

*Running head:* Connectivity Norms

**Colleagues' Norms Regarding Work-Related Messages: Their Differential Effects Among Remote and Onsite Workers**

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**Abstract**

**Purpose:** Research has shown that colleagues' norms promoting the need to respond quickly to work-related messages (CN) have a negative effect on work recovery experiences. In the present study, we examine the direct and indirect –through affective rumination and problem-solving pondering– effects of these norms on work-family conflict, family-work conflict, and job satisfaction, and verify whether and how these associations differ between employees working onsite (n = 158) or remotely (n = 284).

**Design/methodology/approach:** A total of 442 employees completed an online survey that covered measures on CN, affective rumination, problem-solving pondering, work-family conflict, family-work conflict, and job satisfaction.

**Findings:** As hypothesized, our results revealed that CN were positively related to work-family conflict and family-work conflict, but not to job satisfaction. Moreover, the indirect effects of CN on work-family conflict and job satisfaction were significantly mediated by affective rumination and problem-solving pondering, whereas the indirect effects of these norms on family-work conflict were significantly mediated by affective rumination. Finally, the relations between CN and the mediators (affective rumination and problem-solving pondering) were stronger among employees working onsite than among employees working remotely.

**Originality:** These results revealed that working remotely buffered the detrimental effects of CN on affective rumination and problem-solving pondering.

**Keywords:** Colleagues' pressure; communication technologies; recovery; work-family interface; job satisfaction; mediation; moderation; remote working

An increasing number of employees are now able to stay connected to their work at any time and place and, as a result, come to expect their colleagues to do the same (Derks *et al.*, 2015). Research has shown that strong social norms regarding the need to remain connected at all times or to quickly respond to work-related messages had a significant impact on the way employees manage their work-family interface and on their work-related psychological well-being (e.g., Barber *et al.*, 2019; Park *et al.*, 2020). From the perspective of the job demands-resources (JD-R) model (Bakker and Demerouti, 2007) these norms represent a job demand, requiring sustained physical and/or psychological effort and therefore associated with physiological and/or psychological costs (e.g., lower job satisfaction, conflicts between the work and family roles). According to the JD-R model, these effects can be buffered by the presence of job resources (Bakker and Demerouti, 2007).

For instance, the undesirable effects of this type of norms may be less pronounced for employees working remotely, for whom the boundaries of the work role are less salient as it occurs outside of a formal workplace, relative to their peers working onsite, for whom these norms involve a direct intrusion of work-related demands into a more clearly delimited personal sphere (Gillet *et al.*, 2021a, 2022). However, this possible buffering role of remote work on the relation between colleagues' norms regarding the need to follow up quickly on work-related messages (hereafter referred to as CN) and employees' functioning has not yet been documented in research. In this regard, some have highlighted the need to better understand how increased flexibility in the way employees can organize their work in terms of time and location (e.g., remote work) could influence the negative impact of job demands and how key individuals (e.g., colleagues) can contribute to drain employees' resources within these more flexible contexts (Huyghebaert-Zouaghi *et al.*, 2022).

This study was designed to address these two important issues: (1) the possible negative effects of CN; and (2) whether and how these effects differ between employees working remotely and onsite. We focus on two critical dimensions of the work-family interface, namely conflict (i.e., when a domain is seen as interfering with the other) from work to family (WFC) and from family to work (FWC; Allen *et al.*, 2020). We also focus on a key component of psychological well-being at work, namely job satisfaction, which has been found to be associated with work connectivity (Leung, 2011) and work-family integration (Ilies *et al.*, 2009). Arguably, the effects of CN on the work-family interface and job satisfaction may be explained by numerous mechanisms, including components of the work recovery process (e.g., recovery experiences; Sonnentag and Fritz, 2015). Our decision to focus on the mediating role of affective rumination and problem-solving pondering is predicated by their central role as key drivers of the work recovery process (Junker *et al.*, 2021) and by their documented impact (beyond other components of the work recovery process) on employees' behaviors, attitudes, and functioning in the work and family domains (e.g., Gillet *et al.*, 2021b; He *et al.*, 2021).

To the best of our knowledge, this is the first study to examine the direct and indirect effects of CN on these outcomes (WFC, FWC, and job satisfaction) while considering these two mediators (affective rumination and problem-solving pondering). This is an important contribution to the literature given the potentially harmful effects of CN on individual functioning (Derks *et al.*, 2015). Indeed, in modern societies valuing heavy forms of work investment (Gillet *et al.*, 2018), our findings might highlight the need to consider reducing exposure to CN to promote employees' recovery experiences and functioning.

### **The Detrimental Effects of Job Demands**

The JD-R model (Bakker and Demerouti, 2007) was the main theoretical model used in this research as it explains the effects of job demands, such as exposure to CN, on individuals' functioning. Numerous studies have demonstrated the detrimental effects of job demands on workers' attitudes (e.g., job satisfaction), behaviors (e.g., work performance), and health (e.g., psychological well-being; Park *et al.*, 2020; Voydanoff, 2015). In addition, many researchers working with the JD-R model have emphasized the need to try and identify the mediating variables explaining the effects of job demands, and the dimensions (e.g., job resources) that moderate these effects (e.g., Derks *et al.*, 2015; Page *et al.*, 2021). In this regard, research has shown that the negative effects of job demands may be explained by a variety of individual (e.g., psychological need satisfaction) and collective (e.g., team effectiveness) variables (Gillet *et al.*, 2015; Leicht-Deobald *et al.*, 2022). Moreover, research has also shown that job demands tend to be associated with poor work recovery experiences (e.g., sleeping problems) and higher levels of ill-being (e.g., emotional exhaustion) when workers do not have enough resources to cope with them (Huyghebaert *et al.*, 2018).

At the heart of the JD-R model (Bakker and Demerouti, 2007) lies the assumption that job demands

require employees to expand psychological and/or physical efforts and, as a result, tend to carry a toll for exposed employees. Employees exposed to high levels of pressure to be constantly available for work (such as that emerging from CN) may come to allocate more of their personal resources to ensure this availability, leading them to display a higher level of connection to their work role (e.g., increased cognitive and emotional effort), which then comes to form a greater part of their identity (Derks *et al.*, 2015; Kreiner, 2006). In turn, this sustained effort is expected to interfere with employees' psychological well-being at the work-family interface (Park *et al.*, 2020).

According to the JD-R model (Bakker and Demerouti, 2007), higher levels of job demands (such as CN) should increase WFC and FWC due to depletion of employees' personal (i.e., cognitive, emotional, and physical) resources (ten Brummelhuis and Bakker, 2012). Moreover, employees facing job demands able to intrude into their personal lives, such as CN, will need to devote a lot of time, effort, and energy to their work during their free time to be able to successfully address, and recover from, these intrusive types of demands (Sonnentag and Fritz, 2015). As a result, these employees not only experience a drain of their personal resources when working, but this drain also occurs outside of their normal work hours, thus also interfering with their ability to properly recover (e.g., high levels of problem-solving pondering and affective rumination; Sonnentag and Fritz, 2015).

