

Gender assessment of job stress in healthcare workers. Implications for practice

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SUMMARY

Background: Work-related stress (WRS) in the healthcare sector is a major issue for both workers and organizations. To date, no consensus exists regarding differences in gender susceptibility to WRS in healthcare workers (HCWs). **Objectives:** The purpose of this study was to analyze how male and female HCWs employed in emergency departments experienced WRS. **Methods:** A cross-sectional study was conducted regarding the perception of WRS in registered nurses employed in emergency departments. The Italian version of the Job Content Questionnaire and the Rapid Stress Assessment scale were administered to 710 registered nurses. **Results:** The WRS assessment showed that significantly more females than males were in a situation of isostrain (18.5% vs 9.8% $p < 0,05$). In females, low social support was associated with high levels of job strain (18,5% vs 4,4% $p < 0,05$). **Conclusion:** This study reflects the need for a gender-specific approach in the evaluation of WRS in the healthcare sector, and is consistent with literature that evidenced gender differences in the perception of WRS. Lack of social support proved to be a determinant of WRS in female HCWs. Organizational interventions aimed at providing a more suitable workgroup design are required in order to minimize WRS in female HCWs.

RIASSUNTO

«Una valutazione di genere dello stress lavorativo tra gli operatori sanitari. Implicazioni per la gestione pratica». **Introduzione:** Lo stress lavoro-correlato in ambito sanitario rappresenta un argomento di maggior interesse sia per i lavoratori che per le organizzazioni. Ad oggi non esiste una uniformità di veduta circa la suscettibilità di genere allo stress lavoro-correlato da parte degli operatori sanitari. **Obiettivi:** Lo studio è finalizzato ad una analisi di genere della percezione dello stress lavoro-correlato tra gli operatori sanitari dei dipartimenti di emergenza. **Metodi:** È stato condotto uno studio trasversale sulla percezione dello stress lavoro-correlato tra gli infermieri dell'area dell'emergenza-urgenza. La versione italiana del Job Content Questionnaire e la scala di Valutazione Rapida dello Stress sono state somministrate a 710 infermieri. **Risultati:** La valutazione di genere dello stress lavoro-correlato ha evidenziato che le infermiere erano in una condizione di isostrain più frequentemente rispetto agli infermieri (18,5% vs 9,8% $p < 0,05$); tra le infermiere, condizioni di basso supporto sociale riguardavano maggiormente soggetti esposti ad elevati livelli di strain lavorativo (18,5% vs 4,4% $p < 0,05$). **Conclusioni:** I risultati dello studio supportano la necessità di una valutazione di genere dello stress lavoro-correlato in ambito sanitario, in linea con le evidenze della

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letteratura che hanno documentato differenze di genere nella percezione dello stress lavoro-correlato. Il basso supporto sociale è stato dimostrato essere un determinante di stress lavoro-correlato tra le infermiere. È emersa la necessità di interventi organizzativi finalizzati a migliorare la gestione delle risorse umane, quale misura utile a minimizzare lo stress lavoro-correlato tra le infermiere.

INTRODUCTION

In the global healthcare sector, work related stress (WRS) is a major problem for both healthcare workers (HCWs) and organizations. WRS can lead to distress, burnout, and psychosomatic diseases and, consequently, it can deteriorate workers' quality of life and the provision of health services (11, 21, 31). Organizational factors and an imbalance of demands, skills, and social support at work have been related to WRS in HCWs and it has been suggested that gender may be an important demographic characteristic that should be considered in the occupational assessment of WRS (7, 8, 10, 14, 25). Previously Rivera Torres et al. (20) revealed that the development of WRS has a different pattern in males and females. In particular, social support was found more effective in moderating the levels of WRS in females than in males. Consistent with this finding, several studies documented that females suffer more WRS and report lower health status than males (14, 19, 35). In particular, La Torre et al. (10) found that females exposed to a high level of job demand incur a greater risk of physical discomfort compared to males and high decision latitude leads to improved physical and mental wellbeing to a greater extent in females than in males. In spite of this evidence, to date no consensus exists regarding gender susceptibility to WRS in the healthcare sector. In fact, contrary to the above mentioned findings, many authors found no relationship between gender and WRS in HCWs (2, 7). In particular, Trousselard et al. (27), in a survey conducted using the Karasek Job Demand-Control-Support (JDACS) model, found that nurses employed in the emergency room did not show gender differences in reference to the perception of high job strain. On the contrary, Vaheedian-Azimi (30) revealed a greater level of WRS among male HCWs than females in a recent cross-sectional study of critical care nurses. The aim of the present study was to investigate how male and fe-

