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Nurses' exhaustion: the role of flow at work between job demands and job resources

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Aim In the light of the job demands–resources model, this study aimed to detect the mediating role of flow at work between job demands and job resources on one side, and exhaustion on the other.

Background In a historical period where it is necessary to reduce the abandonment of nursing profession, flow is a useful tool to investigate the factors that can promote work motivation and prevent psychological distress.

Method A cross-sectional study was conducted in a hospital, and 279 nurses completed a questionnaire. Analyses conducted are descriptive statistics, alphas, correlations and a structural equations model that considers the mediating role of flow at work.

Results Findings show both the central role of job resources in determining flow at work, and the mediating role of flow at work in decreasing exhaustion, starting from job resources, and in decreasing the effect of job demands on exhaustion. Moreover, flow at work directly decreases exhaustion.

Conclusions Results show the relevance of containing job demands and provide job resources to promote positive experiences at work.

Implications for Nursing Management To promote flow at work, organizations should offer specific resources, such as supervisors' support, job autonomy, and psychological support to manage the emotional charge.

Keywords: exhaustion, flow at work, job demands–resources model, nurses

Background

Many countries are dealing with the problem of a growing need for nurses, described as a consequence of the expected demographic changes, the many expected retirements and, in some Southern European countries, the hiring freeze resulting from the economic crisis (van der Heijden *et al.* 2010, Cortese 2013, Heinen *et al.* 2013). From this perspective, it appears important for health organizations to be more appealing for their already employed nurses (Cortese *et al.* 2008) that are difficult to replace.

Studies show that nurses tend to abandon their profession and new potential nurses do not even start this

job. This is often because of its specific nature, being characterized by a high workload and being so emotionally and physically demanding (van der Heijden *et al.* 2010) that coping with it every day is hard. Such shortages of nurses results in a growth of shifts, workload, and time pressure that can give rise to distress, job dissatisfaction, and, finally, a desire to leave the profession, generating a vicious circle that leads both to a reduction of wellbeing at work and to a lower quality of service (Flinkman *et al.* 2013). Moreover, exhausted, unsatisfied and unmotivated nursing staff represents a problem for health organizations in terms of continuous work reorganization owing to shift changes, absenteeism, and turnover (Cortese 2013).

In the light of these dynamics, most of studies in the health-care context have particularly focused on the determinants of emotional exhaustion or job dissatisfaction, in order to remove or reduce such determinants (Bringsén *et al.* 2011). However, it is important not only to reduce the negative elements that characterize the experience of nursing work, but also to assume a positive point of view (Kelloway *et al.* 2008) enabling one to recognize the factors that can enhance the motivational aspects of work.

Organizational psychologists have long been interested in the job-related antecedents of work motivation (Mäkikangas *et al.* 2010) and the positive psychology perspective (Seligman & Csikszentmihalyi 2000) underlined the role of job resources in work motivation processes. In particular, among studies focusing on the promotion of work motivation, the experience of flow is described as the most favourable circumstance for the individual and for organizations, because it can generate both motivation and wellbeing at work (Csikszentmihalyi 1990) and thus reduce the dynamics of distress.

The present study focuses on the dimensions of Flow at Work (FaW) and on exhaustion, within the framework of the Job Demands–Resources (JD-R) model (Bakker & Demerouti 2007).

This model (described in the following paragraphs) has been chosen because it allows to analyse the relationships between job demands, job resources, FaW and exhaustion, highlighting in particular the role of organizational resources in generating FaW and, through FaW, in reducing exhaustion. It has to be noted that some studies on FaW also take place within the JD-R model (Bakker 2005, 2008, Salanova *et al.* 2006, Mäkikangas *et al.* 2010) in health-care organizations (Colombo & Zito 2014).

Exhaustion

Studies on exhaustion describe it as a long-term consequence after strain and exposure to job demands (Demerouti *et al.* 2001) that can influence the investment of energy and the performance behaviour at work (Halbesleben & Bowler 2007). Moreover, exhaustion is linked to the emotional aspects of the work, particularly for health operators that have to provide a professional service to demanding patients and patients' families (Colombo *et al.* 2012), and in coping with the necessity to express emotions not really felt during the work time (Zapf *et al.* 1999).

