge, they may experience noticeable increases in both strain *and* performance, the expected pattern for challenge stressors.

It is important to note that some primary studies have recognized the value of applying the CHSF to the within-person level (e.g., Tadić et al., 2015). Additionally, a meta-analysis on the stressor-strain relationship in diary studies (Pindek et al., 2019) revealed that challenge and hindrance stressors

both have positive relationships with strain, which are similar in magnitude. However, the within-person stressor-performance relationship that is at the heart of the CHSF has not yet been the focus of a meta-analysis, and the magnitude of the relationships are not yet known (Podsakoff et al., 2023). Nevertheless, the direction of these effects is hypothesized here in alignment with the CHSF: a positive effect for challenge stressors and a negative effect for hindrance stressors. Therefore, we pose the following hypotheses:

Hypothesis 1a: There is a positive association between challenge stressors and performance at the within-person level.
Hypothesis 1b: There is a negative association between hindrance stressors and performance at the within-person level.

The Indirect Stressor-Performance Effect Via Strain

Although the CHSF was originally used to support *direct* relationships between the two types of stressors and various negative (e.g., strain) and positive (e.g., performance) outcomes, in their meta-analysis, LePine et al. (2005) suggested that stressors have both a *direct* effect on performance and an *indirect* effect via strain and motivation. This was also a prominent feature of the CHSF in a recent review (Podsakoff et al., 2023), which included a long list of variable categories as mediators in the model, some negatively valenced (i.e., psychological strains, physical strains) and others positively valenced (motivational processes, employee attitudes, and positive emotions). In the current meta-analysis, we use strains to model the indirect effect on performance. We define strains broadly, including both negatively and positively valenced variables. This is consistent with a prior meta-analysis of the stressor-strain relationship at the within-person level (Pindek et al., 2019), which found a positive association between daily stressors (challenge and hindrance) and a broadly-defined category of strains.

The negative impact of strains on performance is often understood through a resource-based perspective, as strain involves a loss of resources that can cause employees to disengage from their jobs in order to conserve mental resources (see Siu et al., 2013). Another way to explain the negative effects of strains on performance is simply that strains such as fatigue and exhaustion reduce the energy that could otherwise have been directed towards task performance (Cohen, 1980; LePine et al., 2005). The theorizing and pattern of results from the LePine et al. (2005) meta-analysis suggest that hindrance stressors have a negative effect on performance both directly and indirectly by increasing levels of strain. Challenge stressors, on the other hand, should have a more complicated relationship with performance: a positive direct effect on performance due to the potential to facilitate growth and achievement, but a negative indirect effect because of the increase in strain levels. Although the pattern of relationships in LePine et al.'s (2005) original meta-analysis was based on studies conducted at the between-person level, the underlying CHSF tenets are similarly, if not more, applicable at the within-person level. Therefore, we propose the following hypotheses:

Hypothesis 2: There is a negative association between strains and performance at the within-person level.
Hypothesis 3a: There is a positive direct association and a negative indirect association via *strain between challenge stressors and performance at the within-person level.*
Hypothesis 3b: There is a negative direct association and a negative indirect association via *strain between hindrance stressors and performance at the within-person level.*

An Exploratory Examination of Performance Types

When examining employee job performance, it has been argued that task performance and OCB are conceptually and empirically distinct, albeit strongly related aspects of job performance (Hoffman et al., 2007). In their meta-analysis, Hoffman et al. (2007) found that OCB consistently related more strongly to attitudes than did task performance. This is perhaps not surprising, considering that OCB is somewhat more discretionary than task performance. These two aspects of positive performance were discussed in another meta-analysis focused on the stressor-OCB relationship (Eatough et al., 2011). That meta-analysis, conducted at the between-person level, examined two hindrance stressors, role ambiguity and conflict, and one challenge stressor, overload. They found a negative relationship between both hindrance stressors and OCB, and no relationship between the challenge stressor and OCB. These results were recently replicated in another meta-analysis (Mazzola & Disselhorst, 2019), where a similar pattern emerged for OCB and task performance.

Based on the CHSF, it is hard to predict whether the effects of daily challenge and hindrance stressors on performance would differ by the type of performance. With regard to challenge stressors, on the one hand, on a day with high levels of challenge stressors, employees may feel they can do more than their job prescribes, which aligns with a resource-building perspective (Hobfoll, 1989; Hobfoll et al., 2018) and the definition of challenge stressors as facilitating growth and achievement. This line of thinking suggests a stronger positive effect on daily OCB than on task performance. Conversely, some challenge stressors (e.g., workload) may leave the employee with

little time to do anything beyond what is strictly defined as their tasks for the day, suggesting a stronger effect for task performance.

As for hindrance stressors, which are defined as constraining growth and achievement, a conservation of resources perspective (Hobfoll, 1989; Hobfoll et al., 2018) suggests that an employee who has to deal with a high level of hindrance stressors on a specific day may focus only on the parts of the job that absolutely need to be done (task performance) and refrain from investing resources in additional aspects of the job (OCB). This rationale points to a more detrimental impact on daily OCB than on task performance. On the other hand, some hindrance stressors (e.g., organizational constraints) are considered barriers for in-role performance (Pindek & Spector, 2016b), despite the fact that they sometimes have null or even positive associations with OCB (Spector et al., 2010). This suggests stronger negative effects of hindrance stressors on task performance.

As evidenced in the discussion above, an additional layer of complexity arises when considering that there can be substantial differences between specific stressors within each category of challenge or hindrance. For example, Eatough et al. (2011) found that one hindrance stressor, role ambiguity, was more strongly associated with task performance than with OCB, but another hindrance stressor, role conflict, showed the opposite pattern. Given the lack of clear theoretical and empirical support for one pattern over another, we address these relationships as a research question rather than a directed hypothesis:

RQ1: How will the effects of challenge and hindrance stressors on performance differ by the type of performance (task versus OCB)?

