SCANDINAVIAN JOURNAL OF WORK AND ORGANIZATIONAL PSYCHOLOGY

Minkkinen, J., et al. (2021). Does Psychological Detachment From Work Protect Employees under High Intensified Job Demands? *Scandinavian Journal of Work and Organizational Psychology*, 6(1): 9, 1–16. DOI: https://doi.org/10.16993/sjwop.97

ORIGINAL ARTICLE

Does Psychological Detachment From Work Protect Employees under High Intensified Job Demands?

Jaana Minkkinen*, Ulla Kinnunen* and Saija Mauno*,†

Technological acceleration is intensifying job demands (IJDs), referring to work intensification, intensified job- and career-related planning and decision-making demands, and intensified learning demands at work. IJDs mean new challenges for workers but recovery from work during off-job time through psychological detachment from work may help employees to maintain their well-being in the context of IJDs. The present study examined the associations between IJDs and emotional exhaustion and the buffering role of psychological detachment in these relationships. Cross-sectional data were collected from four Finnish trade unions in 2018 (N = 3,181). Data were analyzed by structural equation modeling (SEM). Higher IJDs were related to greater emotional exhaustion, and greater psychological detachment from work to lower emotional exhaustion. Of IJDs, work intensification had the strongest relationship with higher emotional exhaustion. As expected, psychological detachment attenuated the positive relationship between IJDs and emotional exhaustion. In general, the group-specific findings for blue-collar and white-collar workers were in line with the results found for the data as a whole. The results underline the beneficial role of psychological detachment from work as a strategy for replenishing resources that protects employees' occupational well-being in the presence of high IJDs. The potential risks of IJDs in today's workplaces should be recognized and employees' opportunities to mentally detach from work during free time should be supported.

Keywords: intensified job demands; emotional exhaustion; psychological detachment; job burnout; work strain; buffering hypothesis

Working life is changing in many ways as a consequence of technological acceleration (e.g., Chesley, 2014; Green, 2004a; Rosa, 2003). One of its implications is *intensified job demands* (IJDs; Kubicek, Paškvan, & Korunka, 2015) that alter the physical and, most importantly, cognitive efforts an employee needs for a good job performance and also affect the quality of working life and performance expectations toward employees (Green, 2004b; Kubicek et al., 2015). The theoretical roots of IJDs are in social acceleration theory (Rosa, 2003, 2013), which distinguishes the concept from many conventional ways to explore and measure job demands (Kubicek et al., 2015; Rosa, 2003). Social acceleration theory (Rosa, 2003, 2013) proposes that three inter-related and mutually reinforcing cycles of acceleration characterize modern societies, that is, technological acceleration, acceleration of social changes, and accelerated pace of living. Technological acceleration, in particular, has been seen as the primary antecedent of intensification of working life, also regarding IJDs, because its various forms, for example, digitalization, robotization, machine learning, artificial intelligence, are transforming the content of jobs, occupations, and even entire industries (see Chesley, 2014; Kubicek et al., 2015; Rosa, 2003, 2013).

Specifically, IJDs cover several inter-related aspects in which work has recently intensified (Kubicek et al., 2015), offering a comprehensive picture. An exploration of the effects of IJDs on occupational well-being is an important research target, as IJDs are expected to further accelerate in the future due to digitalization, the development of artificial intelligence, and robotization (Chesley, 2014; Green, 2004b; Kubicek et al., 2015).

The research so far has shown that employees exposed to over-burdening IJDs are more susceptible to health impairments and disadvantages in well-being (e.g., Korunka et al., 2015; Kubicek et al., 2015; Minkkinen et al., 2019). This is most likely to occur if employees have insufficient resources to recover from IJDs (see Sonnentag, Venz, & Casper, 2017), a suggestion that is consistent with the job demands-resources (JD-R) model (Bakker & Demerouti, 2017; Demerouti et al., 2001). However, we do not yet know how to cope with IJDs without depleting resources, paying special attention to buffering factors. Thus, it is important to find buffers against the potentially negative well-being outcomes of IJDs given that they will very likely continue to be a primary concern

* Tampere University, FI

† University of Jyväskylä, FI

Corresponding author: Jaana Minkkinen (jaana.minkkinen@tuni.fi)

of employees in working life worldwide (Korunka et al., 2015; Kubicek et al., 2015). One valuable buffering factor could be successful off-job recovery (Demerouti et al., 2009; Sonnentag & Fritz, 2007; Sonnentag et al., 2017), which is studied here through psychological detachment from work, referring to a subjective experience of "being mentally disengaged from one's job while being away from work" (Sonnentag & Bayer, 2005; Sonnentag & Fritz, 2015, p. 72).

Specifically, the present study examined psychological detachment as a buffering resource between IJDs and emotional exhaustion, which refers to feelings of strain and chronic fatigue resulting from long-term exposure to overtaxing work situations (Maslach, Schaufeli, & Leiter, 2001; Salmela-Aro et al., 2011). As emotional exhaustion is the core indicator of job burnout (Maslach et al., 2001), it offers potential to test whether psychological detachment can buffer against the harm of IJDs in employee burnout. If psychological detachment during off-job time helps employees to recover from IJDs, interventions should be planned to improve their psychological detachment. Moreover, we compare associations of each dimension of IJDs with emotional exhaustion among a heterogeneous occupational group including both blue-collar and white-collar workers in order to ascertain whether IJDs differ in their associations with emotional exhaustion.

Intensified Job Demands (IJDs) and Emotional Exhaustion

IJDs capture the diversity of contemporary job demands such as work intensification, intensified job- and career-related planning and decision-making demands, and intensified learning demands (Kubicek et al., 2015; Mauno et al., 2019) to be defined next. *Work intensification* (WI) is defined as an intensive effort referring to the pressure on employees "to complete more tasks within one working day" (Herpen, 2017; Kubicek et al., 2014, p. 26). WI means an intensive work pace including not only an increase in workload, but also simultaneous work tasks (multitasking requirements) and an accelerated work pace. WI has been associated in earlier research with higher levels of emotional exhaustion and psychosomatic complaints (Franke, 2015; Korunka et al., 2015; Kubicek et al., 2015) and lower job satisfaction (Korunka et al., 2015; Kubicek et al., 2015). Studies defining WI rather as an extensive effort, for example, prolonged working hours or as a rise in the level of effort to be invested in work, have revealed its associations with higher job stress and lower job satisfaction (e.g., Fein, Skinner, & Machin, 2017; Franke, 2015; Green, 2004a; 2004b; Herpen, 2017; Zeytinoglu et al., 2007).

Intensified job-related planning and decision-making demands (IJPDs) have to do with the accelerated decision-making processes in working life that require independence in performing and planning job tasks and initiatives on the part of employees (Kubicek et al., 2015). This increases an employee's autonomy, which is usually considered a positive job resource, as autonomy is a source of motivation (Gagné & Deci, 2005) and well-being (Bakker & Demerouti, 2017). Therefore, IJPDs may be experienced as challenge demands with positive well-being outcomes (Cavanaugh et al., 2000; Crawford, LePine, & Rich, 2010). However, IJPDs may also turn out to be hindrance demands (Cavanaugh et al., 2000; Crawford et al., 2010) depleting resources and impairing well-being if employees have not enough resources to recover from their negative effects (Bakker & Demerouti, 2017; Demerouti et al., 2001; Kubicek et al., 2015). Although research evidence linking IJPDs and employee well-being is still scarce, some evidence has already been presented on the positive association between IJPDs and higher emotional exhaustion, supporting a hindrance-demand approach (Kubicek et al., 2015).

Intensified career-related planning and decision-making demands (ICPDs; Kubicek et al., 2015) refer to the growing responsibility for guiding and monitoring one's own career and employability. Increased responsibility for one's own career is linked to a social acceleration process in society that produces growing uncertainty about employment, the disappearance of certain tasks/jobs and the emergence of new ones and accelerates the circulation and change of workplaces (Rosa, 2003). Although autonomy in one's own career may be intrinsically motivating (see Deci & Ryan, 1985, 2000), it also requires extra effort and resources which were not needed when workplaces and organizations were more stable. Thus, employees' increased responsibility for their own careers is a new job-related demand which may deplete resources and impair well-being (Bakker & Demerouti, 2017; Demerouti et al., 2001; Kubicek et al., 2015). Previously, ICPDs were reported to be associated with increased emotional exhaustion among service workers (Kubicek et al., 2015) but further evidence is needed from more diverse occupational groups. In the present study, we focus on both blue- and white-collar workers.

Intensified learning demands (ILDs; Kubicek et al., 2015) comprise intensified knowledge- and skills-related learning demands. ILDs are related to technological progress and digitalization, organizational changes, and to individuals' increased responsibility for their careers, all of which require that employees are able to learn new technologies and working methods and to cope with continuous new challenges in a continuously changing working life (Korunka et al., 2015; Kubicek et al., 2015). Studies on ILDs and employee well-being have yielded contradictory results. In one study, ILDs showed associations with positive outcomes such as having higher job satisfaction and less emotional exhaustion (Korunka et al., 2015), whereas another study found that ILDs were related to increased emotional exhaustion (Kubicek et al., 2015). Thus, ILDs may be experienced as challenge demands with positive outcomes or as hindrance demands with negative outcomes (Cavanaugh et al., 2000; Crawford et al., 2010). In other words, it is possible that acquiring new knowledge and skills improves one's well-being, but continuous and overtaxing work-related learning demands may also deplete resources, which may be detrimental to well-being (Bakker & Demerouti, 2017; Demerouti et al., 2001).

