

Weekly work engagement and flourishing: The role of hindrance and challenge job demands

Arnold B. Bakker ^{a,b,*}, Ana Isabel Sanz-Vergel ^c

^a Erasmus University Rotterdam, Department of Work and Organizational Psychology, Woudestein, T12-47, P.O. Box 1738, 3000 DR Rotterdam, The Netherlands

^b Department of Sociology and Social Policy, Dorothy Y L Wong Building, Lingnan University, Tuen Mun, Hong Kong

^c Universidad Autónoma de Madrid, Biological and Health Psychology Department, Carretera de Colmenar km. 15 Madrid, Madrid 28049, Spain

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ABSTRACT

Two studies were conducted to examine how home healthcare nurses stay engaged in their work and maintain their psychological well-being. In Study 1, we hypothesized that nurses would perceive work pressure more as a hindrance demand than as a challenge demand, and that the reverse would be true for emotional demands. We approached 120 home healthcare nurses who filled in a survey. Results of a series of paired sample t-tests supported our hypotheses. In Study 2, we used the JD-R model to hypothesize that weekly job demands can either facilitate or undermine the positive impact of personal resources on work engagement and flourishing, depending on the nature of the job demand (hindrance vs. challenge). A sample of 63 nurses filled in a questionnaire at the end of the working week during three consecutive weeks ($N = 3 \times 63 = 189$ occasions). Results of hierarchical linear modeling showed that emotional job demands strengthened the effect of personal resources on weekly well-being, whereas work pressure undermined this effect. Taken together, the present findings challenge the idea that whether job demands act as hindrances or challenges is the same for all occupations and for all individuals.

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1. Introduction

Individuals who are engaged in their work are fully physically, cognitively, and emotionally connected with their work roles (Kahn, 1990). They are full with energy and experience a sense of significance, enthusiasm, and challenge (Bakker, 2011). Individuals who flourish are able to develop warm, trusting relationships with others and are willing to develop their potential, to grow and expand as a person (Diener et al., 2010). How do employees stay engaged in their work and maintain their psychological well-being? How do they cope with the job demands they encounter? In this article, we will argue that the interaction between job demands and personal resources is key for work engagement and flourishing.

To that end, we conducted two studies among home healthcare nurses, who face unique risks on their job (Kandolin, 1993; Podrasky & Sexton, 1988). In Study 1, we address the difference between challenge and hindrance job demands by examining nurses' perceptions of work pressure and emotional demands. In Study 2, we investigate how nurses' challenge and hindrance demands qualify the relationship between personal resources on the one hand, and work engagement and flourishing on the other. Using Bakker and Demerouti's (2008) Job Demands–Resources (JD-R) model, we argue that weekly job demands can either facilitate or undermine the positive impact of personal resources (self-efficacy and optimism) on well-being.

The study aims to contribute to the literature by investigating the differences between challenge and hindrance demands among a specific occupational group, namely nurses. So far, it has been unclear what employees perceive as hindrances or

* Corresponding author.

E-mail addresses: bakker@fsw.eur.nl (A.B. Bakker), ana.sanz@uam.es (A.I. Sanz-Vergel).

challenges, and if those perceptions differ among occupations. Study 1 may improve our understanding of this issue for the nursing occupation, and may trigger future research among other types of occupations.

In addition, with a test of the interaction between personal resources and job demands, we contribute to JD-R theory. Although recent formulations of this theory (Bakker & Demerouti, 2008, 2013) have included personal resources in the model as a predictor of work engagement, few studies have tested the proposition that job demands qualify the personal resources–engagement relationship. Is the relationship between personal resources and well-being dependent on the level of challenge and hindrance demands?

2. Study 1: challenge versus hindrance demands

Recent research has suggested that it is important to distinguish between two types of job demands: challenge demands and hindrance demands (LePine, Podsakoff, & LePine, 2005). Challenge demands are viewed by workers as obstacles to be overcome in order to learn and achieve (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). In contrast, hindrance demands are viewed by workers as unnecessarily thwarting personal growth and goal attainment. Exposure to both types of demands makes people feel tired, but not necessarily stressed. Although exposure to challenge demands requires energy, it also contains potential gains (Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010). LePine et al. (2005) conducted a meta-analytic test of this two-dimensional job demands framework with respect to demands' relationships with strains, motivation, and performance using 101 samples. Hindrance demands had a negative direct effect on performance, as well as negative indirect effects on performance through strains and motivation. Challenge demands had a positive direct effect on performance, as well as indirect effects on performance through strains (negative) and motivation (positive). In a similar vein, Crawford, LePine, and Rich (2010) tested the meta-analytic relationship of both types of job demands with work engagement using 64 samples. Their results revealed a positive relationship between challenge demands and engagement, and a negative relationship between hindrance demands and engagement.

Despite the meta-analytic evidence for the two-dimensional framework of job demands, the classification of job demands as challenge or hindrance demands may not always be as straightforward as suggested. Moreover, it is conceivable that the psychological effect of specific job demands depends on the occupational sector. Thus, whereas for home healthcare nurses work pressure usually implies that there is simply not enough time to provide patients with the care they really need, fostering job strain and frustration; for individuals in occupations other than nursing, work pressure may be interpreted as a challenge. For example, tight deadlines are a fact of life in journalism, since newspapers and news shows are generally distributed and broadcasted daily. Thus, journalists often interpret their daily deadlines as challenges (Kocher, 1986). In contrast, emotional job demands (i.e. frequent interactions with clients and dealing with the emotions of sick individuals and their families; De Jonge, Le Blanc, Peeters, & Noordam, 2008) are more likely to form the heart of the work for nurses, but may be perceived as hindrances by other occupational groups.

In their meta-analysis, LePine et al. (2005) did encounter some problems when trying to classify specific job demands as hindrance or challenge demands. Their "... search identified studies with measures of stress that combined hindrances and challenges" (p. 767). Moreover, the MBA students who acted as raters in their study rated the challenge and hindrance job demands approximately the same on how much stress the demands caused them to feel. Similarly, Crawford et al. (2010; p. 838) identified studies with job demands that "... were difficult to classify as either challenges or hindrances for other reasons (e.g., emotional demands; Llorens, Bakker, Schaufeli, & Salanova, 2006)." This means that there is some ambiguity regarding the categorization of job demands into challenge versus hindrance demands.

