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ORIGINAL PAPER

Linking job demands and resources to burnout and work engagement: Does passion underlie these differential relationships?

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Abstract This study examined the role of passion for work in the health impairment and motivational processes proposed by the job demands-resources model. Based on the dualistic model of passion, we proposed that harmonious and obsessive passion intervene simultaneously in the relationship between (1) job demands and burnout/engagement, and (2) job resources and burnout/engagement. This model was tested in two occupational samples: nurses (n = 1,179) and teachers (n = 745). Results from structural equation modeling support the proposed model in both samples. That is, both types of passion partially mediated the relationship between job demands and burnout, while harmonious passion partially mediated the relationship between job demands and engagement. Moreover, harmonious passion partially mediated the relationship between job resources and burnout/work engagement. Implications for burnout research and management practices are discussed.

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Introduction

The job demands-resources (JD-R) model (Bakker and Demerouti 2007; Demerouti et al. 2001) is a predominant conceptual framework for understanding work engagement and burnout. Whereas engagement is mainly characterized by high emotional energy (i.e., vigor), burnout is viewed as its opposite and is characterized by low emotional energy (i.e., exhaustion; Bakker et al. 2008). The JD-R model posits that job characteristics, defined in terms of job demands and resources, produce these work-related outcomes through two separate processes: health impairment and motivational processes. Although this model is widely supported (job demands have been related to burnout and resources to engagement), little is known about the psychological mechanisms that could simultaneously account for both processes and explain potential cross-links (i.e., job demands to work engagement and job resources to burnout; Fernet et al. 2013; Fernet et al. 2012a; Van den Broeck et al. 2008).

Drawing on the dualistic model of passion (DMP; Vallerand 2010; Vallerand et al. 2003), this study aimed to provide insight into this issue. Passion at work can be defined as a strong inclination toward the job, which is highly liked and valued, and in which a considerable amount of time and energy is invested (Vallerand 2010).We propose that passion at work may not only lead to positive psychological experiences at work (engagement), but may also result in psychological costs (burnout). These opposite outcomes are assumed to stem from job

demands and resources that have a differential impact on the nature of employees' passion for work (harmonious and obsessive). By evaluating passion at work as a mediator in the integrative JD-R model (health impairment and motivational processes), the present study aims to offer a more comprehensive understanding of how job demands and resources can contribute to work engagement and burnout by influencing how employees canalize their energy at work.

The job demands-resources (JD-R) model

According to the JD-R model (Bakker and Demerouti 2007; Demerouti et al. 2001), irrespective of the occupation, job characteristics fall within two broad categories: job demands and job resources. Job demands refer to different aspects of the job that require sustained physical or mental effort and that are therefore associated with physiological and/or psychological costs (Demerouti et al. 2001). Examples of job demands are work overload, as well as emotional (e.g., interpersonal conflicts), cognitive (e.g., having to take in a great amount of new information), and physical demands (e.g., having to lift heavy objects). Job resources refer to all positive aspects of the job that support individuals in performing their job (e.g., job control, social support). Based on the premises of conservation of resources theory (COR; Hobfoll 1989; Hobfoll and Freedy 1993), the JD-R model proposes that job resources are beneficial because they help employees deal with threatening or negative conditions in the work environment (e.g., job demands). But job resources also facilitate task accomplishment and contribute to employees' development (Hobfoll 2002; Schaufeli and Bakker 2004), As such, they are valuable in their own right given that they result in the gain of other resources (e.g., personal resources such as self-efficacy and optimism; Hobfoll 2002; Xanthopoulou et al. 2007).

The JD-R model posits the existence of two separate processes in order to explain how job characteristics lead to burnout and work engagement. On the one hand, in the health impairment process, job demands are hypothesized to drain employees' psychological and physical energy, consequently contributing to burnout. When faced with excessive demands, employees resort to compensatory strategies (i.e., deploy additional effort and energy; Hockey 1997) in order to maintain an adequate level of job performance. However, these strategies become ineffective in the long run, depleting employees' reserves of energy and eventually leading to exhaustion. On the other hand, in the motivational process, job resources are hypothesized to foster motivation and engagement by aiding employees achieve work goals and promoting employees' growth and learning (Demerouti et al. 2001).

Although empirical evidence has supported that job demands are the main predictors of burnout (health impairment process) and resources the main predictors of work engagement (motivational process; e.g., Hakanen et al. 2006; Schaufeli and Bakker 2004), little attention has been given to the underlying mechanisms explaining these processes. Of the studies that have investigated potential mechanisms (e.g., personal resources such as self-esteem, optimism), most have concentrated on the resources—work engagement relationship (e.g., Simbula et al. 2011; Xanthopoulou et al. 2007, 2008). A few others have also examined possible mediators (e.g., coping strategies, psychological need satisfaction) in the demands—burnout relationship (Boudrias et al. 2011; Peng et al. 2010). For example, Peng et al. (2010) found that in the presence of job demands, employees tented to use surface coping strategies (i.e., presenting required emotions without acknowledging and managing one's true feelings), which resulted in emotional exhaustion.

Although these results support the existence of psychological mechanisms in the motivational process and to a lesser extent in the health impairment process, the latter studies did not investigate such mechanisms in the integrative JD-R model (both processes simultaneously).