The job demands-resources (JD-R) model suggests that job demands and job resources are two umbrella

concepts of working conditions which have distinctive consequences; demands lead to strain accompanied by various health impairments, whereas job resources are conducive to employee motivation and well-being (Bakker & Demerouti, 2017; Demerouti et al., 2001). Emotional exhaustion is one of the health impairments, which can be considered an early sign of the long-term burnout process (Maslach et al., 2001). Consonant with the JD-R model (Bakker & Demerouti, 2017), we generally expected that employees who are exposed to higher IJDs have a higher level of emotional exhaustion.

Hypothesis 1 (H1)*: Higher IJDs are associated with higher emotional exhaustion.*

Additionally, we examined whether the extent of the relationships between IJDs and exhaustion differ by sub-dimensions of IJDs. As WI implies more workload for employees in multiple ways (intensified pace of work, lack of breaks, multitasking), we expected that WI would show the strongest relationship with higher emotional exhaustion compared to other IJD sub-dimensions. This has actually been demonstrated already among service workers (Kubicek et al., 2015). Thus, the evidence suggests that WI behaves like a hindrance demand. However, more compelling evidence is needed in other types of occupational groups, for example, from workers in manufacturing and education in this study, to show whether WI has negative outcomes in various occupations.

Hypothesis 2 (H2): *Of IJDs, WI has the strongest relationship with higher emotional exhaustion.*

We explored H1 and H2 separately among blue-collar and white-collar workers to explore whether the results are generalizable across these occupational groups without proposing any hypotheses on the potential group differences (as there was no theoretical justification for such hypotheses).

Psychological Detachment as a Moderator between IJDs and Emotional Exhaustion

Recovery from job demands has been shown to be important for employees as it restores mental and physical resources expended during work and thus maintains their well-being (Sonnentag & Fritz, 2007; Sonnentag et al., 2017). Successful recovery can therefore mitigate the negative effects of job demands on well-being (Demerouti et al., 2009; Sonnentag & Fritz, 2007; Sonnentag et al., 2017). Specifically, recovery is a process during which depleted resources (e.g., energy, mood) are replenished after expending effort and energy at work over a period (Zijlstra & Sonnentag, 2006). According to Meijman and Mulder (1998) recovery occurs when the exposure to job demands terminates. However, job demands may persist mentally in leisure time, preventing the renewal of resources if an employee cannot disengage from job demands after work (Sonnentag & Fritz, 2007, 2015). Psychological detachment refers to the off-job experience of switching off job concentration (Sonnentag & Bayer, 2005), thus fulfilling the criterion of successful recovery in line with the effort-recovery model so that no further job demands persist during off-job time (Meijman & Mulder, 1998).

According to the stressor-detachment model (Sonnentag & Fritz, 2015), psychological detachment from work plays an important role in the stressor-strain process. For example, poor psychological detachment is directly linked to increased strain and its negative effects on well-being. Psychological detachment has proven to be a core recovery experience allowing an employee to replenish mental resources depleted due to job demands (for reviews, see Sonnentag & Fritz, 2015; Sonnentag et al., 2017; Wendsche & Lohmann-Haislah, 2017). Additionally, the stressor-detachment model suggests that psychological detachment can buffer against the harmful effects of job demands/stressors on well-being (Sonnentag & Fritz, 2015). Drawing on the stressor-detachment model, we expected that psychological detachment replenishes depleted resources (e.g., energy) and maintains well-being in the presence of high IJDs. Psychological detachment may consequently buffer against the harmful effects of IJDs on emotional exhaustion.

The matching hypothesis (Cohen & Wills, 1985; De Jonge & Dormann, 2006) suggests that associations among stressors, resources, and strain are dependent on their respective similarity. Therefore, buffering effects are more likely to occur in the stressor-strain process when there is a reasonable match between stressors, resources, and strain. For example, according to the matching hypothesis, the stronger buffering effects occur when stressors and resources are based on qualitatively similar dimensions (De Jonge & Dormann, 2006). Given that IJDs are predominantly mental stressors and that psychological detachment is a mental ability to switch thoughts away from work, their correspondence is good. Hence, based on the matching hypothesis, we can also expect to find significant interactions so that psychological detachment from work buffers against IJDs and their detrimental effects on emotional exhaustion.

Only few studies have examined detachment as a buffer between job demands and emotional exhaustion. Furthermore, none of them has focused on IJDs, but detachment has been reported to buffer against increased exhaustion under high workload consisting of tough time demands at work (Korunka et al., 2012; Sianoja et al., 2018). Nevertheless, there are also studies which found no such buffering effect on emotional exhaustion (Siltaloppi, Kinnunen, & Feldt, 2009; Sonnentag, Binnewies, & Mojza, 2010) albeit psychological detachment had buffering effects against job demands in relation to psychosomatic complaints and work engagement (Sonnentag et al., 2010).

Accordingly, we posed the following hypotheses:

Hypothesis 3 (H3)*: Higher psychological detachment from work is associated with lower emotional exhaustion.*
Hypothesis 4 (H4)*: Psychological detachment from work mitigates the positive relationship between IJDs and emotional exhaustion.*

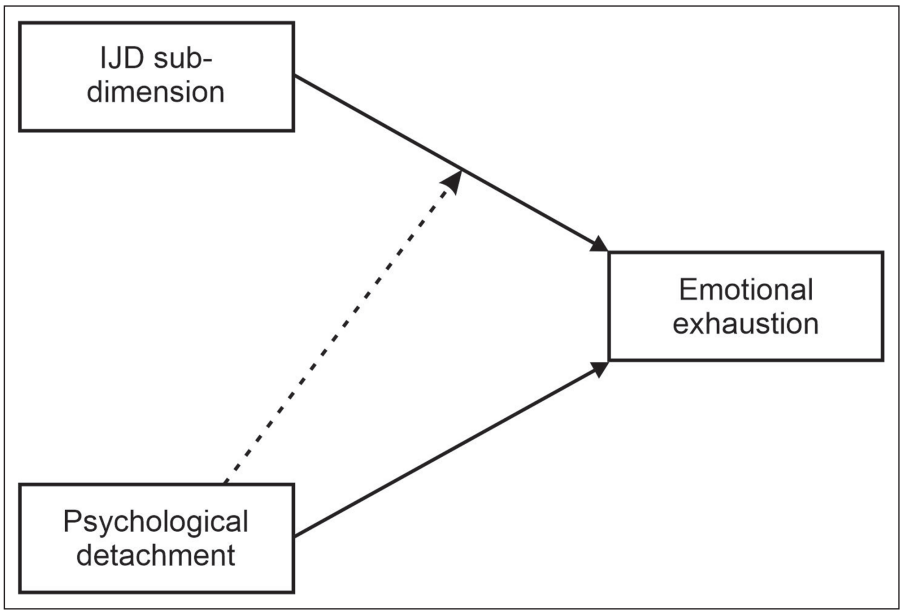

Figure 1: The interaction model tested in a simplified form.
Note. Solid lines describe direct associations and dashed line the interaction.

Additionally, we explored H3 and H4 separately among blue-collar and white-collar workers to ascertain whether the results are generalizable across occupational groups without any hypotheses of associations. The model tested in a simplified form is presented in **Figure 1**.

Method

Participants and Procedure

The present study was part of a larger research project (IJDFIN) examining IJDs and their connections with employee well-being among different occupational groups. Our data were collected in 2018 from four Finnish trade unions, namely Service Union United (PAM), the Industrial Union (TL), Trade Union Pro (Pro), and the Trade Union of Education (OAJ). PAM and TL represented blue-collar workers, Pro represented mostly lower white-collar workers, and OAJ represented upper white-collar workers. We sampled participants via trade unions as union membership rates are high in Finland; of all Finnish working employees 73% belonged to a trade union in 2017 (Ministry of Employment and the Economy, 2018). The participants were informed about the study goals and assured that their responses would be treated in confidence, that participation was voluntary, and that they could withdraw from the study at any point without consequences. Informed consent was included on the first page of the questionnaire. The requirements for sustainable data storage were met.

The participants were chosen from among currently working members on the register of each labor union using random sampling with a total of 5,000 individuals per union. A total of 4,583 respondents participated in the study during the spring-summer 2018 (n_{PAM} = 857, n_{TL} = 647, n_{Pro} = 645, n_{OAJ} = 2,434). The mean response rate was 25.5% (PAM members 19%, TL members 14%, Pro members 13%, OAJ members 56%). More women (69%) participated in the study ($women_{OAJ}$ = 79%, $women_{PAM}$ = 75%, $women_{TL}$ = 26%, $women_{Pro}$ = 64%) than men but only in TL and PRO was the gender difference statistically significant compared to a population of trade union. Over 50-year-olds were overrepresented for OAJ and Pro compared to a population of trade union (57% and 49% vs. 43% and 15%, respectively), whereas under 20-year-olds and over-61-year-olds (2% and 4% vs. 9% and 15%, respectively) were underrepresented for PAM and respondents under the age of 40 were underrepresented for TL (74% vs. 55%).