Consistent with these observations, a recent study among call center agents and police officers considered emotional demands as an indicator of hindrance demands and workload as an indicator of challenge demands for both occupational groups (Van den Broeck et al., 2010). However, the results suggested that the two occupational groups interpreted emotional demands and workload differently as evident from the correlation pattern: emotional demands were negatively related to the vigor dimension of engagement for call center agents, but not for police officers; whereas workload was positively related to exhaustion for police officers, but not for call center agents. This may suggest that whether a specific job demand is interpreted as challenging or hindering may depend on the occupational sector.

Individuals who choose the nursing occupation are often attracted to nursing because of ideals and engagement. In their study among students nurses, McCabe, Nowak, and Mullen (2005) found that the most important reasons to choose the profession were (1) to help others; (2) to do interesting and challenging work; and (3) to work closely with people in need. Furthermore, in a qualitative study among nurses working in the National Health Service in England, Bolton (2001) found that nurses have the ability to resist emotional demands and know the type of feeling that they have to display during a particular episode of interaction. Bolton concluded that "they are aware that they must actively work on their emotions" (p. 92). According to McQueen (2004), nurses enjoy benefits from emotion work because they are satisfied with engaging with patients at a personal level. Being a nurse offers the opportunity to help others and make a difference in their lives. Taken together, these findings suggest that emotional demands may act as challenges for nurses. Consistent with this view, emotional labor researchers have argued that emotion work may not necessarily be stressful, but may instead be rewarding and create positive outcomes (Brotheridge & Grandey, 2002; Côté, & Morgan, 2002; Tolich, 1993).

In contrast, having too much work to do and working under time pressure is expected to act as a hindrance demand for nurses because it is expected to frustrate the goal of providing good care to the patients. Indeed, studies among health care nurses have identified work pressure as a major stressor (McVicar (2003). Work pressure is a demand for nurses that is not only positively

related to exhaustion, but also negatively related to personal accomplishment and retention (Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003; Constable & Russell, 1986; Hayhurst, Saylor, & Stuenkel, 2005; Janssen, De Jonge, & Bakker, 1999; Robinson et al., 1991). This means that the more often nurses are confronted with time pressure, the lower their feelings of competence and successful achievement in their work, and the higher the likelihood that they leave the occupation. Time at each home, the distance between visits, and the traffic must all be considered if a reasonable schedule is to be maintained. In addition, as the day unfolds, new needs arise, or there may be changes in the planned daily schedule (Widmer, 2002). Working under time pressure as a home healthcare nurse may thus be frustrating because work pressure thwarts goal attainment. On the basis of these arguments and literature, we formulated our first two hypotheses.

Hypothesis 1. Nurses perceive work pressure as more hindering than challenging.

Hypothesis 2. Nurses perceive emotional demands as more challenging than hindering.

3. Method

3.1. Participants and procedure

The participants in Study 1 were nurses from a home health care organization in The Netherlands. The health care delivered covers a broad range of activities, ranging from housekeeping and nursing, to pedagogical guidance and specialized care. The nurses were recruited through the intranet of the organization, and were asked to participate in a short survey on “working conditions”. Participants were informed that the data would be treated confidentially and anonymously, and that they could win one of two €50-gift coupons. The sample included 120 home healthcare nurses; 111 women (92.5%) and 7 men (5.8%); 2 persons did not report their gender (1.7%). Note that most jobs within the health care sector are occupied by women. The mean age was 44.14 years ($SD = 10.83$), and the majority of the participants (59.2%) was married; 19.2% was cohabiting; 14.2% was single (7.5% different). Regarding education, 30.8% had finished lower general secondary education; 55.8% higher general secondary education, and 13.4% had finished higher vocational training.

3.2. Measures

We developed new measures to assess work pressure and emotional demands as hindrance/challenge job demands. It should be noted that we used two indicators for each demand because this is the first time that the hindering and challenging properties of work pressure and emotional demands are directly assessed—we do this at the week-level. We wanted to make sure that our findings are independent from the specific way of operationalizing job demands.

3.2.1. Work pressure—Indicator 1

We used the three-item work pressure scale of Bakker et al. (2003) to investigate how hindering (3 items) and challenging (3 items) participants thought work pressure was. Thus, for example, participants were asked to indicate how hindering (1 = not hindering at all, 7 = extremely hindering) and how challenging (1 = not challenging at all, 7 = extremely challenging) they thought it was to work fast. Cronbach's alpha was .86 for hindrance work pressure, and .85 for challenge work pressure. Please note that the term used in Dutch to ask about the perception of demands as hindrances was “stressvol”. The English language connotations of this word are consistent with the meaning of the term “hindrance”.

3.2.2. Work pressure—indicator 2

For the purpose of the present study, we developed two additional Likert-type scales to assess the hindrance and challenge facets of work pressure. We asked participants with three items how ‘hindering’, ‘demanding’, and ‘difficult’ they found work pressure. In addition, we asked them with three items how ‘challenging’, ‘nice’, and ‘motivating’ they found work pressure. Cronbach's alpha was .81 for hindrance work pressure, and .87 for challenge work pressure.

3.2.3. Emotional demands—Indicator 1

We used three items of the emotional demands scale developed by Van Veldhoven, De Jonge, Broersen, Kompier, and Meijman (2002) to investigate how hindering (3 items) and challenging (3 items) participants thought emotional demands were. Specifically, participants were asked to indicate how hindering (1 = not hindering at all, 7 = extremely hindering) and how challenging (1 = not challenging at all, 7 = extremely challenging) they thought the following aspects of their work were: “dealing with clients”; “demanding clients”; and “emotionally charged situations”. Cronbach's alpha was a low .58 for hindrance emotional demands,¹ and .72 for challenge emotional demands.

¹ We investigated whether the relatively low reliability of this scale affected our findings. Results did not change when we used an adjusted two-item version of this hindrance emotional demands scale (Cronbach's alpha = .78).

