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Interruptions at Work and (Counter)Productivity: The Mediating Role of Psychological Need Unfulfillment

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Abstract

Purpose. When employees complete their work tasks, they often experience intrusions stemming from the work (professional intrusions) or the home domain (personal intrusions). Yet, little is known about the respective implications of these two types of intrusions for employees' productivity. This research investigated how professional and personal intrusions at work relate to the bright (perceived performance) and dark (procrastination) sides of employees' productivity. Based on recent advances in Self-Determination Theory, we also examined the mediating role of psychological need unfulfillment in these relations.

Design/Methodology. We relied on a cross-sectional survey design. A total of 229 French employees took part in the study.

Findings. Results from structural equation modelling indicated that need unfulfillment mediated the negative association between personal intrusions and employees' performance and the positive relation between personal intrusions and procrastination. Professional intrusions were positively related to the soldiering dimension of procrastination only.

Originality. This study sheds light on the differentiated effects of personal and professional intrusions, while uncovering the psychological mechanisms at play. Personal intrusions, by triggering employees' need unfulfillment, were found to have more extended detrimental consequences than professional intrusions. This research is also the first to demonstrate the mediating role of need unfulfillment in the relations between socio-contextual characteristics and individual functioning, and thus contributes to Self-Determination Theory.

Keywords: Personal intrusions, professional intrusions, need unfulfillment, perceived performance, procrastination at work, Self-Determination Theory.

Introduction

Technological acceleration and accelerated pace of living have increased the cognitive efforts that employees have to deploy to juggle the demands of their work and personal lives (Minkkinen *et al.*, 2021). For instance, employees often experience intrusions of their ongoing work activities, whether those stem from the work (professional intrusions: being interrupted by a work interlocutor while in the middle of a core work task; Fritz *et al.*, 2020) or the home domain (personal intrusions: being interrupted by an interlocutor from one's personal life, via information and communication technology, while in the middle of a core work task; Derks *et al.*, 2021).

Professional intrusions have been associated with negative health consequences for employees (e.g., fatigue, exhaustion, physical complaints, anxiety, stress; Fritz *et al.*, 2020; Lin *et al.*, 2013; Rogers and Barber, 2019), but their effects on employees' performance remain to be clarified. Indeed, while some studies were not able to show significant associations between professional intrusions and work performance (e.g., Fritz *et al.*, 2020; Hurbean *et al.*, 2023), others found that professional intrusions could contribute to increase performance (Bush *et al.*, 2022) and some contrastingly found that professional intrusions had detrimental effects on employees' perceived performance (Baethge and Rigotti, 2013; Pachler *et al.*, 2018). More research is thus needed to understand whether professional intrusions threaten employees' productivity. Regarding personal intrusions, although research has extensively documented how the work role may intrude into employees' personal lives during off-job hours (e.g., Gillet *et al.*, 2022), very little is known about the implications of personal intrusions during work hours. Moreover, the rare studies that looked into this issue examined the health and work-home implications of personal intrusions (e.g., exhaustion, work-home conflict; Derks *et al.*, 2021; Farivar *et al.*, 2022), leaving as an open question whether they jeopardize employees' performance. Perhaps more importantly, research has not simultaneously considered these distinct sources (i.e., professional and personal) of intrusions and has thus failed to document their respective implications for employees' performance. Indeed, given the ubiquity of professional and personal intrusions in contemporary work settings (e.g., Derks *et al.*, 2021; Fritz *et al.*, 2020) and their detrimental consequences for employee well-being, it appears critical to ascertain their respective implications for employees' productivity. Extending knowledge on this issue could inform organisational stakeholders and organisational development practitioners on the types of intrusions to primarily target through interventions.

Moreover, prior studies have focused on the relations between intrusions and the bright side of employees' productivity (e.g., Baethge and Rigotti, 2013; Fritz *et al.*, 2020; Pachler *et al.*, 2018), leaving unknown how professional and personal intrusions relate to employees counterproductivity. Yet, in order to fully comprehend employees' work-related performance, one needs to simultaneously consider positive and negative facets of employees' productivity (Rotundo and Sackett, 2002). As such, there is a need for a more comprehensive understanding of the differentiated effects of professional and personal interruptions not only on the bright but also on the dark side of employees' productivity. The present research will thus address recent calls to more comprehensively investigate different sources of intrusions (Fritz *et al.*, 2020) by offering the first simultaneous examination of personal and professional intrusions on employees' productive (perceived performance) and counterproductive (procrastination) behaviours. We chose to study perceived performance and procrastination at work as they are both known to be critical drivers of organisational effectiveness and costs (Metin *et al.*, 2016; Pransky *et al.*, 2006).