male HCWs employed in emergency departments experience WRS, as well as to analyze whether any differences exist between genders with regard to the effect of perceived job demands, control, and support (JDACS)(9). The JDACS model has been adopted in accordance with literature which evidenced the validity of the JDACS model in the nursing healthcare sector since the nursing profession is characterized by significant demands, needs, and high control (17, 23, 24).

METHODS

A cross-sectional study was conducted from February 2017 to January 2018 following the STROBE statement guidelines (33). The authors invited all 710 registered nurses (503 females) who were employed in three emergency departments in Salento, in South-East Italy, to anonymously complete the Italian version of the Job Content Questionnaire (JCQ) (9, 13) and the Rapid Stress Assessment (RSA) scale (26). The occupational physicians of the three emergency departments contacted the registered nurses directly and verbally informed them about the project. Emergency departments included the following: emergency room, emergency surgery and emergency medicine, gynecological, pediatric, and psychiatric first aid, and intensive care units. The demographic data collected for this study were: sex, age, years of work, smoking habit (yes or no), alcohol consumption (yes or no). The participants were given a period of seven days to complete the questionnaires and a closed box was left at the workplace so that respondents could leave their completed questionnaires anonymously. After seven days, the authors returned to collect the questionnaires. The inclusion criterion for the present study was the status of registered nurse employed in an emergency department.

The JCQ is based on the principle that the relationship between high job demands and low control

leads to a state of perceived job strain. The JCQ is the most commonly used questionnaire in studies on WRS, and many national versions exist (3, 18, 22). The complete version, translated and validated into Italian (13), is composed of 58 questions. The shorter version used in this study is composed of 17 questions, of which five relate to job demands, six to control, and six to social support. Both the complete and short versions have been applied in comparisons between different occupations, where they provided identification of four working conditions: (1) high strain, i.e. high demands with low control; (2) passive, low demands with low control; (3) active, high demands with high control; and (4) low strain, low demand with high control. The RSA scale is a 15-item multiple choice self-assessment tool with four possible answers rated from 0 to 3. This scale explores individual responses to stressful situations and divides them into five dimensions to quantify stress: depression, anxiety, somatization, aggressiveness, and lack of social support. Each cluster includes three items rated from 0-9. The total stress score is obtained by adding the 5 cluster scores and ranges from 0 to 45 points. The RSA scale proved to be reliable and valid (test-retest reliability: r between 0.7 and 0.92, $p < 0.0001$; significant content validity, with RSA areas correlating with "Minnesota Multiphasic Personality Inventory" (MMPI) scales; Pearson's coefficients: depression $r=0.61$, anxiety $r=0.6$, somatization $r=0.54$, aggressiveness $r=0.38$, $p < 0.0001$; lack of social support $r=0.38$, $p < 0.005$. Satisfactory concurrent validity) (26). The present study was performed as part of the obligatory evaluation of WRS required by Italian Legislative Decree 81/08 and needed no formal approval by the local ethics committee.

Statistical analysis

Data were analyzed with the SPSS software package (Statistical Package for Social Sciences), version 14.0. Analysis of the frequency of individual variables was conducted using descriptive statistics. Univariate analysis included the Student t -test for quantitative and the chi-square test for qualitative variables. Comparisons between groups were performed with the Mann-Whitney U test for nonpar-

ametric data in the case of two independent groups. The statistical significance was set at $p < 0.05$ for all analyses. In this study the independent variable was social support and the dependent variables were anxiety, depression, somatization, and aggressiveness. Relationships between the variables were assessed by calculating the Beta coefficient.