3.2.4. Emotional demands—Indicator 2

Similar to what we did for work pressure, we developed two additional Likert-type scales to assess the hindrance and challenge facets of emotional demands. We asked participants with three items how hindering, demanding, and difficult they found emotional demands. In addition, we asked them with three items how challenging, nice, and motivating they found interacting with clients. Cronbach's alpha was .66 for hindrance emotional demands, and .74 for challenge emotional demands.

4. Results

We predicted that—because of the nature of their work—home healthcare nurses would perceive work pressure as more hindering than challenging (*Hypothesis 1*), and that they would perceive emotional demands as more challenging than hindering (*Hypothesis 2*). In order to test these two hypotheses, we conducted a series of paired sample t-tests. The overall pattern of findings can be found in *Fig. 1*. As can be seen, for nurses, work pressure is more hindering than challenging—this is true for both indicators. For Indicator 1, the mean scores for hindrance and challenge demands were $M = 3.74$ and $M = 3.14$ ($t = 3.44$, $df = 119$, $p < .001$); for Indicator 2, the mean scores were $M = 4.52$ and $M = 3.45$ ($t = 4.40$, $p < .001$). This offers full support for *Hypothesis 1*—work pressure is a hindrance demand for nurses. In addition, consistent with *Hypothesis 2*, emotional demands are more challenging than hindering—again for both indicators. For Indicator 1, the mean scores for hindrance and challenge demands were $M = 2.89$ and $M = 4.93$ ($t = -10.65$, $p < .001$); for Indicator 2, the mean scores were $M = 2.28$ and $M = 5.52$ ($t = -20.39$, $p < .001$). Thus, emotional demands are a challenge for nurses. It should also be noted that the mean score of hindrance work pressure was higher than hindrance emotional demands (Indicator 1: $M = 3.74$ vs. $M = 2.89$; $t = 4.79$, $p < .001$; Indicator 2: $M = 4.52$ vs. $M = 2.28$; $t = 14.33$, $p < .001$). In addition, challenge work pressure was lower than challenge emotional demands (Indicator 1: $M = 3.14$ vs. $M = 4.93$; $t = -11.87$, $p < .001$; Indicator 2: $M = 3.45$ vs. $M = 5.52$; $t = -10.93$, $p < .001$).

5. Discussion

The results of Study 1 clearly show that nurses perceive work pressure as a hindrance job demand and emotional demands as a challenge job demand. The finding that work pressure acts more as a hindrance than as a challenge is consistent with previous studies among nurses, but challenges the popular view that work pressure is a challenge for every occupational group (*Crawford et al., 2010; LePine et al., 2005*). Furthermore, previous meta-analyses were not clear about the nature of emotional demands. The present study clearly shows that for nurses, interacting with clients and confrontation with emotional demands is part of their work, and they see their work as a challenge (*McCabe et al., 2005*). But we go one step further. How do home healthcare nurses stay engaged in their work and maintain their psychological well-being? How do they cope with the job demands they encounter?

In Study 2, we will argue that—just like job resources (*Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007*)—personal resources are important. We examine how positive self-beliefs including self-efficacy and optimism facilitate nurses' work engagement and flourishing on a weekly basis. Using *Bakker and Demerouti's (2008, 2013)* Job Demands–Resources theory, we argue that weekly job demands can either facilitate or undermine the positive impact of personal resources on work engagement and flourishing. The design of Study 2 allows us to explore dynamic relationships between personal resources, job demands, and well-being. Diary studies permit researchers to explore every day experiences, analyzing how variations in specific job or

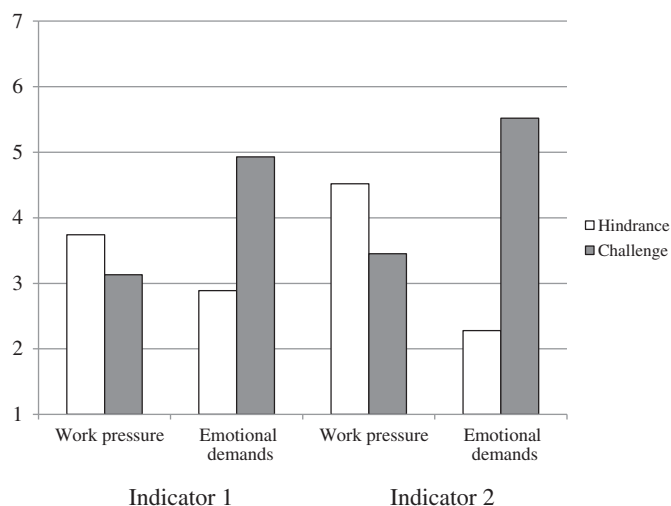


Fig. 1. Nurses' perceptions of work pressure and emotional demands as either hindrance or challenge.

personal characteristics may affect levels of well-being across days or weeks (Ohly, Sonnentag, Niessen, & Zapf, 2010). A clear advantage of a diary design is that the responses are less affected by retrospective bias as compared to surveys; diary designs also have a high ecological validity.

6. Study 2: personal resources at work

In Study 2, we examine whether personal resources are related to work engagement and flourishing—on a weekly basis. Personal resources are positive self-evaluations that are linked to resiliency and refer to individuals' sense of their ability to successfully control and have an impact on their environment (Hobfoll, Johnson, Ennis, & Jackson, 2003). It has been convincingly shown that such positive self-evaluations predict goal setting, motivation, performance, and life satisfaction (for a review, see Judge, Van Vianen, & De Pater, 2004). The reason for this is that the higher an individual's personal resources, the more positive the person's self-regard and the more goal self-concordance is expected to be experienced. Individuals with goal self-concordance are intrinsically motivated to pursue their goals, and as a result they trigger higher performance and satisfaction. Consistent with these ideas, Luthans and his colleagues (Luthans, Avolio, Avey, & Norman, 2007a; Luthans, Youssef, & Avolio, 2007b) have argued that “psychological capital”—a concept combining the personal resources of efficacy, hope, optimism, and resilience—is a motivational propensity to accomplish goals and succeed.