Method

Transparency and Openness

We describe our sampling plan, all data exclusions, and all manipulations in the study. Data were analyzed using R, version 4.2.2 (R Core Team, 2020) and the package "psychmeta", version 2.6.5 (Dahlke & Wiernik, 2019). All data and analysis code are available at https://osf.io/r7xeq/?view_only=bb718fcbdd6f455393f571314fe5dd4a.

Literature Search

We used several strategies for our search. Our main systematic search was conducted in PsycInfo on the 4th of September 2020 and was updated on 4th of November 2021, using the same search terms. This search included all results, books, dissertations, and academic journals until that date. The following key search terms and phrases were used: daily diary OR diary study OR experience sampling OR within person AND work OR organization OR employee. The 2020 search yielded a total of 1,916 articles; the 2021 search yielded an additional 379 articles. Combining both searches, 2,295 articles were screened initially, using the title and abstract. Of those, 201 full texts were reviewed based on our inclusion criteria.

We then conducted a second search in the Web of Science interface, limited to November 4th, 2021, for consistency with the main search. We included all databases within the Web of Science interface, and therefore used additional search terms with an AND operator, to make the search results more manageable. We created a long list of terms based on the variable names in the included studies from the main search, separated by the OR operator (e.g., "Challenge Stressors" OR "Emotional Demands" OR "Hindrance Stressors" OR "Interpersonal conflict" OR "Interruptions" etcetera). The full list is available in the associated OSF repository.

In addition, we searched through conference proceedings (Academy of Management and Society for Industrial and Organizational Psychology) from 2020 onwards. We identified nine relevant papers or symposia and contacted the authors for the correlations. Two conference presentations have since been published (and included) and two additional studies were included based on the information sent by the authors.

Finally, we conducted forward and backward searches on four papers that are central to the current meta-analysis (LePine, 2022; Mazzola & Disselhorst, 2019; Pindek et al., 2019; Podsakoff et al., 2023). Beyond papers that were already included based on the main and second literature searches, the forward and backward searches resulted in one additional dissertation that was included.

Inclusion Criteria

To be included in this meta-analysis, primary studies had to be in English and meet four inclusion criteria: (1) participants had to be employees, (2) the study had to use a within-person "daily diary" or experience sampling method design, (3) both a job stressor and/or a strain and performance variable must have been measured on a daily/repeated basis, and (4) both within- and between-person correlations between job stressor and/or strain and performance were reported. If correlations were missing, we contacted the corresponding author for them.

Studies were excluded if they were not a daily diary design (e.g., weekly-, event-level, or experimental studies). We also excluded studies if the performance variable was measured before the stressor/strain within the day, and if the

strain was measured prior to work (indicating it may be a home strain rather than a work strain). We did not include variables commonly conceptualized as job resources (e.g., job autonomy, social support, or job crafting). We also excluded work-family conflict, as it involves both the work and nonwork domains. We focused on task performance and OCB, the two job performance aspects highlighted by Podsakoff et al. (2023) but excluded other types of desirable performance outcomes (e.g., safety performance, creative performance). We also exclude counterproductive work behaviors, which can be categorized either as a behavioral strain (e.g., Pindek et al., 2019) or as a (negative) performance measure, and are therefore difficult to model here. Similarly, the CHSF model in Podsakoff et al.'s (2023) review lists only specific withdrawal behaviors (e.g., turnover, which is not relevant for diary studies) and not general CWB as relevant outcomes of the model. Nevertheless, the results of the analyses using CWB as an outcome are included in the online supplemental material. In total, 74 articles (78 unique samples) including 230 relevant correlations (81 for stressor-performance and 149 for strain-performance) met our inclusion criteria. An overview of the selection process used to identify the relevant samples is presented in Fig. 1.

Coding of Studies

All primary studies were double coded. The second and third authors independently coded all primary articles for this study. The coding instructions consisted of specific directions for coding each variable in the meta-analysis along with examples. The training included independently coding the same set of 10 primary studies and a following discussion to ensure an accurate understanding of the coding materials. Following that training, each coder independently coded the remaining articles. Any discrepant coding was resolved in a discussion with the remaining authors.

The following information was coded for each study: between-person and within-person sample size and correlations among relevant variables (stressors and performance and/or strains and performance), and the Cronbach's alpha for the variables. Between-person level correlations are based on variables aggregated to the person-level, and