The survey was filled out online and optimized for both computers and mobile devices and tested separately before data collection. The IJD items yielded responses from 3,771–4,055 employees, and the corresponding figures were 3,551–3,556 for exhaustion, 3,421–3,429 for psychological detachment, 3,283 for employment contract, and 3,245 for working hours. To keep missing data percentages reasonable in the variables, the final sample consisted of those 3,417 employees who reported their psychological detachment from work. Of the respondents, 69% were women, their ages varied from 20 to 68 years (M = 47.3, SD = 11.3). A total of 28% were blue-collar workers, 19% lower white-collar workers, and 54% upper white-collar workers. Of the respondents, 11% worked in managerial positions. Information about employees' level of education, type of employment contract, and working hours in a week are described under control variables. These variables – in addition to gender and age – were included in the analyses because they had significant bivariate correlations either with IJDs or emotional exhaustion (see **Table 1**).

Measures

IJDs were measured using the Intensification of Job Demands Scale developed and validated by Kubicek and colleagues (2015). Respondents were asked to assess changes in their job demands during the last five years (or less, if a participant had been working less than five years). IJDs originally included five subscales but two

Table 1: Inter-correlations between the Latent Constructs (WI, IJPDs, ICPDs, ILDs, PD, Emotional Exhaustion) and Control Variables.

Variables	1	2	3	4	5	6	7	8	9	10	11
1. WI	–										
2. IJPDs	0.57***	–									
3. ICPDs	0.51***	0.78***	–								
4. ILDs	0.48***	0.45***	0.52***	–							
5. PD	–0.37***	–0.21***	–0.19***	–0.29***	–						
6. Emotional exhaustion	0.75***	0.38***	0.38***	0.38***	–0.60***	–					
7. Gender	–0.16***	–0.02	–0.10***	–0.19***	0.14***	–0.20***	–				
8. Age	0.05**	0.10***	–0.07***	0.17***	–0.02	–0.03	0.01	–			
9. Education	0.19***	0.13***	0.20***	0.36***	–0.23***	0.18***	–0.20***	0.11***	–		
10. Employment contract	0.07***	0.06**	–0.08***	0.07***	0.06**	0.04*	0.06**	0.28***	–0.07***	–	
11. Working hours in week	0.19***	0.17***	0.07***	0.10***	–0.11***	0.26***	0.09***	0.04*	0.02	0.12***	–

Note: WI = work intensification; IJPDs = intensified job-related planning and decision-making demands, ICPDs = intensified career-related planning and decision-making demands, ILDs = intensified learning demands, PD = psychological detachment, gender: 0 = women, 1 = men; education: 1 = further vocational qualification or matriculation examination certificate, 2 = specialist vocational qualification, 3 = higher vocational level qualification, 4 = polytechnic qualification or bachelor degree, 5 = university degree, 6 = university postgraduate degree; employment contract: 0 = temporary, 1 = permanent.* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed.

learning subscales, intensified knowledge-related learning demands and intensified skill-related learning demands were empirically undistinguishable (standardized $r = 0.99$) according to the preliminary confirmatory factor analysis (CFA). We therefore combined them into intensified learning demands (ILDs; Kubicek et al., 2015) and used the following four subscales of IJDs: 1) WI (five items; e.g., "... ever more work has to be completed by fewer and fewer employees"), 2) IJPDs (five items; e.g., "one increasingly has to check independently whether the work goals have been reached"), 3) ICPDs (three items; e.g., "one is increasingly required to maintain one's attractiveness for the job market, e.g., through advanced education, networking"), 4) ILDs (six items, e.g., "one has to update one's knowledge level more frequently" and "one increasingly has to familiarize oneself with new work processes"). The response scale was a five-point Likert-scale (1 = not at all, 5 = completely), higher scores reflecting more frequent/higher intensified job demands (WI $M = 3.68$, $SD = 1.07$; IJPDs $M = 3.45$, $SD = 0.95$; ICPDs $M = 3.34$, $SD = 0.97$; ILDs $M = 3.76$, $SD = 0.99$). Cronbach's alpha coefficients for WI, IJPDs, ICPDs, and ILDs were 0.89, 0.85, 0.77, and 0.95, respectively. About half of the respondents reported that IJDs had recently increased (WI 60%, IJPDs 52%, ICPDs 45%, ILDs 67%) using a cutoff point of ≥3.5 on a rating scale ranging from 1 to 5.

Psychological detachment from work was assessed using three items from The Recovery Experience Questionnaire (Sonnentag & Fritz, 2007), which has been validated in Finland (Kinnunen et al., 2011); e.g., "I forget about work", "I don't think about work at all". Answers concerned free time after work and were given on a five-point Likert scale (1 = completely disagree, 5 = completely agree), higher scores reflecting better psychological detachment ($M = 2.86$, $SD = 1.10$). Cronbach's alpha coefficient was 0.91.

Emotional exhaustion was assessed with three items (e.g., "I am snowed under with work") from the Bergen Burnout Indicator-9, whose reliability and validity have been shown to be high in Finnish data (Salmela-Aro et al., 2011; Feldt et al., 2014). The items were rated with a six-point Likert scale (1 = completely disagree, 6 = completely agree), higher scores reflecting more emotional exhaustion ($M = 3.29$, $SD = 1.18$). Cronbach's alpha coefficient for the scale was 0.75.

Control variables. Gender (0 = female, 1 = male), age, education, type of employment contract, and working hours per week were included in the analysis to test the robustness of the effects as all the control variables correlated with the IJDs (see **Table 1**). Age (in years), level of education, and working hours were used as continuous variables. The mean age was 47.3 years (SD = 11.3). Education was coded as follows: 1 = vocational qualification or matriculation examination certificate (4%), 2 = specialist vocational qualification (23%), 3 = higher vocational level qualification (6%), 4 = polytechnic qualification or bachelor's degree (19%), 5 = university degree (44%), 6 = university postgraduate degree; licentiate or doctoral degree (3%). The average working hours per week were 37.6 (SD = 7.77). Type of employment contract was coded as 0 = temporary (87%), 1 = permanent (13%).

Data Analysis

We utilized the latent variable framework, which takes account of measurement errors (see e.g., Kline, 2011), to test the hypothesized associations. First, several measurement models were tested using confirmatory factor analysis (CFA) in order to ensure that the latent factors for four sub-dimensions of IJDs, emotional exhaustion, and psychological detachment were separate

constructs. Second, correlations between the latent factors and control variables (observed variables for gender, age, education, type of employment contract, working hours per week) were explored (**Table 1**). Control variables were included in the SEM models (described next) based on their correlations with the latent constructs.

To test H1, SEM was executed using maximum likelihood robust estimation to explore the hypothesized direct path from the latent factor of each sub-dimension of IJDs to the latent factor of emotional exhaustion (Models 1–4, Step 1). The same models were also executed as multi-group analyses for blue-collar and white-collar workers.

H2 was tested through SEM including all sub-dimensions of IJDs (as independent variables) and emotional exhaustion (as a dependent variable; Model 5). This model was also carried out as a multi-group analysis for blue-collar and white-collar workers.

To test H3, the direct path from the latent factor of psychological detachment to the latent factor of emotional exhaustion was included in the SEM models each including one sub-dimension of IJDs (Models 1–4, Step 2). Next, the latent interaction term was included in later SEM models to explore H4 (Models 1–4, Step 3). Each model had a different interaction term, which was created from each IJD sub-dimension and psychological detachment (WI × psychological detachment, IJPDs × psychological detachment, ICPDs × psychological detachment, ILDs × psychological detachment). Significant moderation effects were further examined by plotting the effect of the latent independent variable on the latent dependent variable for different values of the latent moderator. The local effect size of interaction effect was calculated through proportionate reduction in the variance (PRV) of emotional exhaustion comparing the model with and without interaction term (Peugh, 2010). Moreover, simple slope tests were performed for significant interaction effects. Lastly, SEM models including the interaction of latent factors were executed as multi-group analyses for blue-collar and white-collar workers.

The model fit for the measurement model was evaluated using Chi-square values (χ^2), comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR). The cutoff values were 0.95 for CFI and TLI, 0.06 for RMSEA, and 0.08 for SRMR (Hu & Bentler, 1999). The model fit for SEM interaction models was assessed using a two-step method as recommended (Maslowsky, Jager, & Hemken, 2015; Muthén, 2012). Firstly, the above-mentioned fit indices were acquired from the SEM model without the latent interaction product and secondly, the log-likelihood ratio test was used to compare the SEM model without and with the latent interaction product. The moderation model fitted well if the SEM model without the latent interaction product fitted well, and the log-likelihood ratio test was non-significant. The missing data approach by Mplus statistical package (version 8) was applied which handles missing values through full information maximum likelihood procedure (FIML; see Muthén & Muthén, 1998–2012). The missing data percentages in the variables varied 0–5.5%: 5.5% in working hours per week, 4.5% in type of employment contract, and 0–4.0% in other variables.

Results

Measurement Models via CFA

Four measurement models were executed using CFA including 1–6 latent factors (see **Table 2** in more detail). The best solution included six factors showing that the following constructs were separate: WI (5 items), IJPDs (5 items), ICPDs (3 items), ILDs (6 items), emotional exhaustion (3 items), and psychological detachment (3 items). The fit for this model (Model D, see **Table 2**) was good and it fitted the data significantly better than the alternative model with five factors according to chi-square difference test ($p < 0.001$; Satorra & Bentler, 2010; see **Table 2**). All standardized factor loadings for the model with six factors were significant at the 0.001 level and ranged from 0.58 to 0.92.