Indeed, researchers have largely neglected potential psychological mechanisms that could simultaneously account for both the negative effect of job demands and positive one of job resources on employee psychological health at work (burnout and work engagement). Therefore, although the JD-R claims that both processes are independent, this assumption has yet to be empirically assessed. Only two studies (i.e., Kinnunen et al. 2011; Van den Broeck et al. 2008) have evaluated psychological mechanisms within both processes. For example, Van den Broeck et al. (2008) found that job demands negatively predicted the satisfaction of employees' basic psychological needs (i.e., autonomy, competence, and relatedness), which was consequently associated to emotional exhaustion. Basic need satisfaction also accounted for the link between job resources and vigor as well as exhaustion (job resources facilitated need satisfaction, which was associated to greater vigor and less exhaustion). However, the role of need satisfaction in the relationship between job demands and vigor was not evaluated. As for Kinnunen et al. (2011), they investigated the role of recovery strategies (detachment, relaxation, mastery, and control) within the health impairment and motivational processes. The authors found that while detachment fully mediated the relationship between job demands and fatigue, mastery partially accounted for the relationship between job resources and work engagement. No meditational links were investigated in regards to job demands and work engagement or job resources and burnout.

Although both latter studies offer interesting results, they also underscore the need to better understand the psychological mechanisms liable to explain how job demands as well as job resources can explain both indicators of psychological health at work (burnout and work engagement). Indeed, neither Van den Broeck et al.'s (2008) nor Kinnunen et al.'s (2011) results provide insight into the distinct psychological mechanisms which can simultaneously account for both the burdening effect of job demands (resulting in more burnout and less work engagement) as well as the facilitating influence of job resources (leading to less burnout and more work engagement). Moreover, while need satisfaction and recovery strategies are indicative of how employees are influenced by their work environment (Deci and Ryan 1985, 2000; Sonnentag and Fritz 2007), they offer limited information regarding the differential effects of job demands and resources on the motivational forces leading to employees' psychological investment in their work, which consequently distinctly influence their psychological health at work. Passion at work, as conceptualized by the DMP (Vallerand et al. 2003), may offer valuable insight into such issue.

Passion for work

Passion is defined as a profound inclination toward a self-defining activity that one loves, that is highly valued, and in which a considerable amount of time and energy is invested (Vallerand 2010; Vallerand et al. 2003). The DMP (Vallerand et al. 2003) makes an important distinction as to *how* the activity is internalized into one's identity (i.e., "taking in" the activity and its associated values; Gagné and Deci 2005), which consequently determines the type of passion ignited (i.e., harmonious vs. obsessive passion).

Harmonious passion is defined as a motivational force that leads employees to perform their work with a sense of volition and self-endorsement (Vallerand and Houlfort 2003). It results from an autonomous internalization of the activity into the individual's identity (Vallerand et al. 2003). An autonomous internalization occurs when one has freely acknowledged the activity as important and meaningful, with no sense of attached contingency. When one is harmoniously passionate about an activity, it occupies an important but not overpowering place in one's identity. When employees love their job because they have fun doing it, they are considered harmoniously passionate. These employees willingly devote themselves to their work for the sheer pleasure of it, with no sense of obligation. This lack of obligation enables them to detach themselves from their work when necessary and enjoy other aspects of their lives.

Conversely, obsessive passion refers of a motivational force that pushes employees towards the accomplishment of their work. It originates from a controlled internalization of the activity into one's identity (Vallerand et al. 2003). A controlled internalization results from internal pressures (e.g., to maintain high self-esteem) or external pressures (e.g., the need to feel socially accepted or valued). Obsessive passion is associated with rigid persistence (Ratelle et al. 2004) given that it is fuelled by controlled motives (i.e., internal or external contingencies). For example, employees who love their job because it provides a great ego boost are considered obsessively passionate. They are consumed by their work and unable to disconnect from it when needed. This leads to rigid commitment and consequently conflicts between work and other aspects of life (Vallerand et al. 2010).

According to DMP, harmonious and obsessive passions are motivational forces that lead to a variety of outcomes (see Vallerand et al. in press). Harmonious passion has been associated with many positive outcomes, such as the experience of flow (Lavigne et al. 2012; Vallerand et al. 2003), well-being (Vallerand et al. 2007), and increased positive affect when engaged in the activity (Mageau and Vallerand 2007). In the workplace, harmonious passion has been associated with high work satisfaction as well as low burnout (Carbonneau et al. 2008). In contrast, obsessive passion has been associated with many negative outcomes such as rigid persistence (Ratelle et al. 2004), negative affect (Lafrenière et al. 2009), emotional exhaustion (Lavigne et al. 2012), and conflict with other life spheres (Vallerand et al. 2010). The link between obsessive passion and positive outcomes is less clearly defined, as some studies have found these concepts to be unrelated (e.g., Philippe et al. 2010; Vallerand et al. 2007, study 1). Nevertheless, most studies investigating the relationship between obsessive passion and positive indicators of psychological health have found a negative association (e.g., Forest et al. 2011; Rousseau and Vallerand 2008; Vallerand et al. 2007, study 2). For example, Forest et al. (2011) showed that obsessive passion negatively predicted employees' psychological well-being and subjective vitality.

Job characteristics stemming from the work environment may contribute to both obsessive and harmonious passion for work. Indeed, it seems reasonable to hypothesize that favorable job characteristics (i.e., resources) would facilitate greater harmonious passion and that unfavorable job characteristics (i.e., demands) would foster greater obsessive passion. Unfortunately, with one exception (i.e., Liu et al. 2011), no study has empirically investigated the role of job characteristics in the prediction of passion. On the one hand, job resources may foster harmonious passion in employees and prevent obsessive passion. Given that job resources facilitate the achievement of work goals (Bakker and Demerouti 2007) and/or

stimulate personal growth and development via fulfillment of psychological needs (Fernet, et al. 2013; Van den Broeck et al. 2008), they are likely to foster an autonomous internalization of the job to the self. Job resources (e.g., task autonomy) can provide employees with opportunities to make choices regarding their tasks, enabling them to become harmoniously passionate about their work. For instance, a nurse who has some say in organizing her/his own work schedule is likely to have a sense of self-endorsement and volition, leading to an autonomous internalization of the work in her/his identity. In line with this assumption, Liu et al. (2011) found that autonomy support from the team and work unit (i.e., job resource) positively predicted employees' harmonious passion, which in turn predicted creativity. Unfortunately, obsessive passion was not investigated and the latter study focused solely on one interpersonal resource (i.e., autonomy support). Therefore, little is currently known regarding how positive organizational job resources (i.e., job characteristics directly related to employees' tasks) are related to employees' passion for work.