Traditionally, the issue of exhaustion has been developed within the burnout syndrome framework

(Maslach 1982). In line with studies considering exhaustion as a core dimension of burnout, Demerouti *et al.* (2010) operationalized a different measure of exhaustion through the construction of the Oldenburg Burnout Inventory (OLBI) instrument. This scale detects two main dimensions: exhaustion and disengagement from work. As for exhaustion, the OLBI subscale covers not only affective, but also physical and cognitive aspects of exhaustion. This is a more complete dimension of exhaustion and thus it was used in the present study, which has considered nurses, a profession particularly sensitive to exhaustion and burnout and to specific job demands.

Flow at work, exhaustion and the job demands–resources model

Flow is an inner experience, a state of consciousness produced by the participation in an activity considered enjoyable and in which people are totally immersed. The concept of flow was introduced by Csikszentmihalyi (1975) with the aim of understanding the phenomenon of being totally immersed in an activity, which was not previously studied empirically (Nakamura & Csikszentmihalyi 2002). Csikszentmihalyi (1975) conducted the first studies on flow on recreational activities (e.g. playing music, dancing, sports or arts), or on reflexive activities (e.g. chess), defining flow as an optimal experience.

Csikszentmihalyi (1990) suggests that flow occurs when people perceive a balance between the challenges of a situation and their skills to deal with them; through the recognition of such balance, they positively live the experience, learn new skills and increase their self-esteem. According to Csikszentmihalyi and LeFevre (1989), when an individual perceives that both the challenges and the skills are high, the quality of the experience will be highly positive.

As for the measurement of flow, Csikszentmihalyi (1990) recommended the use of the Experience Sampling Method (ESM) through specific beepers that, during the day, randomly reminded respondents to report feelings and experiences, and later self-completion scales were developed (Jackson *et al.* 2008).

Studies developing the concept of flow (Csikszentmihalyi & LeFevre 1989, Haworth & Hill 1992) found that people experience flow more during work than in their leisure time. Bakker (2008) operationalized the construct and a measure of FaW, describing it as a short-term peak experience characterized by: absorption, which refers to a total immersion in work, in which time flies and people do not

realize what is happening around them; work enjoyment, which reflects the feeling of happiness experienced by people during their work; and intrinsic work motivation, which refers to the desire of performing an activity with the intent to experience pleasure and satisfaction (Bakker 2008).

Studies on FaW among different working categories found that the available resources in the work context foster the dynamics of flow. In particular, a study by Salanova *et al.* (2006), conducted on a sample of schoolteachers, suggests that there is a mutual influence between resources and the experience of FaW. The influence of resources that activate FaW is seen in the light of a virtuous circle, as FaW can start personal and the professional growth and influence the area of positive emotions, considered as resources (Fredrickson 2002). This is consistent with the Conservation of resources theory (Hobfoll 2002), suggesting that people seek to obtain and protect resources against distress occurring when resources are lost or highly invested.

In line with this, a study by Demerouti *et al.* (2012) conducted with daily questionnaires on different categories of workers (sectors: education, health, welfare, governmental, business, financial and tourism) indicates that FaW is positively related to vigour and negatively related to exhaustion, suggesting that it helps the building of personal resources. Moreover, this study suggests that FaW may support the resilience and the recovery process, protecting people from stressful events.

Another study by Bakker (2005) conducted among music teachers suggested that job resources foster the balance between the high challenges that workers have to face and their skills, generating FaW experiences. These results support the flow theory and the relevant role of resources in the flow experience: according to the JD-R model (Bakker & Demerouti 2007), FaW arises when the job demands match the sum of the employees' professional skills and the available organizational resources, and this balance lies on both high levels of challenge and skills (Bakker 2008).

The JD-R model can be applied to any type of job because all jobs are characterized by both risk and protecting factors that can have a role on motivation and on the quality of working life. The two factors are categorized into resources and demands. Job resources are 'those physical, psychological, social, or organizational aspects of the job that are either/or: functional in achieving work goals, reduce job demands and the associated physiological and psychological costs, stimulate personal growth, learning, and

development' (Bakker & Demerouti 2007). Job demands are defined as 'those physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs' (Bakker & Demerouti 2007).