Direct Relationships of IJDs with Emotional Exhaustion

Separate SEM models for each IJD sub-dimension showed that all dimensions of IJDs were significantly associated with the higher level of emotional exhaustion ($p < 0.001$; see **Tables 3–6**, Models 1–4, step 1). These results lend support to H1 stating that higher IJDs are associated with higher emotional exhaustion. This finding was also found

Table 2: Fit indices for Confirmatory Factor Analyses Testing the Measurement Models.

Model	χ^2	*df*	Scaling correction	Satorra-Bentler scaled χ^2 difference test	CFI	TLI	RMSEA	SRMR
A: One factor [a]	23861.948***	275	1.182	–	0.491	0.445	0.158	0.144
B: Three factors [b]	16380.716***	272	1.187	$\Delta\chi^2(3) = 12981.117$, $p < .001$	0.652	0.617	0.132	0.131
C: Five factors [c]	3497.838***	265	1.183	$\Delta\chi^2(7) = 11246.841$, $p < .001$	0.930	0.921	0.060	0.055
D: Six factors [d]	2841.336***	260	1.180	$\Delta\chi^2(5) = 586.367$, $p < .001$	0.944	0.936	0.054	0.051

Note: [a] In model A, all 25 items of IJDs, emotional exhaustion, and psychological detachment were loaded onto one factor. [b] In model B, 19 items of IJDs were loaded onto one factor and emotional exhaustion (3 items) and psychological detachment (3 items) on separate factors. [c] In model C, items of IJPDs (5 items) and ICPDs (3 items) were loaded onto one factor and WI, ILDs, emotional exhaustion, and psychological detachment on the separate factors. [d] In model D, WI, ICPDs, ILDs, ILDs, emotional exhaustion and psychological detachment were loaded onto separate factors. Models with two and four factors were excluded because they were not considered theoretically reasonable.

Table 3: Associations between WI, Psychological Detachment, and Emotional Exhaustion (Model 1).

Predictor	Step 1		Step 2		Step 3	
	*b**	*SE*	*b**	*SE*	*b**	*SE*
WI	0.72***	0.01	0.60***	0.02	0.61***	0.02
PD			–0.36***	0.02	–0.36***	0.02
WI × PD					–0.10***	0.02
Gender	–0.09***	0.02	–0.07***	0.01	–0.06***	0.01
Age	–0.09***	0.02	–0.08***	0.02	–0.08***	0.02
Education	0.03*	0.02	–0.02	0.02	–0.02	0.02
Employment contract	0.01	0.02	0.04*	0.02	0.03*	0.02
Working hours in week	0.14***	0.02	0.11***	0.02	0.10***	0.02
R^2	0.613		0.706		0.724	
ΔR^2	0.613		0.093		0.018	
CFI	0.95		0.96		N/A	
TLI	0.93		0.94		N/A	
RMSEA	0.06		0.06		N/A	
SRMR	0.03		0.04		N/A	

Note: WI = work intensification; PD = Psychological detachment; gender: 0 = women, 1 = men; education: 1 = further vocational qualification or matriculation examination certificate, 2 = specialist vocational qualification, 3 = higher vocational level qualification, 4 = polytechnic qualification or bachelor degree, 5 = university degree, 6 = university postgraduate degree; employment contract: 0 = temporary, 1 = permanent.

*b** = standardized regression coefficient, *SE* = standard error, N/A = not available.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed.

Table 4: Associations between IJPDs, Psychological Detachment, and Emotional Exhaustion (Model 2).

Predictor	Step 1		Step 2		Step 3	
	*b**	*SE*	*b**	*SE*	*b**	*SE*
IJPDs	0.32***	0.02	0.23***	0.02	0.23***	0.02
PD			–0.53***	0.02	–0.53***	0.02
IJPDs × PD					–0.04*	0.02
Gender	–0.19***	0.02	–0.13***	0.02	–0.13***	0.02
Age	–0.08***	0.02	–0.07***	0.02	–0.07***	0.02
Education	0.11***	0.02	0.01	0.02	0.01	0.02
Employment contract	0.04	0.02	0.07***	0.02	0.07***	0.02
Working hours in week	0.21***	0.02	0.15***	0.02	0.15***	0.02
R^2	0.231		0.480		0.482	
ΔR^2	0.231		0.249		0.002	
CFI	0.94		0.96		N/A	
TLI	0.92		0.94		N/A	
RMSEA	0.06		0.05		N/A	
SRMR	0.04		0.04		N/A	

Note: IJPDs = intensified job-related planning and decision-making demands, PD = Psychological detachment; gender: 0 = women, 1 = men; education: 1 = further vocational qualification or matriculation examination certificate, 2 = specialist vocational qualification, 3 = higher vocational level qualification, 4 = polytechnic qualification or bachelor degree, 5 = university degree, 6 = university postgraduate degree; employment contract: 0 = temporary, 1 = permanent.

*b** = standardized regression coefficient, *SE* = standard error, N/A = not available.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed.

Table 5: Associations between ICPDs, Psychological Detachment, and Emotional Exhaustion (Model 3).

Predictor	Step 1		Step 2		Step 3	
	*b**	*SE*	*b**	*SE*	*b**	*SE*
ICPDs	0.33***	0.02	0.25***	0.02	0.26***	0.02
PD			–0.54***	0.02	–0.54***	0.02
ICPDs × PD					–0.06**	0.02
Gender	–0.17***	0.02	–0.12***	0.02	–0.12***	0.02
Age	–0.03	0.02	–0.04*	0.02	–0.04*	0.02
Education	0.08***	0.02	–0.01	0.02	–0.01	0.02
Employment contract	0.06**	0.02	0.09***	0.02	0.09***	0.02
Working hours in week	0.23***	0.02	0.17***	0.02	0.16***	0.02
R^2	0.233		0.489		0.493	
ΔR^2	0.233		0.256		0.004	
CFI	0.96		0.97		N/A	
TLI	0.93		0.96		N/A	
RMSEA	0.05		0.05		N/A	
SRMR	0.02		0.02		N/A	

Note: ICPDs = intensified career-related planning and decision-making demands, PD = Psychological detachment; gender: 0 = women, 1 = men; education: 1 = further vocational qualification or matriculation examination certificate, 2 = specialist vocational qualification, 3 = higher vocational level qualification, 4 = polytechnic qualification or bachelor degree, 5 = university degree, 6 = university postgraduate degree; employment contract: 0 = temporary, 1 = permanent.

*b** = standardized regression coefficient, *SE* = standard error, N/A = not available.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed.

Table 6: Associations between ILDs, Psychological Detachment, and Emotional Exhaustion (Model 4).

Predictor	Step 1		Step 2		Step 3	
	*b**	*SE*	*b**	*SE*	*b**	*SE*
ILDs	0.32***	0.02	0.20***	0.02	0.21***	0.02
PD			–0.53***	0.02	–0.53***	0.02
ILDs × PD					–0.05***	0.02
Gender	–0.15***	0.02	–0.11***	0.02	–0.11***	0.02
Age	–0.11***	0.02	–0.08***	0.02	–0.09***	0.02
Education	0.04*	0.02	–0.03	0.02	–0.02	0.02
Employment contract	0.03	0.02	0.07***	0.02	0.06***	0.02
Working hours in week	0.23***	0.02	0.17***	0.02	0.16***	0.02
R^2	0.216		0.461		0.466	
ΔR^2	0.216		0.245		0.005	
CFI	0.96		0.97		N/A	
TLI	0.95		0.96		N/A	
RMSEA	0.06		0.05		N/A	
SRMR	0.02		0.03		N/A	

Note: ILDs = intensified learning demands, PD = Psychological detachment; gender: 0 = women, 1 = men; education: 1 = further vocational qualification or matriculation examination certificate, 2 = specialist vocational qualification, 3 = higher vocational level qualification, 4 = polytechnic qualification or bachelor degree, 5 = university degree, 6 = university postgraduate degree; employment contract: 0 = temporary, 1 = permanent.

*b** = standardized regression coefficient, *SE* = standard error, N/A = not available.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed.

among the sub-groups of blue-collar workers (see **Table 7**) and white-collar workers (see **Table 8**) according to the multi-group analysis. Models 1–4 fitted data well (see **Tables 3–6**).

Comparing Direct Relationships of IJDs with Exhaustion

When testing all four IJD sub-dimensions together, WI had the strongest association ($b^* = 0.76$, $SE = 0.02$, $p < 0.001$) with higher emotional exhaustion (Model 5, **Table 9**). This finding also applied among blue-collar workers ($b^* = 0.75$, $SE = 0.02$, $p < 0.01$) and white-collar workers ($b^* = 0.74$, $SE = 0.03$, $p < 0.001$) according to the multi-group analysis (**Table 9**). Other positive relationships between the sub-dimensions of IJDs and exhaustion were non-significant. Thus, H2 was supported. Of IJDs WI had the strongest relationship with higher emotional exhaustion.

After controlling for other sub-dimensions of IJDs, IJPDs were associated with lower level of emotional exhaustion ($b^* = -0.09$, $p < 0.01$, **Table 9**) in contrast to its correlation coefficient (**Table 1**) and regression coefficient (Model 2, **Table 4**). This was presumably not caused by multicollinearity as a variance inflation factor (VIF) for IJPDs was 3.15, which indicates that a correlation between IJPDs and other independent variables may not be too high (James et al., 2013). The same significant finding for IJPDs was also found among blue-collar workers (**Table 9**, $b^* = -0.10$, $p < 0.05$; VIF = 2.93), but not among white-collar workers (VIF = 3.31).