On the other hand, job demands may foster obsessive passion and prevent harmonious passion. When pressured by job demands, employees may feel obligated to invest themselves in their work in order to meet these demands. This could foster a more controlled internalization of the job to the self (Fernet et al. 2012b; Ryan and Deci 2002). Heavily invested employees might consequently become engrossed in their work and be unable to detach themselves from job demands. For example, teachers who must constantly deal with students' problems that affect them emotionally (i.e., emotional demands) might find it difficult to detach themselves from the work, even when performing other duties (e.g., administrative tasks), or worse when relaxing at home. This would likely engender feelings of added responsibility and pressure. Thus, even though employees might truly love their work, demands could foster an excessive sense of obligation that should trigger obsessive passion for their work. Given that very little is known regarding what can fuel obsessive passion in employees, research should investigate the relationship between job demands and passion for work.

The present study

In this study, we draw upon—and integrate—the JD-R model and the dualist model of passion (DMP) to investigate how job characteristics (job demands and resources) affect employees' psychological health at work (burnout and work engagement) by investigating the role of passion in this relationship. By doing so, this study provides insight into two main issues. First, by investigating passion for work as a psychological mechanism underlying the integrative JD-R model, this study offers a more in-depth understanding of the distinct motivational effects of job demands and resources on employees' psychological health at work. Second, by investigating both positive and negative factors of the work environment (i.e., job demands and resources), this study contributes to the DMP by providing insight into what fuels both harmonious and obsessive passion for work in employees.

On the basis of the theoretical framework presented above, we propose a model (Fig. 1) and test it among two different organizational groups (nurses and teachers). Research on burnout has given much attention to the organizational sectors of human services and education, including the nursing and teaching profession. These groups have been identified as being particularly at risk of burnout (Maslach et al. 2001). Moreover, both nurses and school teachers tend to exhibit passion for work (Carbonneau et al. 2008; Vallerand et al. 2010).

Our model proposes that job characteristics (job demands and resources) will predict employees' passion for work (obsessive and harmonious).

Hypothesis 1: Job demands are positively related to obsessive passion (H1a) and negatively related to harmonious passion (H1b).

Hypothesis 2: Job resources are positively related to harmonious passion (H2a) and negatively related to obsessive passion (H2b).

Our model also proposes that passion for work (obsessive and harmonious) will predict employees' psychological health (burnout and work engagement). It is important

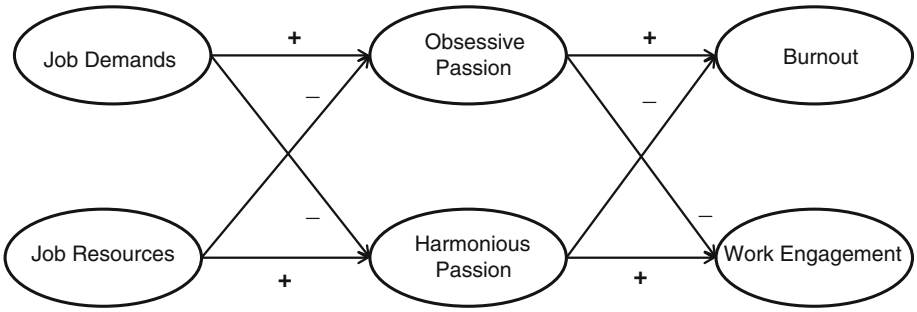

Fig. 1 The hypothesized model

to note that passion and work engagement are conceptually distinct. Indeed, while engagement is viewed as a state of mind resulting from one's positive experience at work (e.g., "I feel energetic and dedicated to my work as a nurse"), passion for work is best envisioned as a self-defining concept (Vallerand et al. 2003) that is part of employees' identity (e.g., "I am a nurse who loves his/her job). Therefore, we propose that passion for work is a psychological process through which employees can experience (or not depending on the type of passion) work engagement.

Hypothesis 3: Obsessive passion is positively related to burnout (H3a) and negatively related to work engagement (H3b).

Hypothesis 4: Harmonious passion is negatively related to burnout (H4a) and positively related to work engagement (H4b).

Furthermore, we hypothesize that both types of passion mediate the relationship between job characteristics and employees' psychological health at work.

Hypothesis 5: Obsessive passion mediates the relationship between job demands and burnout (H5a) as well as the relationship between job demands and work engagement (H5b). Obsessive passion mediates the relationship between job resources and burnout (H5c) as well as the relationship between job resources and work engagement (H5d).

Hypothesis 6: Harmonious passion mediates the relationship between job demands and burnout (H6a) as well as the relationship between job demands and work engagement (H6b). Harmonious passion mediates the relationship between job resources and burnout (H6c) as well as the relationship between job resources and work engagement (H6d).

Method

Participants and procedure

This study was conducted in two organizational settings. The first sample comprised 1,179 nurses working in the public healthcare sector in the province of Quebec, Canada (participation rate of 23 %). Nurses received a letter at home explaining the general purpose of the study (examining workplace factors associated with psychological health in the nursing profession) and inviting them to fill out an online questionnaire. The majority of nurses were female (91 %) and had a mean age of 42.68 years (SD = 10.83). Average job tenure for nurses was 19.05 years (SD = 10.85) and 66.5 % worked full-time. The second sample comprised 745 school teachers working in the province of Quebec, Canada (participation rate of 65 %). Teachers received a letter at school explaining the study's aim (investigating work-related well-being in school teachers) and inviting them to fill out an online questionnaire. Teachers who participated in the study were mostly women (86.2 %), had a mean age of 23.00 years (SD = 4.30) as well as 3.87 (SD = 1.66) years of experience on the job. Of the teachers, 59.5 % worked in primary schools and 34.8 % in secondary schools (5.7 % in other school settings).