A few studies on FaW based on the JD-R model have investigated the role of organizational resources, which emerged as the main antecedent of the FaW (Demerouti *et al.* 2012, Llorens *et al.* 2012). They considered both the motivational potential of organizational resources, and their capability in fostering the achievement of results, in buffering the effect of job demands, and in stimulating individual growth and development. These studies suggest that the organizational resources that can better predict FaW are: clarity of work tasks and goals, job autonomy and control over the work, supervisors' and colleagues' support, and the possibility to develop and to use skills, coaching and feedback from supervisors.

Hypothesis 1a: job resources have a positive relation with FaW.

The relation is different for exhaustion: previous studies on different samples found that exhaustion and burnout were always negatively correlated with job resources (Demerouti *et al.* 2001).

Hypothesis 1b: job resources have a negative relation with exhaustion.

Referring to job demands, and according to the definition proposed by Bakker and Demerouti (2007), studies show that they could negatively influence FaW (Csikszentmihalyi 1990, Bakker 2008). The present study considered two specific demands linked to emotional experiences (emotional dissonance and patients' demands) that characterize the nursing profession and that could affect the positive experience at work (Sundin *et al.* 2008, Zito *et al.* 2013).

Hypothesis 2a: job demands have a negative relation with FaW.

Demands can also have an impact on the experience of exhaustion (Demerouti *et al.* 2001), therefore detecting their role among nurses is crucial as they have to provide a professional service to users, but also have to manage the emotional experience in the relationship with patients and their families. The relational dimension is a core part of nurses' job (Colombo *et al.* 2012) and it is important to also consider this side of the health professions.

Hypothesis 2b: job demands have a positive relation with exhaustion.

Referring to the relationship between job resources and FaW, and between job demands and FaW, it is expected that the impact of job resources is stronger than the impact of job demands (cf. Bakker 2008).

Hypothesis 3: the relation between job resources and FaW is greater than the relation between job demands and FaW.

Moreover, although few studies have addressed the relationship between exhaustion and FaW, a recent study (Demerouti *et al.* 2012) found that if the positive experience at work is high, the perception of exhaustion will be lower, underlining the potential role of FaW in decreasing the experience of distress at work.

Hypothesis 4: FaW has a negative relation with exhaustion.

On the basis of the knowledge on the JD-R model, on exhaustion (Demerouti *et al.* 2001), and on FaW, it could be useful to understand the role of FaW in the relationship between job resources, job demands and the experience of exhaustion. In particular, exhaustion could be decreased by the virtuous circle activated by the interaction between resources and FaW (Salanova *et al.* 2006).

Hypothesis 5a: job resources decrease exhaustion through FaW.

Hypothesis 5b: the impact of job demands on exhaustion is reduced by the mediation of FaW.

Aim

Referring to the formulated hypotheses, the aim of this study was to verify the mediating role of FaW between job resources, job demands and exhaustion. For this purpose, this study investigated: the direct effects of job resources and of job demands on FaW, the direct and the indirect effects (through the mediation of FaW) of job resources and of job demands on exhaustion, and the direct effect of FaW on exhaustion. Figure 1 shows the theoretical model and expected relations.

Regarding the specific research context, and on the basis of the literature, the considered job demands are patients' demands and emotional dissonance. As for job resource, the present study considered supervisors' support and job autonomy.

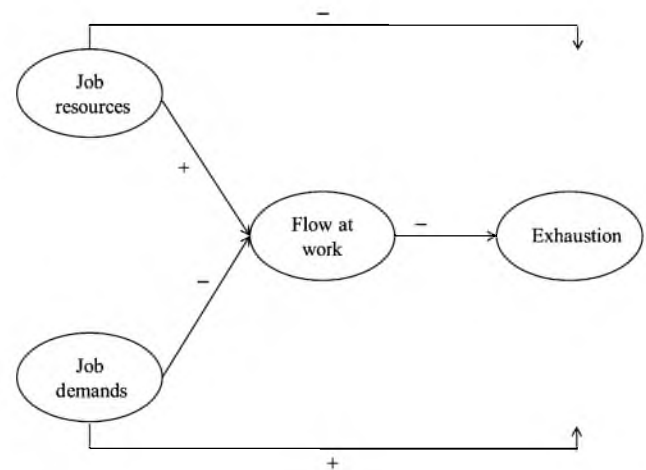


Figure 1
Theoretical model.