Finally, we offer to answer scholars' recent call (Fritz *et al.*, 2020) to uncover the mechanisms that could explain the effects of professional and personal intrusions at work on employees' productivity. More precisely, we offer to examine the motivational underpinnings of these relations, while relying on the currently dominant theoretical framework on employees' motivation (i.e., Self-Determination Theory, SDT; Ryan, 2023). Building upon recent advances in SDT (see Ntoumanis, 2023), this research will examine the possibility that intrusions create missed opportunities for optimal motivational functioning (i.e., need unfulfillment, a negative psychological need experience of deactivation, where one feels that their psychological needs are in a state of neglect or abandon; Huyghebaert-Zouaghi *et al.*, 2021) and thus lead to task disengagement (i.e., lower productivity). In other words, we will investigate the mediating role of psychological need unfulfillment (Huyghebaert-Zouaghi *et al.*, 2021) in the relations between professional and personal intrusions and employees' productivity (perceived performance and cyberslacking).

Intrusions and Employees' Productivity

Although intrusions may make teamwork more efficient (Fritz *et al.*, 2020) and facilitate employees' work-life transitions (Derks *et al.*, 2021), they may also alter employees' productivity. Indeed, prior studies suggest that, because of their uncontrollable and unpredictable nature, personal and professional intrusions may interfere with employees' work process and make it harder for them to reorient their attention to the interrupted task (Leroy and Schmidt, 2016). As such, experiencing frequent disruption in their work progress may slow down the attainment of employees' performance goals and achievements. Indeed, even short interruptions have been shown to disrupt individuals' flow of concentration and lead to increased errors on a cognitive task (Altmann *et al.*, 2014). Moreover, prior studies suggest that professional intrusions may have detrimental effects on employees' perceptions of their own performance by increasing their mental/cognitive load (Baethge and Rigotti, 2013; Hurbean *et al.*, 2023). Recent research could suggest similar effects for personal intrusions, as non-role intrusions were found to negatively predict employees' extra-role performance by reducing their work engagement (Bush *et al.*, 2022). In sum, professional and personal intrusions tap into employees' cognitive and temporal resources, yet these resources are not infinite and can thus no longer be devoted to the task at hand (Hobfoll *et al.*, 2018). As a result, professional and personal intrusions could both result in lower perceived performance (i.e., employees' self-reported ability to produce officially required outcomes that serve organisational goals; Demerouti *et al.*, 2014).

Moreover, when their progress on their work tasks is often halted, employees may end up putting off their work (i.e., procrastination). Yet, research has not yet evidenced the implications of professional and personal intrusions for employees' counterproductivity (e.g., procrastination). However, prior studies did show intrusions to disrupt employees' attention and make it harder for them to reorient their attention to the interrupted task (Leroy and Schmidt, 2016). Instead of reorienting their attention to the interrupted task, employees may thus orient it toward less demanding and more pleasurable non-work-oriented thoughts or activities, in the form of daydreaming or work avoidance (i.e., soldiering), or of online non-work activities such as online shopping or checking social media (i.e., cyberslacking; Metin *et al.*, 2016). Furthermore, prior research suggests that because professional and personal intrusions interfere with the work task and with employees' work progress, they could threaten employees' resources and sense of self-efficacy, which could result in self-undermining and destructive regulatory strategies such as higher procrastination (Bakker and Demerouti, 2017; Metin *et al.*, 2016).

Hypothesis 1. Personal and professional intrusions are negatively related to perceived performance and positively to procrastination.

Prior research has considered these two forms of intrusions in separate studies (Derks *et al.*, 2021; Fritz *et al.*, 2020) or without properly distinguishing the sources of intrusions (Lin *et al.*, 2013). Yet, employees often face both types of intrusions and ignoring one or the other may provide a rather poor and unrealistic reflection of the reality experienced by employees. As such, by jointly considering personal and professional intrusions, our research could shed light on their differentiated effects. Indeed, because these intrusions stem from different social roles (Kahn *et al.*, 1964), they could have distinctive implications for employees' productivity. Yet, given the absence of prior relevant research jointly considering these distinct sources of intrusions, we could not formulate a specific hypothesis regarding these potentially differentiated relations. While further documenting these direct relations, this research also aimed to consider the possibility, as suggested by Fritz *et al.*, (2020), that these relations are indirect (i.e., mediated by unexplored psychological experiences).