### **The Differential Effects of Problem-Solving Pondering and Affective Rumination**

Allen *et al.* (2014) noted that “the basic questions of interest are how individuals draw the line between and transition across work and family roles in an effort to achieve work-family balance” (p. 100). This is particularly important as people devote increasing amounts of time to their work in ways that can intrude on the time that might otherwise be devoted to family activities (e.g., Huyghebaert-Zouaghi *et al.*, 2022). Indeed, employees all have their own preferences when it comes to managing the boundaries between the work and family domains (Kreiner, 2006). These preferences range from integration (i.e., no physical, temporal, and behavioral distinction between their work and personal roles) to segmentation (i.e., separating their work role from their family role through impermeable physical, temporal, and behavioral boundaries). However, beyond these preferences, integrating work into the family domain can increase the potential for confusion about which role to enact, thereby increasing the likelihood of experiencing conflicts in the work-family interface (Ashforth *et al.*, 2000).

By not differentiating among distinct types of integration, most prior research has conflated the various manners in which work can be brought home. In the present study, we jointly consider the effects of affective rumination (i.e., a cognitive preoccupation about adverse work-related events during off-job time; Junker *et al.*, 2021) and problem-solving pondering (i.e., a constructive cognitive reflection about work-related problems during off-job time; Jimenez *et al.*, 2022) on employees' perceptions of the work-family interface and on their psychological well-being at work. This dual consideration makes it possible to consider the potential benefits of a finer-grained analysis of two ways in which work can interfere with the family domain: one driven by negative thoughts (affective rumination) and one oriented toward solutions (problem-solving pondering). Prior research has shown that job demands tended to increase the likelihood of engaging in both types of processes (Sonntag and Fritz, 2015), as well as the undesirable impact of these two types of interference with work recovery for employees' functioning (Jimenez *et al.*, 2022; Junker *et al.*, 2021).

To obtain a comprehensive picture of the dual effects of these two phenomena, in line with prior research focusing on their role for employees' well-being and the work family-interface (Allen *et al.*, 2020; Gillet *et al.*, 2016), we consider their associations with WFC, FWC, and job satisfaction. Although Junker *et al.* (2021) examined the work-family outcomes of integrating work and home in these two alternative manners, they only did so among two samples of working parents from Germany, and without considering the well-being (e.g., job satisfaction) implications of these two forms of integration. To test the generalizability of their findings, we relied on a mixed sample of employees from the USA and British Isles, while also considering job satisfaction as a well-being indicator.

### **The Buffering Role of Work Type**

Contrasting with job demands (e.g., CN), job resources refer to those aspects of a job that contribute to supporting employees in achieving their goals, to reducing the costs associated with job demands, and to stimulating personal development. Based on the JD-R model (Bakker and Demerouti, 2007), the extent to which CN predicts affective rumination and problem-solving pondering can be expected to be contingent on contextual variables (e.g., work type) as a result of the resources afforded by these contextual variables. From this perspective, working remotely provides employees with higher levels

of autonomy and flexibility in relation to the accomplishment of their work activities (Gillet *et al.*, 2021a), and can thus be considered as a job resource likely to enhance their psychological functioning (Charalampous *et al.*, 2019). A crucial expectation of the JD-R model is that job resources should help buffer the harmful impact of job demands (e.g., CN) on personal outcomes (e.g., affective rumination, problem-solving pondering; Bakker and Demerouti, 2007). Likewise, job resources can generate other resources (Hobfoll, 2011). For example, remote working (a job resource) may enhance employees' self-efficacy (a personal resource) by helping them to better concentrate on their work, to demonstrate more structured work behaviors, and to accommodate more easily work-related changes (Charalampous *et al.*, 2019). This personal resource can thus facilitate one's ability to deal effectively with a wide variety of job demands, such as CN. However, this protective role of remote work has yet to be investigated in relation to intrusive job demands such as CN. More generally, given the rapid growth of remote working and the interest by employees to continue working remotely, a more thorough understanding of how remote working can impact employees' functioning is further required (Elbaz *et al.*, 2022). By having more insights on whether and how employees' experiences may differ when working remotely or onsite, we can better inform organizational policies surrounding remote and onsite working as well as support policies for employees, subsequently leading to better employee work-family balance, well-being, and performance.

### **Hypothesis Development**

The first aim of this study was to examine the effects of CN on job satisfaction, WFC, and FWC. Being driven to work extra hours as a result of external sources of pressure (Gillet *et al.*, 2016), employees exposed to CN also tend to experience frustration, annoyance, and anxiety (Page *et al.*, 2021). Exposure to CN typically leads employees to expand more of their personal resources to conform to these norms, at the expense of the family domain, thus paving the way to the emergence of WFC (Wan *et al.*, 2019). In turn, a loss spiral process may occur, whereby expanding personal resources to cope with work demands (e.g., CN) may induce further losses due to the need to cope with family demands despite having already expanded the required resources at work (i.e., WFC; ten Brummelhuis and Bakker, 2012). Moreover, employees exposed to high levels of CN may come to see family-related demands as a threat to their work functioning (i.e., FWC; Li *et al.*, 2021). For instance, a parent exposed to high CN may experience their child(ren) or spouse demands (e.g., household chores, child care) as a barrier to meet their intensified job demands (Minkinnen *et al.*, 2021). Indeed, many have argued that high job demands make employees perceive family responsibilities as obstacles to accomplishing work goals, thereby creating FWC (Voydanoff, 2005). Empirically, previous research has generally supported the idea that the urge to respond quickly to work-related messages during non-work time, just like other types of intrusive job demands, tends to be associated with lower levels of job satisfaction (Barber and Santuzzi, 2015; Derks *et al.*, 2015), and with higher levels of WFC and FWC (Derks *et al.*, 2015; Page *et al.*, 2021). Based on these considerations, we expect that:

*Hypothesis 1.* CN will be related negatively to job satisfaction (H1a) and positively to WFC (H1b) and FWC (H1c).

The second aim of this study was to examine the effects of CN on problem-solving pondering and affective rumination. Employees experiencing unwanted intrusions of their work into their family life (e.g., CN) should be more likely to experience poor work recovery experiences (e.g., Ashforth *et al.*, 2000; Sonnentag and Fritz, 2015), but also recurrent negative thoughts (i.e., rumination) about work due to their inability to properly disconnect (Minnen *et al.*, 2021). Alternatively, being forced to think about work outside of their work hours may also lead them to invest efforts at finding solutions to work-related issues during their personal time (i.e., problem-solving pondering), perhaps in order to seek a resolution to this persistent loss of resources (Junker *et al.*, 2021). We thus propose that:

*Hypothesis 2.* CN will be related positively to problem-solving pondering (H2a) and affective rumination (H2b).

The third aim of the present study was to examine the effects of problem-solving pondering and affective rumination on WFC, FWC, and job satisfaction. In failing to properly stop thinking about work, employees involved in high levels of affective rumination and problem-solving pondering often end up creating even more work for themselves, because they tackle their work tasks with unrestored cognitive, physical, and emotional resources (Hobfoll, 2011). Completing their tasks may thus require even higher levels of investment, which typically leads to feelings of disappointment and frustration among themselves and their family members (Huyghebaert-Zouaghi *et al.*, 2022). As such, these

repetitive work-related thoughts make it harder for them to be mentally present for their family members and to actively engage in their family role (i.e., WFC) (He *et al.*, 2021; Junker *et al.*, 2021).