Methods

Participants and procedure

Data were collected through a self-report questionnaire administered to the 510 nurses employed in a hospital in Northern Italy. A total of 321 nurses participated in the survey and the overall response rate was 62.9%. After data cleaning, which excluded 42 incomplete questionnaires, the final sample comprised 279 respondents, covering the 54.7% of nurses involved in the research.

The hospital board of directors' permission was obtained for the research. When distributing the questionnaires, the researchers asked participants to sign informed consent. To ensure anonymity, respondents returned their completed questionnaires in drop boxes. A cover letter attached to the questionnaire reminded them of the anonymity procedure, the voluntary nature of participation in the study and gave instructions on how to complete the questionnaire.

Of the 279 respondents, 72.0% were women, the average age was 42 years (SD 8.56) and the majority of respondents worked full time (81.0%). Moreover, participants in the research had an average seniority of 15 years (SD 9.63) and worked about 36 hours per week (SD 6.07) (Table 1).

Measures

Variables considered in the study are listed below. It is essential to emphasize that the job resources and the job demands were chosen considering their relation with FaW and the specific context investigated.

Table 1
Participants' demographics

<i>Categorical variables</i>	<i>n</i>	<i>%</i>
Gender		
Male	78	28.0
Female	201	72.0
Work contract		
Full time	226	81.0
Part time	53	19.0
<i>Continuous variables</i>	<i>Mean</i>	<i>SD</i>
Age	42	8.56
Seniority in the organization (in years)	15	9.63
Weekly working hours	36	6.07

Within job resources, supervisors' support and job autonomy are considered by previous studies as variables that can predict FaW (cf. Bakker 2008). Within the job demands, emotional dissonance and patients' demands were chosen considering the physical and the emotional demanding aspects of the nursing profession (Sundin *et al.* 2008, Zito *et al.* 2013).

Exhaustion was assessed by a eight-item Likert subscale of the OLBI (Demerouti *et al.* 2010). The subscale ranges from (1) 'strongly disagree' to (4) 'strongly agree' (alpha in the original study = .74; alpha in the present study = .76).

FaW was assessed by a 13-item Likert scale by Bakker (2008), Italian adaptation by Colombo *et al.* (2013), ranging from (1) 'never' to (7) 'always' (alpha in the original study ranged, on average, from 0.75 to 0.90; alpha in the present study = 0.91).

Supervisors' support was assessed by a four-item Likert scale by Caplan *et al.* (1975), ranging from (1) 'not at all' to (6) 'completely' (original study $\alpha = 0.95$; present study $\alpha = 0.87$).

Job autonomy was assessed by a three-item Likert scale by Bakker *et al.* (2004), ranging from (1) 'never' to (5) 'always' (original study $\alpha = 0.68$; present study $\alpha = 0.73$).

Patients' demands were assessed by an 11-item Likert subscale of the CSS (Dormann & Zapf 2004). The disproportionate customer expectations subscale was considered and then it was adapted for the health-care context. The scale ranges from (1) 'disagree' to (6) 'agree' (original study $\alpha = 0.85$; present study $\alpha = .92$).

Emotional dissonance was assessed by a four-item Likert scale by Zapf *et al.* (1999), ranging from (1) 'never' to (6) 'always' (original study $\alpha = 0.85$; present study $\alpha = 0.89$).

Finally, demographic characteristics were included.

Data analyses

Data analyses were performed with SPSS 20 for: descriptive statistics, alpha reliabilities (α) for each scale, and correlations (Pearson's r) between variables.

Moreover, data analyses made use of MPLUS 7 (Muthén & Muthén 1998-2012) to estimate a structural equation model to test the mediating role of FaW between job demands, job resources, and exhaustion; hypotheses were specified a priori leading to the choice of a partial mediation model (James *et al.* 2006).

Goodness of fit for the model was evaluated using the chi-square value (χ^2), 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).

For the construction of the latent variables 'Job resources', 'Job demands', 'FaW' and 'Exhaustion', a parcelling method was used: the indicators of these latent variables are parcels (aggregate-level indicators comprised an average of two or more items) for each latent variable. All parcels present significant loadings ($P < 0.00$) in the structural equation model. From a methodological standpoint, the sample size ($N = 279$) is adequate for the analysis performed in the present study (structural equation model), according to the methodological advice requiring a minimum sample size of 100 or 200 (Boomsma 1985) and assuming that samples not too large return accurate estimations (Boomsma 1987).

