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# Work–family conflict and psychophysical health conditions of nurses: Gender differences and moderating variables

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## Abstract

**Aim:** This study aims to investigate the associations of perceived work–family conflict with nurses' psychophysical health conditions, exploring gender differences and analyzing the potential moderating effects of perceived job control (skill discretion and decision authority), social support, and job satisfaction.

**Methods:** The study was carried out in five hospitals of the Italian Public Health Service. Participants were 450 nurses (206 men, 244 women). Self-administered questionnaires were used to collect data. Descriptive statistics and hierarchical regression analyses were conducted.

**Results:** Female nurses perceived significantly higher levels of work–family conflict, anxiety, depression and somatization. Significant gender differences emerged in the associations between work–family conflict and nurses' psychological health conditions and in moderating variables. Work–family conflict was significantly associated with anxiety and depression in male nurses and with somatization in both genders. The associations of work–family conflict with nurses' psychophysical health conditions were moderated by decision authority and job satisfaction, in male nurses, and by social support, in female nurses.

**Conclusions:** Findings suggest including gender-specific moderating variables for defining tailored policies and interventions within healthcare organizations to reduce perceived work–family conflict and to promote nurses' wellbeing.

## KEYWORDS

gender differences, job resources, job satisfaction, occupational health psychology, work–family conflict

## 1 | INTRODUCTION

Occupational health research has widely demonstrated that nursing is a high-demanding profession, which exposes nurses to high risk of work-related stress, so influencing their perceived wellbeing and psychophysical health conditions (Enns, Currie, & Wang, 2015). In particular, research underlined that nursing professionals are constantly exposed to a wide range of sources of stress such as work overload, time pressure on the job, caring for suffering and

dying patients, and handling the issues related to the lack of clarity in the definition of their roles and work schedules (Glazer & Gyurak, 2008; Ohue, Moriyama, & Nakaya, 2011); and these stressors are laid within a healthcare system expecting a high standard of excellence although there is inefficient allocation of resources, with an under-supply of nurses (Organization for Economic Co-operation and Development [OECD], 2011).

Nonetheless, further sources of stress may contribute to nurses' perceptions of being under pressure, and, in

particular, work–family conflict (WFC) emerged as one of the core factors influencing nurses' wellbeing (Berkman et al., 2015; Franche et al., 2006), thus having a negative impact on the whole healthcare organization, increasing the issue of shortage (e.g., absenteeism, turnover) and impairing nurses' performances and productivity in terms of the quality of patient care provided (Varma, Kelling, & Goswami, 2016).

Therefore, because facing the work-family issue and its impact among nurses represents a key challenge for healthcare organizations, the first aim of the present study was to focus on the influence of WFC on nurses' psychophysical health conditions.

Second, considering the interest in effectively promoting work-family balance and wellbeing among nurses, the second aim of this study was to identify factors that may intervene in this association, overwhelming the negative effects of WFC on nurses' health conditions. In particular, basing on the most recent and updated approaches in occupational health research, i.e., the job demands-resources model (JDR Model; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), the demands-resources and individual effects model (DRIVE model; Mark & Smith, 2008), and the work-family spillover perspective (Greenhaus & Powell, 2006), we aimed to explore the moderating role of job control and social support, alongside job satisfaction.

Finally, the study aimed to analyze in detail the role of gender, exploring our research questions by focusing on male and female nurses, rather than by treating gender as a potential confounder. In fact, considering research on WFC among the nursing population, a sizable portion of studies is exclusively targeted on female nurses, while the male nurse population is still overall under-researched (Gorgievski, Van der Heijden, & Bakker, 2018), so reducing the possibility to understand the generalizability of research results.

## 2 | LITERATURE REVIEW

### 2.1 | WFC and nurses' health

WFC is defined as the potential inter-role conflict in which perceived demands, strain, and time devoted to work are experienced as interfering with fulfilling family-related responsibilities, significantly influencing a worker's wellbeing (Netemeyer, Boles, & McMurrin, 1996).

However, the issue of a conflictual interface between work and family life should be considered particularly relevant in the nursing profession, due to the extremely weak boundaries between work and private domains. Nurses, indeed, may report additional difficulties in the

organization of their personal lives according to the shift system, with time to dedicate to the private domain as influenced by the work schedule (Grzywacz, Frone, Brewer, & Kovner, 2006). This is particularly true for those performing night shifts, for which the essential time for recovery could be not achievable because of personal obligations, so increasing the risk of reporting disorders (Diniz, Silva-Costa, Griep, & Rotenberg, 2012).