Affective rumination and problem-solving pondering may also end up generating FWC (He *et al.*, 2021). Indeed, these intrusive thoughts about work represent an attempt to engage in mental problem solving (problem-solving pondering) or to emotionally recover from a heavy day at work (affective rumination) (Brosschot *et al.*, 2006). As such, when engaging in these intrusive work-related thoughts, individuals try to find solutions to their problems in order to regulate the negative emotions triggered by their job demands and return to a comfortable state of homeostasis relative to their work experience. In this context, employees are likely to experience family demands as detrimental intrusions to their resource-consuming, work-related, problem-solving and ruminative process (Brosschot *et al.*, 2006) and ultimately to their ability to properly return to an efficient level of work functioning on the next day (FWC).

However, we expect diverging associations between affective rumination and problem-solving pondering on one hand, and job satisfaction on the other hand (Minnen *et al.*, 2021). Indeed, affective rumination is associated with the emergence of negative affect at home, which is often attributed to the interference of job demands (Junker *et al.*, 2021). Affective rumination is also likely to focus workers' attention on the negative aspects of their job (Jimenez *et al.*, 2022). As a result, affective rumination should be negatively related with job satisfaction. In contrast, problem-solving pondering may help employees to really solve work-related problems, leading them to experience more positive outcomes in their work-life (e.g., self-esteem, sense of accomplishment, motivation, positive affect, vitality) (Junker *et al.*, 2021). As such, problem-solving pondering should help increase employees' job satisfaction as a direct result of these additional resources. We thus propose that:

*Hypothesis 3.* Affective rumination will be positively related to WFC (H3a) and FWC (H3b), and negatively related to job satisfaction (H3c).

*Hypothesis 4.* Problem-solving pondering will be positively related to WFC (H4a), FWC (H4b), and job satisfaction (H4c).

Considered together, the relations considered in this study form a partial mediation pathway in which: (1) CN predicts WFC, FWC, and job satisfaction (Hypothesis 1), as well as affective rumination and problem-solving pondering (Hypothesis 2); and (2) affective rumination and problem-solving pondering predict WFC, FWC, and job satisfaction (Hypotheses 3 and 4). In line with past research demonstrating similar indirect effects of workplace connectivity on the work-family interface and well-being at work (Barber *et al.*, 2019; Page *et al.*, 2021), we hypothesize that:

*Hypothesis 5.* Affective rumination will partially mediate the relations between CN and WFC (H5a), FWC (H5b), and job satisfaction (H5c).

*Hypothesis 6.* Problem-solving pondering will partially mediate the relations between CN and WFC (H6a), FWC (H6b), and job satisfaction (H6b).

The last aim of this study is to examine whether the direct effects of CN on affective rumination and problem-solving pondering would differ between employees working onsite or remotely. More specifically, we expect working remotely, as a job resource, to reduce (or buffer) the deleterious effects of CN on affective rumination and problem-solving pondering. Indeed, employees who perceive strong norms to stay connected and who work remotely may feel more in control of when and how they transition between their work and family roles (Park *et al.*, 2020), making it easier for them to allocate their resources across domains (Wan *et al.*, 2019). Moreover, research has also demonstrated that individuals were less likely to conform to the social norms conveyed by a majority when this majority is at a greater distance (Latané and L'Herrou, 1996). As a result, it might be easier for remote employees (relative to those working onsite) to reduce the negative pressures placed by their work present unto their family lives (Kreiner, 2006).

In contrast, the detrimental effects of CN on affective rumination and problem-solving pondering might be exacerbated among onsite employees who have to work in a setting that makes this form of pressure more salient (Charalampous *et al.*, 2019). This is because when working onsite, employees tend to have a stronger bond with their colleagues, which makes it easier for their colleagues to enforce CN requirements (e.g., setting deadlines). In this more proximal social context, it may be more difficult for exposed employees to emancipate themselves from these norms (Latané and L'Herrou, 1996) and to switch-off from work to fully engage in their family role once the work day is over (Sonnentag and Fritz, 2015). Based on these considerations, we propose that:

*Hypothesis 7.* The positive effects of CN on affective rumination (H7a) and problem-solving pondering (H7b) will be stronger among employees working onsite and weaker among those working remotely.

## Method

### Participants and Procedure

Participants were invited to complete a short (approximately five minutes) online questionnaire via the Prolific Academic crowdsourcing platform. Landers and Behrend (2015) indicated concerns associated with similar platforms (e.g., MTurk) but mentioned that these platforms were “*neither better nor worse than other more common convenient samples*” (p.21), and that “*if we intend to create theory broadly applicable across organizational contexts, MTurk and similar samples may prove superior to those collected from single convenient organizations*” (p.18). Stanton *et al.* (2022) also compared data obtained from Prolific participants *vs* undergraduates recruited through more traditional convenience sampling to demonstrate Prolific’s utility for conducting research. Internal consistency estimates for measures from the Prolific data matched or exceeded those from the undergraduate student’s data. These findings indicate that Prolific can be used successfully for data collection.

Before completing the questionnaire, participants were informed of the objectives of the research, ensured that participation was voluntary and that their responses were confidential, and told that they could freely withdraw at any time. Participants were compensated £0.60 for completing the questionnaires. The data collection occurred when the USA and British Isles were on national lockdown (COVID-19). Recruitment was limited to participants for whom English was the first language and who were employed by an organization. The survey also included two questions assessing attention (e.g., “It is important that you pay attention to our survey, please tick strongly disagree”), and one final question verifying “for scientific reasons”, if they really worked in an organization. Only respondents who successfully completed those verifications were included in the study.

The final sample included 442 participants, of whom 56.6% were females, matching the sex distribution of workers in the USA and British Isles (Bureau of Labor Statistics, 2021). Of those participants, 158 mentioned working mainly onsite, and 284 mentioned working mainly remotely. Participants lived and worked in the British Isles (81.0%) or the USA (19.0%), and 94.1% held a bachelor degree. They had a mean age of 39.52 years ( $SD = 10.38$ ) and a mean tenure in their position of 6.89 years ( $SD = 6.03$ ). Most held a permanent (95.5%) full-time (89.6%) position in the private sector (57.9%). More precisely, they worked in non-market services (53.2%), market services (33.0%), industry (8.1%), construction (2.3%), agriculture (0.2%), or other sectors (3.2%).

### Measures

All measures used in this study were previously validated, and prior research has shown that scores on these measures present a satisfactory convergent, discriminant, and construct validity, as well as scale score reliability (e.g., Derks *et al.*, 2015; Junker *et al.*, 2021; Netemeyer *et al.*, 1996).

**Colleagues’ norms regarding the need to respond quickly to work-related messages (CN).** CN were assessed using a six-item scale (e.g., “If I do not answer my work-related messages during off job hours, I get comments from my colleagues”;  $\alpha = .90$ ) developed by Derks *et al.* (2015). All items were rated on a five-point scale ranging from “Strongly Disagree” to “Strongly Agree”.