Results

From a psychometric standpoint, all the scales assessed present good reliabilities with satisfactory Cronbach's alphas ranging from 0.73 to 0.92. The average score of FaW is 4.01 (SD = 1.11), at the central point of the scale, whereas the average score of exhaustion is 2.59 (SD = 0.52), just over the central point of the scale.

For correlations (Table 2), FaW presents a high negative relation with exhaustion and higher relations with job resources than with job demands.

In contrast, exhaustion shows higher significant relations with job demands than with job resources.

The estimated model (Figure 2) presents very good fit indices: $\chi^2(21) = 44.185$, $P < 0.002$, CFI = 0.97, TLI = 0.94, RMSEA = 0.06, SRMR = 0.04. This permits confirmation of the goodness of the model fit. Moreover, the CFI and the TLI indices, considered less dependent on sample size, each exceeded 0.90

Table 2
Means, standard deviations, Cronbach's alpha and correlations (Pearson's *r*)

	Mean	SD	1	2	3	4	5	6
1. FaW	4.01	1.11	(0.91)					
2. Exhaustion	2.59	0.52	-0.54**	(0.76)				
Job resources								
3. Supervisors' support	3.88	1.34	0.26**	-0.19**	(0.87)			
4. Job autonomy	3.50	0.87	0.38**	-0.27**	0.37**	(0.73)		
Job demands								
5. Emotional dissonance	3.50	1.26	-0.27**	0.41**	-0.19**	-0.17**	(0.89)	
6. Patients' demands	4.33	1.05	-0.19**	0.25**	-0.22**	-0.11	0.37**	(0.92)

FaW, Flow at Work.

***P* < 0.01. Cronbach's alpha-values are on the diagonal (in brackets).

(with CFI exceeding 0.95), indicating a good fit between the model and the data set (Hoyle 1995).

The explained variance of the dependent variables was 42% for FaW and 68% for exhaustion. The estimated indirect effects are shown in Table 3.

More specifically, in the latent variable 'job resources', job autonomy presents the highest loading, but supervisors' support also has a good loading. Job resources have a positive impact on FaW, thus increasing it. The direct impact of job resources on exhaustion (which shows good parcelled-item loadings) is not significant.

For 'job demands', the higher parcel loading is for emotional dissonance and the lower loading (but still good) is for patients' demands. Job demands have a significant negative impact on FaW, which decreases it. Moreover, job demands have a direct effect in increasing exhaustion.

Comparing the impacts of job resources and of job demands on FaW, it is important to underline the higher impact of job resources and their role as strong antecedents of FaW.

Table 3
Indirect effects

Indirect effects	Standardized indirect effects		
	Estimate	SE	<i>P</i>
Job resources			
→ FaW	-0.34	0.08	0.00
→ Exhaustion			
Job demands			
→ FaW	0.19	0.06	0.00
→ Exhaustion			

FaW, Flow at Work.

Examining the estimated model (Figure 2), the FaW variable shows good parcelled-item loadings and, in particular, the relevant role of 'work enjoyment' (but also of 'intrinsic work motivation') in defining this latent variable. FaW can strongly decrease exhaustion.

For the indirect effects, job resources decrease exhaustion through FaW and the impact of job demands on exhaustion is reduced by FaW, also confirming the mediating role of FaW.