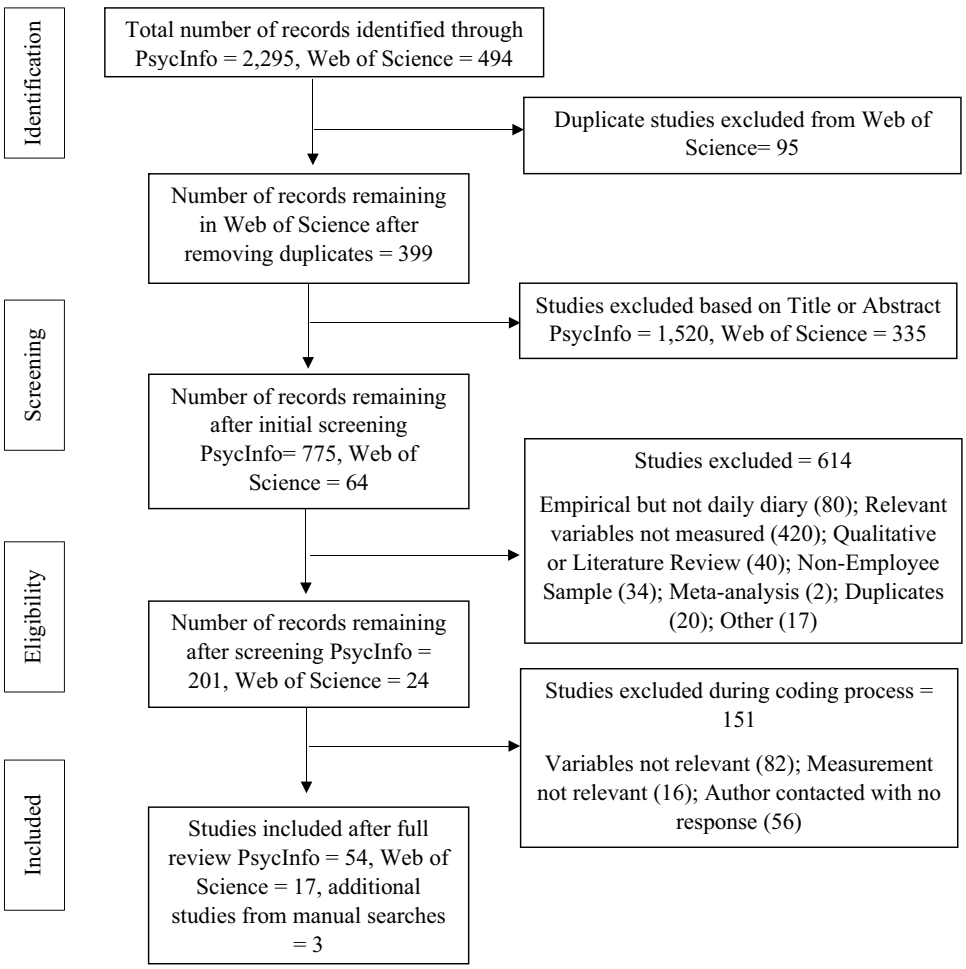


Fig. 1 Flow diagram of the selection process

within-person level correlations are based on variables that are centered around each person's mean.

The within- and between-person sample size were both coded. In some cases, a range was provided for the sample size. In these cases, we used the lower bound of the sample size. The median within-level *N* was 811 and the median between-level *N* was 127. The median number of days in the diary studies was 10.

The samples had 57% females on average, originated from various countries (Australia, Austria, Brazil, Belgium, Canada, China, Germany, Israel, Netherlands, South Korea, Sweden, United Kingdom, United States). Samples were either occupation specific (e.g., call center employees, hotel employees, nurses) or general employees, typically recruited using snowball sampling. Most studies were published in peer-reviewed journals (only nine studies were dissertations that were not yet published, of those, five contribute to the stressor-performance data and seven to the strain-performance data).

Stressors were categorized as either challenge or hindrance stressors in line with prior meta-analyses (e.g., LePine et al., 2005; Mazzola & Disselhorst, 2019) and reviews (e.g., Podsakoff et al., 2023). Examples of challenge stressors include problem-solving demands, work/job demands, job complexity, workload/time pressure, and deep acting. Examples of hindrance stressors include abusive supervision, interpersonal conflict, bullying/social exclusion, constrains/interruptions, injustice/mistreatment/incivility, surface acting, emotional dissonance, self-control demands, illegitimate tasks, role/task conflict, job insecurity, negative events, social stressors, unpleasant work conditions, unfinished tasks.

For strains, we focused on psychological/affective strains, including negative affect/mood, boredom, anger, depression, emotional exhaustion, cynicism, and rumination, as well as engagement and job satisfaction, both reverse-scored, in line with previous meta-analyses (e.g., Pindek et al., 2019). We excluded physical strain because those were only reported in two samples.

Lastly, performance was categorized into two indicators: task performance and OCB (self-reported). For the purpose of creating the meta-analytic correlations matrix that is used for the path analysis, we also coded the relationships between challenge and hindrance stressors, and between task performance and OCB (at the within-person level) based only on the samples that were coded for the stressor-performance and strain-performance analyses.

Meta-Analytic Procedure

We employed the Hunter and Schmidt (2004) psychometric meta-analytic approach, which uses sample sizes as weights for each effect size. We used the number of participants as the sample size at the between-person level, and the number of recorded points/days of data as the within-person sample size. For example, if a study had a sample of 100 employees who completed 5 days of daily measures with no missing data, the between-person sample size was 100 and the within-person sample size was 500. If there were missing days for participants, the within-person sample size was smaller. This is how within-person sample sizes are treated in the primary studies, as reflected in both the reported correlation matrixes as well as the more comprehensive models that are included in those studies. The Hunter and Schmidt (2004) approach follows a random-effects model, thus assuming there can be more than one true population value among the included studies (Hunter & Schmidt, 2000; Schmidt et al., 2009). This approach also typically includes corrections for measurement error, disattenuating observed correlations and estimating the "true" population estimates. However, because almost all of the included studies reported Cronbach's alpha while disregarding the multilevel nature of the data, correcting for unreliability in this case would not have produced a precise estimate of the true effect size. Nevertheless, the results of the analyses using corrected coefficients are included in the online supplemental material. Finally, we handled non-independent effects from the same sample by creating latent composites using the package "psychmeta".

We report mean observed correlations and their standard deviations ($\bar{r}$ and SD_r), residual standard deviations of r (SD_r), 95% confidence intervals around $\bar{r}$ (95% CI), and 80% credibility intervals around $\bar{r}$ (80% CR) that reflect heterogeneity in the population effects.

For the path analyses, we first created a meta-analytic correlation matrix, and then used Mplus (Muthén & Muthén, 1998–2012) with a Maximum Likelihood estimator to test the entire model at once. We tested the hypothesized model (Model 1, see Fig. 2), and an additional model that examined task performance and OCB as separate outcomes (Model 2, see Fig. 3). Testing entire models at once allowed us to account for intercorrelations between all variables and to isolate the unique (nonshared) effects of each hypothesized path (Shockley et al., 2017). The path analyses were only conducted at the within-person level, as that is the main level of interest in this study. The meta-analytic correlation matrix was created using (1) estimates calculated for the main meta-analysis; (2) additional estimates calculated from the same samples, that were not included in the main meta-analysis (i.e., correlation between challenge and hindrance stressors, and correlations between task performance and OCB); and (3) estimates from the Pindek et al. (2019) meta-analysis of the stressor–strain relationship in diary studies (i.e., the correlations between each type of stressor and strain). The harmonic means for Models 1 ($N = 20{,}291$) and 2 ($N = 13{,}435$) were used for