**Affective rumination and problem-solving pondering.** A six-item scale developed by Junker *et al.* (2021) was used to assess affective rumination (three items; e.g., “Do you become tense when you think about work-related issues during your free time?”;  $\alpha = .93$ ) and problem-solving pondering (three items; e.g., “I find solutions to work-related problems in my free time”;  $\alpha = .86$ ). All items were rated on a five-point scale ranging from “Very seldom or never” to “Very often or always”.

**WFC and FWC.** A ten-item scale developed by Netemeyer *et al.* (1996) was used to assess WFC (five items; e.g., “The amount of time my job takes up makes it difficult to fulfill family responsibilities”;  $\alpha = .96$ ) and FWC (five items; e.g., “I have to put off doing things at work because of demands on my time at home”;  $\alpha = .94$ ). All items were rated on a seven-point scale ranging from “Strongly Disagree” to “Strongly Agree”.

**Job satisfaction.** Job satisfaction was measured by one item, recommended by Fisher *et al.* (2016) as providing an accurate measure of this construct, asking participants to report the extent to which they were satisfied with their current job. Responses were provided on a four-point scale ranging from “Dissatisfied” to “Satisfied”.

### Analyses

We relied on Mplus 8.6's (Muthén and Muthén, 2021) maximum likelihood robust (MLR) estimator for all analyses. Due to the online nature of the data collection, there were no missing data. First, we estimated a confirmatory factor analytic (CFA) model encompassing all multi-item constructs considered in the present study, together with participants observed scores reflecting job satisfaction and the work context (coded 0 for employees working onsite and 1 for those working remotely) which were simply allowed to correlate with one another and with the other factors. In this model, all multi-item constructs were defined as latent factors from their *a priori* indicators and allowed to correlate with one another. No cross-loading or correlated uniqueness was included into this model.

Second, this model was converted to our *a priori* structural equation model (SEM) in which CN was specified as having a direct effect on affective rumination, problem-solving pondering, WFC, FWC, and job satisfaction. Affective rumination and problem-solving pondering were specified as having a direct effect on WFC, FWC, and job satisfaction. As a result, CN (predictor) was also assumed to have an indirect effect on WFC, FWC, and job satisfaction (outcomes) through affective rumination and problem-solving pondering (mediators). Due to the later testing of latent interactions involving the work context (onsite *vs* remote), this variable was also allowed to predict all mediators and outcomes.

To verify the adequacy of our CFA and SEM solutions, we relied on goodness-of-fit indices, where values  $> .90$  and  $.95$  on the Tucker-Lewis index (TLI) and the comparative fit index (CFI), values lower than  $.08$  and  $.06$  on the root mean square error of approximation (RMSEA), and values lower than  $.10$  and  $.08$  on the standardized root mean square residual (SRMR) were respectively taken to reflect acceptable and excellent levels of fit (Marsh *et al.*, 2005). The statistical significance of the indirect effects (IE) of CN on the outcomes was calculated using bias-corrected bootstrap (10000 bootstrap samples) confidence intervals (CI; Cheung and Lau, 2008), which indicate statistical significance when the CI excludes 0.

Finally, to test the extent to which the associations between CN and the mediators (i.e., affective rumination and problem-solving pondering) differed (i.e., was moderated) as a function of work context (onsite *vs* remote), latent interactions between work context (0: Onsite workers; 1: Remote workers) and CN were estimated with the latent moderated SEM approach (LMS; Klein and Moosbrugger, 2000) and allowed to predict the mediators. Significant interactions were then plotted using simple slope analyses conducted by simply recoding the work context (1: Onsite workers; 0: Remote workers) (Marsh *et al.*, 2013).

### Results

The goodness of fit of the CFA ( $\chi^2 = 756.342$ ,  $df = 233$ ; CFI = .926; TLI = .913; RMSEA = .071 [.066; .077]; and SRMR = .047) and SEM ( $\chi^2 = 787.020$ ,  $df = 235$ ; CFI = .922; TLI = .909; RMSEA = .073 [.067; .079]; and SRMR = .060) solutions was satisfactory and comparable, supporting their ability to provide an accurate representation of the data. Parameter estimates from the CFA solution are reported in Table 1 (factor loadings and uniquenesses) and Table 2 (latent correlations). These results revealed well-defined, reliable, and correlated but well-differentiated constructs.

The parameter estimates from the predictive part of the SEM solution, as well as those from the subsequent model including latent interactions, are reported in Table 3 and Figure 3<sup>1</sup>. These results showed that CN was associated with higher levels of WFC and FWC, supporting H1b and H1c, but was not associated with job satisfaction, failing to support H1a. CN was also positively related to affective rumination and problem-solving pondering, supporting H2a and H2b. In turn, affective rumination and problem-solving pondering were both associated with higher levels of WFC, supporting H3a and H4a. Likewise, affective rumination was associated with lower levels of job satisfaction, whereas problem-solving pondering was associated with higher levels of job satisfaction, supporting H3c and H4c. However, affective rumination, but not problem-solving pondering, was associated with higher levels of FWC, supporting H3b but not H4b. Lastly, on its own, the work context (onsite *vs* remote) was not related to affective rumination, problem-solving pondering, WFC, and job satisfaction. However, remote employees reported higher levels of FWC than those working onsite.

Our analyses also showed that the indirect effect of CN on WFC was significantly mediated by affective rumination (IE = .140; CI = .089 to .171) and problem-solving pondering (IE = .083; CI = .020 to .146), supporting H5a and H6a. In addition, the indirect effect of CN on FWC was significantly mediated by affective rumination (IE = .052; CI = .005 to .099), but not by problem-solving pondering (IE = .059; CI = -.006 to .124), supporting H5b but not H6b. Finally, the indirect effect of CN on job

satisfaction was significantly mediated by affective rumination (IE =  $-.179$ ; CI =  $-.240$  to  $-.118$ ) and problem-solving pondering (IE =  $.127$ ; CI =  $.062$  to  $.192$ ), supporting H5c and H6c.

Finally, our results revealed that CN and work context interacted in a statistically significant manner in the prediction of affective rumination and problem-solving pondering. Simple slope analyses are reported in the bottom of Table 3 and illustrated in Figures 1 (affective rumination) and 2 (problem-solving pondering). These results show that the positive effects of CN on affective rumination and problem-solving pondering were stronger among onsite employees than among those working remotely, supporting H7a and H7b.

### Discussion

This study sought to investigate the direct and indirect (as mediated by affective rumination and problem-solving pondering) roles of CN in relation to employees' levels of WFC, FWC, and job satisfaction. Furthermore, we also considered how the associations between CN and the mediators (affective rumination and problem-solving pondering) differed between employees working remotely or onsite. Our results first supported the presence of direct associations between CN and higher levels of WFC and FWC. Second, our results indicated that the indirect association between CN and employees' levels of FWC was mediated by affective rumination, whereas those between CN and employees' levels of WFC and job satisfaction were mediated by affective rumination and problem-solving pondering. Third, the associations between CN and affective rumination and problem-solving pondering were stronger among employees working onsite rather than remotely.