Several authors have investigated the relationships between personal resources and well-being. For example, it has been shown that self-esteem, self-efficacy, locus of control, and the ability to regulate emotions are positive predictors of work engagement (for an overview, see Albrecht, 2010). Luthans and his colleagues have shown that a latent variable of four personal resources predicts employee job satisfaction and performance (Luthans et al., 2007a), as well as employee psychological well-being (Avey, Luthans, Smith, & Palmer, 2010). In their longitudinal survey and diary studies, Xanthopoulou and her colleagues (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009a,b; Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008) found that engaged employees are highly self-efficacious; they believe they are able to meet the demands they face in a broad array of contexts. In addition, engaged workers have the tendency to believe that they will generally experience good outcomes in life (optimism). It is conceivable that personal resources are also predictive of flourishing—a form of context-free psychological well-being that refers to optimal human functioning (Diener et al., 2010).

Personal characteristics such as emotional intelligence, hardiness, or coping strategies have been recognized as important to deal with demands in nursing contexts (e.g., McQueen, 2004; Simoni & Paterson, 1997). Thus, it is possible to find a broad range of interactions between personal and workplace characteristics of nurses (Jones & Johnston, 2000). However, there is a lack of studies examining under which specific conditions nurses may particularly benefit from such positive personal characteristics. To address this gap, in Study 2, we test the hypothesis that personal resources (i.e. self-efficacy and optimism) may become more salient and are better predictors of work engagement and flourishing under certain working conditions.

The hypothesis that job demands moderate the relationship between personal resources and work engagement follows directly from the most recent version of the Job Demands–Resources model (Bakker, 2011; Bakker & Demerouti, 2008, 2013). Along the same line of thinking, Sonnentag, Mojza, Demerouti, and Bakker (2012) have argued and shown that a positive state of the individual (i.e., morning level of recovery) may have a different relationship with engagement during the workday depending on the day-level of job stressors. In this case, job stressors were also considered as moderators, that is, situational constraints weakened the relationship of recovery with engagement.

Consistent with the findings of Study 1, we assume that for nurses emotional demands will act as challenge demands and that work pressure will act as a hindrance demand. Note that for other occupational groups, work pressure could be a challenge and emotional demands could be a hindrance. However, Study 1 has clearly indicated that home healthcare nurses perceive work pressure as a hindrance demand, and emotional demands as challenges.

We propose that personal resources may be used under certain conditions. Specifically, personal resources may translate into work engagement and flourishing during weeks when employees have high challenge demands. For example, a nurse may be confronted with a patient who requires emotional attention, and she does her best because she considers it as an important part of her job. In that situation, she will mobilize all her personal resources to help the patient.

Hypothesis 3. Weekly emotional demands moderate the relationship between weekly personal resources (self-efficacy, optimism) and (a) weekly work engagement, and (b) weekly flourishing. Specifically, the relationship between personal resources and weekly work engagement and flourishing is particularly positive when emotional demands are high (vs. low).

In contrast with emotional demands, working under time pressure acts as a hindrance demand for nurses (see Study 1), because it undermines the quality of patient care. It is quite difficult to mobilize personal resources under stressful conditions. Take for instance a nurse who is optimistic, but has to attend to a patient in two minutes. They simply have no time to mobilize their resources. With increasing time pressure, individual attention for each patient is reduced. This may become an exhausting process for nurses as they need to rush from one patient to the other, a stressful but also frustrating experience (Bakker et al., 2003; Hayhurst et al., 2005; Janssen et al., 1999). Since work pressure acts as a hindrance demand, and thus frustrates goal

achievement, we expect that personal resources will only be positively related to work engagement and flourishing when work pressure is low. Thus, our final hypothesis is:

Hypothesis 4. Weekly work pressure moderates the relationship between weekly personal resources (self-efficacy, optimism) and (a) weekly work engagement, and (b) weekly flourishing. Specifically, the relationship between personal resources and weekly engagement and flourishing is particularly positive when work pressure is low (vs. high).

7. Method

7.1. Participants and procedure

The sample of Study 2 was composed of nurses from a home health care organization in The Netherlands. The type of health care ranged from housekeeping and nursing to more specialized care. An e-mail with information about a general survey and a weekly diary study was sent to all nurses ($N = 700$). They were invited to participate in a study on “well-being at work”. In total, 78 nurses volunteered to participate in the weekly diary study. Unfortunately, the exact response rate could not be determined since we could not ascertain the number of persons who had seen the invitation. However, the response rate is most probably rather low (between 10 and 20%) because the present study required a considerable time investment of the nurses, and many nurses had already participated in a recent large scale employee satisfaction survey unrelated to the present research. Those who agreed to participate received more specific information about the project and were asked to fill in a general questionnaire with socio-demographic information and scales to measure enduring work engagement and enduring flourishing (we will refer to these measures as “trait measures”; cf. Xanthopoulou et al., 2009a). One week later, the nurses who wanted to participate in the weekly diary study received a questionnaire asking about their experiences during the preceding week. This procedure was repeated the next two weeks. Participants who completed all the questionnaires received a gift voucher and a wellness arrangement. Moreover, after finishing the project, all participants received information about the purpose of the study.

The final sample of this study was composed of 63 participants (62 women and 1 man) who filled in a general questionnaire and a weekly diary questionnaire for three consecutive working weeks ($N = 3 \times 63 = 189$ occasions). The mean age was 40.67 years ($SD = 10.90$), and the majority of the participants was married (61.9%). Most employees worked 20.01 h per week ($SD = 7.55$), and the average years of work experience was 13.35 ($SD = 9.48$). Regarding education, 20.6% had finished lower general secondary education; 54.0% higher general secondary education, and 23.4% had finished higher vocational training (2.0% missing).

7.2. Measures

7.2.1. Control variables

We assessed socio-demographic information as well as trait characteristics through a general questionnaire that had to be completed once, before the weekly surveys. We included gender, age, years of work experience, marital status, education, and hours worked per week as person-level control variables. Moreover, given that previous studies have shown that personal and job resources are related (e.g., Xanthopoulou et al., 2009b), we included weekly measures of job resources as a control variable in our analyses. We combined the mean scores of autonomy, social support, performance feedback, and opportunities for personal development to obtain a general index. All items were rated on a 5-point scale, ranging from one to five (1 = totally disagree, 5 = totally agree). The mean Cronbach's alpha for this scale was .89 (average across the 3 weeks).