The Mediating Role of Need Unfulfillment

SDT (Ryan and Deci, 2017) posits that (mal)adaptive behaviours can be explained by the influence of individuals' social context on their psychological needs for autonomy (need to feel volitional and responsible for one's actions), competence (need to feel efficient and to have opportunities to express one's abilities), and relatedness (need to feel secure in one's relationships). More precisely, positive contexts support psychological needs and lead to need satisfaction, while aversive contexts obstruct psychological needs and create need frustration (Ryan and Deci, 2017). Recent findings have also demonstrated the existence and distinctiveness of a third experiential state: need unfulfillment (i.e., characterized by feelings of uncertainty, dullness, and disconnection; Huyghebaert-Zouaghi *et al.*, 2021).

Interestingly, scholars have argued that need unfulfillment is likely to stem from unpredictable socio-environmental conditions that are more passive in nature and neglect, ignore, or set aside individuals' psychological needs (Cheon *et al.*, 2019). We argue that professional and personal

intrusions, because of their unpredictable and uncontrollable nature, may create such conditions for need unfulfillment. Indeed, when frequently interrupted in their work, employees may experience uncertainty, confusion and lack of purpose or meaning (autonomy unfulfillment), a feeling of not performing or improving as well/much as they could (competence unfulfillment), and a sense of not really being understood or not fitting in (relatedness unfulfillment). Interestingly, prior research has conceptualized professional and personal intrusions as demands (i.e., characteristics of the work or home domain that exhaust the energy of employees and consequently diminish their health; Demerouti and Bakker, 2023; Derks *et al.*, 2021; Fritz *et al.*, 2020) and prior studies have shown job demands (e.g., supervisors' thwarting or indifferent behaviours; Huyghebaert-Zouaghi *et al.*, 2021, 2023) to predict need unfulfillment. Altogether, intrusions may enhance employees' "feeling that something is not as good as it should be" (i.e., need unfulfillment; Bartholomew *et al.*, 2011, p. 78).

In turn, having one's needs unfulfilled is argued to make behaviours listless and nonvolitional, which is known to result in diminished functioning, including lower performance (Ryan and Deci, 2017). Although prior research has not evidenced the relations between need unfulfillment and perceived performance, it seems plausible that when employees experience uncertainty and ambiguity (autonomy unfulfillment), feel like they do not fit in with others (relatedness unfulfillment) and feel like they do not progress as much/well as they would like to (competence unfulfillment), they are more inclined to perceive themselves as less performant in their job. Supporting this assertion, prior studies found need unfulfillment to negatively relate to job satisfaction and autonomous motivation, which are both closely related to job performance (Huyghebaert-Zouaghi *et al.*, 2021, 2023).

Moreover, need unfulfillment is argued to be an energy depleting experience that prior studies have shown to lead to passive forms of maladaptive functioning such as disengagement (Cheon *et al.*, 2019), job boredom (Huyghebaert-Zouaghi *et al.*, 2021) and amotivation (Huyghebaert-Zouaghi *et al.*, 2023). Interestingly, procrastination shares conceptual similarities with these constructs (i.e., cognitive and/or behavioural withdrawal). Indeed, when experiencing confusion (autonomy unfulfillment), dullness (competence unfulfillment), and disconnection (relatedness unfulfillment), employees may not be able to express their true self at work and may thus disengage from their work tasks and engage in more pleasurable and autonomous tasks in the form of procrastination at work (e.g., taking a long break, checking personal social media).

Altogether, the relations hypothesized in the above rationale form a mediation pathway in which professional and personal intrusions predict lower perceived productivity and higher cyberslacking, through need unfulfillment. This mediation pathway is consistent with SDT which posits psychological need states as explanatory mechanisms (Ryan and Deci, 2017) and with past empirical evidence showing the mediating role of psychological needs in the relations between socio-contextual characteristics and individual functioning (e.g., Lagios *et al.*, 2022).

Hypothesis 2. Need unfulfillment mediates the relations between personal/professional intrusions and employees' performance and procrastination.

Method

Participants and Procedure

According to national regulations, ethical approval was not demanded for this research. Nonetheless, this study was conducted in compliance with the American Psychological Association ethical standards and with the Helsinki Declaration and its amendments and adhered to the requirements applicable in France. To take part in the study, participants had to be employed in France. They were recruited through network and snowball sampling procedures and were not compensated for their participation. Potential participants received an email summarizing the objectives of the research, reminding them of the voluntary and anonymous nature of their participation, and providing them with a link to the online survey. They were then invited to provide written informed consent to take part in the study.

In total, 229 participants (M_{age}=31.91 years; *SD*=10.34; 56.80% women) completed the survey. A small majority of participants were in a romantic relationship (in a civil union: 30.1%; married: 22.7%) and most of them did not have children (62%). Participants had been working in their current position for an average of 5.71 years (*SD*=6.97), mostly under a permanent work contract (69.9%). Most participants worked full-time (89.50%) for an average of 39.05 weekly hours (*SD* = 7.26). A small majority of the sample worked in the private sector (50.2%), with most participants (84.8%) working in the service industry (non-market services: 52.0%; market services: 32.8%).