### Theoretical Implications

Prior research has emphasized the need to better document the range of negative consequences associated with CN, already known to be associated with a variety of detrimental (e.g., daily work-home interference) outcomes (Derks *et al.*, 2015), and the mechanisms involved in these associations. By revealing that higher levels of CN were associated with higher levels of WFC (Derks *et al.*, 2015) and FWC (Li *et al.*, 2021), our results contributed to enrich our understanding of the range of undesirable consequences associated with CN, in line with the assumptions of the JD-R model (Bakker and Demerouti, 2007). These associations can be explained by the fact that employees exposed to high levels of intrusive job demands such as CN come to direct more of their arguably limited (Hobfoll, 2011) resources to their work, leaving fewer resources to support their family life (Wan *et al.*, 2019). As a result, it becomes harder for these employees to fully embrace their family life (WFC). Moreover, these employees may also feel the need to protect themselves against the loss of further resources (Hobfoll, 2011) by disengaging from their work life (FWC).

Our results also supported our expectations (e.g., He *et al.*, 2021; Junker *et al.*, 2021) that higher levels of CN would be associated with higher levels of affective rumination and problem-solving pondering. These associations can be explained by the fact that employees feeling pressured or perceiving high expectations of availability and responsiveness to work-related messages should be more likely to succumb to that pressure, leading them to make personal sacrifices to enhance their work functioning, to feel restless when not at work, and to experience difficulties withdrawing from work during off-job time (Sonnentag and Fritz, 2015). These results highlight the need to consider reducing exposure to CN to promote employees' recovery experiences and functioning.

In turn, affective rumination and problem-solving pondering were both associated with higher levels of WFC, whereas affective rumination (but not problem-solving pondering) was also associated with higher levels of FWC, thus forming two indirect pathways between CN and the work-family interface. These associations are consistent with the idea that employees who are unable to properly stop thinking about work are less mentally present for their family members and less engaged in their family role, leading to higher levels of WFC (Sonntag and Fritz, 2015). Likewise, workers' inability to affectively withdraw from their negative work-related experiences may contribute to exhaust their personal resources (Hobfoll, 2011), generating a downward spiral of resource depletion likely to interfere with their ability to meet the demands of their work life (i.e., FWC; Huyghebaert-Zouaghi *et al.*, 2022).

In contrast, our results failed to support the hypothesis that CN would also be directly related to lower levels of job satisfaction (Barber and Santuzzi, 2015; Derks *et al.*, 2015), suggesting that the association between these two constructs was entirely indirect and mediated by affective rumination and problem-solving pondering (e.g., Page *et al.*, 2021). On the one hand, and supporting our expectations (Jimenez *et al.*, 2022; Junker *et al.*, 2021), affective rumination was found to be negatively related to job satisfaction, which may reflect the fact that rumination is typically associated with the



experience of negative affect and with a focus on the negative aspects of one's job. On the other hand, and also supporting our expectations (Junker *et al.*, 2021), our results revealed a positive association between problem-solving pondering and higher levels of job satisfaction. Indeed, given that problem solving pondering involves the attempt to find solutions to work-related problems during off-job time, it might help employees find actual solutions to their work-related problems, in turn leading them to experience higher levels of gratification in their work life (e.g., self-esteem, positive affect) including higher levels of job satisfaction (Junker *et al.*, 2021). More generally, our results confirm, as proposed by Junker *et al.* (2021), the need to consider both affective rumination and problem-solving pondering when trying to understand the effects of integrating work into the family domain on employees' work-family balance and well-being.

The observation of indirect associations between CN and the outcomes considered in this study (WFC, FWC, and job satisfaction) via the mediating role of affective rumination and problem-solving pondering is consistent with previous results demonstrating that work recovery experiences, and the mechanisms involved in these experiences, play a key role in explaining the undesirable effects of job demands on employees' functioning (Barber *et al.*, 2019; Sonnentag and Fritz, 2015). Although prior research has already demonstrated the detrimental effects of job demands, such as CN, on FWC (Page *et al.*, 2021; Vaziri *et al.*, 2022), this is the first study showing that intrusive thoughts (i.e., affective rumination and problem-solving pondering) may explain these effects on FWC. The present research thus contributes to our understanding of the role of worrisome thinking not only in the development of WFC, as already demonstrated in the literature (Junker *et al.*, 2021; Zhang *et al.*, 2017), but also in relation to FWC. These results are thus consistent with the idea that job demands can generate a downward spiral of resource depletion likely to interfere with employees' ability to meet the demands of their family life (WFC), but also to impede their ability to meet the demands of their work life (i.e., FWC; Hobfoll, 2011; Huyghebaert-Zouaghi *et al.*, 2022). Moreover, they show that this downward spiral seems to be, at least in part, anchored in the action of intrusive thought processes. Moreover, this study supports the idea that the same mechanisms are involved in the development of both WFC and FWC. More precisely, when job demands are associated with affective rumination and problem-solving pondering, the effects are extremely detrimental on perceptions of role conflict in both directions (i.e., WFC and FWC). However, because our results highlight the importance of examining competing mediating processes, it would be interesting for future research to try and unpack the mechanisms involved in the effects of CN, while considering a broader range of outcomes and measures (e.g., vitality, spouses' ratings of marital satisfaction) and additional explanatory mechanisms (e.g., sleeping problems, workaholism).

Finally, our results revealed that the effects of CN on affective rumination and problem-solving pondering were substantially more pronounced among employees working onsite than among those working remotely. These results suggest that working remotely seems to help employees exposed to high levels of CN to reduce the negative intrusion of their work into their family domain (Huyghebaert-Zouaghi *et al.*, 2022). This protective role of remote working confirms the idea that this work context can be conceptualized as a job resource in the JD-R model, helping to buffer the adverse effects of job demands (Bakker and Demerouti, 2007; Gillet *et al.*, 2021a, 2022). Notably, remote workers have higher levels of autonomy and flexibility in relation to the accomplishment of their work activities (Gillet *et al.*, 2021a), making it easier for them to redistribute their resources (e.g., time, energy, emotional availability) in a more efficient way across domains (Wan *et al.*, 2019). Conversely, when onsite employees face CN, the saliency of their work role increases (Charalampous *et al.*, 2019), in turn enhancing the negative spillover of work preoccupations into the personal domain (Sonnentag and Fritz, 2015).

These results might be related to the fact that onsite workers tend to be more strongly connected to, or to interact more with, their colleagues, which may push them to be constantly connected to the job (Derks *et al.*, 2015). More generally, this result is consistent with the idea that employees are more likely to suffer from conformity to the norms conveyed by a majority (i.e., their colleagues), when this majority is at a closer rather than a greater distance (Latané and L'Herrou, 1996). Remote work may thus constitute an interesting buffer against some detrimental forms of social influence. However, it is noteworthy that feelings of social connection or proximity can also emerge despite physical distance, so that it is also entirely possible for remote workers to feel a strong sense of connection and closeness to their colleagues, just like it is possible for onsite workers to experience a strong sense of social

disconnection from physically close colleagues. More precisely, O'Leary et al. (2014) proposed the concept of perceived proximity (i.e., a cognitive and affective sense of closeness) and demonstrated that it was a far more potent predictor of relationship quality than physical proximity (i.e., geographic closeness) among collocated and geographically dispersed colleagues. More generally, remote workers may thus come to form strong social bonds despite being physically distant from one another. As a result, it would be particularly important for future research to devote more attention to the possible mechanisms, including perceived proximity, involved in the benefits found to be associated with remote working in the present study.