RESULTS

Six hundred and seventy questionnaires were received, of which 8 were discarded as being incomplete. Six hundred sixty-two questionnaires remained for this study and were analyzed by the authors. The response rate was 93.2%. No significant differences were found between males and females in terms of age, years of work, smoking habits, and alcohol consumption (table 1). The subdivision of the sample by gender into categories of job content

Table 1 - Sample demographics

Nurses	Women (n=480) N (%)	Men (n=182) N (%)
Age range (years)		
<35	40 (8.3)	16 (8.8)
36-40	43 (9)	17 (9.3)
41-45	57 (11.9)	22 (12.1)
46-50	130 (27.1)	49 (26.7)
51-55	128 (26.7)	49 (26.7)
56-60	70 (14.5)	24 (13.7)
61-65	10 (2.1)	4 (2.2)
>65	2 (0.4)	1 (0.5)
Years of work		
<5	23 (4.8)	80 (4.4)
5-10	25 (5.2)	10 (5.5)
11-15	42 (8.8)	16 (8.8)
16-20	58 (12.1)	22 (12.1)
21-25	132 (27.6)	50 (27.4)
26-30	129 (26.9)	48 (26.4)
>31	71 (14.6)	28 (15.4)
Smoking habit	89 (18.5)	35 (19.2)
Alcohol consumption	130 (27.1)	50 (27.4)

Table 2 - Subdivision of the women into categories of job content according to Karasek's JCQ(9)

	Demands		Total N. (%)
	Low N. (%)	High N. (%)	
Control			
Low	122 (25.4)	128 (26.7)	250 (52.1)
High	114 (23.7)	116 (24.2)	230 (47.9)
Total	236 (49.1)	244 (50.9)	480 (100)

Table 3 - Subdivision of the men into categories of job content according to Karasek's JCQ(9)

	Demands		Total N. (%)
	Low N. (%)	High N. (%)	
Control			
Low	45 (24.7)	47 (25.8)	92 (50.5)
High	41 (22.6)	49 (26.9)	90 (49.5)
Total	86 (47.3)	96 (52.7)	182 (100)

(high strain, passive, active, low strain), according to Karasek's Job Content Questionnaire (JCQ) (9), showed no significant differences between men and women (tables 2, 3). After splitting the variable job strain derived from the demand and control ratio and the variable social support into tertiles, significantly more females than males were in a situation of isostrain (18.5% vs 9.8% $p < 0.05$). Isostrain is a high level of strain (upper tertile) and a low level of social support (lower tertile). Situations of low social support affected more females than males (38.3% vs 28.1%, $p < 0.05$), thus increasing the potential harm of WRS (table 4). The RSA scale showed a greater risk of WRS in females than in males ($p < 0.05$), and females had higher scores in the "lack of social support" area as compared to males ($p < 0.05$) (table 5). After stratifying by age and years of work, we found that in both older and younger females (>and<45 years) and in samples of females with both lower and higher lengths of service (<and>15 years) the level of social support was significantly and negatively associated with the health effect variables of stress analyzed by the RSA scale tables 6-7).

Table 4 - Distribution of job strain and social support according to Karasek's Job Content Questionnaire

	Social support							
	Low		Intermediate		High		Total	
	Women %	Men %	Women %	Men %	Women %	Men %	Women %	Men %
Job strain								
Low	4.4	7.2	6.9*	13.4	8.5*	13.7	19.8*	34.3
Intermediate	15.4	11.1	9.9	10	14.6	15.2	39.9	36.3
High	18.5*	9.8	12.7	8.8	9.1	10.8	40.3*	29.4
Total	38.3*	28.1	29.5	32.2	32.2	39.7	100	100

* $p < 0.05$ compared to men

Table 5 - Scores detected by RSA scale (mean and SD)

	Clusters					
	Anxiety	Depression	Lack of social support	Somatization	Aggressiveness	Total stress score
Women	3.6 (± 1.8)	4.1 (± 2.5)	3.9* (± 1.8)	3.3 (± 2.3)	2.7 (± 1.5)	16.9** (± 6.3)
Men	3.1 (± 1.5)	3.8 (± 1.9)	1.9 (± 1.1)	2.9 (± 1.9)	2.3 (± 1.1)	13.8 (± 5.1)

* compared to the lack of social support score of men, $p < 0.05$

** compared to the total stress score of men, $p < 0.05$

Table 6 - Relationship between social support and health effect variables detected by the RSA scale in women aged > and <45 years, assessed by calculating the β coefficient