Model 5 (overall model) fitted the data well: $\chi^2(284) = 3155.80$, $p < 0.001$; CFI = 0.93; TLI = 0.92; RMSEA = 0.05; SRMR = 0.05. Gender, age, and working hours in week were associated with emotional exhaustion. Employees with more working hours per week had more emotional exhaustion than did employees with fewer working hours ($p < 0.001$). Men and older employees had less emotional exhaustion than did women ($p < 0.001$) and younger employees ($p < 0.01$).

Direct Relationship of Psychological Detachment with Emotional Exhaustion

Higher psychological detachment was associated with lower emotional exhaustion (b^* ranging from –0.36 [W1] to –0.54 [ICPDs], all $p < 0.001$; **Tables 3–6**, Models 1–4, step 2). Each of the four models fitted the data well (**Tables 3–6**). Thus, the results supported H3 stating that higher psychological detachment is associated with lower emotional exhaustion. The multi-group results among blue-collar and white-collar workers supported this finding (see **Tables 7–8**).

Moderation Results

Psychological detachment buffered against the positive association of WI with emotional exhaustion (Model 1, step 3, interaction estimate; $b^* = -0.10$, $p < 0.001$; **Table 3**). The effect size of the interaction term was 0.053 according to PRV. That is, an additional 5.3% of the variance in emotional exhaustion was explained by the interaction of psychological detachment and WI. The model fitted data well as the fit for the SEM model was good without the interaction term ($\chi^2(81) = 973.71$,

Table 7: Psychological Detachment Moderating the Associations between Intensified Job Demands and Emotional Exhaustion among Blue-Collar Workers.

Predictor	Model 1		Model 2		Model 3		Model 4	
	*b**	*SE*	*b**	*SE*	*b**	*SE*	*b**	*SE*
WI	0.70***	0.03						
IJPDs			0.25***	0.04				
ICPDs					0.34***	0.04		
ILDs							0.20***	0.03
PD	–0.37***	0.03	–0.52***	0.03	–0.52***	0.03	–0.55***	0.03
Interaction term[1]	–0.11***	0.02	–0.03	0.03	–0.08**	0.03	–0.03	0.03
Gender	–0.07**	0.02	–0.13***	0.02	–0.09***	0.02	–0.11***	0.02
Age	–0.06**	0.02	–0.07**	0.03	–0.02	0.03	–0.07***	0.03
Education	–0.02	0.02	–0.01	0.02	–0.03	0.02	–0.01	0.02
Employment contract	0.04	0.03	0.06***	0.04	0.08*	0.03	0.06	0.04
Working hours in week	0.11***	0.03	0.12***	0.03	0.13***	0.03	0.14***	0.03
R^2	0.689		0.424		0.445		0.403	

Note: [1] between independent variables; WI = work intensification; IJPDs = intensified job-related planning and decision-making demands, ICPDs = intensified career-related planning and decision-making demands, ILDs = intensified learning demands; PD = Psychological detachment; gender: 0 = women, 1 = men; education: 1 = further vocational qualification or matriculation examination certificate, 2 = specialist vocational qualification, 3 = higher vocational level qualification, 4 = polytechnic qualification or bachelor degree, 5 = university degree, 6 = university postgraduate degree; employment contract: 0 = temporary, 1 = permanent.

b^* = standardized regression coefficient, *SE* = standard error.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed.

Table 8: Psychological Detachment Moderating the Associations between Intensified Job Demands and Emotional Exhaustion among White-Collar Workers.

Predictor	Model 1		Model 2		Model 3		Model 4	
	*b**	*SE*	*b**	*SE*	*b**	*SE*	*b**	*SE*
WI	0.59***	0.02						
IJPDs			0.25***	0.02				
ICPDs					0.25***	0.03		
ILDs							0.22***	0.03
PD	–0.37***	0.02	–0.51***	0.02	–0.52***	0.02	–0.51***	0.02
Interaction term[1]	–0.09***	0.02	–0.04	0.02	–0.04	0.03	–0.08**	0.03
Gender	–0.07***	0.02	–0.13***	0.03	–0.13***	0.03	–0.10***	0.03
Age	–0.08***	0.02	–0.08**	0.03	–0.05*	0.03	–0.09**	0.03
Education	0.05*	0.03	0.04	0.03	0.02	0.03	–0.01	0.03
Employment contract	0.03	0.02	0.08**	0.02	0.10***	0.02	0.06**	0.02
Working hours in week	0.08***	0.02	0.17***	0.02	0.18***	0.02	0.18***	0.02
R^2	0.733		0.491		0.496		0.486	

Note: [1] between independent variables; WI = work intensification; IJPDs = intensified job-related planning and decision-making demands, ICPDs = intensified career-related planning and decision-making demands, ILDs = intensified learning demands; PD = Psychological detachment; gender: 0 = women, 1 = men; education: 1 = further vocational qualification or matriculation examination certificate, 2 = specialist vocational qualification, 3 = higher vocational level qualification, 4 = polytechnic qualification or bachelor degree, 5 = university degree, 6 = university postgraduate degree; employment contract: 0 = temporary, 1 = permanent.
*b** = standardized regression coefficient, *SE* = standard error.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed.

Table 9: The Associations between Intensified Job Demands and Emotional Exhaustion (Model 5).

Predictor	*Overall*		*Blue-Collar Workers*		*White-Collar Workers*	
	*b**	*SE*	*b**	*SE*	*b**	*SE*
WI	0.76***	0.02	0.75***	0.02	0.74***	0.03
IJPDs	–0.09*	0.04	–0.10*	0.04	–0.07	0.08
ICPDs	0.02	0.04	0.05	0.05	–0.00	0.08
ILDs	0.02	0.02	0.01	0.03	0.03	0.03
Gender	–0.08***	0.02	–0.06**	0.02	–0.09***	0.02
Age	–0.08***	0.02	–0.07**	0.03	–0.10***	0.03
Education	–0.03	0.02	–0.01	0.02	0.07*	0.03
Employment contract	0.01	0.02	0.04	0.03	0.01	0.02
Working hours in week	0.14***	0.02	0.15***	0.03	0.13***	0.02
R^2	0.618		0.590		0.618	
CFI	0.93		N/A		N/A	
TLI	0.92		N/A		N/A	
RMSEA	0.05		N/A		N/A	
SRMR	0.05		N/A		N/A	

Note: WI = work intensification; IJPDs = intensified job-related planning and decision-making demands, ICPDs = intensified career-related planning and decision-making demands, ILDs = intensified learning demands; PD = Psychological detachment; gender: 0 = women, 1 = men; education: 1 = further vocational qualification or matriculation examination certificate, 2 = specialist vocational qualification, 3 = higher vocational level qualification, 4 = polytechnic qualification or bachelor degree, 5 = university degree, 6 = university postgraduate degree; employment contract: 0 = temporary, 1 = permanent.
*b** = standardized regression coefficient, *SE* = standard error, N/A = not available.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed.

$p < 0.001$; CFI = 0.96; TLI = 0.94; RMSEA = 0.06; SRMR = 0.04) and the log-likelihood ratio test was non-significant ($p = 0.91$). Explanation rate (R^2) for emotional exhaustion was 72.4%. We further examined the interaction effect using regression plots (not shown, available from the first author upon request), which revealed that higher WI was associated with higher emotional exhaustion when psychological detachment was poorer compared to when it was higher (see **Figure 2**). The simple slope analysis suggested that the association between WI and emotional exhaustion was stronger when the level of psychological detachment was lower (–1 *SD* [1 *SD* below the mean]: $b^* = 0.66$ (0.03), $t = 25.59$, $p < 0.001$) than when it was higher (+1 *SD* [1 *SD* above the mean]: $b^* = 0.46$ (0.03), $t = 18.09$, $p < 0.001$), although the difference in strength was not confirmed by the level of statistical significance. Therefore, higher psychological detachment mitigated a positive association between WI and emotional exhaustion. This moderation finding was also found among the sub-groups of blue-collar workers (Model 1, $b^* = –0.11$, $p < 0.001$; **Table 8**) and white-collar workers (Model 1, $b^* = –0.09$, $p < .001$; **Table 9**).

Also, psychological detachment moderated the association of IJPDs with emotional exhaustion (Model 2, step 3, the interaction estimate; $b^* = –0.04$, $p < 0.05$; **Table 4**) but the effect size of the interaction was very small, 0.007 according to PRV. That is, an additional 0.7% of the variance in emotional exhaustion was explained by the interaction. The model fitted the data well as the fit for the SEM model without the interaction term was good ($\chi^2(81) = 790.74$, $p < 0.001$; CFI = 0.96; TLI = 0.94; RMSEA = 0.05; SRMR = 0.04) and the log-likelihood ratio test was non-significant ($p = 0.97$). R^2 for emotional exhaustion was 48.2%. The regression plot of the interaction (available from the first author upon request) was similar to that in **Figure 1** showing that higher IJPDs were associated with higher emotional exhaustion when psychological detachment was poorer than when it was higher. Simple slope analysis also suggested that the relationship between IJPDs and emotional exhaustion was stronger at the lower level of psychological detachment (–1 *SD* below the mean: $b^* = 0.26$ (0.03), $t = 9.22$, $p < 0.001$) compared to higher psychological detachment (+1 *SD* above the mean: $b^* = 0.18$ (0.03), $t = 7.13$, $p < 0.001$), although there was no difference in significance levels between the cases. Although a moderation was found in overall data, it was not statistically significant in the sub-groups for blue-collar and white-collar workers (see **Tables 7** and **8**). This finding was not surprising, as the effect size of the interaction was very small in that the data as a whole and *p*-values are dependent on the size of the data.