### **Limitations and Research Perspectives**

When interpreting our results, some limitations have to be considered. First, although shared method biases are unlikely to play a role in multivariate analyses (Siemsen *et al.*, 2010), the fact that we relied on self-report measures increases the risk of other forms of social desirability and self-report biases. To alleviate these concerns, it would be interesting for future studies to consider the incorporation of objective measures (e.g., organizational data on work performance, biological measures of psychophysiological activation) and informant ratings of employees' functioning (e.g., colleagues, supervisors, spouse).

Second, although variables were considered as predictors (i.e., CN), mediators (i.e., affective rumination and problem-solving pondering), or outcomes (i.e., WFC, FWC, and job satisfaction) based on theoretical grounds (Barber and Santuzzi, 2015; Sonnentag and Fritz, 2015), our cross-sectional design makes it impossible to confirm the directionality of these associations. It would therefore be fruitful for future studies to explore the issue of directionality through longitudinal research designs. Third, the present study was conducted solely among employees who lived and worked in the British Isles or the USA and were recruited via a crowdsourcing platform. Despite the incorporation of quality checks in our data collection procedure, it would thus seem important for future research to examine the generalizability of the current results to different countries, languages, and cultures, and to samples recruited using different methods. Similarly, the present study was conducted among a highly educated (i.e., over 90% had, at least, an undergraduate degree) sample working in the British Isles or the USA, which cannot be considered to be representative of the general population of the British Isles (about 44% of the population has an undergraduate degree according to the United Kingdom government) or USA (about 32% of the population holds an undergraduate degree according to the US Census Bureau). Caution is thus warranted when interpreting our results, at least until evidence of generalizability across educational groups can be provided. Moreover, our study occurred during a national lockdown due to a global pandemic which significantly affected individuals' functioning at work and with their family (Huyghebaert-Zouaghi *et al.*, 2022), which could also have influenced our results.

Fourth, the proportion of participants who held a management position was not assessed in the present research. Yet, managers may work long hours to adhere to the contemporary managerial ideal of being creative, constantly available, and committed to their organization. As a result, they may be more likely to succumb to the pressure of being constantly available to respond to work-related messages and demands relative to non-managerial employees. In addition, managers working remotely tend to adjust their behaviors, priorities, and managerial styles to meet the needs of their organization to a far greater extent than regular employees (Dandalt, 2021). Moreover, they also typically fail to receive the same amount of psychological support from their organization than regular employees working remotely, despite experiencing more work-related anxieties. In addition, they may come to feel more isolated from their subordinates and team members as they have fewer opportunities to socialize with them given that the spatial distance comes to add to their hierarchical distance (Charalampous *et al.*, 2019). Indeed, remote working has created a virtual work environment whereby normal hierarchical and interpersonal relationships are disrupted, and in which there is a greater need for organizations to provide organizational members with communal resources in addition to more typical work resources (Dandalt, 2021). It would thus be important for future research to consider how occupying a managerial position might influence the likely impact of CN on professional and personal experiences in different work settings (e.g., remote and onsite working), while also explicitly considering the effects of their ability to maintain close connections with team members despite a physical separation.

Fifth, we relied on a binary variable (onsite vs remote working) to measure work type. Yet, remote working arrangements can vary greatly across employees (e.g., fully or partially remote), just like the frequency of remote working might vary (Charalampous *et al.*, 2019). More generally, a hybrid work

context is likely to have more complex and multi-faceted effects (e.g., an enriching and depleting potential that differs across outcomes) than the work characteristics typically limited to a specific work context (e.g., onsite; Xie *et al.*, 2019). Given that working remotely rarely occurs in an all-or-none manner, future research should consider the role played by the various facets, intensity, and types, of remote work. Finally, CN was the only job demand of interest in our research. Yet, it would be interesting to examine how other hindrance (e.g., harassment, interruptions) and challenge (e.g., time pressure, skill discretion) demands, as well as more diversified job (e.g., perceived organizational support, ethical leadership) and personal resources (e.g., psychological capital, self-efficacy) relate to employees' work-family interface and well-being, and their interplay with work settings (i.e., remote and onsite working).

### **Practical Implications**

Modern societies, organizations, and some individuals tend to value heavy work investment (Gillet *et al.*, 2018). Yet, our findings highlight the need to consider reducing CN in order to decrease employees' likelihood of experiencing affective rumination and problem-solving pondering, which may in turn reduce their likelihood of experiencing conflicts between the work and the family domains (WFC and FWC). Moreover, our results indicate that CN themselves tend to increase the likelihood of negative transfers (i.e., conflicts) between the work and family domains. Possible interventions include changes designed to reduce workload sustainably, which might help decrease CN in the long run. Among possible ways to achieve this goal, CN prevention could be encouraged at the organizational level (e.g., stating clear segmentation norms and encouraging balanced and healthier lifestyles; Kreiner, 2006). It is also noteworthy that CN had stronger effects on affective rumination and problem-solving pondering among employees working onsite relative to those working remotely. These results suggest that it might be particularly useful to decrease CN among employees working onsite, in order to decrease their levels of affective rumination and problem-solving pondering, in turn leading to lower levels of WFC and FWC. This could be done by raising awareness among employees on the fact that such seemingly inoffensive collective habits may actually jeopardize their colleagues' (and their own) psychological functioning. Teams could collectively identify realistic temporal, behavioral, and physical boundaries between their work and non-work lives, and identify best practices to respect these boundaries. More generally, as recently suggested, organizations and managers should rethink work and propose different interventions to better support onsite and remote workers (Huyghebaert-Zouaghi *et al.*, 2022).

It should also be noted that caution is needed in relation to the implementation of interventions seeking to reduce problem-solving pondering, given its benefits in terms of job satisfaction. Thus, rather than directly acting on the reduction (or the promotion) of problem-solving pondering, it might be useful to encourage more efficient work recovery processes among employees (especially among those exposed to CN), in order to protect their well-being and facilitate interactions between their work and family roles (Sonnetag and Fritz, 2015). Efficient ways to achieve work recovery can be developed and trained, and approaches to successfully train work recovery have proved to be efficient in previous studies. For instance, participants involved in a recovery training program (e.g., time management, self-reflection) were characterized by better recovery experiences (e.g., psychological detachment) and higher levels of sleep quality after the training, in comparison to those not involved in this training (Hahn *et al.*, 2011).