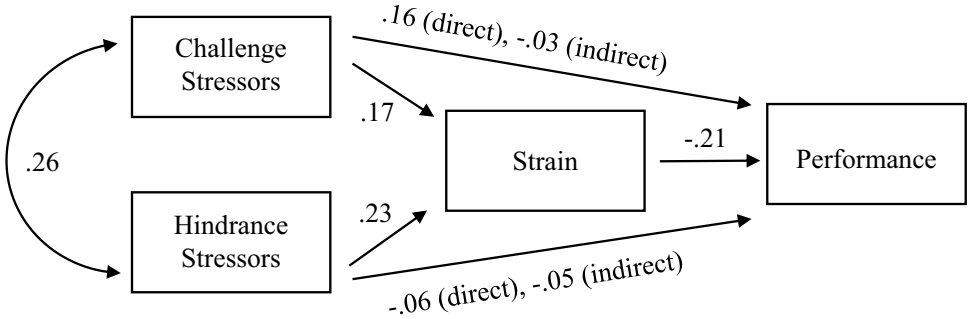


Fig. 2 Model 1 testing of the within-person level direct and indirect relationships between challenge and hindrance stressors and performance via affective strain. All direct and indirect paths are significant at $p < .001$

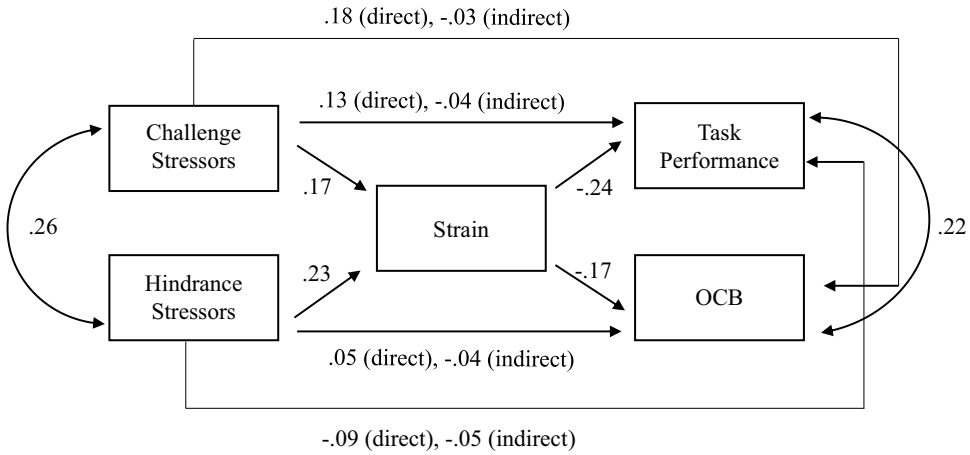


Fig. 3 Model 2 testing of the within-person level direct and indirect relationships between challenge and hindrance stressors and two performance indicators (task performance and OCB) via affective strain. All direct and indirect paths are significant at $p < .001$

the path analyses. Estimating all possible paths resulted in just-identified models.

Results

Main and Moderator Effects

The results of the main meta-analysis are presented in Tables 1 and 2 for the within- and between-levels of analysis, respectively. The within-person level analysis is the focus of this paper, and the between-level results are reported for comparison. In keeping with the traditional 0.05 threshold for significance when interpreting our results, we consider a meta-analytic estimate as significantly different from zero if its 95% CI excludes zero, and two estimates as different from each other if each one falls outside the CI of the other.

As seen in Table 1, there was no overall association between stressors (combining challenge and hindrance) and performance (task and OCB) at the within-person level ($r = -0.02$, 95% CI [−0.08, 0.04]), but there was a sizeable credibility interval (80% CR [−0.29, 0.25]), suggesting there can be potential moderators for this relationship and justifying our main analyses by categories. Indeed, there was a small positive association between challenge stressors and performance ($r = 0.09$, 95% CI [0.02, 0.16]), and a non-significant negative association between hindrance stressors and performance ($r = -0.08$, 95% CI [−0.15, 0.00]) at the within-person level, providing support for *Hypotheses 1a* but not for *1b*. When examining the results by different performance measures (i.e., OCB and task performance, combining both stressor types), there were no significant associations, demonstrating the importance of the challenge-hindrance distinction. Furthermore, in support of *Hypothesis 2*, there was a significant negative association between strains and performance at the within-person level ($r = -0.19$, 95% CI [−0.23, −0.14]), and a sizeable credibility interval (80% CR [−0.41, 0.03]), justifying additional analyses by categories. When examining the results by different performance types, though all were significantly different from zero, the association between strain and task performance ($r = -0.23$, 95% CI [−0.29, −0.18]) was stronger than the association with OCB ($r = -0.12$, 95% CI [−0.17, −0.06]), with each estimate outside of the CI of the other estimate.

The results at the between-person level are presented in Table 2. At this level, challenge stressors had a small positive association with performance ($r = 0.13$, 95% CI = [0.03, 0.23]), whereas hindrance stressors had a negative but non-significant association with performance ($r = -0.09$, 95% CI = [−0.18, 0.01]). There was a significant negative association overall between strains and performance ($r = -0.28$, 95% CI = [−0.35, −0.21]).

Table 1 Within-person level stressor-performance and strain-performance meta-analytic correlations

Correlation variables	*k*	*N*	$\bar{r}$	SD_r	SD_{res}	95% CI $_r$	80% CR $_r$
Stressor-performance							
General	46	33 562	−.02	.21	.21	[−.08, .04]	[−.29, .25]
By stressor							
Challenge	31	19 937	.09	.19	.18	[.02, .16]	[−.15, .33]
Hindrance	26	22 431	−.08	.19	.18	[−.15, .00]	[−.32, .16]
By performance type							
Task	37	26 370	−.07	.20	.19	[−.13, .00]	[−.32, .18]
OCB	14	11 707	.09	.17	.16	[−.01, .19]	[−.13, .31]
Strain-performance							
General	62	52 271	−.19	.17	.17	[−.23, −.14]	[−.41, .03]
By performance type							
Task	42	36 789	−.23	.17	.16	[−.29, −.18]	[−.45, −.02]
OCB	32	25 481	−.12	.16	.16	[−.17, −.06]	[−.32, .09]

k Number of studies contributing to meta-analysis; *N* Total sample size; $\bar{r}$ Mean observed correlation; SD_r Observed standard deviation of *r*; SD_{res} Residual standard deviation of *r*; CI_r Confidence interval around *r*; CR_r Credibility interval around *r*