Measures

Professional intrusions were assessed with four items (Fritz *et al.*, 2020; e.g., "I have to stop working to attend to others' interruptions") rated on a scale from 1 (*never*) to 5 (*always*).

Personal intrusions were measured with three items (Derks *et al.*, 2021; e.g., "I am often distracted by private messages on my smartphone") rated on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

Need unfulfillment was assessed with 12 items (Huyghebaert-Zouaghi *et al.*, 2021; e.g., "I often do not understand the rationale for how my job is expected to be done") rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Perceived performance was measured with nine items (Demerouti *et al.*, 2014; e.g., I fulfil all the requirements of my job") rated on a scale from 1 (*not at all characteristic of me*) to 7 (*totally characteristic of me*).

Procrastination was assessed using Metin *et al.*'s (2016) scale including eight items for soldiering (e.g., "I delay before starting on work I have to do") and four for cyberslacking (e.g., "I do online shopping during working hours"), rated on a scale from 1 (*never*) to 7 (*always*).

Control variables. The relationships between the demographics and the dependent variables were examined (see Table 1). As the inclusion of these controls did not change the interpretation of the results, the results reported below do not include any controls for parsimony purposes (Becker, 2005).

Results

Measurement Model

Because the sample size was relatively small compared to the total number of parameters to be estimated, we reduced the number of items of performance and soldiering to three by creating parcels, using Little *et al.*, 's (2002) item-to-construct balance technique[1]. To assess the distinctiveness of the latent variables included in the model, confirmatory factor analyses were performed using *Mplus* 8.6 (MLR estimator). Full Information Maximum Likelihood was used to handle missing data. Consistent with prior work on psychological need states (e.g., Bartholomew *et al.*, 2011; Lagios *et al.*, 2022), a latent second-order factor (i.e., need unfulfillment) represented by three latent first-order factors (i.e., autonomy, competence, and relatedness unfulfillment) was created. The hypothesized six-factor model yielded an acceptable fit to the data ($\chi^2(359)=655.79$; RMSEA=.06; SRMR=.07; CFI=.91; TLI=.90) and was superior to all more constrained models (see Table 2). All items loaded significantly on their theoretical factor, with standardized loadings ranging from .47 to .96. Table 1 displays descriptive statistics, reliabilities, and intercorrelations.

Structural Models

Structural equation models were used to test hypotheses. To examine Hypothesis 1, we tested a model in which professional and personal intrusions were linked to performance, soldiering, and cyberslacking. This model fitted the data adequately ($\chi^2(109)=238.39$; RMSEA=.07; SRMR=.06; CFI=.94; TLI=.93). Results indicated that professional intrusions were not significantly related to performance ($\gamma=-.04$, $p=.59$) and cyberslacking ($\gamma=-.07$, $p=.38$), while they were positively related to soldiering ($\gamma=.26$, $p<.001$). In contrast, personal intrusions significantly related to all three outcomes: negatively to performance ($\gamma=-.31$, $p<.001$) and positively to soldiering ($\gamma=.54$, $p<.001$) and cyberslacking ($\gamma=.60$, $p<.001$).

To assess Hypothesis 2, we tested a model in which professional and personal intrusions were linked to the outcomes both directly and indirectly through need unfulfillment. This hypothesized mediated model with all direct paths estimated displayed an acceptable fit to the data ($\chi^2(359)=655.79$; RMSEA=.06; SRMR=.07; CFI=.91; TLI=.90) and was then compared to alternative, more parsimonious models removing the direct paths. An alternative model removing the direct paths between professional intrusions and performance and cyberslacking was shown to be equivalent to the hypothesized model (see Table 3), and was thus retained as the final model ($\chi^2(361)=658.79$; RMSEA=.06; SRMR=.07; CFI=.91; TLI=.90). As shown in Figure 1, professional intrusions were not significantly related to need unfulfillment ($\gamma=.08$, $p=.39$) while personal intrusions were positively related to need unfulfillment ($\gamma=.37$, $p<.001$). In turn, need unfulfillment was negatively related to performance ($\beta=-.20$, $p=.04$), and positively to soldiering ($\beta=.27$, $p=.001$) and cyberslacking ($\beta=.34$, $p=.004$). Regarding the direct paths, professional intrusions were positively related to soldiering ($\gamma=.24$, $p<.001$), and personal intrusions

[1] Parcels were not created for the other variables of our model because they were already measured by three or four indicators.

were negatively related to performance (γ=-.24, *p*=.003) and positively to soldiering (γ=.44, *p*<.001) and cyberslacking (γ=.42, *p*<.001). Latent bootstrap analyses (Cheung and Lau, 2008) further indicated that only the indirect effects from personal intrusions on the outcomes through need unfulfillment were significant (see Table 4).