	Dependent variables			
	Anxiety	Depression	Somatization	Aggressiveness
Age >45				
Social support	$\beta=-0.206$ $p<0.05$	$\beta=-0.138$ $p<0.05$	$\beta=-0.041$ $p<0.05$	$\beta=-0.119$ $p<0.05$
Age <45				
Social support	$\beta=-0.311$ $p<0.05$	$\beta=-0.231$ $p<0.05$	$\beta=-0.128$ $p<0.05$	$\beta=-0.327$ $p<0.05$

Table 7 - Relationship between social support and health effect variables detected by the RSA scale in women with years of work > and <15 years, assessed by calculating the β coefficient

	Dependent variables			
	Anxiety	Depression	Somatization	Aggressiveness
Years of work >15				
Social support	$\beta=-0.151$ $p<0.05$	$\beta=-0.247$ $p<0.05$	$\beta=-0.231$ $p<0.05$	$\beta=-0.310$ $p<0.05$
Years of work <15				
Social support	$\beta=-0.221$ $p<0.05$	$\beta=-0.171$ $p<0.05$	$\beta=-0.255$ $p<0.05$	$\beta=-0.315$ $p<0.05$

DISCUSSION

In this study we found that female HCWs experienced higher levels of WRS in comparison with males. In particular, the findings highlighted the association between lack of social support and health effect variables of stress (anxiety, depression, somatization, and aggressiveness) in female HCWs and, consequently, the need for interventions aimed at ensuring a more suitable workgroup design. These findings were consistent with literature (5, 10, 16, 20, 28), and prompted us to implement organizational interventions based on the detected gender differences and aimed at the work context factors related to WRS, particularly the provision of support to female HCWs (i.e. improvement in work relationships, definition of organizational roles, involvement in the decision-making process). In line with evidence by Llorens et al. (12) and Ulhassan et al. (29) which demonstrated the effectiveness of organizational interventions aimed at minimizing WRS and based on increasing workers' participation, an

action plan for improvement was proposed which was focused on team development and employee involvement in decision making. An improvement in issues related to the "relationships at work" area was obtained by training all emergency department employees included in this study including head physicians and nurses. The objectives of the training were to improve communication skills, to ensure reflective dialogue and feedback among workers, and to manage conflicts constructively. Head physicians and nurses were also trained in employee supervision in regards to WRS.

Regarding gender susceptibility to job stress, the results of the present study reflected the Italian occupational context in which females often receive less frequent promotions and lower salaries than their male counterparts (4). Given this context, it seems likely that gender differences in the work environment may still be an issue. In fact, lack of promotions and consequently of career progress have been suggested as major sources of work stress for females and they have been linked to negative health

consequences and reduced satisfaction. Females are still not properly integrated in many organizational systems, and there is evidence that they face a 'glass ceiling' within the workplace, with the 'glass ceiling' referring to a subtle but powerful barrier that limits women's career advancement to top management positions in big organizations (1, 31).

In light of the above mentioned findings of the present study, a strategic way to moderate WRS in HCWs should consider the need for organizational interventions based on gender differences in the experience of WRS.

One limitation of the study was the sample size, which was too small to make strong conclusions about the relationship between gender and WRS among HCWs. Additionally, the findings could have been influenced by organizational factors intrinsic to the Italian occupational context and, consequently, particular to the departments included in this study and as such may not be true for all emergency departments. In particular, this study did not consider issues related to shift work schedules and to night shift work. Furthermore, this study was based on subjective assessment of WRS without consequent objective analysis. In spite of these limitations, the findings of this study revealed the need for a gender-specific approach in the evaluation of WRS, in line with other literature that has evidenced gender differences in the perception of WRS among HCWs (15, 19, 30, 34).

KEY POINTS

In this study, gender differences were found in the experience of work-related stress among healthcare workers in three emergency departments in Italy.

Lack of social support was found to be a major determinant of work-related stress in female healthcare workers, as compared to their male counterparts.

Gender-based organizational interventions are required to minimize work-related stress in the healthcare sector.

NO POTENTIAL CONFLICT OF INTEREST RELEVANT TO THIS ARTICLE WAS REPORTED BY THE AUTHORS

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