Table 2 Between-person level stressor-performance and strain-performance meta-analytic correlations

	k	*N*	$\bar{r}$	SD_r	SD_{res}	95% CI $_r$	80% CR $_r$
Stressor-performance							
General	46	5 906	.00	.28	.27	[−.09, .08]	[−.35, .34]
By stressor							
Challenge	31	3 615	.13	.27	.25	[.03, .23]	[−.20, .46]
Hindrance	26	3 720	−.09	.24	.23	[−.18, .01]	[−.39, .22]
By performance type							
Task	37	4 818	−.06	.25	.24	[−.14, .02]	[−.37, .25]
OCB	14	1 664	.17	.29	.27	[.00, .33]	[−.20, .53]
Strain-performance							
General	62	7 632	−.28	.27	.26	[−.35, −.21]	[−.61, .05]
By performance type							
Task	42	5 481	−.34	.25	.24	[−.42, −.26]	[−.66, −.03]
OCB	32	3 447	−.16	.26	.24	[−.25, −.07]	[−.47, .15]

k Number of studies contributing to meta-analysis; *N* Total sample size; $\bar{r}$ Mean observed correlation; SD_r Observed standard deviation of *r*; SD_{res} Residual standard deviation of *r*; CI_r Confidence interval around *r*; CR_r Credibility interval around *r*

To answer *Research Question 1* and further disentangle the effects of the type of stressors (challenge or hindrance) and type of performance (task or OCB) at the within-person level, we report these additional analyses in Table 3. As can be seen, challenge stressors had a significant positive association with OCB ($r = 0.15$, 95% CI = [0.05, 0.26]), but no association with task performance ($r = 0.05$, 95% CI = [−0.03, 0.12]), though these two estimates were not significantly different from each other. Conversely, hindrance stressors had a significant negative association with task performance ($r = -0.12$, 95% CI = [−0.19, −0.05]), but no association with OCB ($r = 0.05$, 95% CI = [−0.09, 0.19]), and these two estimates were significantly different from each other.

Timing of Measurements

As an additional analysis, we compared concurrent effects (i.e., when the stressor/strain variable and the performance variable were measured at the same time point within the day) with lagged effects (i.e., when the stressor/strain variable was measured at an earlier time point within the day, and the performance variable was measured later that day). The results are presented in Table 4. There were fewer

Table 3 Within-person level stressor-performance meta-analytic correlations by types of stressors and performance

Correlation variables	*k*	*N*	$\bar{r}$	SD_r	SD_{res}	95% CI $_r$	80% CR $_r$
Task performance							
Challenge	25	15 865	.05	.18	.17	[−.03, .12]	[−.18, .28]
Hindrance	22	18 276	−.12	.17	.16	[−.19, −.05]	[−.34, .10]
OCB							
Challenge	10	7 163	.15	.15	.15	[.05, .26]	[−.05, .36]
Hindrance	7	7 657	.05	.15	.14	[−.09, .19]	[−.16, .26]

k Number of studies contributing to meta-analysis; *N* Total sample size; $\bar{r}$ Mean observed correlation; SD_r Observed standard deviation of *r*; SD_{res} Residual standard deviation of *r*; CI_r Confidence interval around *r*; CR_r = Credibility interval around *r*

lagged effects than concurrent ones, and the lagged effects were not significant for challenge stressor-performance (k = 12, *N* = 7,284, *r* = 0.04, 95% CI = [−0.07, 0.14]), hindrance stressor-performance (k = 7, *N* = 5,207, *r* = 0.05, 95% CI = [−0.07, 0.17]), or strain-performance (k = 15, *N* = 15,723, *r* = −0.10, 95% CI = [−0.19, 0.00]).

Path Analysis

The meta-analytic correlation matrix is presented in Table 5, and the results from the two full models that were estimated, including the path estimates, are presented in Table 6 and Fig. 2 (Model 1—hypothesized) and 3 (Model 2—examining task performance and OCB as separate outcomes). These models included all direct and indirect paths, and all paths were significant and in the expected directions (now supporting *Hypotheses 1b*). Specifically, in line with *Hypothesis 3a*, and based on Model 1, the indirect path via strain from challenge stressors to performance was negative ($b = -0.04$, $SE = 0.002$, $p < 0.001$), whereas the direct effect was positive ($b = 0.16$, $SE = 0.01$, $p < 0.001$). In line with *Hypothesis 3b*, the indirect path via strain from hindrance stressors to performance was negative ($b = -0.05$, $SE = 0.002$, $p < 0.001$), and the direct effect was also negative ($b = -0.06$, $SE = 0.01$, $p < 0.001$). The results from Model 2 were largely similar, with additional findings regarding the differences between challenge and hindrance stressors in how they are associated with task performance and OCB. Specifically, challenge stressors had a significantly stronger direct effect on OCB ($b = 0.18$, $p < 0.001$, 95% CI = [0.16, 0.19]) than on task performance ($b = 0.13$, $p < 0.001$, 95% CI = [0.11, 0.14]), as the 95% CIs do not overlap. Conversely, hindrance stressors had a significantly stronger direct effect on task performance ($b = -0.09$, $p < 0.001$, 95% CI = [−0.11, −0.07]) than on OCB ($b = 0.05$, $p < 0.01$, 95% CI = [0.03, 0.07]).