Discussion

This research investigated the differentiated relations between professional/personal intrusions and employees' (counter)productivity (perceived performance and procrastination), while examining the psychological mechanisms (need unfulfillment) underlying these relations.

Theoretical Implications

This research is the first to simultaneously consider intrusions stemming from two distinct sources while documenting their relations with the bright (perceived performance) and dark (procrastination) sides of employees' productivity. Results partially confirmed Hypothesis 1 by showing that both personal and professional intrusions increased employees' soldiering (i.e., putting off work). This study thus adds up to prior research by being the first to show that professional and personal intrusions may lead employees to procrastinate. Indeed, prior studies had focused on the relations between intrusions and the bright side of employees' productivity (e.g., Baethge and Rigotti, 2013; Fritz *et al.*, 2020; Pachler *et al.*, 2018), leaving as unchartered territory the relations between intrusions and employees' counterproductivity. We thus provide first evidence that intrusions trigger counterproductive behaviours. This new result could be explained by the fact that intrusions make it harder for employees to reorient their attention to the interrupted task (Leroy and Schmidt, 2016) and may instead result in self-undermining and destructive regulatory strategies (Bakker and Demerouti, 2017) in the form of daydreaming or work avoidance (Metin *et al.*, 2016).

Results also showed that personal intrusions were associated with lower perceived performance and a higher likelihood of cyberslacking (i.e., online non-work activities during work hours), while professional intrusions did not relate to these outcomes. Our results therefore concur with prior studies that were not able to show significant associations between professional intrusions and work performance (e.g., Fritz *et al.*, 2020; Hurbean *et al.*, 2023). They also add up to existing research by showing that they only partially explain the dark side of employees' productivity (i.e., non-significant association with cyberslacking but positive relations with soldiering). More research is clearly needed to look into the conditional effects of professional intrusions on employees' productivity (e.g., conditioned by individual characteristics; Rogers and Barber, 2019).

Furthermore, this study adds up to the literature by showing personal intrusions to not only enhance the dark side of productivity (cyberslacking), but also deteriorate the bright side of productivity (lower perceived performance). It thus sheds light on the wide array of detrimental consequences -in terms of productivity- stemming from personal intrusions, which had thus far remained undocumented. Indeed, prior studies (e.g., Derks *et al.*, 2021; Gillet *et al.*, 2022; Farivar *et al.*, 2022) did not address the potential role of personal intrusions for employees' performance, thus leaving it as an open question to which we bring new answers. A possible explanation for the more extended detrimental effects of personal intrusions (relative to professional intrusions) is that personal intrusions create an inter-role conflict as employees' personal role interferes with their professional role (Kahn *et al.*, 1964), thus disrupting their performance. In contrast, professional intrusions may be seen by employees as part of their work role, therefore not altering their perceived productivity (Bush *et al.*, 2022). Moreover, because personal intrusions occur through employees' smartphone (Derks *et al.*, 2021), they divert employees' attention toward online non-work activities (e.g., checking social media), while professional intrusions are more likely to occur through face-to-face interactions (Fritz *et al.*, 2020), therefore not triggering this online form of procrastination.

We also offered a first examination of how personal and professional intrusions relate to employees' (counter)productive behaviours through psychological needs. In doing so, we address recent calls (Fritz *et al.*, 2020) to uncover the mechanisms that could explain the effects of professional and personal intrusions at work on employees' functioning, as these mechanisms were understudied in prior research. Our findings supported the mediating role of need unfulfillment in the relation between personal intrusions and employees' perceived performance and procrastination (soldering and cyberslacking), but not in the relation between professional intrusions and these outcomes, thus partially confirming Hypothesis 2. These results extend the literature by suggesting that professional and personal intrusions trigger distinctive pathways, thus encouraging future research to simultaneously consider these two sources of intrusions to better understand their singular implications. Interestingly, our results

showed that personal intrusions could give employees a "feeling that something is not as good as it should be" (Bartholomew *et al.*, 2011, p. 78), that they cannot express their true self in an optimal way at work (i.e., need unfulfillment; Huyghebaert-Zouaghi *et al.*, 2021). In contrast, professional intrusions did not significantly relate to this need state. A possible explanation is that professional intrusions may be appraised by some as job resources promoting their functioning and by others as hindrance demands (Ma *et al.*, 2020). They could thus trigger need satisfaction or frustration, rather than need unfulfillment. More research is needed to explore this possibility.