Trait work engagement was assessed with the Utrecht Work Engagement Scale (UWES; Schaufeli, Bakker, & Salanova, 2006). This scale is composed of three dimensions of three items each (i.e. dedication, vigor, and absorption). Example items are: “I am enthusiastic about my job” (dedication), “At my work, I feel bursting with” (vigor), and “I am immersed in my work” (absorption). Respondents used a 7-point frequency scale ranging from 0 = never to 6 = always. Cronbach's alpha for this scale was .90.

Trait flourishing was measured with the 9-item Flourishing Scale developed by Diener et al. (2010). A high score on this scale indicates a high level of psychological well-being and optimal human functioning. Example items are “I actively contribute to the happiness and well-being of others”, and “I lead a purposeful and meaningful life”. Items were scored on a 7-point scale, ranging from 1 = strongly disagree to 7 = strongly agree. Cronbach's alpha for this scale was also .90.

7.2.2. Week-level variables

7.2.2.1. Personal resources. We included weekly measures of two types of personal resources. Self-efficacy was measured with a four-item scale based on Schwarzer and Jerusalem (1995). The items were adjusted so that they referred to the preceding week, for example “Last week, I knew what to do, regardless of what happened”. Optimism was measured with a shortened, four-item version of the scale developed by Scheier, Carver, and Bridges (1994). An example item is “Last week, I was optimistic about my future”. Both self-efficacy and optimism items were rated on a five-point scale (1 = totally disagree, 5 = totally agree). The scores for self-efficacy and optimism were summed in order to form one index of personal resources. The mean Cronbach's alpha for this scale was .77 (average across the 3 weeks).

Table 1
Means, standard deviations, and intercorrelations ($N = 63$ participants; 189 occasions).

	M ^a	SD ^a	M ^b	SD ^b	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender ^c	0.98	0.12			–													
2. Age	40.67	10.96			.09	–												
3. Years of work experience	13.35	9.53			.15	.60**	–											
4. Marital status ^d	2.16	0.67			.21	–.36**	–.37**	–										
5. Education	3.37	1.12			–.18	.12	.26*	–.24	–									
6. Average number of working hours per week	20.01	7.59			–.20	–.24	.00	–.05	.20	–								
7. Trait work engagement	4.75	0.80			.52**	.03	–.18	.15	–.43**	–.02	–							
8. Trait flourishing	6.01	0.67			.26*	.05	–.08	–.03	–.26*	.07	.43**	–						
9. Week-level job resources	4.57	1.00	4.58	1.12	.00	–.09	.04	.10	–.13	.25*	.27*	.33**	–	.34**	.13	.31**	.41**	.34**
10. Week-level personal resources	3.90	0.43	3.91	0.51	.21	.08	.01	.10	–.39**	.15	.38**	.59**	.40**	–	.10	.14*	.50**	.52**
11. Week-level work pressure	3.61	1.70	3.62	1.87	–.02	.14	.15	–.01	–.01	.39**	.24	–.06	.16	.16	–	.44**	–.03	–.05
12. Week-level emotional demands	2.34	1.05	2.35	1.26	.08	.20	.28*	–.14	–.08	.29*	.12	.05	.37**	.18	.49**	–	–.06	–.09
13. Week-level work engagement	4.22	0.85	4.23	0.99	.14	–.01	–.08	.03	–.26*	.02	.49**	.47**	.46**	.56	.01	–.02	–	.53**
14. Week-level flourishing	5.64	0.78	5.64	0.92	.12	.00	–.12	.11	–.23	.11	.22	.75**	.36**	.55**	.01	–.08	.49**	–

Note. Correlations below the diagonal are person-level correlations ($N = 63$). Correlations above the diagonal are week-level correlations ($n = 189$). * $p < .05$, ** $p < .01$.

^aMeans and standard deviations at the person-level. ^bMeans and standard deviations at the week-level.

^c0 = Male, 1 = Female; ^d1 = Single, 2 = Married, 3 = Unmarried but with partner, 4 = Other.

7.2.2.2. Job demands. We included weekly diary measures of two types of job demands. Emotional demands were measured with three items based on Van Veldhoven et al. (2002). The items were adjusted so that they referred to the preceding week, for example “Last week, I was confronted with demanding clients at my work”. Work pressure was measured with three items of Bakker et al. (2003), including “Last week, I had to work fast”. Participants could respond to the items using a seven-point rating scale, ranging from 1 = No, that is incorrect to 7 = Yes, that is correct. The mean Cronbach's alpha was .84 for emotional demands and .88 for work pressure.

7.2.2.3. Work engagement. Work engagement was measured with a state version (Bakker & Bal, 2010) of the nine-item UWES (Schaufeli et al., 2006). Example items are: “Last week, I was enthusiastic about my job” (dedication), “Last week, I felt bursting with energy at my work” (vigor), and “Last week, I was immersed in my work” (absorption). Questions were answered on a 7-point scale (0 = totally disagree, 6 = totally agree). The mean Cronbach's alpha for this scale was .89.

7.2.2.4. Flourishing. Weekly experiences of flourishing were measured with the nine-item Flourishing Scale (Diener et al., 2010), modified so that the items referred to the preceding week. An example item is: “Last week, I actively contributed to the happiness and well-being of others”. Items were scored on a 7-point scale, ranging from 1 = strongly disagree to 7 = strongly agree. The mean Cronbach's alpha was .93.

7.2.3. Data analyses

We used multilevel analysis (Bryk & Raudenbush, 1992) given the hierarchical structure of our data. Specifically, we had weeks nested in persons. At level 1 we had repeated measures (three weeks; $N = 189$ occasions), whereas at level 2 we had individual persons ($N = 63$ participants). We used MlwiN software to analyze the data (Rashbash, Browne, Healy, Cameron, & Charlton, 2000). We centered the control variables and the person-level variables of trait work engagement and trait flourishing at the grand mean; week-level variables were centered at the respective person mean.