More generally, although several countries (e.g., France, Portugal) have introduced laws to protect employees' "right to disconnect", most employees globally have yet to benefit from these types of protections. To decrease CN, email senders should, for instance, take a few seconds to explicitly state when their request is non-urgent and set a clear deadline for when they expect to receive a response. But beyond these clarifications, employees should also try to avoid sending emails outside of their normal work hours. This reduces the pressure colleagues may feel that they should also be online during off-job time. If off-hour emails are unavoidable, workers should consider sending them on a time-delay so they are delivered at the end of a weekend or at the start of the working day.

### **Endnotes**

1. Upon request from a reviewer, we re-estimated our final models while incorporating our demographic characteristics (i.e., age, sex, level of education, country of residence, tenure, full-time/part-time, permanent/contract, and sector) as controlled variables. These analyses revealed very few statistically significant effects associated with these controls, all of a negligible magnitude, and virtually identical results to those presented here.

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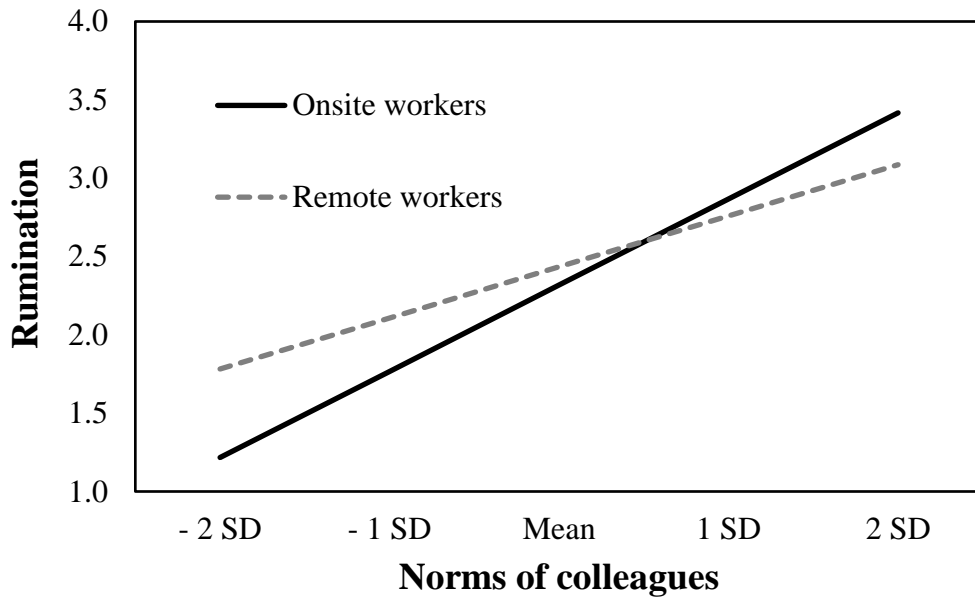


Figure 1. *Effects of colleagues' norms regarding the need to follow up quickly on work-related messages on affective rumination among employees working onsite or remotely*

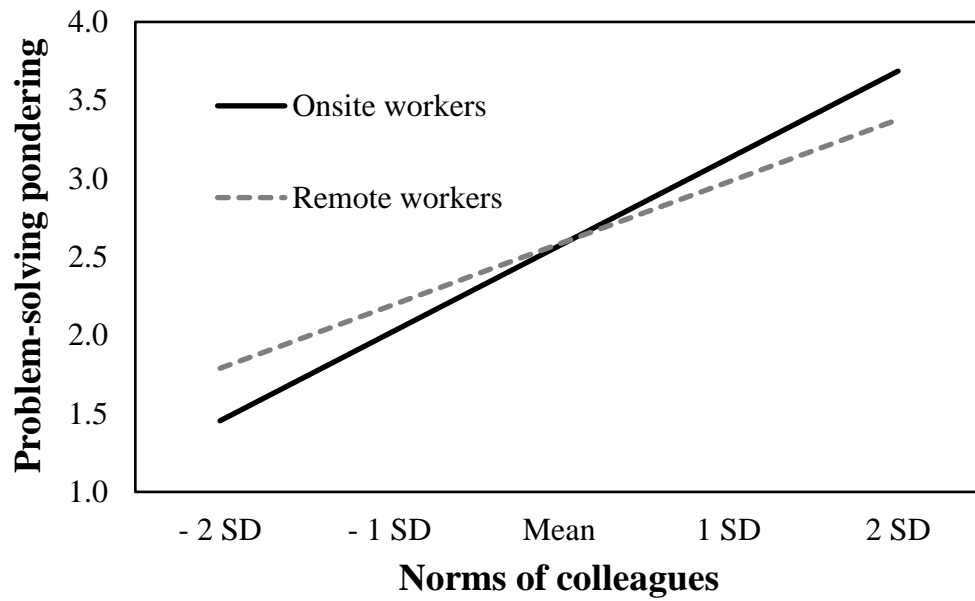


Figure 2. *Effects of colleagues' norms regarding the need to follow up quickly on work-related messages on problem-solving pondering employees working onsite or remotely*