Moreover, this research is the first to demonstrate the behavioural consequences associated with need unfulfillment, which were not explored in prior studies focusing on its psychological and motivational consequences (e.g., Huyghebaert-Zouaghi et al., 2021, 2023). We thus contribute to extend need unfulfillment's nomological network and to its putting down roots in the SDT literature (see Ryan, 2023). Indeed, our results contribute to a better understanding of the consequences of missed opportunities for optimal motivational functioning (Ntoumanis, 2023). Precisely, need unfulfillment negatively related to employees' perceived performance and positively to their procrastination, thus corroborating theoretical suggestions positing this need state as an energy-depleting experience (Cheon *et al.*, 2019; Ntoumanis, 2023). Interestingly, need unfulfillment was more strongly related to the dimensions of procrastination, thus confirming this experiential state to be an amotivating experience leading to passive and listless consequences (Huyghebaert-Zouaghi *et al.*, 2021). These findings add up to SDT by showing that behavioural consequences characterized by passivity, withdrawal, and deactivation (e.g., procrastination) stem from employees' perceiving their psychological needs to be in a state of neglect or abandon (Huyghebaert-Zouaghi *et al.*, 2021, 2023). In other words, we provide new evidence that employees may give in to this ambiguous need experience (need unfulfillment) through disengagement. More generally, this research is the first to evidence the mediating role of need unfulfillment in the relation between socio-contextual characteristics and individual functioning. In doing so, we support Huyghebaert-Zouaghi *et al.*'s (2021) suggestion that SDT's explanatory framework can be expanded, and we show that the dim light colours of motivational processes (Ntoumanis, 2023) may enrich our understanding of employees' idle behaviours. As such, our research opens new horizons for SDT researchers to further look into the explanatory role of need unfulfillment in the relations between job characteristics and a wider array of consequences (e.g., health outcomes, attitudes) characterized by passivity, withdrawal, and deactivation, and thus keep extending our understanding of the dim light colours of psychological needs.

Limitations

First, as we relied on self-report cross-sectional data, common method bias may have impacted our results by artificially inflating the correlations between our constructs. Several methodological (e.g., using validated scales) and statistical (e.g., Harman's test) precautions were nonetheless taken to lessen concerns regarding this bias (Podsakoff et al., 2012). Future research using longitudinal designs (e.g., Fritz *et al.*, 2020) or other-rated productivity data (e.g., Demerouti *et al.*, 2014) could strengthen our observations. Second, we did not consider employees' appraisal of their personal or professional intrusions, yet these intrusions may be considered threatening by some and challenging by others (e.g., Derks *et al.*, 2021). Future research could better document the implications of these distinctive appraisals of intrusions (Ma *et al.*, 2020). Third, we only considered need unfulfillment, and need satisfaction and frustration could jointly be examined. In doing so, future studies could test the possibility that different appraisals (i.e., challenge, loss, threat; Ma *et al.*, 2020) of personal and professional intrusions could trigger distinctive psychological need states (i.e., satisfaction, frustration, and unfulfillment; Huyghebaert-Zouaghi *et al.*, 2021).

Practical Implications

Although professional intrusions had limited consequences in terms of productivity, our study showed that they still make employees more prone to soldiering. Moreover, prior research showed their detrimental consequences in terms of well-being (Fritz *et al.*, 2020; Lin *et al.*, 2003). As such, organisations could raise awareness among supervisors and employees on the detrimental consequences of such intrusions, so that they consider refraining from interrupting their colleagues or subordinates and instead gather their requests and set dedicated time slots to address them. Our research also showed that personal intrusions could have detrimental consequences for employees' productivity, adding up to prior knowledge on their adverse effects on well-being (Derks *et al.*, 2021). Our results encourage employees to adopt segmentation strategies (Kreiner *et al.*, 2009) so as not to be interrupted by personal

matters during work time. Organisations could also offer seminars to help employees identify realistic ways to set interruption-free times during their workday.

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Table 1

Descriptive Statistics and Intercorrelations among Variables

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender	-	-	-											
2. Age	31.91	10.34	-.22**	-										
3. Sector	-	-	.05	-.06	-									
4. Working hours	-	-	.13	.07	.08	-								
5. Weekly worked hours	39.05	7.26	.28***	-.01	.16*	.50***	-							
6. Job tenure	5.71	6.97	-.05	.68***	.00	.02	-.03	-						
7. Professional intrusions	3.02	1.11	.18**	.07	.15*	.00	-.00	-.11	(.94)					
8. Personal intrusions	2.40	1.24	.04	-.30***	-.02	.02	-.04	.23***	.15**	(.90)				
9. Need unfulfillment	3.15	1.10	.07	-.01	.16*	-.04	.09	-.06	.17**	.32***	(.83)			
10. Perceived performance	5.67	.91	.07	.03	-.03	-.04	-.05	.13*	-.09	-.27***	-.23***	(.90)		
11. Soldiering	2.68	1.09	.02	-.04	-.12	-.06	-.03	-.05	.30***	.52***	.36***	-.39***	(.84)	
12. Cyberslacking	3.40	1.59	.28***	-.24***	.09	.16*	.26***	-.10	-.01	.47***	.31***	-.16*	.41***	(.76)