8. Results

8.1. Descriptive statistics

Table 1 shows means, standard deviations, and correlations among all the study variables. Of all the included demographic characteristics only education was significantly related to our dependent variables, so we only took into account this control variable in further analyses. To examine the proportion of variance that could be attributed to the different levels of analysis, we calculated the intra-class correlation for each variable. Results showed that 45.07% and 31.62% of the variance in personal and job resources, respectively, can be attributed to weekly variations. Moreover, 46.43% of the variance in emotional demands and 27.10% in work pressure can be attributed to variations at the week-level. Finally, 40.42% of the variance in work engagement and 41.86% in flourishing can be attributed to variations at the week-level. Overall, these results support the use of multilevel analysis.

Table 2

Multilevel estimates for models predicting weekly work engagement ($N = 63$ participants, 189 occasions).

Variable	Null model			Model 1			Model 2			Model 3		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	4.229	0.106	39.896	4.229	0.093	45.473	4.229	0.093	45.473	4.215	0.089	47.359
Education ^a				−0.047	0.092	−0.510	−0.047	0.092	−0.510	−0.044	0.089	−0.494
Job resources ^b				0.286	0.085	3.364***	0.256	0.079	3.240***	0.210	0.080	2.625**
Trait work engagement ^a				0.488	0.128	3.812***	0.488	0.128	3.812***	0.478	0.124	3.854***
Personal resources ^b							0.610	0.143	4.726***	0.748	0.151	4.986***
Emotional demands ^b							−0.141	0.059	−2.389**	−0.094	0.061	−1.540
Work pressure ^b							−0.077	0.052	−1.574	−0.076	0.052	−1.461
Personal resources × Emotional demands										0.986	0.348	2.833**
Personal resources × Work pressure										−0.183	0.240	−0.762
−2 × Log (1 h)	467.113			438.633			412.171			404.340		
Difference of −2 × Log				28.480***			26.462 ***			7.831*		
df				3			3			2		
Level 1 intercept variance (SE)	0.395 (0.050)			0.362 (0.046)			0.293 (0.037)			0.286 (0.036)		
Level 2 intercept variance (SE)	0.582 (0.128)			0.419 (0.097)			0.442 (0.097)			0.405 (0.090)		

^a Predictors at the person level.

^b Predictors at the week level.

* $p < .05/$

** $p < .01/$

*** $p < .001.$

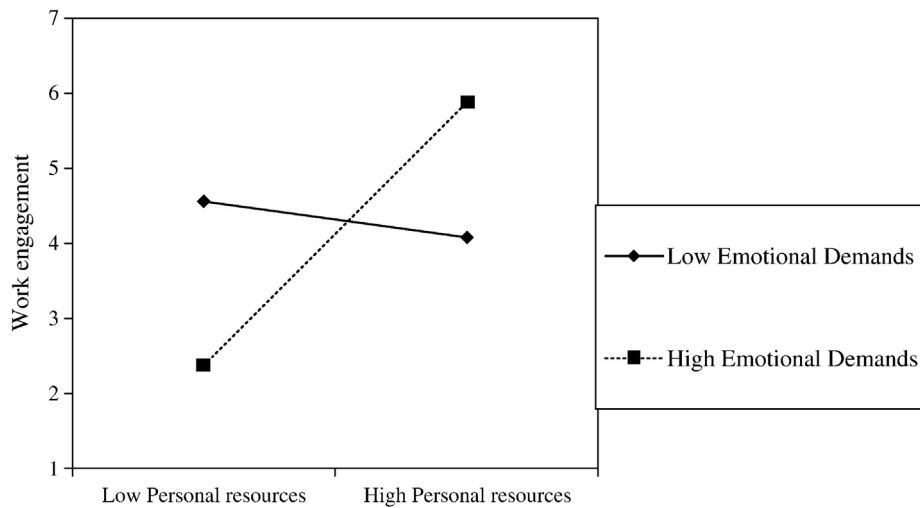


Fig. 2. Interaction effect of personal resources and emotional demands on work engagement.

8.2. The moderating role of hindrance and challenge demands

We predicted that personal resources would particularly have a positive effect on work engagement and flourishing when emotional demands would be high (Hypotheses 3a and 3b). In addition, we predicted that work pressure would act as a hindrance demand, so that personal resources would only be positively related to work engagement and flourishing if work pressure would be low (Hypotheses 4a and 4b). We compared four nested models for each of the two dependent variables. We started with a Null model in which the intercept was the only predictor. In Model 1, we included control variables, and the trait versions of the respective dependent variable. In Model 2, we entered the core predictor variables, that is, personal resources, emotional demands, and work pressure. Finally, in Model 3, we entered the interaction terms. To assess the improvement of each model over the previous one, we looked at the difference between the respective likelihood ratios. We will focus on results of Model 3 given that this is the model of interest.

Table 2 shows the results of multilevel analyses with weekly work engagement as the dependent variable. As can be seen, Model 3 including the interaction terms fit the data significantly better than Model 2 (difference of $-2 \times \log = 7.831$, $df = 2$, $p < .01$). In addition to positive main effects of trait work engagement ($t = 3.854$, $p < .001$), weekly job resources ($t = 2.625$, $p < .01$), and weekly personal resources ($t = 4.986$, $p < .001$) on weekly work engagement, there was a significant interaction effect of personal resources with emotional demands ($t = 2.833$, $p < .01$), but not with work pressure ($t = -0.762$, *n.s.*). For the

Table 3
Multilevel estimates for models predicting weekly flourishing (N = 63, 189 occasions).