As a robustness check, we compared our results for the negatively and positively valenced strains, because we included (reversed coded) positive variables as strain. We first compared the direct strain-performance relationship between positive (e.g., job satisfaction) and negative (e.g., emotional exhaustion) strains and found that the strain-performance relationship was significantly stronger for the positively valenced variables (reversed sign: k = 36, *N* = 32,021,

Table 4 Subgroup analysis by timing of measurements

	k	*N*	$\bar{r}$	SD_r	SD_{res}	95% CI $_r$	80% CR $_r$
Challenge-performance							
All	31	19 937	.09	.19	.18	[.02, .16]	[−.15, .33]
Concurrent	20	12 828	.12	.19	.19	[.03, .21]	[−.13, .37]
Lagged	12	7 284	.04	.17	.17	[−.07, .14]	[−.19, .26]
Hindrance-performance							
All	26	22 431	−.08	.19	.18	[−.15, .00]	[−.32, .16]
Concurrent	21	18 514	−.10	.20	.19	[−.19, −.01]	[−.36, .16]
Lagged	7	5 207	.05	.13	.12	[−.07, .17]	[−.13, .23]
Strain-performance							
All	62	52 271	−.19	.17	.17	[−.23, −.14]	[−.41, .03]
Concurrent	56	44 345	−.20	.17	.17	[−.24, −.15]	[−.41, .02]
Lagged	15	15 723	−.10	.17	.16	[−.19, .00]	[−.32, .12]

k Number of studies contributing to meta-analysis; *N* Total sample size; $\bar{r}$ Mean observed correlation; SD_r Observed standard deviation of *r*; SD_{res} Residual standard deviation of *r*; CI_r Confidence interval around *r*; CR_r Credibility interval around *r*

Table 5 Within-person level meta-analytic correlation matrix

	Challenge	Hindrance	Strain	Task performance
Hindrance	.26			
N (k)	10,071 (14)			
Strain	.23 [a]	.27 [a]		
N (k)	18,760 (21)	34,220 (37)		
Performance	.09	− .08	− .19	
N (k)	19,937 (31)	22,431 (26)	52,271 (62)	
Task performance	.05	− .12	− .23	
N (k)	15,865 (25)	18,276 (22)	36,789 (42)	
OCB	.15	.05	− .12	.26
N (k)	7163 (10)	7657 (7)	25,481 (32)	9251 (11)

Correlations in matrix represent $\bar{r}$, the number below each correlation reflects total sample size, and the number of samples (k) is in parentheses. [a] Estimates are from the Pindek et al. (2019) meta-analysis. Model 1 used Performance with a harmonic mean of 20,291. Model 2 used Task performance and OCB with a harmonic mean of 13,435

Table 6 Within-person level meta-analytic path-analysis estimates

	Based on $\bar{r}$		
Path	*b*	S.E	95% CI
Model 1			
Direct effects			
Challenge stressor—> Strain	.17**	.01	[.16, .19]
Hindrance stressor—> Strain	.23**	.01	[.21, .24]
Strain—> Performance	− .21**	.01	[− .22, − .19]
Challenge stressor—> Performance	.16**	.01	[.14, .17]
Hindrance stressor—> Performance	− .06**	.01	[− .08, − .05]
Indirect effects			
Challenge stressor—> Strain—> Performance	− .04**	.002	[− .04, − .03]
Hindrance stressor—> Strain- > Performance	− .05**	.002	[− .05, − .04]
Model 2			
Direct effects			
Challenge stressor—> Strain	.17**	.01	[.16, .19]
Hindrance stressor—> Strain	.23**	.01	[.21, .24]
Strain—> Task performance	− .24**	.01	[− .25, − .22]
Strain—> OCB	− .17**	.01	[− .19, − .16]
Challenge stressor—> Task performance	.13**	.01	[.11, .14]
Hindrance stressor—> Task performance	− .09**	.01	[− .11, − .07]
Challenge stressor—> OCB	.18**	.01	[.16, .19]
Hindrance stressor—> OCB	.05**	.01	[.03, .07]
Indirect effects			
Challenge stressor—> Strain—> Task performance	− .04**	.002	[− .05, − .04]
Challenge stressor—> Strain—> OCB	− .03**	.002	[− .03, − .03]
Hindrance stressor—> Strain- > Task performance	− .05**	.003	[− .06, − .05]
Hindrance stressor—> Strain- > OCB	− .04**	.002	[− .04, − .03]

CI Confidence interval. ** $p < .001$

$r = -0.30$, 95% CI = [− 0.36, − 0.25]) than for the negatively valenced ones (k = 44, $N = 39{,}278$, $r = -0.09$, 95% CI = [− 0.13, − 0.05]), though both were significant. Next, we examined the path analyses separately for negatively and positively valenced variables and found that both resulted in path analyses in which all the paths are significant, supporting our hypotheses. These results are available in the associated OSF repository.

Publication Bias and Outliers

Publication bias was tested by comparing the results from published versus unpublished studies. We also conducted a sensitivity analysis using the leave-one-out method. Furthermore, we examined the correlations between correlation coefficients and their associated sample size (Begg & Mazumdar, 1994; Schmidt & Hunter, 2015). Finally, we examined the results after removing sample size outliers. Samples ranged in their within-person N from 126 to 2913, but only three studies had a within-person N of over 2000, and we considered these to be sample size outliers. It is noteworthy that the largest within-person N (2913) originated from an unpublished study.

In order to compare the results from published versus unpublished studies, we examined challenge stressors, hindrance stressors, and strains separately. The strain-performance relationship was nearly identical for 55 published ($r = -0.19$, 95% CI [−0.24, −0.14]) versus seven unpublished studies ($r = -0.18$, 95% CI [−0.26, −0.09]). The estimated challenge stressor-performance relationship was nearly identical for the 28 published ($r = 0.09$, 95% CI [0.02, 0.16]) and the three unpublished studies ($r = 0.09$, 95% CI [−0.33, 0.51]). However, the estimate for the three unpublished studies for hindrance stressors ($r = -0.32$, 95% CI [−0.72, 0.09]) was outside the CI for the 23 published studies ($r = -0.03$, 95% CI [−0.10, 0.03]). This result was driven by a sample size outlier, as discussed below.