Note. $N = 229$ (except for gender $N = 228$). Reliability alpha values are on the diagonal. Gender is coded 0 for *female* and 1 for *male*. Sector is coded 0 for *private sector* and 1 for *public sector*. Working hours are coded 0 for *part-time* and 1 for *full-time*. Job tenure is indicated in years.

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 2

Fit Indices for Measurement Models

Model	χ^2	*df*	RMSEA	SRMR	CFI	TLI	SCF	$\Delta\chi^2_{SB}$ (Δ_{df})
Six-factor model	655.79	359	.06	.07	.91	.90	1.083	-
Five-factor (professional intrusions and personal intrusions = 1 factor)	1154.33	364	.10	.13	.77	.74	1.094	293.34(5)***
Five-factor model (professional intrusions and psychological need unfulfillment = 1 factor)	1770.37	367	.13	.12	.59	.54	1.063	7284.23(8)***
Five-factor model (personal intrusions and psychological need unfulfillment = 1 factor)	1371.21	367	.11	.11	.70	.67	1.082	748.93(8)***
Five-factor model (psychological need unfulfillment and perceived performance = 1 factor)	1412.13	367	.11	.11	.69	.66	1.075	1135.37(8)***
Five-factor model (psychological need unfulfillment and cyberslacking = 1 factor)	1111.41	367	.09	.10	.78	.76	1.086	399.92(8)***
Five-factor model (psychological need unfulfillment and soldiering = 1 factor)	1226.89	367	.10	.10	.75	.72	1.083	559.8(8)1***
Five-factor model (cyberslacking and soldiering = 1 factor)	797.27	364	.07	.08	.87	.86	1.084	136.42(5)***
Four-factor model (professional intrusions, personal intrusions, and need unfulfillment = 1 factor)	2156.28	371	.15	.14	.47	.42	1.082	1551.25(12)***
Four-factor model (professional intrusions, personal intrusions, and perceived performance = 1 factor)	1200.25	368	.10	.09	.75	.73	1.078	649.99(9)***
Three-factor model (psychological need unfulfillment, cyberslacking, soldiering, and perceived performance = 1 factor)	1801.02	374	.13	.12	.58	.54	1.0762	1337.50(18)***
Three-factor model (professional intrusions and personal intrusions = 1 factor; cyberslacking, soldiering, and perceived performance = 1 factor)	1664.26	371	.12	.16	.62	.58	1.090	843.91(12)***
Two-factor model (professional intrusions, personal intrusions, and psychological need unfulfillment = 1 factor; cyberslacking, soldiering, and perceived performance = 1 factor)	2657.73	376	.16	.17	.33	.27	1.085	1938.80(17)***
Two-factor model (professional intrusions and personal intrusions = 1 factor; psychological need unfulfillment, cyberslacking, soldiering, and perceived performance = 1 factor)	2504.02	383	.16	.20	.37	.34	1.086	1765.27(24)***
One-factor model	2775.14	377	.16	.15	.29	.24	1.003	1337.50(15)***

Note. $N = 229$. RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; CFI = comparative fit index; TLI = Tucker-Lewis index; SCF = scaling correction factor; $\Delta\chi^2_{SB}$ = strictly positive Satorra-Bentler chi-square difference test. The final model is indicated in bold.

***$p < .001$.

Table 3

Fit Indices for Structural Mediated Models

Model	χ^2	*df*	RMSEA	SRMR	CFI	TLI	SCF	$\Delta\chi^2_{SB}$ (Δ_{df})	Model comparison
Hypothesized (all direct paths estimated)	655.79	359	.06	.07	.91	.90	1.083	-	-
Alternative 1 (path between professional intrusions and perceived performance removed)	655.90	360	.06	.07	.91	.90	1.083	.11(1)	Hypothesized vs Alternative 1
Alternative 2 (Alternative 1 + path between professional intrusions and cyberslacking removed)	658.28	361	.06	.07	.91	.99	1.083	2.47(1)	Alternative 1 vs Alternative 2
Alternative 3 (Alternative 2 + path between professional intrusions and soldiering removed)	675.16	362	.06	.08	.91	.90	1.081	43.04(1)***	Alternative 2 vs Alternative 3
Alternative 4 (Alternative 2 + path between personal intrusions and perceived performance removed)	667.86	362	.06	.07	.91	.90	1.082	10.76(1)**	Alternative 2 vs Alternative 4
Alternative 5 (Alternative 2 + path between personal intrusions and cyberslacking removed)	682.38	362	.06	.08	.91	.89	1.084	15.75(1)***	Alternative 2 vs Alternative 5
Alternative 6 (Alternative 2 + path between personal intrusions and soldiering)	690.46	362	.06	.08	.90	.89	1.055	29.42(1)***	Alternative 2 vs Alternative 6