Moreover, nurses are constantly forefront exposed to the chronic efforts derived by handling the overlapping of caring roles and responsibilities, considering the interpersonal skills and competencies required in nursing (e.g., coordination with all the hospital staff; physical and emotional care of patients; emotionally charged interactions with patients' relatives) as at home (e.g., caring for family members; house care).

Therefore, considering that WFC can be identified as one of the main factors influencing nurses' psychophysical health conditions (Berkman et al., 2015; Franche et al., 2006), we targeted this key issue in the present study.

### 2.2 | Job demands and job resources in the JDR and DRIVE models

In the last decades, a pivotal turning point in occupational health research has led to a widespread transactional and more comprehensive approach for the investigation of the work-related stress process. JDR (Demerouti et al., 2001) and DRIVE (Mark & Smith, 2008) are representative of this new research direction. In particular, both the JDR and the DRIVE models sort different psychosocial factors into the broader categories of job demands (i.e., aspects of a job that require effort) and job resources (i.e., factors considered functional to reduce the psychophysical costs of the work), defined as able to primarily influence occupational wellbeing or, conversely, the discomfort experienced by the workers. These categories have been conceptualized as flexible sets, in order to allow the inclusion of different demands and resources, according to the specificities of the job considered.

Therefore, according to previous research (Bakker, Demerouti, & Euwema, 2005; Jourdain & Chênevert, 2010) and taking into account the nursing literature, we suggest that also WFC could be considered as a job demand directly influencing nurses' health conditions. Moreover, in line with the emphasis given by the JDR and the DRIVE models to the role of work resources, that are conceptualized as able to successfully mitigate the negative effects of perceived job demands, we investigated the moderating role of two key resources addressed

by these models: job control (i.e., the perceived degree of autonomy and control over one's own work), and social support (i.e., perceived quality of the relationships in the work context, in terms of supportive and constructive interactions with colleagues and superiors). These resources, indeed, have been demonstrated not only as able to mitigate the negative effects of job demands, but also to moderate the associations between perceived WFC and workers' psychophysical health conditions (Almeida et al., 2016; Billing et al., 2014; Karatepe & Kilic, 2015; O'Driscoll, Brough, & Kalliath, 2004).

Furthermore, this choice has been also supported by considering the crucial role of job control (Ding et al., 2018; Enns et al., 2015) and social support (Cortese, Colombo, & Ghislieri, 2010; Lembrechts, Dekocker, Zanoni, & Pulignano, 2015) not only in reducing perceived WFC and psychophysical disease, but also in moderating the associations between perceived job demands and psychological health conditions among nursing professionals (Mark & Smith, 2012; Zurlo, Vallone, & Smith, 2018). Consequently, we hypothesized that they may serve as buffers of the negative effects of WFC on nurses' health conditions.

### 2.3 | Job satisfaction and the work-family spillover perspective

Research underlined as perceived job satisfaction should be addressed as a significant resource among workers, influencing both WFC (Britt & Dawson, 2005) and psychophysical health (Faragher, Cass, & Cooper, 2005).

According to the spillover perspective, indeed, the feelings and the experiences in one domain (work or family) may have a positive (enrichment) or negative (conflict) impact on the other domain (Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005; Greenhaus & Powell, 2006). Therefore, positive attitude and feeling of fulfillment toward one's own work role may provide additional energy and willingness to deal with both work and family responsibilities, promoting work-family balance and workers' wellbeing (Munn & Greer, 2015).

As regards nursing professionals, research widely underlined job satisfaction as playing a key role in decreasing the turnover rate, in promoting the quality of care provided (Lu, Zhao, & While, 2019), and in significantly influencing nurses' perceived WFC and psychophysical health (AlAzzam, AbuAlRub, & Nazzal, 2017; A. Cohen & Liani, 2009; Khamisa, Oldenburg, Peltzer, & Ilic, 2015). Consequently, we hypothesized it may also serve as a further buffer of the relationship between WFC and psychophysical health conditions among nurses.

## 2.4 | Gender differences

The DRIVE model (Mark & Smith, 2008) is characterized by the particular emphasis given to the role of workers' individual characteristics in the work-related stress process (Capasso, Zurlo, & Smith, 2018).

Among them, gender should deserve particular attention, because life and work experiences, as well as perceived needs and priorities, may vary between women and men, so potentially requiring specific and different strategies to achieve their wellbeing.

Considering the nursing profession, the majority of the workforce still consists mainly of women both in Italy (77% female nurses and 23% male nurses; Comitato Unitario Permanente degli Ordini e Collegi Professionali, 2018) and worldwide (African region: 65% female nurses and 35% male nurses; the Americas: 86% female nurses and 14% male nurses; Eastern Mediterranean region: 79% female nurses and 21% male nurses; European region: 84% female nurses and 16% male nurses; South-East Asia region: 79% female nurses and 21% male nurses; western Pacific region: 81% female nurses and 19% male nurses; Boniol et al., 2019).