According to Model 3 (step 3), psychological detachment buffered also against the association of ICPDs with emotional exhaustion ($b^* = –0.06$, $p < 0.01$, **Table 5**). The effect size of the interaction was 0.012 according to PRV. That is, an additional 1.2% of the variance in emotional exhaustion was explained by the interaction of psychological detachment and ICPDs. The model fitted the data well as the fit for the SEM model without the interaction term was excellent ($\chi^2(54) = 436.58$, $p < 0.001$; CFI = 0.97; TLI = 0.96; RMSEA = 0.05; SRMR = 0.02) and the log-likelihood ratio test was non-significant ($p = 0.93$). R^2 for emotional exhaustion was 49.3%. The regression plot for the moderation (available from the first author upon request) showed that higher ICPs were associated with higher emotional exhaustion when psychological detachment was poorer compared to when it was higher. The simple slope analysis also referred to the same point as the association between ICPs and emotional exhaustion was stronger when the level of psychological detachment was lower (–1 *SD* below the mean: $b^* = 0.34$ (0.06), $t = 5.58$, $p < 0.001$) than when it was higher (+1 *SD* above the mean: $b^* = 0.22$ (0.06), $t = 3.51$, $p < 0.001$). The moderation was statistically significant among blue-collar workers ($b^* = –0.08$, $p < 0.01$; **Table 7**) but not among white-collar workers ($b^* = –0.04$, *ns*; **Table 8**) according to the multi-group analysis.

Finally, psychological detachment moderated the association of ILDs with emotional exhaustion (Model 4, $b^* = –0.05$, $p < 0.01$, **Table 6**) but the effect size of the interaction was very small, 0.007 according to PRV. That is, an additional 0.7% of the variance in emotional

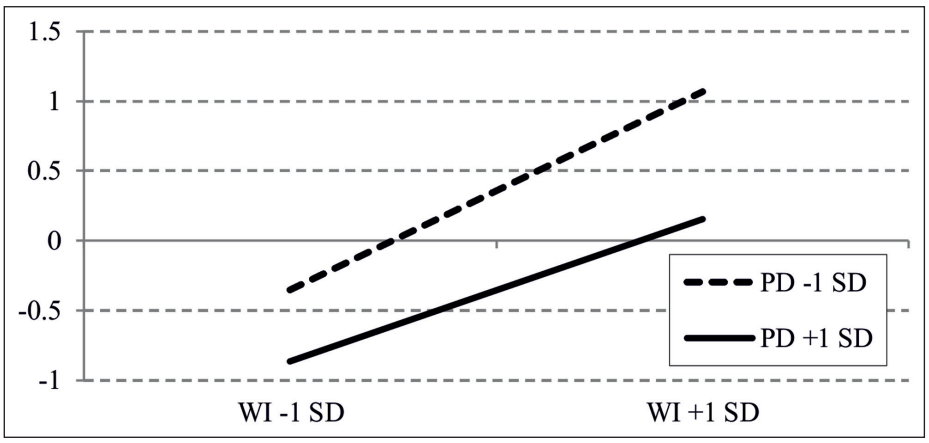

Figure 2: The interaction effect of psychological detachment and work intensification on employees' emotional exhaustion.

Note. PD = psychological detachment, WI = work intensification, SD = standard deviation.

exhaustion was explained by the interaction. The model fitted the data well as the fit for the SEM model without the interaction term was excellent ($\chi^2(96) = 947.04$, $p < 0.001$; CFI = 0.97; TLI = 0.96; RMSEA = 0.05; SRMR = 0.03) and the log-likelihood ratio test was non-significant ($p = 0.97$). R^2 for emotional exhaustion was 46.6%. However, the simple slope analysis did not support the interaction. Although the interaction was statistically significant at the mean of psychological detachment ($b^* = 0.20$ (0.05), $t = 4.29$, $p < 0.001$), it applied neither at the lower level of psychological detachment (–1 *SD* below the mean: $b^* = 0.24$ (0.13), $t = 1.75$, $p = 0.08$) nor at the higher level (+1 *SD* above the mean: $b^* = 0.15$ (0.13), $t = 1.19$, *ns*). Further multi-group analysis revealed significant moderation among white-collar workers ($b^* = –0.08$, $p < 0.01$; **Table 8**) but not among blue-collar workers ($b^* = –0.03$, *ns*; **Table 7**). The simple slope analysis suggested that the moderation existed among white-collar workers: the relationship between ILDs and emotional exhaustion was stronger at the lower level of psychological detachment (–1 *SD* below the mean: $b^* = 0.28$ (0.05), $t = 5.75$) than when it was higher (+1 *SD* above the mean: $b^* = 0.16$ (0.04), $t = 3.82$).

In summary, psychological detachment mitigated the positive relationship between IJDs and emotional exhaustion. This result applied for each sub-dimension of IJDs, except for ILDs, for the data as a whole. However, psychological detachment buffered against exhaustion related to ILDs among white-collar workers. H4 therefore gained (mostly) support.

Discussion

This study provides new information regarding the beneficial role of psychological detachment from work during off-job time in the context of intensified job demands (IJDs) in a diverse sample of employees including both blue-collar and white-collar workers. Although a considerable amount of earlier research has been devoted to the role of psychological detachment in the stressor-strain process (for reviews, see Sonnentag & Fritz, 2015; Sonnentag et al., 2017; Wendsche & Lohmann-Haislah, 2017), this is the first study focusing on the role of detachment in the framework of IJDs which are considered new demands in contemporary working life (Kubicek et al., 2015; Mauno et al., 2019). Using cross-sectional data from Finland, we found that psychological detachment acted as a significant buffer against IJDs in terms of emotional exhaustion. The results are promising, showing that successful recovery from work during off-job time may help to maintain well-being in the challenging conditions arising from ongoing technological acceleration at work causing an intensification of work (Chesley, 2014; Rosa, 2003, 2013; Mauno et al., 2019).

In line with H1, the present study showed that all facets of IJDs were associated with higher emotional exhaustion when they were analyzed separately. These findings are consistent with earlier results showing that IJDs challenge employees' occupational well-being (Franke, 2015; Korunka et al., 2015; Kubicek et al., 2015; Minkkinen et al., 2019). Our results are also consistent with the JD-R model (Bakker & Demerouti, 2017; Demerouti et al., 2001), which suggests that job demands are likely to lead to strain reactions such as emotional exhaustion. We also found that of the sub-dimensions of IJDs, WI (work intensification) had the strongest positive relationship with emotional exhaustion, thereby confirming H2. This was actually the only harmful link to emotional exhaustion which persisted when all sub-dimensions of IJDs were analyzed simultaneously, suggesting that WI is the type of job intensification that really matters as regards employees' emotional exhaustion. This finding was also clear among the sub-groups of blue-collar and white-collar workers. Therefore, all kinds of organizations should be aware that hallmarks of work intensification, namely increased pace of work, lack of breaks and higher multi-tasking requirements (see Kubicek et al., 2015; Minkkinen et al., 2019), may be costly for employees' occupational well-being. This is good to recall if organizations emphasize constant effectivity and improved performance.

One substantial reason for WI having the strongest link with emotional exhaustion may be that, of the IJDs' sub-dimensions, WI is most clearly a hindrance demand (see Cavanaugh et al., 2000; Crawford et al., 2010) resulting in such strain reactions as emotional exhaustion. However, our results also refer to the point that certain IJDs, in our study IJPDs (intensified job-related planning and decision-making demands) may also act as challenge demands with more positive outcomes. In fact, the most interesting result in the integrated model indicated that IJPDs was no longer harmful after controlling for other IJDs (e.g., WI). By contrast, IJPDs were associated with lower emotional exhaustion (the higher IJPDs, the lower exhaustion level), referring to its role as a challenge demand. The finding may also suggest that challenge demands can be found only when controlling for such *hindrance* demands as WI. This finding may relate to more complicated associations between IJDs (e.g., interactions), and would need further research; under which conditions IJPDs are detrimental versus beneficial for well-being.

Altogether, these findings suggest that IJDs may partly have different well-being implications. Therefore, it is important to study them separately. However, our comparative findings did not support the existing research among German and Austrian service workers (Kubicek et al., 2015), which showed positive associations of all IJDs with emotional exhaustion even when they were analyzed simultaneously. These divergent, country-specific results suggest that the effects of the IJD sub-dimensions on emotional exhaustion may be different in different occupational fields or even country dependent. To generalize these findings, more divergent samples should be studied in various countries.

In line with H3, we found that higher psychological detachment was associated with lower emotional exhaustion which is consistent with the stressor-detachment model (Sonnentag & Fritz, 2015), according to which poor psychological detachment from work is directly connected to increased strain and poor well-being. This finding therefore suggests that when people do not detach from work during off-job time they are mainly occupied with negative work-related thoughts which

depletes resources (e.g., energy) and manifests as a higher exhaustion level. This finding was evident among both blue-collar and white-collar workers, which highlights the significance of psychological detachment from work for all employees. Further, the findings corroborate those of earlier studies detecting a negative relationship between psychological detachment and emotional exhaustion or fatigue (for reviews and meta-analyses, see Bennett, Bakker, & Field, 2018; Sonnentag & Fritz, 2015; Sonnentag et al., 2017; Wendsche & Lohmann-Haislah, 2017).