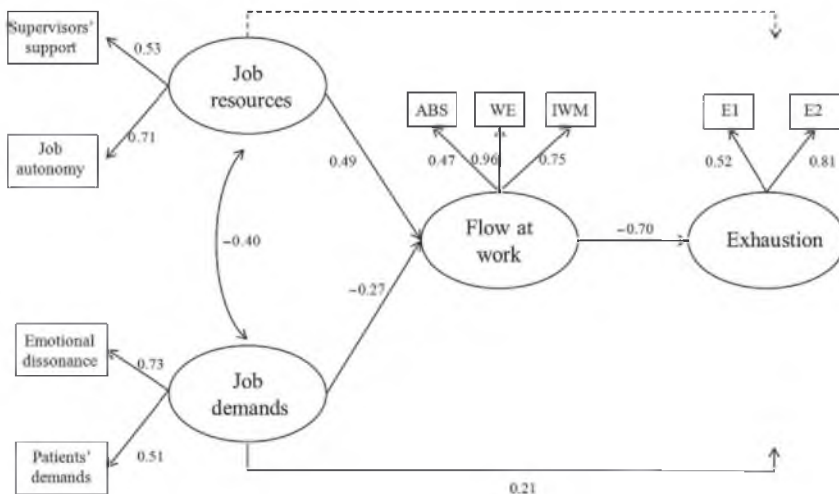


Figure 2
Mediation of Flow at Work (FaW) between job demands and job resources and exhaustion. ABS, absorption; WE, work enjoyment; IWM, intrinsic work motivation; E1, parcel 1 of the latent variable exhaustion; E2, parcel 2 of the latent variable exhaustion.

In order to control the relationships between variables and to test the mediating role of FaW on the basis of the existing literature that states the negative relationship between job resources and exhaustion, and the positive relationship between job demands and exhaustion (Demerouti *et al.* 2001), an additional structural equation model, without the mediation of FaW, was estimated (Figure 3). This model has only considered the impact of job resources and of job demands on exhaustion. The estimated additional model (explained variance = 48%) presents the following fit indices: $\chi^2(6) = 20.087$, $P < 0.003$, CFI = 0.94, TLI = 0.84, RMSEA = 0.09, SRMR = 0.04. Data fitted quite well, except for the TLI (lower than 0.90) and for the RMSEA (exceeding the limiting .08 value) indices (Barbaranelli & Ingolia 2013). In line with the JD-R model, results show that job resources have a significant effect in decreasing exhaustion, whereas job demands strongly increase exhaustion.

Comparing the results of the two structural equation models (Table 4), it is evident that the model with the mediation of FaW is better than the one without, thus highlighting the potential role of FaW in decreasing exhaustion.

Discussion

The aim of this study was to understand to what extent job resources and job demands influence FaW in the nursing profession, and, consequently, if and to what extent FaW can reduce nurses' exhaustion.

The present study shows some results that are in line with the existing literature on FaW. The correlations found were consistent with other studies showing that FaW is positively related to job resources (Bakker 2008) and negatively related to the job

demands considered in this study (Csikszentmihalyi 1990, Bakker 2008). These results reinforce the assumption that job resources could predict FaW (Salanova *et al.* 2006, Bakker 2008) and that demands, such as emotional dissonance or managing the relationships with patients, may negatively influence two components of FaW, in particular intrinsic work motivation and work enjoyment (Bakker 2008). The negative correlations between job resources and exhaustion, and the positive correlations between job demands and exhaustion are in line with the literature, suggesting that job demands are responsible in favouring distress at work, whereas job resources can buffer this negative experience (Demerouti *et al.* 2001). The negative (and high) correlation between FaW and exhaustion represents the first evidence showing that FaW has the potential role to decrease the negative experiences at work (Demerouti *et al.* 2012). These results are supported by the estimated structural equation model (Figure 2): findings highlight that job resources have a positive relation with FaW, increasing it, confirming Hypothesis 1a. Again, this is in line with the literature on the JD-R model suggesting that job resources (particularly organizational supports and job autonomy) are important antecedents of FaW and is consistent with a recent study by Demerouti *et al.* (2012), suggesting that available job resources increase optimal experience at work.

Moreover, job resources do not have any direct effect on exhaustion, but they have a quite strong indirect effect in decreasing exhaustion through FaW. Therefore, Hypothesis 1b is not confirmed, whereas Hypothesis 5a is, and so is the mediating role of FaW. These findings are a central point of attention because job resources are considered crucial to protect employ-