Accordingly, despite all over the world the presence of male registered nurses is rapidly increasing (Landivar, 2013), the majority of studies have focused on female nurses (e.g., Cohen & Liani, 2009; Franche et al., 2006), or, whenever male nurses were included in the samples, their enrolment was often limited (e.g., Berkman et al., 2015), or exclusive (Gorgievski et al., 2018).

Nonetheless, referring to studies that explored gender differences in occupational health processes by enrolling different working populations, the higher incidence of psychophysical disease among women workers is well-established (Wege, Li, & Siegrist, 2018).

Conversely, despite research increasingly considering the issue of work-family interferences as relevant in both genders (Munn & Greer, 2015; Watai, Nishikido, & Murashima, 2008), there is still no clear consensus on whether perceived levels of WFC and its effects on workers' psychophysical health may vary between male and female workers (Leineweber, Baltzer, Magnusson Hanson, & Westerlund, 2012; Magnusson Hanson, Leineweber, Chungkham, & Westerlund, 2014; Munn & Greer, 2015; Wang, Patten, Currie, Sareen, & Schmitz, 2012), as well as on whether there would be gender differences both in perceived availability and in effectiveness of variables we considered as able to mitigate the negative effects of WFC, i.e., job control, social support, and job satisfaction (Almeida et al., 2016; Bellman, Forster, Still, & Cooper, 2003; Billing et al., 2014; Drummond et al., 2017; Fandiño-Losada, Forsell, & Lundberg, 2013; Grandey, Cordeiro, & Crouter, 2005; Lembrechts et al., 2015; Li, Yang, & Cho, 2006; Van Daalen, Willemsen, & Sanders, 2006).

Accordingly, we proposed a broader approach which addresses gender differences using a sample that adequately represented male nurses in the workforce.

### 3 | AIMS OF THE STUDY

The study aimed to investigate the associations between perceived WFC and psychophysical health conditions (anxiety, depression, somatization) among nurses, exploring gender differences and testing the potential moderating role of job control (skill discretion, decision authority), social support, alongside job satisfaction. In particular, taking into account research reported above and given the conflicting and mixed evidence on gender differences, we do not offer formal hypotheses, while the following research questions have been proposed and originally tested among male and female nurses.

**Research Question 1.** Are there gender differences in perceived levels of WFC, in the perception of job control (skill discretion, decision authority), social support, and job satisfaction as well as in perceived levels of anxiety, depression and somatization among nurses?

**Research Question 2.** Are there gender differences in the associations of WFC with anxiety, depression and somatization among nurses?

**Research Question 3.** Do job control (skill discretion, decision authority), social support, and job satisfaction serve as significant moderators of the relationship between WFC and psychophysical health conditions across genders?

It was hoped that addressing these research questions might contribute to foster a more realistic and effective approach to the issue of work–family interface, and therefore, to develop more tailored and acquainted work–family policies, programs and interventions for nurses' health promotion which account for gender-related needs, risks and resources.

## 4 | METHODS

### 4.1 | Participants and procedure

The present cross-sectional study was carried out with a sample of 450 nurses recruited from five hospitals in the Italian Public Health Service. The sample was drawn by means of a combined convenient and stratified sampling method. A list of all the public hospitals of the Italian Public Health Service was obtained. The sample was conveniently obtained from hospitals of southern Italy, which were selected in order to account for variances in the geographical locations (i.e., metropolitan area,

medium-sized city, small-sized city, and rural area) and to include all the different organizations (i.e., general hospital, academic hospital, and high-specialized hospital). Nurses working in the private sector were not covered in the present sample.

Chairmen of the public hospitals involved were contacted in order to achieve the authorization for individually administering a questionnaire to the whole nursing staff. All the participants voluntarily enrolled in the research and informed consent was included within the questionnaire. In order to equally represent male and female nurses, overall, 550 participants (275 male and 275 female nurses) were contacted directly between May 2016 and June 2017, and they were asked to complete a questionnaire lasting 15–20 min (individual session) after a standardized oral introduction. Altogether, 450 out of 550 questionnaires distributed were filled and considered valid (response rate = 81.8%) and the final study sample included 206 male (45.8%) and 244 female (54.2%) nurses.

### 4.2 | Ethics considerations

The present study was approved by the Ethics Committee of Psychological Research of the University of Naples Federico II (IRB no. 33/2019). Research was performed in accordance with the Declaration of Helsinki and its later amendments or comparable ethical standards. Informed consent was obtained from each participant before data collection. All nurses were fully informed about the aims of the study and about the confidentiality of the data. They were also fully informed of the right to refuse to participate in the study or to withdraw consent to participate at any time. Nurses were also assured that the data would be used only for research purposes. Every precaution has been taken to protect the privacy and the rights of research subjects and the confidentiality of their personal information, and questionnaires were anonymously completed. Health, dignity, integrity and rights of participants were preserved, and data were collected with no physical and psychological hazard for research subjects.