Measures

All measures were administered in French. With the exception of passion for work, all constructs were assessed using instruments originally developed in English. These scales were translated in French using the back-translation method recommended for trans-cultural scale translations (Vallerand and Halliwell 1983). Means, standard deviations, and correlations of all measures for both samples are presented in Table 1. To determine measure reliability, Hancock's coefficient (also called coefficient H; Hancock and Mueller 2001), calculated from standardized factor loadings, was used to estimate the stability of the latent constructs across multiple observed variables. Values equal to or greater than 0.70 are judged satisfactory (Hancock and Mueller 2001).

Job demands and resources

In the first sample (nurses), an adapted version of the DISC 2.0 questionnaire (van de Ven et al. 2008) was used to assess job demands and resources. This scale contains three subscales measuring cognitive, emotional, and physical demands and resources. Sample items for job demands are, "I have to display high levels of concentration and precision at work" (cognitive; 5 items; coefficient H = 0.83), "I have to deal with people whose problems affect me emotionally" (emotional; 6 items; coefficient H = 0.83), and "I have to perform a lot of physically strenuous tasks to carry out my job" (physical; 5 items; coefficient H = 0.93). Sample items for job resources are, "I have access to useful information that helps me carry out complex tasks" (cognitive; 4 items; coefficient H = 0.73), "I get emotional support from others when a tough situation occurs at work" (emotional; 4 items; coefficient H = 0.92), and "I can take a break when my work becomes too physically strenuous" (physical; 4 items; coefficient H = 0.83). Participants were asked to rate on a 5 point scale from 1 (*never*) to 5 (*almost always*) the frequency with which they experienced the situations depicted

Table 1 Means, standard deviations, correlations between variables

Variables	Scale	Nurses		Teachers		1	2	3	4	5	6
		Mean	SD	Mean	SD						
1-Job demands	1–5	3.24	0.64	3.02	0.70	–	−0.53*	0.54*	−0.56*	0.71*	−0.38*
2-Job resources	1–5	3.53	0.65	3.43	0.46	−0.53*	–	−0.28*	0.50*	−0.56*	0.54*
3-Obsessive passion	1–7	2.10	1.03	2.62	1.23	0.43*	−0.30*	–	−0.55*	0.56*	−0.34*
4-Harmonious passion	1–7	4.70	1.28	5.25	1.17	−0.39*	0.51*	−0.30*	–	−0.61*	0.49*
5-Burnout	1–7	3.40	1.35	3.28	1.32	0.67*	−0.46*	0.52*	−0.49*	–	−0.58*
6-Work engagement	1–7	4.75	1.14	5.38	0.98	−0.34*	0.49*	−0.17*	0.61*	−0.59*	–

Correlations for sample 1 (nurses) are below the diagonal line

* $p < 0.05$

in the items. The psychometrical properties (factor structure, reliability) of this scale have been supported by past research (van den Tooren and de Jonge 2008). In the second sample (teachers), demands and resources were evaluated using subscales of the Areas of Work Life Scale (AWS; Leiter and Maslach 2004). Demands were evaluated using the workload subscale (6 items; coefficient H = 0.88). A sample item is "I do not have time to do the work that must be done". Resources were assessed using the job control (3 items; coefficient H = 0.63), recognition (4 items; coefficient H = 0.86), and sense of community (5 items; coefficient H = 0.90) subscales. Sample items are "I have control over how I do my work" (job control), "I receive recognition from others for my work" (recognition), "People trust one another to fulfill their roles" (sense of community). The psychometrical properties (e.g., factor structure, reliability, consistency across occupational groups and national contexts) of the AWS have been supported by past research (Leiter and Maslach 2004).

Passion

A short version (Lafrenière et al. 2012) of the Passion Scale (Marsh et al. 2013; Vallerand et al. 2003) was used to assess passion for work in both samples. This scale comprises two subscales assessing harmonious passion (3 items; coefficient H = 0.88/0.90) and obsessive passion (3 items; coefficient H = 0.74/0.99). The items assessing harmonious passion are "My work is in harmony with other activities in my life", "My work is in harmony with other things that are part of me" and "My work is well integrated in my life". The items assessing obsessive passion are "I have almost an obsessive feeling for my work", "If I could, I would only work", and "I have the feeling that my work controls me". Participants were asked to indicate the extent to which they agreed with each statement on a scale from 1 (*completely disagree*) to 7 (*completely agree*). The Passion Scale exhibits high construct validity including factor structure, reliability, convergent and discriminant validity, as well as language invariance (French vs. English; Marsh et al. 2013).

Burnout

The emotional exhaustion subscale of the Maslach Burnout Inventory-General Survey (MBI-GS; Schaufeli et al. 1996) was used to assess burnout in both samples. This subscale measures what is widely considered the key component of burnout (Demerouti et al. 2001). It comprises five items (coefficient H = 0.93/0.94; e.g., "I feel emotionally drained by my work"). Participants were asked to indicate on a scale from 1 (*never)* to 7 (*every day*) how often they experienced these feelings at work. Past research has established the construct validity (factor structure, factor invariance, and reliability) of this scale (Schutte et al. 2000).

Work engagement

The vigor subscale of the short version of the Utrecht Work Engagement Scale (Schaufeli et al. 2006) was used to assess work engagement in both samples. This subscale measures employees' level of energy and mental resilience at work (Gonzàlez-Romà et al. 2006). It contains three items (coefficient H = 0.87/0.87; e.g., "At work I feel like I am bursting with energy"). Participants were asked to indicate on a scale from 1 (*never*) to 7 (*every day*) how often they experienced these feelings at work. The construct validity (factor structure, group and time invariance) of this scale is well supported (Seppälä et al. 2008).