Alongside the direct associations of IJDs with emotional exhaustion, we found that psychological detachment from work mitigated especially the positive relationship between WI and emotional exhaustion, as this interaction explained about 5% of the proportionate reduction in the variance in exhaustion. This finding was consistent with H4, and it was generalizable across occupational groups of blue- and white-collar workers. WI, as a job demand, resembles workload, referring to hectic pace or/and large amount of work although WI accounts for *increases* in workload over time (as perceived by an employee) also including the aspect of increased multi-tasking requirements (see Kubicek et al., 2015; Mauno et al., 2019). In earlier research, high detachment has been reported to attenuate the relationship between workload and exhaustion (Korunka et al., 2012; Sianoja et al., 2018) and our result is consistent with these findings.

The buffering effect of psychological detachment was also found against other sub-dimensions of IJDs in the whole data, with the exception of ILDs, as psychological detachment buffered against ILDs only among white-collar workers. However, the buffering effects in terms of effect sizes were much smaller for other dimensions of IJDs than for WI. Altogether, the interaction results concerning IJDs concur with the stressor-detachment model (Sonnentag & Fritz, 2015), which argues that psychological detachment can also mitigate the effects of stressors on strain symptoms. We found no earlier research on an interaction of psychological detachment and IJDs, but our results corroborate those of earlier studies showing the protective role of psychological detachment against other types of job demands and stressors (e.g., Korunka et al., 2012; Sianoja et al., 2018). Our results suggest that successful detachment from work during off-job time due to helping workers to replenish their energy resources mitigates the negative effects of IJDs and maintains well-being in intensified working life (Demerouti et al., 2009; Sonnentag & Fritz, 2007; Sonnentag et al., 2017).

Finally, this study offered a few separate results for blue-collar and white-collar workers. In general, the group-specific findings were in the line with the results found for the data as a whole. Only two group differences were found regarding the interactions as psychological detachment buffered against ICPDs only among blue-collar workers and against ILDs only among white-collar workers. These findings are hard to explain but perhaps blue-collar workers do not need so much psychological effort to detach from the pressure of ICPDs as they do not have so many career-related planning and decision-making demands as white-collar workers (M = 3.23 vs 3.44, $p < 0.001$). Regarding ILDs in particular, white-collar workers may have better chances to recover from learning demands due to their better education than do blue-collar workers although white-collar workers also had more ILDs than blue-collar workers ($M = 4.11$ vs 3.37, $p < 0.001$).

Strengths, Limitations and Future Studies

The strength of this study is a large sample size and that it consisted of very different occupational groups including both blue-collar and white-collar workers. The sampling of participants via trade unions supports the generalization of the results, as union membership rates are high in Finland (Ministry of Employment and the Economy, 2018). Further strengths are latent factor modeling and multi-group testing: the former takes into account measurement errors and the latter was used to indicate whether the findings also occurred in sub-groups. Finally, we focused on new mental job demands (IJDs) arising from social and technological acceleration (Rosa, 2003, 2013), the research of which has so far been quite limited, particularly in the Nordic countries. In this situation it is important to find ways to alleviate the negative well-being effects of these new demands, which will very likely persist or even increase in future working life. According to our findings, psychological detachment from work during off-job time is a promising strategy in this regard.

Nevertheless, several limitations should be noted. First, the study design was cross-sectional, which prevents us from drawing conclusions regarding the causal direction of the effects. Therefore it is, for example, possible that those with severe emotional exhaustion have difficulties in detaching from work (see Sonnentag et al., 2014) and not vice versa. In future more longitudinal research will be needed to confirm both the direct and moderator roles of detachment between IJDs and exhaustion. Second, we do not know whether job demands themselves have changed or just employees' perceptions of them as all the data in our use were self-perceived/self-reported. However, individual appraisal in a stress process is important (Lazarus & Folkman, 1984) and also speaks for the use of self-report assessments on job stressors.

Third, low overall response rate (25.5%) casts doubts on how well our respondents represented the original sample. The findings may also include some bias due to the disparate response rates for blue-collar and white-collar workers (lower response rate in the former group) and the over-representation of women and older employees in some subsamples. Thus, the generalizability of the findings to younger employees and men should be viewed with caution. Fourth, although the data were collected via random sampling of trade union memberhips, the white-collar workers in our sample were almost six years older than blue-collar workers on average, which may have affected group comparisons as age is associated with emotional exhaustion (e.g., Ahola et al., 2006). Finally, we do not know whether the main study variables played a role in the selection process of the respondents. As emotional exhaustion may lessen willingness to carry out any extra tasks it may be that some of the most exhausted workers did not feel up to participating in the study.

Overall, more research is needed on IJDs as technological changes in working life will very likely be even more accelerated in the future, particularly due to Covid-19, which showed the power of digitalization. For that reason, it is important to find other resources that may help employees to replenish their depleted resources and protect their occupational well-being in mentally more challenging work conditions. These resources should be sought from individual and work-related factors, not forgetting societal factors.

Practical Implications

Our results have clear implications for individuals and organizations. First, the potential risks of IJDs in today's workplaces should be recognized and, second, employees' opportunities to mentally detach from work during free time should be protected. Individual and organizational procedures which help employees to handle and manage the accelerated pace of work including increased workload and multi-tasking requirements should be introduced.

One way to enhance psychological detachment is to keep one's work life separate from one's non-work life (e.g., Kinnunen et al., 2016). In order to be successful in this segmentation, organizations should address the norms of unlimited availability especially prevalent in upper white-collar jobs. More concretely, this means workplace policies that restrict, such as phone calls and emails during off-job time. It has also been shown that psychological detachment can be learnt with the help of recovery training (Hahn et al., 2011). Individuals can learn strategies to help them to keep work and non-work physically and cognitively separate, for example, having a separate space for working at home, making a to-do list for the next working day before ending work for the day or setting a goal to avoid checking work-related e-mails in the evening at home. Furthermore, organizations should become better aware of the dark side of efficiency and productivity requirements, which individual employees may feel as an intensification of work (IJDs). This would mean more profound changes in organizational cultures globally.

Funding Information

The study was supported by Academy of Finland (grant number 308 334).

Competing Interests

The authors have no competing interests to declare.

References

Ahola, K., Honkonen, T., Isometsä, E., Kalimo, R., Nykyri, E., Koskinen, S., Aromaa, A., & **Lönnqvist, J.** (2006). Burnout in the general population – Results from the Finnish Health 2000 Study. *Social Psychiatry and Psychiatric Epidemiology*, *41*, 11–17. DOI: https://doi.org/10.1007/s00127-005-0011-5

Bakker, A. B., & **Demerouti, E.** (2017). Job Demands-Resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, *22*, 273–285. DOI: https://doi.org/10.1037/ocp0000056

Bennett, A., Bakker, A. B., & **Field, J. G.** (2018). Recovery from work-related effort: A meta-analysis. *Journal of Organizational Behavior*, *39*, 262–275. DOI: https://doi.org/10.1002/job.2217

Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & **Boudreau, J. W.** (2000). An empirical examination of self-reported work stress among U.S. managers. *Journal of Applied Psychology*, *85*(1), 65–74. DOI: https://doi.org/10.1037/0021-9010.85.1.65

Chesley, N. (2014). Information and communication technology use, work intensification and employee strain and stress. *Work, Employment and Society*, *28*(4), 589–610. DOI: https://doi.org/10.1177/0950017013500112

Cohen, S., & **Wills, T.** (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, *98*(2), 310–357. DOI: https://doi.org/10.1037/0033-2909.98.2.310

Crawford, E. R., LePine, J. A., & **Rich, B. L.** (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. *Journal of Applied Psychology*, *95*(5), 834–848. DOI: https://doi.org/10.1037/a0019364

Demerouti, E., Bakker, A. B., Geurts, S. A. E., & **Taris, T. W.** (2009). Daily recovery from work-related effort during non-work time. In S. Sonnnentag, P. L. Perrewé & D. C. Ganster (Eds.), *Current perspectives on job-stress recovery* (pp. 85–124). (Research in Occupational Stress and Well Being; Vol. 7). Bingley, UK: JAI Press. DOI: https://doi.org/10.1108/S1479-3555(2009)0000007006

Demerouti, E., Bakker, A. B., Nachreiner, F., & **Schaufeli, W. B.** (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512. DOI: https://doi.org/10.1037/0021-9010.86.3.499

Gagné, M., & **Deci, E. L.** (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, *26*(4), 331–362. DOI: https://doi.org/10.1002/job.322

Fein, E. C., Skinner, N., & **Machin, M. A.** (2017). Work intensification, work–life interference, stress, and well-being in Australian workers. *International Studies of Management & Organization*, *47*(4), 360–371. DOI: https://doi.org/10.1080/00208825.2017.1382271

Feldt, T., Rantanen, J., Hyvönen, K., Mäkikangas, A., Huhtala, M., Pihlajasaari, P., & **Kinnunen, U.** (2014). The 9-item Bergen Burnout Inventory: Factorial validity across organizations and measurements of longitudinal data. *Industrial Health*, *52*(2), 102–112. DOI: https://doi.org/10.2486/indhealth.2013-0059

Franke, F. (2015). Is work intensification extra stress? *Journal of Personnel Psychology*, *14*(1), 17–27. DOI: https://doi.org/10.1027/1866-5888/a000120

Green, F. (2004a). Why has work effort become more intense? *Industrial Relations*, *3*(4), 709–741. DOI: https://doi.org/10.1111/j.0019-8676.2004.00359.x

Green, F. (2004b). Work intensification, discretion, and the decline in well-being at work. *Eastern Economic Journal*, *30*(4), 615–625.