Variable	Null model			Model 1			Model 2			Model 3		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	5.642	0.099	56.989	5.642	0.065	86.800	5.642	0.065	86.800	5.628	0.063	89.333
Education ^a				-0.021	0.061	-0.344	-0.021	0.061	-0.344	-0.008	0.058	-0.137
Trait flourishing ^a				0.871	0.101	8.623***	0.871	0.101	8.623***	0.903	0.099	9.121***
Job resources ^b				0.245	0.081	3.024**	0.192	0.073	2.630**	0.169	0.073	2.315*
Personal resources ^b							0.698	0.132	5.287***	0.803	0.137	5.861***
Emotional demands ^b							-0.084	0.055	-1.527	-0.068	0.056	-1.214
Work pressure ^b							-0.117	0.048	-2.437**	-0.141	0.048	-2.937**
Personal resources × Emotional demands										0.439	0.301	1.458
Personal resources × Work pressure										-0.561	0.207	-2.710**
$-2 \times \text{Log (1 h)}$	444.088			383.092			347.471			339.419		
Difference of $-2 \times \text{Log}$				60.996***			35.621***			8.052*		
df				3			3			2		
Level 1 intercept variance (SE)	0.355 (0.045)			0.331 (0.042)			0.249(0.031)			0.243(.031)		
Level 2 intercept variance (SE)	0.493 (0.110)			0.157 (0.050)			0.184(0.049)			0.166(0.045)		

^a Predictors at the person level.

^b Predictors at the week level.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

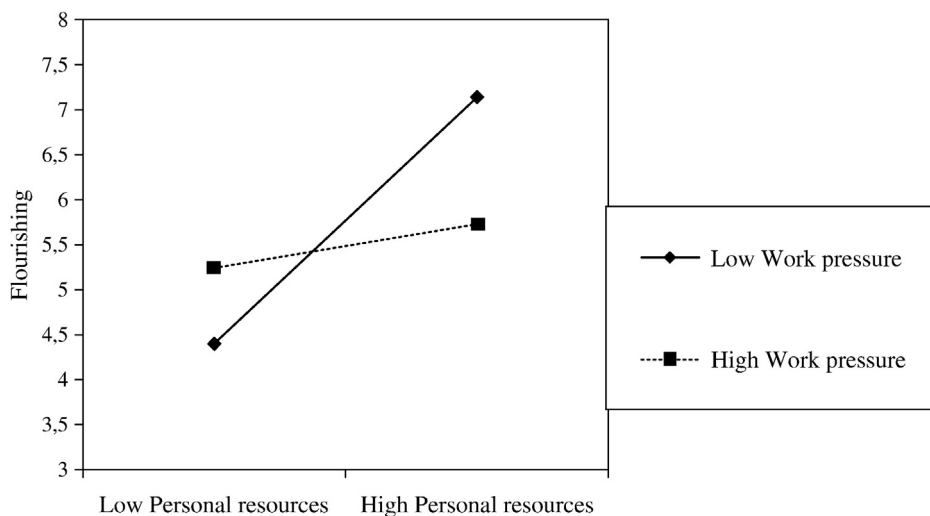


Fig. 3. Interaction effect of personal resources and work pressure on flourishing.

significant moderating effect, we conducted simple slope tests in order to examine the pattern of the interaction (Preacher, Curran, & Bauer, 2006).

As Fig. 2 shows, and in line with our hypothesis, personal resources were positively related to work engagement in weeks that emotional demands were high ($\gamma = 1.734$, $SE = 0.3782$, $z = 4.58$, $p < .05$), but personal resources were unrelated to work engagement in weeks that emotional demands were low ($\gamma = -0.238$, $SE = 0.3782$, $z = -0.62$, $n.s.$). Thus, we found support for Hypothesis 3a, whereas Hypothesis 4a had to be rejected.

Table 3 shows the results of multilevel analyses with flourishing as the dependent variable. Again, Model 3 including the interaction terms fit the data significantly better than Model 2 (difference of $-2 \times \log = 8.052$, $df = 2$, $p < .05$). There were significant positive main effects of trait flourishing ($t = 9.121$, $p < .001$), weekly job resources ($t = 2.315$, $p < .05$), and weekly personal resources ($t = 5.861$, $p < .001$) on weekly flourishing. In addition, consistent with the idea that this job demand acts as a hindrance demand, weekly work pressure was negatively related to weekly flourishing ($t = -2.937$, $p < .01$). Consistent with Hypothesis 4, we found a significant interaction between personal resources and work pressure ($t = -2.710$, $p < .01$). However, the interaction between personal resources and emotional demands was non-significant ($t = 1.458$, $n.s.$).

We conducted again simple slope tests in order to examine the pattern of the interaction (Preacher et al., 2006). As can be seen in Fig. 3, personal resources were positively related to flourishing in weeks that work pressure was low ($\gamma = 1.364$, $SE = 0.2449$, $z = 5.56$, $p < .05$), whereas personal resources were unrelated to flourishing in weeks that work pressure was high ($\gamma = 0.242$, $SE = 0.2449$, $z = 0.98$, $n.s.$). The latter findings are consistent with Hypothesis 4b.

9. Discussion

The central aim of Study 2 was to examine how personal resources (self-efficacy and optimism) facilitate nurses' work engagement and flourishing on a weekly basis. Using the JD-R model (Bakker, 2011; Bakker & Demerouti, 2008, 2013), we hypothesized that weekly job demands can either facilitate or undermine the positive impact of personal resources on work engagement and flourishing. The results of multilevel analyses indicated that nurses felt more engaged during weeks in which their personal resources were high, but only if their emotional demands were high. Moreover, they flourished during weeks in which their personal resources were high and work pressure was low. This confirms the findings from Study 1: emotional demands acts as challenges and work pressure acts as a hindrance demand. In what follows, we discuss the most important contributions of the two studies.

10. Overall discussion

A clear contribution of the present research is that we qualify the two-dimensional framework of challenge and hindrance job demands (Crawford et al., 2010; LePine et al., 2005). In previous studies, it has been recognized that one of the main limitations in this area is dividing stressors into these two categories "based on logic and assumptions regarding which stressors are more likely to be appraised as hindrances and which are more likely to be appraised as challenges on average" (Webster, Beehr, & Christiansen, 2010, p.76). We addressed this issue by analyzing nurses' perceptions of work pressure and emotional demands and by testing their reactions to weekly exposure to these job demands.

Study 1 showed that nurses perceive emotional demands as challenge demands—most probably because emotional demands are inherent to the work of nurses, which is helping patients in need. In contrast, nurses perceived work pressure as a hindrance demand; work pressure was evaluated as much more hindering than emotional demands; and it was evaluated as a hindrance

demand rather than a challenge demand. These findings contradict previous claims on the basis of meta-analyses that work pressure acts as a challenge demand for all employees (Crawford et al., 2010; LePine et al., 2005). Our findings expand previous research by showing that emotional demands are challenge demands in healthcare.