Statistical analyses

The proposed model was tested with structural equation modeling (SEM) using M*plus* (Muthén and Muthén 2010). All models were tested with standardized coefficients obtained by maximum likelihood estimation. Model fit was assessed using the Comparative Fit Index (CFI), the

Tucker-Lewis Index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Values higher than 0.90 for the CFI and TLI indicate an acceptable fit (Hoyle 1995). The rule of thumb for RMSEA is that values lower than 0.08 represent reasonable errors of approximation (Browne and Cudeck 1993), and values lower than 0.08 on the SRMR suggest a relatively good fit (Hu and Bentler 1999).

Results

Preliminary analyses

For both samples, a measurement model [M1a (nurses) and M1b (teachers)] was tested and provided a satisfactory fit to the data (see Tables 2, 3). A MANOVA was then performed to verify whether the model variables differed according to background variables (gender, age, job position, and years of experience). As no significant differences were found in both samples, demographic characteristics were excluded from further analysis. We also ran a single-factor model [M1c (nurses) and M1d (teachers)] to test for common method variance, given that all data were self-reported. This model provided a poor fit to the data in both samples (see Tables 2, 3). Although this does not completely rule out the possibility of common method variance, the results suggest that it would be unlikely to confound the interpretation of relationships among the variables.

The structural model included two exogenous variables (job demands and resources) and four endogenous variables (obsessive passion, harmonious passion, burnout, and work engagement). In the first sample (nurses), job demands and resources were operationalized by three indicators each (mean scores of their respective cognitive, emotional, and physical subscales). In the second sample (teachers), two parcels were created using the overload items. These parcels were used as indicators of the construct of job demands. Job resources were operationalized using three indicators (mean scores of the job control, recognition, and sense of community subscales). The three items for obsessive passion and harmonious passion were used as indicators of the constructs of obsessive passion and harmonious passion, respectively in both samples. The five emotional exhaustion items were used as indicators of burnout, and the three vigor items were indicators of work engagement in both samples.

Testing the hypothesized model

In order to determine model adequacy, two contrasting models were tested in each sample: a full mediation model [M2; M2a (nurses) and M2b (teachers)] and a partial mediation model [M3; M3a (nurses) and M3b (teachers)]. M2 included only indirect paths from job demands and resources to burnout and work engagement through obsessive passion and harmonious passion. M3 consists of the hypothesized model with the addition of four direct paths (job demands and resources to burnout and work engagement). As presented in Table 2 (nurses) and Table 3 (teachers), results from SEM analysis showed that M3 provided a better fit to the data in both samples. In the first sample (nurses), two direct paths (job demands to burnout and job resources to work engagement) were significant, while in the second sample (teachers), three direct paths

Table 2 Fit indices for the tested models (sample 1—1,179 nurses)

Model description	χ^2	*df*	CFI	TLI	RMSEA and 90 % CI	SRMR	Model comparison	TRd	Δdf
CFA model						–			–
M1a: measurement model	770.84	152	0.93	0.92	0.06 (0.06–0.07)	0.06			
M1c: single-factor model	3,557.84	170	0.63	0.59	0.14 (0.14–0.14)	0.11			
SEM model									
M2a: full mediation	916.31	156	0.92	0.90	0.07 (0.06–0.07)	0.07			
M3a: partial mediation	770.84	152	0.93	0.92	0.06 (0.06–0.07)	0.06	M3 versus M2	137.64*	4
Alternative models									
M4a: JD → BN/ JR → HP + OP → WE	940.23	158	0.92	0.90	0.07 (0.07–0.07)	0.09	M3 versus M4	172.57*	6
M5a: JD → OP → BN/ JR → HP → WE	844.36	158	0 .93	0.91	0.07 (0.06–0.07)	0.07	M3 versus M5	74.50*	6

CFI comparative fit index, *TLI* Tuckey-Lewis Index, *RMSEA* root mean square error of approximation, *CI* confidence interval, *SRMR* standardized root mean square, *TRd* Sattora–Bentler Scaled Chi square Difference, *JD* job demands, *OP* obsessive passion, *BN* burnout, *JR* job resources, *HP* harmonious passion, *WE* work engagement

* $p < 0.05$

Table 3 Fit indices for the tested models (sample 2—745 teachers)

Model description	χ^2	*df*	CFI	TLI	RMSEA and 90 % CI	SRMR	Model comparison	TRd	Δdf
CFA model						–			–
M1b: measurement model	515.08	137	0.94	0.92	0.07 (0.06–0.07)	0.07			
M1d: single-factor model	2,075.16	152	0.67	0.63	0.14 (0.14–0.15)	0.10			
SEM model									
M2b: full mediation	643.41	141	0.91	0.90	0.08 (0.07–0.08)	0.09			
M3b: partial mediation	515.08	137	0.94	0.92	0.07 (0.06–0.07)	0.07	M3 versus M2	125.05*	4
Alternative models									
M4b: JD → BN/ JR → HP + OP → WE	617.04	143	0.92	0.90	0.07 (0.07–0.08)	0.07	M3 versus M4	98.93*	6
M5b: JD → OP → BN/ JR → HP → WE	584.21	143	0.92	0.91	0.07 (0.07–0.08)	0.07	M3 versus M5	68.22*	6

CFI comparative fit index, *TLI* Tuckey-Lewis Index, *RMSEA* root mean square error of approximation, *CI* confidence interval, *SRMR* standardized root mean square, *TRd* Sattora–Bentler Scaled Chi square Difference, *JD* job demands, *OP* obsessive passion, *BN* burnout, *JR* job resources, *HP* harmonious passion, *WE* work engagement