### 4.3 | Measures

A questionnaire consisting of five sections was administered to participants as listed below.

A section addressed sociodemographic and employment characteristics to gain information on gender, age (in years), living with partner (No/Yes), presence of children (No/Yes), educational level (professional degree/bachelor degree), working seniority (in years), working hours (part-time/full-time), night shifts (No/Yes).

WFC was measured by using the Italian version of Work–Family Conflict Scale (Colombo & Ghislieri, 2008; Netemeyer et al., 1996), which consists of five items on a seven-point Likert scale ranging from one (Strongly disagree) to seven (Strongly agree) (e.g., “The demands of my work interfere with my home and family life”; “My job produces strain that makes it difficult to fulfil family duties”; Cronbach's  $\alpha = .86$ ).

Job control and social support were measured by using the Job Content Questionnaire (JCQ; Karasek et al., 1998) included within the Italian version of the DRIVE questionnaire (Mark & Smith, 2012; Zurlo et al., 2018). The JCQ consists of 27 items on a four-point Likert scale ranging from zero (Often) to three (Never) divided into four subscales: job demands, skill discretion, decision authority, and social support. In the present study we used the three subscales of skill discretion (e.g., “Do you have the possibility of learning new things through your work?”; six items), decision authority (e.g., “Do you have a choice in deciding how you do your work?”; eight items), and social support (e.g., “How often do you get help and support from your immediate superior?”; four items). A reliability analysis resulted in acceptable up to very good Cronbach's alpha coefficients for the consolidated total score (Cronbach's  $\alpha = .76$ , 18 items), as well as for the subscales measuring skill discretion (Cronbach's  $\alpha = .62$ ), decision authority (Cronbach's  $\alpha = .64$ ), and social support (Cronbach's  $\alpha = .80$ ).

Job satisfaction was measured by using the Job Satisfaction Subscale from the Copenhagen Psychosocial Questionnaire (COPSOQ; Kristensen, Hannerz, Høgh, & Borg, 2005), which is also included within the Italian version of the DRIVE questionnaire. The Job Satisfaction Subscale consists of four items on a four-point Likert scale ranging from zero (Highly unsatisfied) to three (Very satisfied), covering perceived satisfaction in the form of work conditions, perspectives and usage of abilities (Cronbach's  $\alpha = .89$ ).

Psychophysical health was measured by using the Italian version of the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1994; Prunas, Sarno, Preti, & Madeddu, 2010). SCL-90-R consists of 90 items on a five-point Likert scale ranging from zero (Not at all) to four (Extremely), divided into nine subscales (i.e., somatization, anxiety, depression, obsessive–compulsive, interpersonal sensitivity, hostility, paranoid ideation, phobic anxiety, and psychoticism). In the present study we used the three subscales of anxiety (e.g., “Tense or keyed up”; 10 items, Cronbach's  $\alpha = .84$ ), depression (e.g., “Hopeless about future”; 13 items, Cronbach's  $\alpha = .87$ ) and somatization (e.g., “Feeling weak”; 12 items, Cronbach's  $\alpha = .83$ ). The reliability analysis resulted in a satisfactory Cronbach's alpha coefficient for the consolidated score including the three subscales (Cronbach's  $\alpha = .91$ ).

## 4.4 | Analytical procedures

All the analyses were carried out using SPSS (Version 20). Descriptive statistics as well as  $t$  tests and  $\chi^2$  analysis (for dichotomous variables) were computed for sociodemographic and employment characteristics. A correlational analysis was also undertaken to explore bivariate associations between all study variables.

Therefore, in order to address the first research question on gender differences in study variables,  $t$  tests were carried out to compare mean scores of perceived levels of WFC, skill discretion, decision authority, social support, job satisfaction, and psychophysical health conditions according to gender.

Afterwards, in order to address the second and third research questions, respectively, on gender differences in the associations of WFC with anxiety, depression and somatization, and in the potential role of job control, social support, and job satisfaction in significantly moderating these associations, different sets of hierarchical regression analyses were separately run in male and female nurses, testing main effects of WFC and the hypothesized moderating role of skill discretion, decision authority, social support and job satisfaction. For each analysis, the predictor (WFC) and the moderator (job control, social support, job satisfaction) were jointly entered at Step 1 of the equation, and the interaction term was entered at Step 2 (Cohen, Cohen, West, & Aiken, 2003).