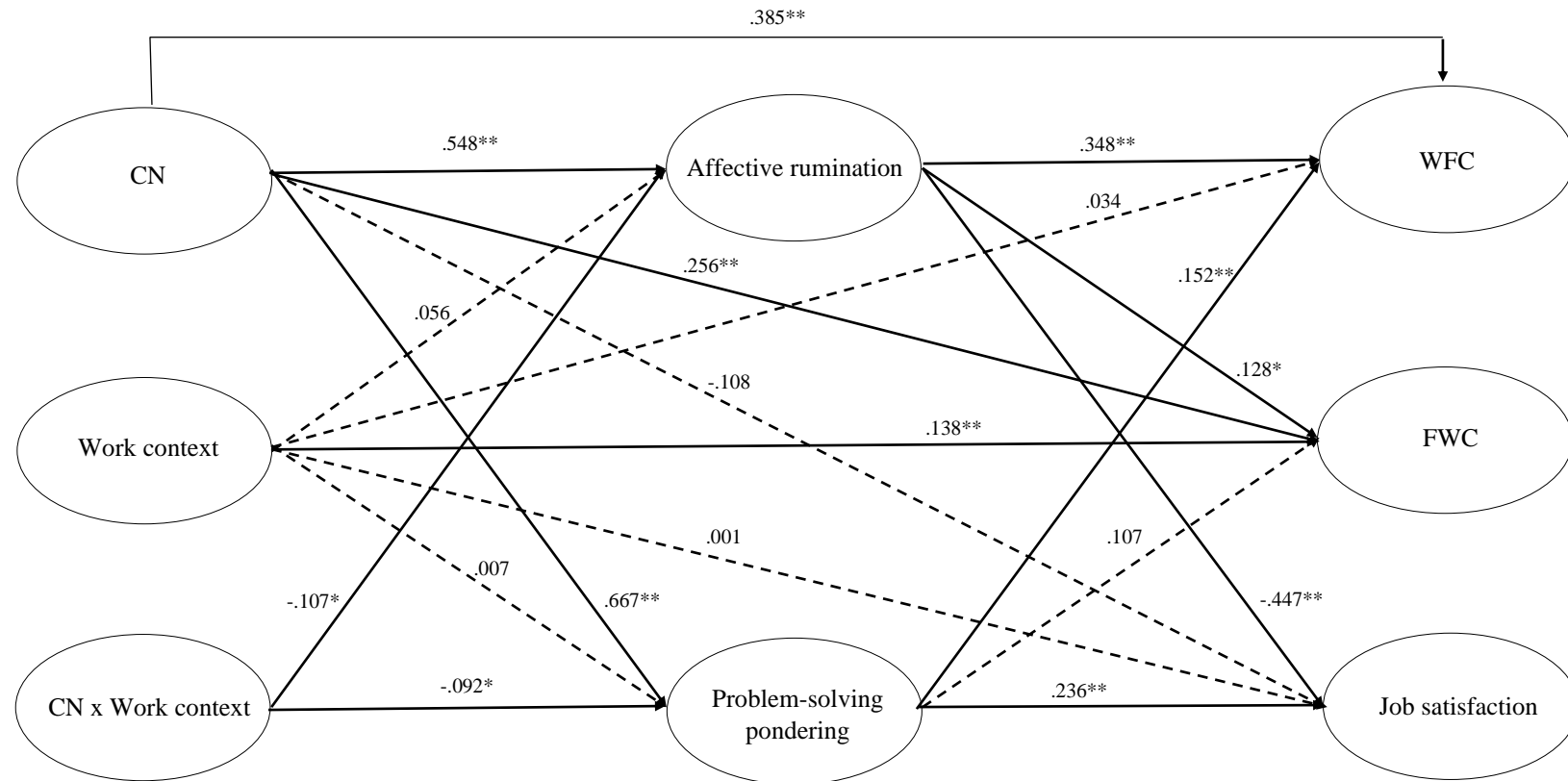


Figure 3. *Standardized coefficients from the predictive model with latent interactions*

*Note.* \*  $p \leq .05$ , \*\*  $p \leq .01$ ; CN: Colleagues' norms regarding the need to follow up quickly on work-related messages; WFC: Work-family conflict; FWC: Family-work conflict; work context: 0 = Onsite workers and 1 = Remote workers; dashed lines represent paths estimated in the model that were non-significant; for clarity purposes, covariances and indicators of latent variables are not presented.



**Table 1**  
*Standardized Factor Loadings ( $\lambda$ ) and Uniquenesses ( $\delta$ ) from the Confirmatory Factor Analytic Solution*

	CN	Rumination	Problem-solving pondering	WFC	FWC	
Items	$\lambda$	$\lambda$	$\lambda$	$\lambda$	$\lambda$	$\delta$
<b>CN</b>						
Item 1	.838					.298
Item 2	.849					.279
Item 3	.714					.490
Item 4	.710					.496
Item 5	.661					.563
Item 6	.838					.298
$\omega$	.898					
<b>Rumination</b>						
Item 1		.896				.198
Item 2		.920				.154
Item 3		.897				.195
$\omega$		.931				
<b>Problem-solving pondering</b>						
Item 1			.796			.366
Item 2			.931			.134
Item 3			.754			.431
$\omega$			.869			
<b>WFC</b>						
Item 1				.897		.195
Item 2				.934		.128
Item 3				.924		.147
Item 4				.940		.117
Item 5				.873		.237
$\omega$				.962		
<b>FWC</b>						
Item 1					.823	.322
Item 2					.916	.160
Item 3					.916	.160
Item 4					.881	.224
Item 5					.859	.262
$\omega$					.945	

*Note.*  $\lambda$ : Factor loading;  $\delta$ : Item uniqueness;  $\omega$ : Omega coefficient of model-based composite reliability (McDonald, 1970); CN: Colleagues' norms regarding the need to follow up quickly on work-related messages; WFC: Work-family conflict; FWC: Family-work conflict; all parameters are significant ( $p \leq .01$ ).

**Table 2***Latent Correlations from the Confirmatory Factor Analytic Solution*

Variable	1	2	3	4	5	6
1. CN	-					
2. Affective rumination	.385*	-				
3. Problem-solving pondering	.533*	.456*	-			
4. Work-family conflict	.592*	.564*	.508*	-		
5. Family-work conflict	.354*	.281*	.300*	.574*	-	
6. Job satisfaction	-.156*	-.397*	-.017	-.366*	-.171*	-
7. Work context (onsite vs. remote)	-.052	.033	-.021	.025	.128*	-.014

*Note.* \*  $p \leq .01$ ; CN: Colleagues' norms regarding the need to follow up quickly on work-related messages; work context: 0 = Onsite workers and 1 = Remote workers.

**Table 3***Predictive Results*

Predictors	Rumination		Problem-solving pondering		WFC		FWC		Job satisfaction	
	b (s.e.)	$\beta$	b (s.e.)	B	b (s.e.)	$\beta$	b (s.e.)	$\beta$	b (s.e.)	$\beta$
<b><i>Basic Predictive Model</i></b>										
CN	.440 (.062)**	.402	.643 (.073)**	.541	.538 (.077)**	.385	.281 (.072)**	.255	-.098 (.057)	-.105
Work context (onsite vs. remote)	.121 (.103)	.053	.011 (.109)	.005	.101 (.109)	.035	.317 (.100)**	.138	.003 (.081)	.001
Rumination					.444 (.067)**	.347	.129 (.059)*	.128	-.378 (.047)**	-.446
Problem-solving pondering					.180 (.068)**	.153	.100 (.058)	.108	.183 (.044)**	.234
R <sup>2</sup>	.165 (.038)**		.293 (.047)**		.489 (.038)**		.176 (.035)**		.230 (.044)**	
<b><i>Predictive Model with Latent Interactions</i></b>										
CN	.550 (.080)**	.548	.558 (.070)**	.667	.540 (.077)**	.385	.283 (.073)**	.256	-.100 (.057)	-.108
Work context (onsite vs. remote)	.117 (.094)	.056	.012 (.076)	.007	.100 (.109)	.034	.317 (.100)**	.138	.003 (.081)	.001
Rumination					.486 (.071)**	.348	.141 (.064)*	.128	-.413 (.050)**	-.447
Problem-solving pondering					.255 (.097)**	.152	.142 (.083)	.107	.262 (.062)**	.236
CN x Work context	-.223 (.102)*	-.107	-.161 (.082)*	-.092						
R <sup>2</sup>	.178 (.039)**		.304 (.048)**		.492 (.039)**		.178 (.035)**		.230 (.044)**	
	a	b (s.e.)	a	b (s.e.)						
<b><i>Colleagues' Norms: Simple Slope Analyses</i></b>										
Employees working onsite	2.317	.550 (.080)**	2.570	.558 (.070)**						
Employees working remotely	2.434	.326 (.065)**	2.583	.397 (.051)**						

*Note.* CN: Colleagues' norms regarding the need to follow up quickly on work-related messages; WFC: Work-family conflict; FWC: Family-work conflict; Work context: 0 = Onsite workers and 1 = Remote workers; R<sup>2</sup>: Squared multiple correlation (reflecting the proportion of explained variance); a: Regression intercept (used in drawing the simple slope graphs); b: Unstandardized coefficient; s.e.: Standard error of the coefficient;  $\beta$ : Standardized coefficient; \*  $p \leq .05$ , \*\*  $p \leq .01$ .