* $p < 0.05$

were significant (job demands to burnout, job resources to work engagement and burnout). It was therefore concluded that M3 provided the best fit in both samples (Fig. 2). All hypothesized paths were confirmed expect two. More specifically, job demands were positively related to obsessive passion and negatively related to harmonious passion, supporting hypotheses 1a and 1b. Job resources were positively related to harmonious passion (supporting hypothesis 2a), but were unrelated to obsessive passion (infirming hypothesis 2b). Furthermore, harmonious passion was related negatively to burnout and positively to work engagement, whereas obsessive passion was positively related to burnout and not significantly related to work engagement, thereby supporting hypotheses 3a, 4a, 4b, but not hypothesis 3b. The final model also provided support for the mediating effect of obsessive and harmonious passion in the relationship between job characteristics (job demands and job resources) and employee psychological health at work (burnout and work engagement), as five of the eight mediation paths were significant. Specifically, obsessive passion partially mediated the relationship between job demands and burnout, but not the relationships between job demands and work engagement, job resources and burnout/work engagement, partially confirming hypothesis 5a but not hypotheses 5b, 5c, and 5d. As for harmonious passion, it partially mediated the relationships between job demands and burnout/work engagement as well as the relationships between job resources and burnout/work engagement. These results offer partial support for hypotheses 6a, 6b, 6c, and 6d.

To more thoroughly test these mediation paths, 95 % confidence intervals were computed from 1,000 bootstrap samples (Preacher and Hayes 2008) in both samples. Mediation or indirect effects are assumed to be significant when confidence intervals exclude zero. For both samples, results revealed significant indirect effects of job demands on burnout through obsessive and harmonious passion and of job demands on work engagement through harmonious passion (see Tables 4, 5). Results also indicated significant indirect effects of job resources on burnout and work engagement through harmonious passion.

Alternative models

In order to exclude other possible explanations, two alternative models were tested. Based on the JD-R model, one might envision that passion (harmonious and obsessive) only intervenes in the motivational process. We thus tested a first alternative model [M4; M4a (nurses) and M4b (teachers)] in which job demands were directly related to burnout whereas job resources were related to work engagement through obsessive and harmonious passion. This model did not yield a better fit than M3 (see Tables 2, 3), suggesting that obsessive passion is a relevant mechanism in the health impairment process. Next, as the JD-R model postulates independent processes, we tested a second alternative model [M5; M5a (nurses) and M5b (teachers)] in which obsessive passion only intervened in the health impairment process (job demands to burnout) whereas harmonious passion only intervened in the motivational process (job resources to work engagement). In other words, we omitted cross-links between both processes. Compared to M3, this model did not yield a better fit to the data (Tables 2, 3), suggesting that both processes are unlikely to act independently. It was therefore concluded that the final model (M3) is the best-fitting model to

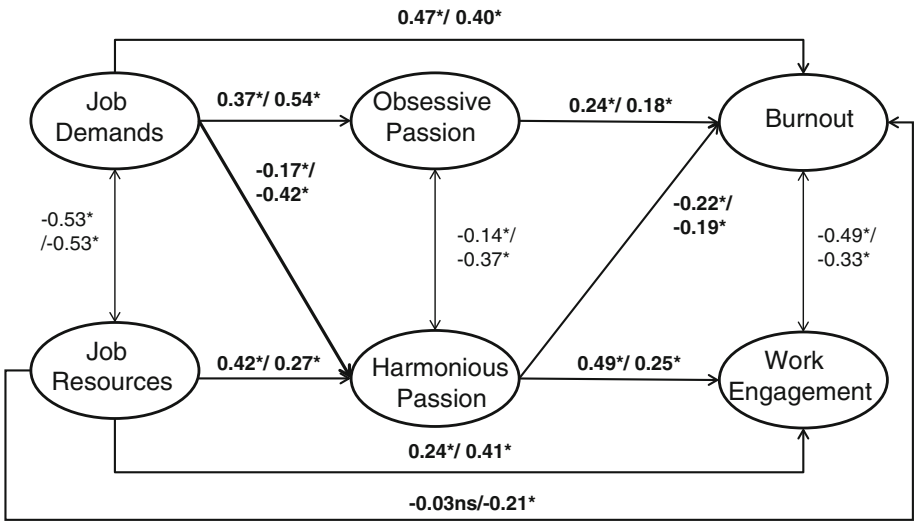

Fig. 2 The final model. The relationships between job characteristics, passion for work, and psychological health at work. *Above* the *diagonal line*: Coefficients of sample 1 (nurses), *below* the *diagonal line*: Coefficients of sample 2 (teachers); *ns* non-significant; *$p < 0.05$

Table 4 Mediation of the effect of job demands on burnout and work engagement through obsessive and harmonious passion

Outcome		Point estimate	SE	95 % CI		Sum of indirect effect (SE)
				Lower	Upper	
Burnout	Obsessive passion	0.09*/**0.10***	0.03/**0.03**	0.05/**0.04**	0.14/**0.15**	0.13 (0.03)*/**0.18 (0.04)***
	Harmonious passion	0.04*/**0.08***	0.01/**0.03**	0.02/**0.03**	0.06/**0.13**	
Work engagement	Obsessive passion	0.03/**−0.06**	0.02/**0.05**	−0.01/**−0.14**	0.06/**0.01**	−0.06 (0.03)/**−0.17 (0.05)***
	Harmonious passion	−0.08*/**−0.10***	0.03/**0.04**	−0.13/**−0.16**	−0.04/**−0.04**	

Sample 2 (teachers) in bold

CI confidence interval, *SE* standard error

* $p < 0.05$

Table 5 Mediation of the effect of job resources on burnout and work engagement through obsessive and harmonious passion

Outcome		Point estimate	SE	95 % CI		Sum of indirect effect (SE)
				Lower	Upper	
Burnout	Obsessive passion	−0.03/**0.01**	0.02/**0.02**	−0.05/**−0.02**	0.01/**0.03**	−0.12 (0.03)*/**−0.05 (0.03)**
	Harmonious passion	−0.09*/**−0.05***	0.02/**0.02**	−0.13/**−0.09**	−0.05/**−0.02**	
Work engagement	Obsessive passion	−0.01/**−0.01**	0.01/**0.03**	−0.02/**−0.02**	0.01/**0.02**	0.19 (0.03)*/**0.07 (0.03)***
	Harmonious passion	0.20*/**0.07***	0.03/**0.03**	0.15/**0.03**	0.25/**0.11**	

Sample 2 (teachers) in bold

CI confidence interval, *SE* standard error

* $p < 0.05$

represent the interplay between job characteristics, passion for work, and employees' psychological health in both samples.