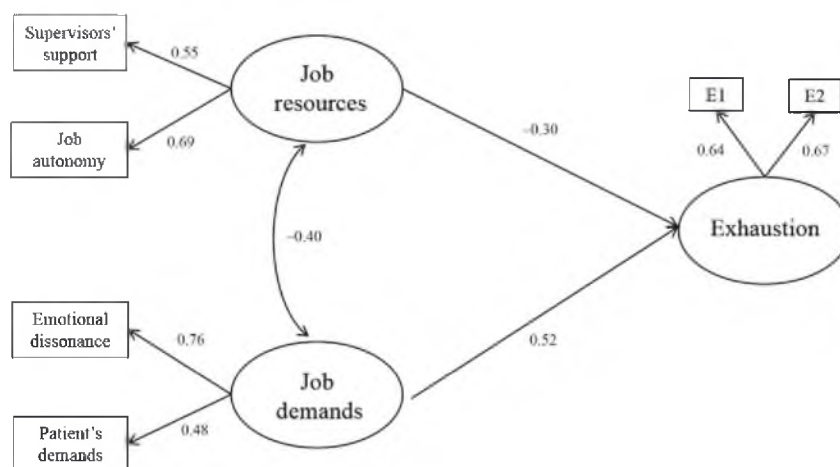


Figure 3
Additional model without the mediation of Flow at Work (FaW) between job demands and job resources and exhaustion. ABS, absorption; WE, work enjoyment; IWM, intrinsic work motivation; E1, parcel 1 of the latent variable exhaustion; E2, parcel 2 of the latent variable exhaustion.

Table 4
Model comparison

<i>Model</i>	χ^2	<i>df</i>	<i>P</i>	<i>RMSEA</i>	<i>CFI</i>	<i>TLI</i>	<i>SRMR</i>
1. Job resources, job demands, FaW, exhaustion	44.185	21	0.002	0.06	0.97	0.94	0.04
2. Job resources, job demands, exhaustion	20.087	6	0.003	0.09	0.94	0.84	0.04

FaW, Flow at Work; RMSEA, root mean square error of approximation; CFI, comparative fit index; TLI, Tucker–Lewis index; SRMR, standardized root mean square residual.

ees' health (Demerouti *et al.* 2001), and in this study resources first act directly on FaW (as principal antecedents) which, in turn, 'helps' job resources in decreasing exhaustion. Thus, these results highlight the relevance of the presence of FaW in well-being dynamics.

The model shows that job demands decrease FaW, confirming Hypothesis 2a. Considering the specific job demands, this negative relation is in line with studies on FaW indicating that working closely to customers/users that are emotionally demanding results in a lower perception of FaW. Moreover, emotional demands and a prolonged exposure to them affect the perception of flow and, in particular, of work enjoyment (Csikszentmihalyi 1997) that, in this study, particularly characterized the construct of FaW with a high parcelled-item loading.

Regarding the relationship between job demands and exhaustion, the structural equation model shows that job demands directly increase exhaustion, in line with literature on the JD-R model and on burnout (Demerouti *et al.* 2001). It should be noted that job demands have a weak indirect effect in increasing exhaustion through FaW that buffers it, highlighting how FaW can foster positive experiences at work (Bakker 2008, Demerouti *et al.* 2012). Moreover, even if in the estimated model job demands still have an increasing effect on exhaustion despite the presence of FaW, their effects are lower thanks to FaW, which mitigates their impact on exhaustion. In this case, both Hypothesis 2b and Hypothesis 5b are confirmed.

In this study an a priori partial mediation model was expected: job resources seem to be completely 'absorbed' by FaW, and job demands have a direct effect on exhaustion and a significant indirect effect on exhaustion through FaW. Thus, it is possible to confirm the presence of a partial mediation (James *et al.* 2006). The mediating role of FaW is also confirmed by comparing the fit indices of the partial mediation model and of the model without mediation: the model including FaW shows more adequate fit indices than the model without FaW.

After these considerations, it is clearer that the hypothesized difference in impacts of job resources and of job demands on FaW (Hypothesis 3) was supposed because of the literature describing job resources as a strong antecedent of FaW, which this study has confirmed.

Finally, FaW strongly decreases exhaustion, indicating its potential in reducing experiences of distress at work, confirming *Hp4*. This is consistent with studies on flow suggesting that the optimal experience at work leads to a lower perception of exhaustion (Demerouti *et al.* 2012).

Limitations and future research

The limitations of this study are the use of a small sample and the involvement of a unique organizational context that does not allow generalization of the results. Moreover, the present study used a self-report questionnaire and a cross-sectional research design that does not permit the establishment of definitive relations of causality between variables.

In the future, diary and longitudinal studies may aid a deeper understanding of the effect of flow on exhaustion, considering their different temporal characteristics (as FaW is defined as a short-term peak experience whereas exhaustion is defined as a long-term consequence); in addition, Demerouti *et al.* (2012) suggest the idea of the adaptive flexibility of FaW, underlining the importance of analysing the temporal trend of flow. In addition, longitudinal studies could permit observation of the fluctuations of the positive experience and the extension of the research to other work environments; this could be useful to observe FaW in different contexts and types of work, and among different categories of workers.