The leave-one-out method performs a meta-analysis on each subset of studies created by removing one sample. The results of the current meta-analysis ranged between $r = 0.07$ and $r = 0.11$ for challenge stressors-performance relationship, and between $r = -0.18$ and $r = -0.19$ for the strain-performance relationship, indicating there is little impact from dropping each one study. However, there was a somewhat wider range for the hindrance stressor-performance relationship, between $r = -0.03$ and $r = -0.09$. The Pearson correlation coefficient between effect sizes and their corresponding sample sizes were not significant for challenge stressors ($r = 0.08$, $p = 0.62$, $k = 40$), hindrance stressors ($r = -0.17$, $p = 0.32$, $k = 36$), or strains ($r = 0.00$, $p = 0.99$, $k = 149$). Because the correlation was small or near zero for challenge stressors and strains, we concluded that there is no evidence for publication bias. Nevertheless, this test is underpowered for small meta-analyses and the correlations between sample size and effect size was small-medium sized for hindrance stressors and performance. Therefore, we examined this correlation after removing the sample size outlier and found that the correlation was now opposite in sign ($r = 0.14$, $p = 0.42$, $k = 35$). We therefore concluded that this effect was driven by the sample size outlier.

In order to conduct the sample size outlier analysis, we examined hindrance stressors (which had one sample size outlier), and strains (which had two sample size outliers) separately, comparing the main reported results with the results obtained after removing the sample size outliers (there were no sample size outliers in the challenge stressor data). The main results for hindrance stressors (main: $r = -0.08$, 95% CI [−0.15, 0.00], without the outlier: $r = -0.03$, 95% CI [−0.10, 0.03]) and strains (main: $r = -0.19$, 95% CI [−0.23, −0.14], without outliers: $r = -0.18$, 95% CI [−0.23, −0.13]) did not change substantially, and the interpretation of the results remained the same.

Discussion

The current meta-analysis examined the CHSF using a within-person perspective. The CHSF has received a significant amount attention in the literature and has been the subject of several meta-analyses (e.g., LePine et al., 2005; Mazzola & Disselhorst, 2019), but prior research has largely focused on between-person differences, neglecting the more dynamic short-term effects that are typically captured in daily diary designs. The current meta-analysis revealed that, in line with the CHSF, daily challenge stressors have a positive direct association with daily performance, but a negative indirect association via strain. Hindrance stressors have a negative direct and indirect (via strain) association with performance.

Theoretical Implications

As the debate surrounding the usefulness of the CHSF at the between-person level continues, the current study addressed a critical, though often overlooked, question: how well the theory holds up to systematic empirical synthesis at the within-person level. We found general support for the main tenets of the CHSF when used to categorize stressors a priori at the within-person level. That is, when an employee experiences a higher level of hindrance stressors on a specific day, they will also experience lower performance, both directly and indirectly via strain. For a day with higher levels of challenge stressors, there will be both a positive direct effect on performance as well as a negative indirect effect via strain. This pattern of results is a precise reflection of the CHSF theorizing and in line with one prior meta-analysis at the between-person level (LePine et al., 2005), but is in contrast to another recent meta-analysis which failed to replicate this pattern (Mazzola & Disselhorst, 2019). Perhaps this is due to our focus on the within-person level, whereby the levels of daily stressors are in reference to that person's average (across the span of the study) rather than a general appraisal of the stressor level where the reference point in unknown (Pindek et al., 2022). Most studies on employees' work

experiences to date have been conducted at the between-person level. A key feature of this level is that individuals belong to a social group, allowing for social comparisons (Festinger, 1954). Comparisons to others within this group are likely in stressful situations that tend to be high on uncertainty and frustration, and these comparisons can change how individuals perceive and adapt to their stressful job environments (Buunk & Ybema, 1997). Perhaps these comparisons underlie the importance of appraisals of the stressors they encounter as challenging or hindering at the between-person level (e.g., Black & Britt, 2023; Greulich et al., 2023). Our finding at the within-person level suggests that daily fluctuations in stressors, based on comparisons within the individual, play an important role in the CHSF—a role beyond the general person levels which are likely influenced by comparison to others.

In addition, when we examined concurrent versus lagged (within the day) effects of stressors and strains on performance, we found that concurrent effects were stronger than lagged effects. Interestingly, in our meta-analysis none of the examined lagged effects were significant. While this result is based on a small number of samples, it does point to a more complicated process than what is captured only by the CHSF. For one, it is possible that the effects of episodic exposure to stressors are generally very short-term and dissipate quickly. This of course does not mean these short-term effects are not important, as prior evidence suggests that the effects of chronic stressors build up through cumulative exposure (Ford et al., 2014). Another potential explanation is that different stressors or strains have different temporal patterns. As an example, the within-person (daily) stressor-strain relationship has a different temporal pattern depending on the type of strain, whereby the stressor-emotional strain association is stronger when the measures are lagged than when they are concurrent, but the opposite pattern emerges for stressor- behavioral/physical strain (Pindek et al., 2019). Similarly, the temporal patterns of the stressor-performance and strain-relationship may not be uniform across different specific stressors, and different types of strains and performance.

As an additional contribution to our understanding of how challenge and hindrance stressors affect different aspects of performance, the current meta-analysis examined two indicators of performance: task and OCB. The results revealed that at the within-person level, challenge stressors have a somewhat stronger (positive) association with OCB than with task performance (where the relationship is not significant), although this difference is not significant. Conversely, hindrance stressors have a significantly stronger (negative) association with task performance than with OCB. This pattern for challenge stressors provides additional credence to the resource building perspective (Hobfoll, 1989; Hobfoll et al., 2018), which stipulates that when levels of challenge stressors are higher than typical, employees may feel higher levels of growth and achievement, leading them to do more than just their tasks and ultimately gain more resources. However, the pattern for hindrance stressors did not follow the idea that conservation of resources results in a focus on task performance and a reduction in OCB. Perhaps this is because at least some hindrance stressors inhibit task performance but still allow for or even encourage OCB (Spector et al., 2010). Another possible explanation for the null effect on OCB is that different people cope differently with hindrance stressors: some employees may decrease their OCB levels along with their decreased task performance to conserve resources, whereas others engage in more OCB as a means of compensating for their underperformance (see Koopman et al., 2016). This is an area where future research is warranted.

