

Assessment and Management of Job Stress in Emergency Nurses: A Preliminary Study

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ABSTRACT: *The continuously technological and organizational changes actually involving the healthcare sector is resulting in increased workload for nurses employed in Emergency Department (ED). In fact the nurses of ED appear particularly vulnerable to be exposed to work related stress (WRS) and to experiment its effects. A special effort is required to moderate the impact of WRS on ED nurses.*

Methods: *The authors ruled 75 (24 M; 51 F) nurses working in a public Hospital Emergency Department of National Health Service (NHS), in Salento, Italy, and 72 (23 M; 49 F) administrative workers of the same NHS. The study included two phases: the first phase was focused on the evaluation of psychological stress through the administration of subjective questionnaire, the Rapid Stress Assessment scale of Tarsitani and Biondi to both the ED nurses and administrative workers. The second phase of the study was focused on the evaluation of objective stress and was conducted according to the multidimensional validated tool developed by the Italian Network for the Prevention of Work-related Psychosocial Disorders.*

Results: *In this study ED nurses showed a greater risk of WRS and evidenced higher scores of felt stress measured by RSA scale, specifically in the clusters of anxiety and depression, than administrative workers. Among ED nurses, the main issues related to objective WRS were found in the work context and content areas and required organizational interventions aimed to minimize the impact of WRS on the nurses.*

Conclusion: *The study showed the need of organizational interventions targeted to improve the team development, decision making policies and processes, jointly to safety training programs aimed to assist ED nurses to adopt constructive stress coping strategies. By the preliminary results of this study, is evidenced the effectiveness of these interventions in order to minimize the impact of objective WRS on ED nurses.*

Keywords: *Healthcare worker, Stress assessment, Work stress, Organizational interventions, Emergency department, Occupational medicine, Effectiveness*

INTRODUCTION

In the last years the ongoing technological innovation and the organizational changes have influenced the Italian healthcare sector. Moreover, the financial crisis has increased the need to work with fewer staff, with consequent workload and high psychological pressure on healthcare workers (HCWs) to develop changeability and resilience. In addition, employees working in the 'helping professions', such as HCWs of Emergency Departments (ED), appear particularly vulnerable to be exposed to work related stress (WRS) and to experiment its effects (Siegrist et al., 2010; Isikhan, Comez, & Danis, 2004; Lambert, Lambert, & Yamase, 2003; d'Ettorre, & Greco, 2015; d'Ettorre, & Greco, 2015) as consequence of specific occupational risk factors linked with the ED healthcare professions. In fact, HCWs of ED are exposed to three shift work, high level of physical and biological risks, variable workloads, and increasing and unpredictable job demand (Engström, Ljunggren, Lindqvist, & Carlsson, 2006; Teng, Hsiao, & Chou, 2010; Zielińska-Jankiewicz, Kozajda, & Szadkowska-Stańczyk, 2005; Gandham, 2000). It was showed that when employees perceived an increase in job demands, they were more likely to go on long term sickness absence; in

contrast, an increase in support at work led employees to have fewer long spells of sickness absence (Head et al., 2006). HCWs employed in ED are particularly exposed to many acute and chronic stressors (Laposa, Alden, & Fullerton, 2003; Hallin, & Danielson, 2007; Tarsitani, & Biondi, 1999) every day, often unpredictable, including sudden death, violence, trauma and overcrowding, often simultaneously, on a daily if not hourly basis; data of literature showed that all these are factors that explain why ED staff have higher levels of burnout than colleagues in other specialties (14. Network Nazionale per la Prevenzione Disagio Psicosociale nei Luoghi di Lavoro, 2010). According to the European Framework Agreement on Work-Related Stress of 8 October 2004, incorporated in Italy into Legislative Decree 81/08, under which it is obligatory to make a valid and reliable evaluation of WRS, the authors conducted an integrated analysis of perceived stress and of stress sentinel indicators, objective stress factors of occupational context and content, among the nurses of an ED, and among a control group; in fact, the analysis of these indicators could be useful to suggest future actions necessary to moderate WRS among the ED nurses.