Moreover, according to the current situation of scarcity of nurses and the need to attract staff in order to ensure a good quality of the service and permit employed staff to be supported in their job (Cortese *et al.* 2008, Flinkman *et al.* 2013), future studies could consider the role of other types of job resources

related to the care of patients. For example, it could also be useful to examine the presence of a sufficient number of nurses in the staff or the opportunity of working with appropriate equipment, detecting their effects on the job demands–resources balance and on the FaW experience.

In addition, as FaW is considered to be linked to energy (Demerouti *et al.* 2012) future studies could also consider the role of recovery of energy to understand its relationship with flow in preventing psychological and physical discomfort.

Finally, future studies could include the opportunity for professional growth in an organization because this variable can activate flow experiences (Bakker 2008).

Considering that FaW can develop new skills and thus a sense of mastery, future research should also consider personal resources (e.g. self-efficacy, coping, optimism, etc.) that can increase flow and buffer the job demands effect. In the specific area of nursing a study by Garrosa *et al.* (2011) suggests that personal resources, particularly optimism, are linked to a lower level of exhaustion.

Conclusions

This study represents a first and preliminary investigation to understand the dynamics leading to the optimal experience at work, which decrease the perception of exhaustion that can involve all health-care contexts and nurses.

The findings highlight that it is important to promote and support job resources among nurses because they can buffer the effect of job demands, protecting employees from distress (Demerouti *et al.* 2001). This is particularly relevant in health-care contexts as not only demands, particularly those specific to nurses such as workload and emotional dissonance, but also the management of emotional experiences related to relationships with patients and their families (Colombo *et al.* 2012) can lead to experiences of exhaustion.

Referring to findings of the present study and to literature on health-care contexts, and on FaW, it is worthwhile considering the individual motivational aspects in organization: the two dimensions of work enjoyment and of intrinsic work motivation are those that show higher loading on FaW (Bakker 2008).

Health-care managements and those who specifically manage human resources may find it helpful to understand and foster the dynamics that lead to positive experiences at work.

In line with these considerations, recent studies on positive psychology have developed interest in motivational processes at work (Fullgar & Kelloway 2013). Referring to this issue, it is thus useful to analyse the flow experience, which can have a positive impact on wellbeing, but also on work performance (Demerouti 2006), through the achievement of a balance between challenges and skills that makes individuals aware of their goals and of their possibilities to achieve them. Aware workers can improve their performance, thus becoming a great resource for organizations in terms of productivity.

Implications for nursing management

Promoting FaW within nurses is important to improve the organizational resources (Demerouti *et al.* 2012) that could lead to motivation because they can contribute to give meaning to work, make employees responsible for work processes and the achieved goals, and provide information on effective results (Mäkikangas *et al.* 2010). In addition, resources can buffer the negative impact of job demands on nurses' wellbeing. This study has highlighted how the feeling of being supported by supervisors and having job autonomy is crucial to activate FaW, and to contrast the specific demands of this profession. Nurses that have to cope with patients' demands and be exposed to emotional charges, and particularly to emotional dissonance, are at risk of exhaustion.

In order to help nurses to manage the physiological emotional charge emerging from the relationship with patients, support from trained superiors is important, but the organization should also offer employees focused psychological support through, for example, psychological services and team supervision meetings. Moreover, it is important to take into consideration that having autonomy in job activities can help nurses in managing workload, allowing them to become aware of their working priorities, tasks and goals. This can lead to professional growth, which is functional both to work motivation and wellbeing experiences, and to the organization in terms of quality of the provided service.

Finally, it is necessary to guarantee job resources that can activate FaW. Keeping high levels of FaW is important for nurses' wellbeing and for the health-care organization, particularly in this historical period of nurses' shortage and difficulties in recruiting new ones. Thus, offering job resources that can buffer job demands (in particular the problem to face workload

and the consequent exhaustion) is a way to contrast the abandonment of the profession and to create more positive and performing organizational environments.

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Ethical approval

This study was approved by the hospital board of directors which gave permission to conduct the research.

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