Finally, sociodemographic characteristics (age, educational level, living with partner, presence of children) and employment characteristics (working seniority, working hours, night shifts) were also included in the hierarchical regression analyses as control variables (at Step 3) in order to consider their potential influence on the model parameters.

## 5 | RESULTS

Table 1 displays information on sociodemographic and employment characteristics according to gender. With respect to sociodemographic characteristics, mean age of study participants was 46.21 years ( $SD = 9.40$ ; range: 20–65 years) and male nurses reported significantly higher mean age than female nurses ( $p = .02$ ). Moreover, more than half of both male and female nurses reported educational level corresponding to a professional degree, lived with their partner and had at least one child, with no significant gender differences. With respect to employment characteristics, the majority of both male and female nurses were highly experienced (working seniority  $M = 19.27$ ,  $SD = 8.94$ ; range: 0–39 years), worked full-



time, and performed night shifts. However, male nurses reported significantly higher working seniority ( $p = .03$ ), and they more frequently were full-time workers ( $p = .02$ ) and performed night shifts ( $p = .01$ ) than female co-workers.

Pearson's bivariate correlations between study variables are reported in Table 2.

Table 3 shows scores of WFC, job control, social support, job satisfaction and psychophysical health

TABLE 1 Characteristics of study participants according to gender

	Male (N = 206)	Female (N = 244)	p
Age, mean (SD)	47.39 (9.69)	45.21 (9.04)	.02
Educational level, n (%)			
Professional degree	160 (77.7)	181 (74.2)	.44
Bachelor degree	46 (22.3)	63 (25.8)	
Living with partner, n (%)			
No	51 (24.8)	66 (27.0)	.59
Yes	155 (75.2)	178 (73.0)	
Presence of children, n (%)			
No	41 (19.9)	58 (23.8)	.36
Yes	165 (80.1)	186 (76.2)	
Working seniority, mean (SD)	20.31 (9.14)	18.36 (8.68)	.03
Working hours, n (%)			
Part-time	6 (2.9)	21 (8.6)	.02
Full-time	200 (97.1)	223 (91.4)	
Night shifts, n (%)			
No	37 (17.6)	68 (27.9)	.01
Yes	169 (82.4)	176 (72.1)	

Note: Differences are calculated by Student's t test or Chi-square test.

TABLE 2 Means, SD and intercorrelations between the study variables

	M	SD	1	2	3	4	5	6	7	8
1. Work-family conflict	17.57	7.82	1							
2. Skill discretion	9.50	1.91	.111*	1						
3. Decision authority	11.46	3.52	-.207**	-.047	1					
4. Social support	7.28	3.13	-.071	.230**	.147**	1				
5. Job satisfaction	6.93	2.83	-.155**	.106*	.294**	.034	1			
6. Anxiety	0.48	0.57	.175**	-.060	-.245**	-.159**	-.247**	1		

conditions according to gender. As regard to gender differences in study variables, findings from t tests revealed that female nurses reported significantly higher levels of perceived WFC ( $p = .04$ ), as well as significantly higher levels of anxiety ( $p = .001$ ), depression ( $p < .001$ ), and somatization ( $p < .001$ ), while no significant differences were supported in perceived levels of skill discretion, decision authority, social support and job satisfaction.

Table 4 shows findings from hierarchical regression analyses conducted among male nurses, revealing that WFC was significantly positively associated with anxiety, depression and somatization; decision authority significantly interacted with WFC, buffering its negative effects

on depression ( $p < .05$ ); and job satisfaction significantly interacted with WFC, buffering its negative effects on

anxiety ( $p < .05$ ) and depression ( $p < .01$ ). Data also

TABLE 3 Scores of perceived work-family conflict, job control, social support, job satisfaction and psychophysical health conditions according to gender

	Male (N = 206)	Female (N = 244)	p
Work-family conflict	16.76 (8.14)	18.27 (7.50)	.04
Skill discretion	9.47 (1.70)	9.53 (2.07)	.73
Decision authority	11.78 (3.62)	11.18 (3.43)	.77
Social support	7.35 (3.07)	7.21 (3.18)	.65
Job satisfaction	6.90 (2.78)	6.95 (2.86)	.83
Anxiety	0.39 (0.51)	0.57 (0.60)	.001
Depression	0.48 (0.60)	0.69 (0.63)	<.001
Somatization	0.61 (0.61)	0.87 (0.61)	<.001

Note: Differences are calculated by Student's t test.

7. Depression	0.59	0.63	.178**	-.008	-.309**	-.185**	-.233**	.874**	1	
8. Somatization	0.75	0.63	.306**	-.055	-.270**	-.133**	-.178**	.813**	.704**	1

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\*p < .05.