Discussion

Drawing on the DMP (Vallerand 2010; Vallerand et al. 2003), this study aimed to provide deeper insight into the JD-R model (Bakker and Demerouti 2007; Demerouti et al. 2001) by investigating passion for work as a psychological mechanism underlying both the health impairment and motivational processes. We proposed a model in which harmonious and obsessive passion mediated the relationships between job demands, job resources, and employees' psychological health at work. This model was tested in two different samples: nurses and teachers. Results from SEM analysis largely support this model, revealing that passion for work partially mediated the relationships between job demands/resources and burnout/work engagement. Specifically, the results reveal

that job demands positively predict burnout via obsessive and harmonious passion whereas they negatively predict work engagement through harmonious passion. Moreover, job resources negatively predict burnout and positively predict work engagement via harmonious passion.

Theoretical contributions

Passion for work as a psychological process

The results of this study contribute to the understanding of the health impairment and motivational processes by providing a more nuanced comprehension of the psychological mechanisms at play. Whereas the JD-R model posits separate processes, our results point to interdependency between the two processes, as both job demands and resources predicted burnout and work engagement via differential relationships with passion for work. Passion not only intervenes in the motivational process—consistent with the JD-R model—but also intervenes in the health impairment process. More specifically, obsessive passion accounts for the relationship between job demands and burnout. This suggests that job demands may fuel a motivational drive in employees, through obsessive passion, that compels them to carry out their tasks in a rigid and maladaptive manner in order to cope with demands and maintain job performance. Such unrelenting investment is likely to engender emotional costs. On a related note, results from supplementary analyses evaluating competing models confirm that the relationship between job demands and burnout is not completely direct, as obsessive passion plays a significant role within this relationship. Again, this poses a challenge to the JD-R's notion that motivational forces are solely involved in the relationship between job resources and work engagement. Rather, our results suggest that motivational forces (e.g., passion) can be present in both processes, albeit in different forms (e.g., obsessive versus harmonious).

Moreover, our results indicate that job resources contribute not only to work engagement but also to the prevention of burnout via harmonious passion. These findings are consistent with the COR theory (Hobfoll 2002), suggesting that individuals with resources are more incline to acquire other resources, resulting in positive outcomes. Indeed, our results suggest that job resources promote personal resources (i.e., feelings of competence, relatedness, and competence; Deci and Ryan 1985, 2008) which are prerequisites of autonomous internalization, harmonious passion and optimal functioning (i.e., less burnout and more work engagement; Deci and Ryan 2008; Vallerand et al. 2003, 2010). The indirect link from job resources to burnout (via harmonious passion) also corroborates previous findings, based on the JD-R model, illustrating that job resources are negatively related to burnout (Crawford et al. 2010; Schaufeli and Bakker 2004). One proposed explanation for this relationship is that job resources prevent burnout because they allow employees to adapt more favorably to job demands (e.g., Bakker et al. 2005). However, our study offers an additional explanation: job resources also play a distinct role, as they enable employees to deploy their energy at work harmoniously. This freely endorsed involvement may prevent employees from feeling pressured and overtaxed. It may also allow employees to detach themselves from their work when appropriate, thereby preventing exhaustion. For example, at the end of a work day, a teacher can go home and not ruminate about his/her tasks and enjoy doing his/her favorite hobby. This is likely to replenish his/her energy and prevent exhaustion. Such results corroborate Donahue et al.'s (2012) findings which illustrated that harmonious passion positively predicted the use of recovery strategies (e.g., relaxation, mastery) over time, which negatively predict emotional exhaustion (over the same period of time). Future research is encouraged to incorporate recovery strategies into the model in order to obtain a more comprehensive understanding of the relationship between job characteristics, passion at work, and recovery as well as its role in the prediction of employees' psychological health at work (burnout and work engagement).

Passion for work, burnout, and engagement

Our results underscore the importance of taking into account the type of passion that employees have when assessing their psychological health. It appears that it is not necessarily the *amount* of investment that employees put into their work but rather the *quality* of their investment that predicts how they function at work. Specifically, the present results show that the two types of passion are differentially related to burnout. This suggests that employees who feel compelled to be fully invested in their work are more likely to tirelessly immerse themselves in their tasks, and not to detach themselves when they should (e.g., disengaging oneself from thoughts related to work and enjoying oneself during the evening by doing other pleasant things, especially after a long day at work). This is in line with Forest et al.'s (2011) findings that employees who showed obsessive passion were more likely to think about their job constantly and to work overtime and on holidays. Based on our results, this rigid persistence would drain energy and lead to exhaustion. Conversely, the sense of volition and flexibility that characterizes harmonious passion would facilitate appropriate release from work (Vallerand et al. 2010). For example, when employees who exhibit harmonious passion for work feel tired or can no longer concentrate, they could disengage from their work

without feeling guilty or anxious, preventing further energy depletion.