Hahn, V. C., Binnewies, C., Sonnentag, S., & **Mojza, E. J.** (2011). Learning how to recover from job stress: Effects of a recovery training program on recovery, recovery-related self-efficacy and well-being. *Journal of Occupational Health Psychology*, *16*, 202–216. DOI: https://doi.org/10.1037/a0022169

Herpen, D. (2017). Work intensification: A clarification and exploration into causes, consequences and conditions. A literary review. Bachelor Thesis.

Hu, L., & **Bentler, P.** (1999). Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55. DOI: https://doi.org/10.1080/10705519909540118

James, G., Witten, D., Hastie, T., & **Tibshirani, R.** (2013). *An Introduction to Statistical Learning: With Applications in R*. Springer. DOI: https://doi.org/10.1007/978-1-4614-7138-7

De Jonge, J., & **Dormann, C.** (2006). Stressors, resources, and strain at work: A longitudinal test of the triple-match principle. *Journal of Applied Psychology*, *91*(6), 1359–1374. DOI: https://doi.org/10.1037/0021-9010.91.5.1359

Kinnunen, U., Feldt, T., Siltaloppi, U., & **Sonnentag, S.** (2011). Job demands-resources model in the context of recovery: Testing recovery experiences as mediators. *European Journal of Work and Organizational Psychology*, *20*, 805–832. DOI: https://doi.org/10.1080/1359432X.2010.524411

Kinnunen, U., Rantanen, J., de Bloom, J., Mauno, S., Feldt, T., & **Korpela, K.** (2016). The role of work-nonwork boundary management in work stress recovery. *International Journal of Stress Management*, *23*, 99–123. DOI: https://doi.org/10.1037/a0039730

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3nd ed.) New York, NY: Guilford.

Korunka, C., Kubicek, B., Paškvan, M., & **Ulferts, M.** (2015). Changes in work intensification and intensified learning: challenge or hindrance demands? *Journal of Managerial Psychology*, *30*(7), 786–800. DOI: https://doi.org/10.1108/JMP-02-2013-0065

Korunka, C., Kubicek, B., Prem, R., & **Cvitan, A.** (2012). Recovery and detachment between shifts, and fatigue during a twelve-hour shift. *Work*, *41*(Supplement 1), 3227–3233. DOI: https://doi.org/10.3233/WOR-2012-0587-3227

Kubicek, B., Korunka, C., Paskvan, M., Prem, R., & **Gerdenitsch, C.** (2014). Changing working conditions at the onset of the twentyfirst century: Facts from international datasets. In C. Korunka & P. Hoonakker (Eds.), *The impact of ICT on quality of working life* (pp. 25–41). Dordrecht: Springer Science Business Media. DOI: https://doi.org/10.1007/978-94-017-8854-0_3

Kubicek, B, Paškvan, M., & **Korunka, C.** (2015). Development and validation of an instrument for assessing job demands arising from accelerated change: The intensification of job demands scale (IDS). *European Journal of Work and Organizational Psychology*, *24*(6), 898–913. DOI: https://doi.org/10.1080/1359432X.2014.979160

Lazarus, R., & **Folkman, S.** (1984). *Stress, appraisal, and coping*. New York, NY: Springer.

Maslach, C., Schaufeli, W. B., & **Leiter, M. P.** (2001). Job burnout. *Annual Review of Psychology*, *52*(1), 397–422. DOI: https://doi.org/10.1146/annurev.psych.52.1.397

Maslowsky, J., Jager, J., & **Hemken, D.** (2015). Estimating and interpreting latent variable interactions: A tutorial for applying the latent moderated structural equations method. *International Journal of Behavioral Development*, *39*(1), 87–96. DOI: https://doi.org/10.1177/0165025414552301

Mauno, S., Kubicek, B., Minkkinen, J., & **Korunka, C.** (2019). Antecedents of intensified job demands: evidence from Austria. *Employee Relations*, *41*(4), 694–707. DOI: https://doi.org/10.1108/ER-04-2018-0094

Meijman, T. F., & **Mulder, G.** (1998). Psychological aspects of workload. In P. J. D. Drenth & H. Thierry (Eds.), *Handbook of work and organizational psychology*, *2*, 5–33. Hove: Psychology Press.

Ministry of Employment and the Economy. (2018). Työolobarometrit https://findikaattori.fi/fi/table/36

Minkkinen, J., Mauno, S., Feldt, T., Tsupari, H., Auvinen, E., & **Huhtala, M.** (2019). Uhkaako työn intensiivistyminen työhyvinvointia? Intensiivistymisen yhteys työuupumukseen opetus- ja tutkimustyössä. *Psykologia*, *54*(04), 255–301.

Muthén, B. (2012). Latent variable interactions. Sep 20. Retrieved from D//www.statmodel.com/download/LV%20Interaction.pdf

Muthén, L., & **Muthén, B.** (1998–2012). *Mplus user's guide* (7th edition). Muthén and Muthén: Los Angeles, CA.

Peugh, L. (2010). A practical guide to multilevel modeling. *Journal of School Psychology*, *48*, 85–112. DOI: https://doi.org/10.1016/j.jsp.2009.09.002

Rosa, H. (2003). Social acceleration: Ethical and political consequences of a desynhcronized high-speed society. *Constellations*, *10*, 3–33. DOI: https://doi.org/10.1111/1467-8675.00309

Rosa, H. (2013). *Social Acceleration. A New Theory of Modernity*. Columbia University Press. DOI: https://doi.org/10.7312/rosa14834

Salmela-Aro, K., Rantanen, J., Hyvönen, K., Tilleman, K., & **Feldt, T.** (2011). Bergen Burnout Inventory: Reliability and validity among Finnish and Estonian managers. *International Archives of Occupational and Environmental Health*, *84*(6), 635–645. DOI: https://doi.org/10.1007/s00420-010-0594-3

Satorra, A., & **Bentler, P. M.** (2010). Ensuring positiveness of the scaled difference chi-square test statistic. *Psychometrika*, *75*, 243. DOI: https://doi.org/10.1007/s11336-009-9135-y

Sianoja, M., Kinnunen, U., Mäkikangas, A., & **Tolvanen, A.** (2018). Testing the direct and moderator effects of the stressor-detachment model over one year: A latent change perspective. *Work & Stress*, *32*(4), 357–378. DOI: https://doi.org/10.1080/02678373.2018.1437232

Siltaloppi, M., Kinnunen, U., & **Feldt, T.** (2009). Recovery experiences as moderators between psychological work characteristics and occupational well-being. *Work & Stress*, *23*, 330–348. DOI: https://doi.org/10.1080/02678370903415572

Sonnentag, S., Arbeus, H., Mahn, C., & **Fritz, C.** (2014). Exhaustion and lack of psychological detachment from work during off-job time: Moderator effects of time pressure and leisure experiences. *Journal of Occupational Health Psychology*, *19*, 206–216. DOI: https://doi.org/10.1037/a0035760

Sonnentag, S., & **Bayer, U.-V.** (2005). Switching off mentally: Predictors and consequences of psychological detachment from work during off-job time. *Journal of Occupational Health Psychology*, *10*, 393–414. DOI: https://doi.org/10.1037/1076-8998.10.4.393

Sonnentag, S., Binnewies, C., & **Mojza, E. J.** (2010). Stay well and engaged when demands are high: The role of psychological detachment. *Journal of Applied Psychology*, *95*, 965–976. DOI: https://doi.org/10.1037/a0020032

Sonnentag, S., & **Fritz, C.** (2007). The Recovery Experience Questionnaire: Development and validation of a measure for assessing recuperation and unwinding from work. *Journal of Occupational Health Psychology*, *12*(3), 204. DOI: https://doi.org/10.1037/1076-8998.12.3.204

Sonnentag, S., & **Fritz, C.** (2015). Recovery from job stress: The stressor-detachment model as an integrative framework. *Journal of Organizational Behavior*, *36*, S72–S103. DOI: https://doi.org/10.1002/job.1924

Wendsche, J., & **Lohmann-Haislah, A.** (2017). A meta-analysis on antecedents and outcomes of detachment from work. *Frontiers in Psychology*, *7*, 2072. DOI: https://doi.org/10.3389/fpsyg.2016.02072

Zeytinoglu, I. U., Denton, M., Davies, S., Baumann, A., Blythe, J., & **Boos L.** (2007) Associations between work intensification, stress and job satisfaction: The case of nurses in Ontario. *Relations industrielles/Industrial Relations*, *62*(2), 201–222. DOI: https://doi.org/10.7202/016086ar

Zijlstra, F. R. H., & **Sonnentag, S.** (2006). After work is done: Psychological perspectives on recovery from work. *European Journal of Work & Organizational Psychology*, *15*, 129–138. DOI: https://doi.org/10.1080/13594320500513855

How to cite this article: Minkkinen, J., Kinnunen, U., & Mauno, S. (2021). Does Psychological Detachment From Work Protect Employees under High Intensified Job Demands? *Scandinavian Journal of Work and Organizational Psychology*, 6(1): 9, 1–16. DOI: https://doi.org/10.16993/sjwop.97

Submitted: 08 August 2019 **Accepted:** 20 August 2021 **Published:** 14 October 2021

Scandinavian Journal of Work and Organizational Psychology is a peer-reviewed open access journal published by Stockholm University Press.

OPEN ACCESS