\*\*p < .01.



TABLE 4 Associations of perceived work–family conflict, job control, social support, and job satisfaction with anxiety, depression and somatization among male nurses: regression models

	Anxiety			Depression			Somatization		
	$\beta$	$\Delta R^2$	$R^2$	$\beta$	$\Delta R^2$	$R^2$	$\beta$	$\Delta R^2$	$R^2$
Work–family conflict	.26***			.23**			.33***		
Skill discretion	-.23**	0.13	0.13	-.22**	0.11	0.11	-.16**	0.15	0.15
Work–family conflict $\times$ skill discretion	.22	0.00	0.13	-.02	0.00	0.11	-.30	0.00	0.15
	F (3, 206) = 10.24***			F (3, 206) = 8.32***			F (3, 206) = 11.91***		
Work–family conflict	.22**			.19**			.30***		
Decision authority	-.31***	0.17	0.17	-.29***	0.14	0.14	-.25***	0.18	0.18
Work–family conflict $\times$ decision authority	-.52	0.01	0.18	-.65*	0.02	0.16	-.47	0.01	0.19
	F (3, 206) = 14.67***			F (3, 206) = 12.99***			F (3, 206) = 15.84***		
Work–family conflict	.27***			.23**			.33***		
Social support	-.15*	0.10	0.10	-.20**	0.10	0.10	-.17*	0.15	0.15
Work–family conflict $\times$ social support	.03	0.00	0.10	.00	0.00	0.10	-.12	0.00	0.15
	F (3, 206) = 7.58***			F (3, 206) = 7.65***			F (3, 206) = 11.94***		
Work–family conflict	.25***			.22**			.33***		
Job satisfaction	-.19**	0.11	0.11	-.19**	0.10	0.10	-.15*	0.14	0.14
Work–family conflict $\times$ job satisfaction	-.42*	0.02	0.13	-.58**	0.04	0.14	-.21	0.01	0.15
	F (3, 206) = 10.35***			F (3, 206) = 10.62***			F (3, 206) = 11.67***		

Abbreviations:  $\beta$ , standardized regression coefficient.

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

TABLE 5 Associations of perceived work–family conflict, job control, social support, and job satisfaction with anxiety, depression and somatization among female nurses: Regression models

	Anxiety			Depression			Somatization		
	$\beta$	$\Delta R^2$	$R^2$	$\beta$	$\Delta R^2$	$R^2$	$\beta$	$\Delta R^2$	$R^2$
Work–family conflict	.07			.09			.24***		
Skill discretion	-.36***	0.13	0.13	-.36***	0.14	0.14	-.31***	0.15	0.15
Work–family conflict $\times$ skill discretion	.13	0.01	0.14	.31	0.01	0.15	-.48	0.01	0.16
	F (3, 244) = 12.58***			F (3, 244) = 13.59***			F (3, 244) = 15.72***		
Work–family conflict	.06			.07			.23***		
Decision authority	-.11	0.02	0.02	-.19*	0.04	0.04	-.08	0.07	0.07
Work–family conflict $\times$ decision authority	-.19	0.00	0.02	-.10	0.00	0.04	-.24	0.00	0.07
	F (3, 244) = 1.52			F (3, 244) = 3.55*			F (3, 244) = 5.99**		
Work–family conflict	.07			.09			.24***		
Social support	-.14**	0.03	0.03	-.15*	0.03	0.03	-.07	0.06	0.06
Work–family conflict $\times$ social support	-.50**	0.02	0.05	-.50*	0.02	0.05	-.51*	0.02	0.08
	F (3, 244) = 3.75*			F (3, 244) = 4.27**			F (3, 244) = 7.32***		
Work–family conflict	.03			.05			.22***		
Job satisfaction	-.27***	0.07	0.07	-.24***	0.07	0.07	-.14*	0.08	0.08
Work–family conflict $\times$ job satisfaction	.21	0.01	0.08	.17	0.00	0.07	.16	0.00	0.08
	F (3, 244) = 6.87***			F (3, 244) = 5.96**			F (3, 244) = 7.08***		

Abbreviations:  $\beta$ , standardized regression coefficient.

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

revealed that controlling for sociodemographic and employment characteristics did not affect results on the moderating role of decision authority (WFC × decision authority against depression:  $\beta = -.75$ ,  $p < .05$ ) and job satisfaction among male nurses (WFC × job satisfaction against anxiety  $\beta = -.53$ ,  $p = .01$ ; depression  $\beta = -.63$ ,  $p < .01$ ).

Finally, although perceived skill discretion and social support contributed directly to reduce anxiety, depression and somatization, they were not significant moderators of the relationship between WFC and male nurses' psychophysical health conditions.