Limitations and Future Directions

This meta-analysis has several limitations. First, the relatively small number of samples prevented us from examining certain types of strains (physical and behavioral) and performance (creative and safety). We also could not examine the stressor-performance and strain-performance relationships using a more fine-grained approach, by examining specific stressors, specific strains, and specific occupational groups. Different combinations of these factors may result in different result patterns. Some specific combinations of stressors, strains, and occupational groups are particularly interesting. For example, future studies could examine physical strain in occupations with physical demands (e.g., nursing), where a physical strain could prevent the employee from performing well.

A second limitation is the generalizability of our results to regions of the world that are not represented among the countries where data was collected for our included samples (e.g., countries in Africa). This is important because the nature and prevalence of job stressors and strains can be different depending on employees' cultural or national backgrounds (e.g., Liu et al., 2007). In order to overcome this limitation in the future, we encourage researchers to conduct more primary studies that use a daily diary design in underrepresented countries.

A third limitation of the current meta-analysis is that it is not suited to directly test causality or even the direction of effects. Although most theories propose that situational factors such as stressors are perceived, which in turn results in decrements to well-being and performance, poor performance is likely another stressor in and of itself that holds potential implications for strain and OCB (Pindek, 2020). In this meta-analysis, we only included studies where the measurement of stressor (or strain) was concurrent with or preceded the measurement of performance. With the available

samples, we were able to uncover that the concurrent associations were stronger than the lagged associations. This has implications for researchers who are planning the measurement points within each day when designing their daily diaries. Unfortunately, there were too few studies with such a time separation between measurements to allow for a more in-depth examination that also accounts for different strains and performance variables. Future studies could examine the potential cycle of stressors and strains leading to changes in performance, that consequently lead to further changes in stressors. These cycles are likely different for hindrance and challenge stressors. Considering underperformance as a hindrance stressor, the underperformance as a stressor framework (Pindek, 2020) explains how underperformance can result in additional strain, but future studies could expand on this by examining if it also leads to additional hindrance stressors. For example, if a service employee encounters a constraint that leads to strain, and consequently provides lower service quality that day (i.e., underperforms), would this employee then face additional hindrance stressors such as increased customer incivility (e.g., Arvan et al., 2020)? Moreover, daily challenge stressors may lead to additional challenge stressors because of the increase in performance. For example, a nurse with a higher workload one day, leading to a better performance level, may receive a high workload again the next day, not only because the level of understaffing remains similar in the department, but also because they successfully met their higher demands the day before.

A fourth limitation stems from the design of diary studies. Our focus was on the within-person level. The included studies also reported the between-person level, which reflects the aggregate of the daily measurement points. However, this average is not a good assessment for longer-term between-person differences, and any conclusions about more stable effects are limited to what is stable over a week or two. These estimates are ill-suited to reflect longer work cycles that characterize many jobs (e.g., yearly tax season for accountants, yearly peak times in hospitals for healthcare professionals etc.). Therefore, this meta-analysis cannot adequately inform us on the between-person level, and for this reason, we did not compare the results for the within-person level with those of the between-person level.

A fifth limitation stems from using the within-person samples sizes reported in primary studies for weighing each sample. Although the reported within-person samples sizes are the best existing solution for this purpose, we acknowledge that the within-person sample size is comprised of non-independent data points which may bias the results. We call for the development of procedures that can correct for this biasing effect.

Finally, we could not provide precise population estimates based on corrections for unreliability (true-score correlation, or $\overline{\rho}$) because most primary studies did not provide within-person estimates of the reliability of their measures. For this reason, we focused on the uncorrected correlations in this meta-analysis. Nevertheless, when examining the uncorrected and corrected results, as can be seen in the online supplemental material, the result pattern is similar. Importantly, within-person level alpha reliability estimates tend to be smaller than between-person estimates (sometimes much smaller; Nezlek, 2017) and therefore, the likely effect of the omission of information in primary studies is that in the corrected results our artifact distribution resulted in under-correcting the estimates. The true population estimates are therefore likely larger. Future diary studies should provide multilevel reliability estimates.

Practical Implications and Conclusion

The results from this meta-analysis can alert practitioners to the importance of being mindful of daily fluctuations in stressors, and the effects these stressors have on the well-being and performance of their employees. In terms of the effects on well-being, employers may think that daily challenge stressors are overall beneficial because employees visibly rise to the challenge (increased performance), but they should be aware that at the same time (and likely less visibly) those employees are experiencing higher strain levels that can accumulate over time, potentially leading to negative results for employees' well-being as well as their performance.

Furthermore, this study does not imply that only within-person differences are important. It is as important as ever to strive for a less stressful work environment for one's employees. Although the within-person effects seen in this study are not directly affected by the level of more stable, person-level, job stressors, they can be moderated by them (see for example Zhou et al., 2015). Moreover, the within-person effects are complementary to the already known between-person effects that are based on the more stable, person-level, job stressors. Therefore, improving the job design and environment so that individuals experience fewer job stressors (particularly hindrance stressors) is beneficial to employers and employees alike.

Finally, while this meta-analysis did not assess the role of resources and recovery, those variables are inherent to the work (and non-work) environment in which the primary studies were conducted. Employers should not assume that daily fluctuations are the same for everyone, but rather work to increase the resources available to employees, as those can change employees' sensitivity to job stressors (e.g., Beattie & Griffin, 2014). They should also make sure there are enough recovery opportunities, for example by avoiding demands that interfere with the hours after work or the weekend (e.g., Fritz & Sonnentag, 2005). Such resources

can act as buffers for the within-person effects of stressors seen in this study.

In conclusion, this meta-analysis provided full support for the CHSF at the within-person level, whereby each daily stressor level represents the daily level compared to the person's average level. The results indicated that challenge stressors have a positive direct effect on performance but a negative indirect effect via strain, whereas hindrance stressors have a negative effect both directly and indirectly via strain. This study demonstrates the validity of the CHSF and the great importance of using a within-person approach to examining the effects of job stressors on employee strain and performance.

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Data Availability All data and analysis code are available at https://osf.io/r7xeq/?view_only=bb718fcbdd6f455393f571314fe5dd4a.

Declarations

Conflicts of Interests/Competing Interest The authors have no relevant financial or non-financial interests to disclose.

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