Our results also indicate that harmonious passion positively predicts work engagement. That is, harmonious passion fosters high emotional energy and fulfillment at work. Because harmonious passion enables employees to accomplish tasks in a flexible manner, they would be more likely to focus better and to experience this task accomplishment more fully, leading to positive outcomes (e.g., positive affect, absorption, and flow; Vallerand et al. 2003). Contrary to our hypothesis, our results reveal that obsessive passion is not related to work engagement. This suggests that even though employees with more obsessive passion have a profound inclination toward their work, the internal pressure that compels them to work intensively also seems to prevent them from fully enjoying their work. Therefore, it seems as though obsessive passion restricts employees' emotional energy and mental resilience at work. These findings are in line with previous findings which suggest that harmonious passion enables one to experience a more complete task accomplishment and more positive affective outcomes (e.g., positive affect, flow), while obsessive passion is generally unrelated to these positive outcomes (Vallerand and Houlfort 2003). Taken together, the present results indicate that harmonious passion is doubly beneficial for employees' psychological health at work (less exhaustion and more vigor), and that obsessive passion accounts for psychological costs only (more exhaustion).

Job demands, job resources, and passion for work

This study contributes to the sparse knowledge on the antecedents of passion for work by identifying two broad categories of job characteristics that influence passion for work. Our results show that job demands foster obsessive passion and thwart harmonious passion, whereas job resources only foster harmonious passion. This suggests that job demands lead to energy depletion and compensatory costs through maladaptive energy canalization. As job demands generate feelings of pressure and obligation, employees would tend to canalize (or internalize) such constraints in suboptimal ways. When dealing with overwhelming demands, they may feel obliged to immerse themselves in their tasks in order to cope. In contrast, job resources appear to facilitate an autonomous internalization, allowing employees to canalize their energy more efficiently in order to complete their tasks. Contrary to our hypothesis, job resources did not prevent obsessive passion. Such results suggest that obsessive passion leads employees to be so engrossed in their work that they become less aware of the facilitating aspects present in their jobs. It may also be that the feelings of pressure and obligation associated with obsessive passion render employees less capable of utilizing job resources efficiently. For example, in an emotionally difficult situation, a nurse who exhibits high obsessive passion may be less inclined to discuss the issue with fellow nurses and ask for help (i.e., social support) because he/she is too wrapped up in the work and feels obligated to keep working. Such notion aligns with Russo and Waters' (2006) findings. These authors found that job resources (i.e., supervisory support, flexible work schedule) did not predict the experience of work-home conflicts for workaholics (employees who accomplish their work out of a sense of compulsion rather than pleasure), suggesting that they tend to fail to recognize or make use of job resources.

Limitations

This study contains some limitations. First, self-reports were used, carrying the risk of common method variance. However, the results of the single-factor measurement model indicate that the findings were not overly affected by the use of self-reports (Podsakoff et al. 2003). Nevertheless, future research is encouraged to replicate the proposed model using data from different standpoints (e.g., supervisor or colleagues). Second, although the JD-R model is said to be flexible in its application to different work settings (Bakker and Demerouti 2007), our results do not necessarily generalize outside the nursing and teaching fields. However, the fact that the proposed model was replicated in these two organizational settings offers some support for the generalizability of the model. Still, more research is needed to revalidate the model in different organizational settings. Particular attention could be given to work settings at high risk of occupational stress (i.e., poor physical health and psychological well-being, job dissatisfaction), including social and customer service employees (Johnson et al. 2005). Third, it is also worth mentioning that the indirect effects of passion for work were relatively small (i.e., 0.055–0.193). Therefore, other studies could incorporate other mechanisms within the proposed model. For example, mechanisms evaluated in past studies (e.g., personal resources such as self-efficacy and affect) could be included with passion in a competing model in order to investigate the distinct contribution of these mediating variables within the job characteristics-psychological health relationship. Lastly, the cross-sectional design of the study rules out any firm conclusions on the causal direction of the relationships between the studied variables. It is quite possible that employees who are experiencing burnout view their job characteristics less favorably (i.e., more demands and fewer resources). Longitudinal research is therefore needed to better understand the causal nature of the relationships between job characteristics, passion at work, and employee psychological health.

Practical implications

The present findings offer some insights for organizations seeking to promote and maintain optimal functioning in their employees. Two primary intervention measures emerge from our findings. They concern (1) job demands and (2) job resources. First, because job demands undermine harmonious passion and facilitate obsessive passion as well as burnout, interventions could target these taxing job characteristics. For instance, organizations could mitigate job demands as much as possible. They could also foster certain adaptive characteristics in employees to alleviate the negative effects of job demands (via employees' perceptions of these demands), such as personal resources (e.g., self-efficacy; Jex et al. 2001). Second, as job resources positively predict harmonious passion and work engagement and negatively predicted burnout (in sample 2), organizations may want to provide employees with such positive and stimulating job characteristics as much as possible. This would be all the more beneficial given that job resources have been found to buffer the strenuous impact of job demands (e.g., Bakker et al. 2005; Bakker et al. 2007). A secondary intervention to promote and maintain employees' psychological health concerns the pivotal role of harmonious passion, which not only contributes to feelings of vigor, but also prevents emotional exhaustion. Therefore, organizations may want to promote harmonious passion at work by offering employees autonomy support (e.g., allowing flexibility in how they approach their work; Mageau et al. 2009) and promoting work valuation (Vallerand and Houlfort 2003). Also, the use of signature strengths (i.e., capacity for a particular way of behaving, thinking, or feeling that is authentic and energizing to the user; Linley 2008) would be another possible avenue to promote employees' harmonious passion (Forest et al. 2012).

Conclusion

By investigating the health impairment and motivational processes proposed by the JD-R model through the lens of the DMP, the present research offers insight into why job characteristics are related to employees' psychological health. Our results suggest that because job demands and resources distinctly influence how employees internalize their work experiences (obsessive vs. harmonious passion), they play an important and differential role in the prediction of psychological gains or costs at work.

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