Table 5 displays findings from hierarchical regression analyses conducted among female nurses, revealing that WFC was significantly positively associated with somatization, and social support significantly interacted with WFC, buffering its negative effects ( $p < .05$ ). Additionally, the interaction of WFC with social support was also found significantly negatively related to anxiety ( $p < .05$ ) and depression ( $p < .05$ ). Moreover, controlling for sociodemographic and employment characteristics did not affect these results (WFC × social support against anxiety:  $\beta = -.55$ ;  $p < .05$ ; depression:  $\beta = -.52$ ;  $p < .05$ ; somatization:  $\beta = -.57$ ;  $p < .05$ ).

Finally, although perceived skill discretion and job satisfaction contributed directly to reduce anxiety, depression and somatization, and decision authority contributed to reduce depression, they were not significant moderators of the relationship between WFC and female nurses' psychophysical health conditions.

## 6 | DISCUSSION

This study investigated the associations between WFC and psychophysical health conditions among male and female nurses, testing the moderating effects of job control, social support, and job satisfaction, and answering three research questions focused on the exploration of gender differences.

With respect to the first research question (i.e., the presence of gender differences in perceived levels of study variables), we observed gender differences in perceived levels of WFC, anxiety, depression and somatization, with less favorable results among female nurses, and comparable levels of perceived job control, social support and job satisfaction across genders. Findings are in line with the unquestioned literature on higher psychophysical disease among women workers (Wege et al., 2018), results which led those studies to find significantly higher levels of WFC among women workers (Leineweber et al., 2012), and, conversely, in contrast with those supporting gender differences in perceived levels of job control

(Grandey et al., 2005; Li et al., 2006), social support (Bellman et al., 2003; Van Daalen et al., 2006), and job satisfaction (Drummond et al., 2017; Grandey et al., 2005). Therefore, although meaningful work resources we considered seem to be perceived as equally available across genders, and although no gender differences emerged in relevant sociodemographic characteristics (i.e., presence of children; living with partner), female nurses appear to perceive demands, strain, and time devoted to work as interfering with their ability to deal with family responsibilities to a greater extent than male co-workers.

Nonetheless, data on gender differences in sociodemographic and employment characteristics also highlighted a lower tendency of female nurses to choose full-time work and to perform night shifts, suggesting this may be due to their necessity to deal with family responsibilities. However, from a different point of view, these findings also underlined that male nurses are potentially exposed to higher occupational health risk due to the higher workload.

With respect to the second research question (i.e., the presence of gender differences in the psychophysical health outcomes associated with WFC), we observed that WFC was significantly positively associated with anxiety, depression and somatization among male nurses, and only with somatization among female nurses. Such evidence is in contrast with studies highlighting WFC as a key risk factor for psychological health only among female workers (Magnusson Hanson et al., 2014; Wang et al., 2012), supporting, instead, the branch of research emphasizing that also men's health is negatively affected by this phenomenon (Leineweber et al., 2012; Munn & Greer, 2015). Furthermore, findings concerning the WFC-related psychological and physical risk, among male nurses, and the relevant somatization risk, among female nurses, enlightened the necessity to raise awareness on the possibility of gender-specific health outcomes of WFC. This suggests the careful consideration of both psychological and physical parameters for effectively developing interventions aiming at nurses' health promotion. Indeed, healthcare organizations should prioritize targeting this aim, considering that perceived WFC and its consequences on nurses' health may lead to increasing rates of sick leave, leaving intention, and turnover, so contributing to the already challenging issue of the nursing shortage.

Finally, with respect to the third research question (i.e., variables moderating the associations between WFC and psychophysical outcomes across genders), except for perceived skill discretion (the moderating effect of which has not been observed), we found evidence supporting the significant moderating role of decision authority,

social support and job satisfaction. Moreover, although all the work resources we considered were found to have a direct positive impact on nurses' psychophysical health conditions across genders, we provided original evidence on their gender-specific moderating role, that were also confirmed after controlling for sociodemographic and employment characteristics. In particular, with respect to male nurses, we found that perceived decision authority served as a buffer to depression risk related to WFC, while job satisfaction served as a buffer of anxiety and depression risks. These findings supported, also among the nursing professionals, research evidence highlighting that male workers may give particular emphasis on factors such as autonomy, employment opportunities, recognition and skills utilization (Fandiño-Losada et al., 2013), so gaining personal satisfaction through their established identity and role as a worker, which, in turn, may promote perceived work–family balance and their psychophysical wellbeing (Munn & Greer, 2015).