Note. $N = 229$. RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; CFI = comparative fit index; TLI = Tucker-Lewis index; SCF = scaling correction factor; $\Delta\chi^2_{SB}$ = strictly positive Satorra-Bentler chi-square difference test. The final model is indicated in bold.

$^{**}p < .01$. $^{***}p < .001$.

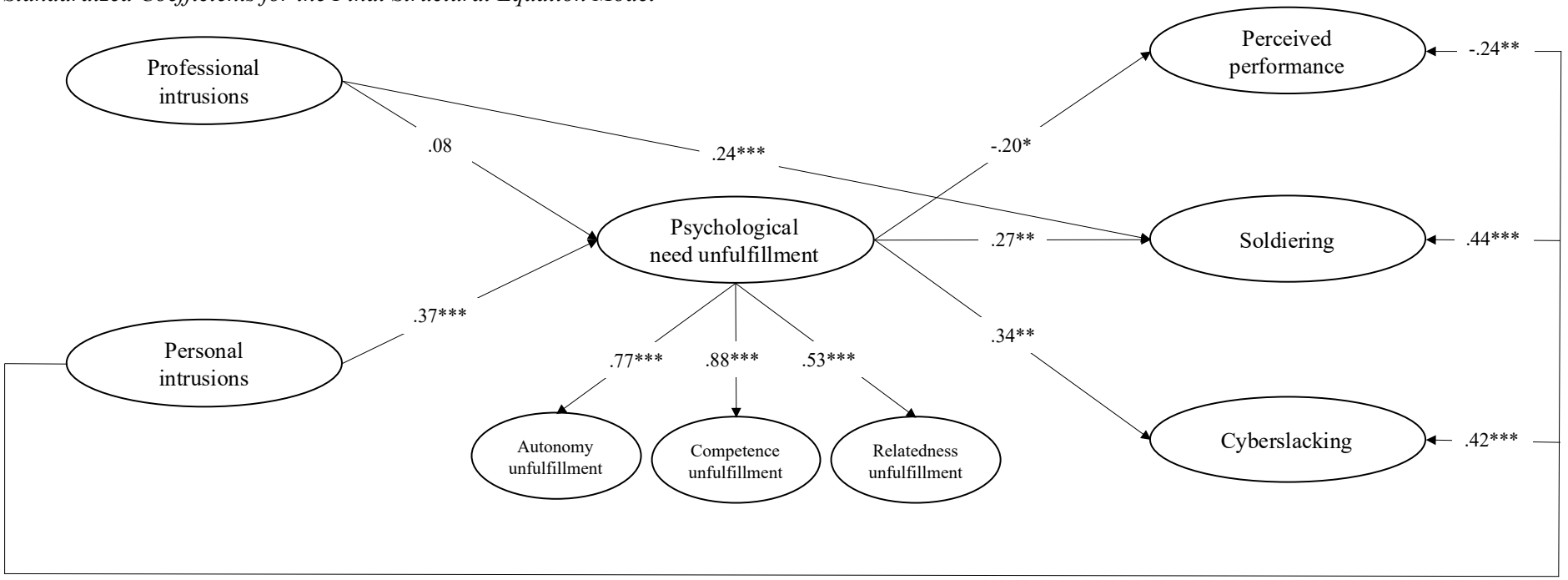
Table 4

Indirect Effects for the Mediation Analyses

Predictor	Mediator	Outcome	Estimate	95% CI[a]
Professional intrusions	Need unfulfillment	Perceived performance	-.02	[-.07; .02]
Professional intrusions	Need unfulfillment	Soldiering	.03	[-.03; .08]
Professional intrusions	Need unfulfillment	Cyberslacking	.03	[-.04; .10]
Personal intrusions	Need unfulfillment	Perceived performance	-.07	[-.163; -.002]
Personal intrusions	Need unfulfillment	Soldiering	.10	[.03; .19]
Personal intrusions	Need unfulfillment	Cyberslacking	.13	[.04; .23]

Note. CI = confidence interval. [a]Based on 10,000 samples bootstrapping.

Figure 1
Standardized Coefficients for the Final Structural Equation Model



Note. $N = 229$.
*$p < .05$. **$p < .01$. ***$p < .001$.