Consistent with the findings of Study 1, we found in Study 2 that weekly emotional demands interacted positively with personal resources in predicting work engagement. This finding is in line with previous between-person studies showing that emotional demands are positively related to engagement when job resources like coaching, performance feedback, and social support are high (Bakker et al., 2007; Hakanen, Bakker, & Demerouti, 2005). The findings show that personal resources (self-efficacy and optimism) have a positive relationship with work engagement in weeks when emotional demands are high. It is consistent with the finding that emotional demands are challenge demands and contribute positively to engagement during the weeks when nurses have self-efficacy and optimism. The present findings clearly expand previous studies, by showing for the first time evidence for the statistical interaction between *personal resources* and emotional demands, and offer evidence for the expanded JD-R model of work engagement (Bakker, 2011; Bakker & Demerouti, 2008, 2013). This interaction is also consistent with LePine et al.'s (2005) suggestion that individual differences in core self-evaluations may play a role in the way people respond to job demands.

In addition, as hypothesized, work pressure played a different role, and acted as a hindrance demand for the nurses. Thus, when work pressure was high, nurses were unable to use their personal resources of self-efficacy and optimism to foster their flourishing. Only when work pressure was low, personal resources were positively related to flourishing on a weekly basis. These results are in line with previous research among nurses, indicating that work pressure can undermine motivation (Hayhurst et al., 2005). Also in Study 2, weekly work pressure contributed negatively to weekly flourishing (main effect). Taken together, our findings are consistent with LePine et al.'s (2005) framework, indicating that some job demands may act as hindrance demands, whereas other job demands may act as challenge demands. However, our findings challenge LePine et al.'s framework in that they illustrate that the psychological effect of specific job demands may depend on the occupational sector.

This means that more conceptual and empirical work is needed on the categorization of job demands as either challenge demands or hindrance demands. In addition, future research could analyze occupational sector as a moderator. Future studies should also more closely focus on the conditions that turn job demands into challenge or hindrance demands. Our study clearly suggests that for nurses, emotional demands can be challenge demands, whereas work pressure can be a hindrance demand—particularly when personal resources are high. The question is whether this could be the same in other occupations. Beyond healthcare, there are other occupations requiring frequent interactions with others (e.g., salespeople, teachers). What we should find out is whether emotional demands are also considered as challenging by other employees—apart from nurses. The idea of healthcare workers as the only employees who care for other individuals (i.e. patients) would be an incomplete picture, since workers in other occupations also care for their clients, customers, students, or pupils.

It should be noted that two of the four hypothesized interactions were non-significant. First, emotional demands strengthened the relationship between personal resources and work engagement, but not flourishing. Nurses consider emotional demands as challenges that are part of their profession. It makes sense that it increases their positive affect towards their work (i.e. their work engagement), but this effect does not necessarily spill over to other life domains. For that reason, emotional demands would not have an impact on flourishing, which involves contributing to the well-being of others beyond the work setting.

Second, work pressure only acted as a moderator of the relationship between personal resources and well-being when flourishing was the dependent variable, not work engagement. Perhaps people can only flourish if there are no hindrances; hindrances like work pressure are likely to interfere with family life (i.e. time-based interference or strain-based interference; Carlson, Kacmar, & Williams, 2000), making flourishing less likely. To achieve a higher level of flourishing, which goes beyond the working life, we need to eliminate conditions that may hinder work-life balance. However, it should be noted that the non-significant interaction effects may also be due to the limited statistical power, or be a specific finding of the present study. The present ad-hoc explanations should be tested in future research. Our research should be considered as the first step in unraveling the impact of challenge and hindrance demands on well-being. Clearly, more research is needed.

10.1. Limitations

Some limitations of our study should be noticed. First, the study was based on self-reports which may raise questions of common-method bias. However, the research evidence suggests that individuals in diary studies perform minimal cognitive processing before indicating their current state. It is considered unlikely that individuals take time to access memory for beliefs about how various cognitions should covary. They simply report their readily accessible current states accurately as they exist at a certain point in time (Fisher & Noble, 2004; Robinson & Clore, 2002). In addition, multi-level analyses take care of interdependence between measurements, and we controlled for trait work engagement and trait flourishing in the analyses. This means that enduring work engagement was controlled for when testing the impact of weekly personal resources on weekly work engagement; and that enduring flourishing was controlled for when testing the impact of weekly personal resources on weekly flourishing, through weekly work engagement.

Second, in this study we argued that the classification of job demands as challenge or hindrance demands may depend on the occupational sector. Yet, we only studied one specific group of workers, namely nurses. This means that the pattern of findings found in the present study needs to be replicated in another occupational group. For example, it would be interesting to investigate whether in some occupations (e.g., journalists, salespeople) work pressure could act as a challenge, whereas emotional demands act as a hindrance. If this is the case, it should be possible to find a pattern of interactions between demands

and personal resources that is opposite to the pattern reported in the present study. In addition, one could argue that individuals are more likely to derive personal resources from challenge demands as opposed to hindrance demands. This model could further contribute to theoretical thinking about the distinction between challenge and hindrance demands.

Two final limitations concern the cross-sectional design in Study 1 and the low response rate in Study 2. Future studies among nurses and other professions should try to replicate the present findings using a longitudinal or experimental design to establish external validity, and to get a better grip on causality.

10.2. Practical implications and conclusions

Our weekly diary study has shown that substantial variability exists in personal resources, work engagement, and flourishing. The findings reveal that positive self-beliefs foster nurses' weekly work engagement, and can have a positive relationship with flourishing, particularly when emotional demands are high and when work pressure is low. Consequently, the mobilization of weekly personal resources should be a significant component of individual interventions and HR training programs for nurses. This may imply a shift from 'standard' job (re) design and training programs to individual job (re)design and coaching. In such interventions, the work environment is optimized at the *individual* level, and coaching is tailored to individual needs. This can be done by using online human resource instruments (Bakker & Demerouti, 2008) that offer real-time and individualized feedback about one's personal resources and engagement.

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