Conversely, with respect to female nurses, we observed social support as the only factor able to significantly counteract the negative effects of WFC on somatization, leading toward studies that emphasized the relevance of this relational resource for promoting female workers' health conditions (Bellman et al., 2003; Fandiño-Losada et al., 2013). This also highlighted the effectiveness of seeking help and receiving practical and emotional support from colleagues, co-workers and superiors to better manage workloads, and, consequently, to decrease WFC and its effects on nurses' wellbeing. From this perspective, data enlighten that, beyond the undoubted necessity to improve formal workplace support (i.e., work–family policies), focused organizational interventions should be targeted on enhancing informal networks, cooperation and reciprocal support between nurses as well as between healthcare staff members.

## 6.1 | Theoretical and practical implications

The study has several implications, providing new evidence in occupational health research and suggesting specific information to develop policies and interventions in the healthcare work environment.

Indeed, the study contributed to the most updated literature, enriching the debate on occupational health, WFC, and nursing research. First, the study put further emphasis on the meaningfulness of addressing the key role of WFC in the work-related stress process, also supporting the hypothesis that WFC can be conceptualized as having the same effects of that of job demands (Bakker et al., 2005; Jourdain & Chênevert, 2010). Indeed, beyond

gender, findings confirmed the relevance to include WFC as a factor able to impair workers' wellbeing, so suggesting carefully taking it into account when analyzing work-related stress among specific high-pressure professions.

Second, this study provided evidence supporting WFC-buffering interactions, so highlighting that work–family balancing processes could be sustained by identifying specific factors that may serve as work-related resources. Indeed, practitioners and organizations could less easily intervene on family-related resources, while work-related factors such as job control, social support, alongside job satisfaction, could be plainly taken into account and successfully targeted through individual and organizational interventions.

Third, in line with the relevance of accounting for workers' individual characteristics (i.e., DRIVE model), the present study contributed to the debate on gender differences in occupational health research as in WFC research. Nonetheless, by considering a balanced number of male and female nurses, the study also provided, as far as we know, original evidence for the nursing literature. In addition, the gender-specific moderating variables identified provided information on the conditions under which male and female nurses might be less exposed to the negative effects of WFC. In particular, we suggest targeting interventions aiming to promote independence and satisfaction among male nurses and to enhance perceived support and the social network within work context to effectively promote female nurses' wellbeing.

Nonetheless, beyond the role of these work resources in the work–family balancing process, also findings on their positive and direct impact on nurses' psychophysical health conditions in both genders provided encouraging evidence for the design of interventions aiming at nurses' health promotion. These interventions, indeed, should be targeted with the aim of achieving a more tailored work arrangement (e.g., allowing the co-creation, within the work unit, of a shared and flexible scheduling of work shifts and sustaining self-management) and a more supportive work environment (e.g., through the development and enhancement of team building and job-sharing), as well as at giving value to nurses' jobs within the work unit (e.g., through a clear definition and recognition of nursing duties and responsibilities and the provision of a wider range of career perspectives).

## 6.2 | Limitations and future research directions

Despite the strengths of the present study, some limitations need to be addressed. First, one limitation is the cross-sectional design, and, therefore, although this

approach has been considered as the best choice in order to address our original research questions (Spector, 2019), causality cannot be conclusively determined, nor can the direction of effects be established. Second, common method variance could not be ruled out, as all the measurement tools were self-reported. Therefore, despite common method variance not necessarily influencing the validity of research findings (Fuller, Simmering, Atinc, Atinc, & Babin, 2016), future studies could be designed including multi-source data. Third, the study offered original and gender-specific evidence on the associations between WFC and psychophysical health conditions among nurses in the Italian healthcare context. Therefore, although findings could be of international interest, future studies could be developed with a cross-cultural design to test the generalizability of our results.

Finally, the study found no evidence about variables significantly influencing perceived levels of anxiety and depression among female nurses, as well as about those moderating the association between WFC and somatization among male nurses. This raises our interest in developing future studies investigating the role of a wider set of job demands, job resources (e.g., perceived effort, rewards, and job demands) and individual characteristics (e.g., other sociodemographic characteristics, personality characteristics, coping strategies).

## 7 | CONCLUSION

In conclusion, despite the limitations reported above, our research findings could be useful to inform practitioners, career counselors and organizations on the impact of WFC on male and female nurses' wellbeing, as well as on how to actively and efficiently counteract and prevent its negative effects by addressing gender-specific risks and resources.

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### CONFLICT OF INTEREST

The authors declare they have no conflict of interest.

### AUTHOR CONTRIBUTIONS

M.C.Z., F.V., and A.P.S.: study conception and design. F.V.: acquisition of data. M.C.Z. and F.V.: analysis and interpretation of data; drafting of manuscript. M.C.Z., F.V., A.P.S.: critical revision. All authors read and approved the final manuscript.

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