The study was performed as part of the obligatory evaluation of work related stress, required by Italian Legislative Decree 81/08, and needed no formal approval by the local ethics committee.

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MATERIALS AND METHODS

The authors ruled 75 (24 M; 51 F) nurses working in a public Hospital Emergency Department of National Health Service, as exposed, and 72 (23 M; 49 F) administrative employees of the same Hospital, as controls.

The exposed and control subjects were compared by age, length of service, smoking habit (n. cigarettes per day) and alcohol consumption. Mean age between exposed was 46.9 (\pm 9.1) years, 47.5 (\pm 8.7) years between controls. Mean length of service was respectively 18.3 (\pm 7.4) years and 17.5 (\pm 4.5) years between exposed; 18.5 (\pm 6.9) years and 18.1 (\pm 5.2) years between controls, with no statistically significant differences between sexes.

The study included two phases: the first phase was focused on the evaluation of psychological stress through the administration of subjective questionnaire, the Rapid Stress Assessment scale of Tarsitani and Biondi (Coordinamento tecnico interregionale per la prevenzione nei luoghi di lavoro [Internet], 2010) to both the exposed nurses and control workers. The second phase of the study was focused on the evaluation of objective stress and was conducted according to the multidimensional validated tool developed by the Italian Network for the Prevention of Work-related Psychosocial Disorders ("Assessment and Management of Work-Related Stress in Hospital Emergency Departments in Italy", 2016).

The Rapid Stress Assessment (RSA) scale is a 15-item multiple choice self-assessment tool that allows four possible answers rated from 0 to 3. The scale explores individual responses to stressful situations and divides them into five dimensions (clusters) to quantify stress: depression, anxiety, somatization, aggressiveness, and lack of social support. The total stress score is obtained from the sum of the 5 cluster scores and ranges from 0 to 45 points. The first 9 items explore perceived stress at the time of questionnaire administration; the following 6 items regard the stress levels experienced in the previous 6 months. The test 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 $r = 0.38$, $p < 0.005$ (Network Nazionale per la Prevenzione Disagio Psicosociale nei Luoghi di Lavoro, 2010).

The objective assessment of WRS was performed using the multidimensional validated tool developed by the Italian Network for the Prevention of Work-related Psychosocial Disorders, in compliance with the Italian Consultative Committee's specific requirements. This tool was tested on 800 companies listed by the Veneto Region ASL20 (regional NHS unit) Occupational Prevention, Hygiene, and Safety Service, and by the University of Verona. The tool is aimed to identify indicators of WRS risk in an organization, under three headings: (1) sentinel events; (2) work content factors; (3) work context factors. The level of objective WRS has been divided into three categories: low (a score of 0–17), medium (a score 18–34), and high (a score > 35).

STATISTICAL ANALYSIS

The statistical analysis of the data is based on the calculation of the average, standard deviation, the distribution and the range, in accordance with the nature of individual variables. The differences between means were compared using the Student's test for continuous data. In the presence of values with a $P < 0.05$, differences were considered significant.

RESULTS

Data were available for all 75 nurses and for all 72 administrative employees, none of whom was lost to the study. The findings of the subjective stress evaluation among ED nurses and among administrative employees are shown in Table 1. The total score of scale RSA and the scores for clusters of anxiety and depression were significantly higher in the ED nurses than administrative employees ($p < 0.05$). No statistically significant difference in the scores of social support, somatization and aggressiveness was found between ED nurses and administrative employees; the total scores of RSA scale did not evidence statistically significant difference among the ED nurses compared by age and length of service. The results of our study about the occupational stress evaluation obtained by objective approach, utilizing the multidimensional validated tool, indicated that ED nurses reported a medium level of WRS (score=25); validated tool indicated that the administrative employees of administrative service showed a low level of WRS (score=17).

The analysis leads to identify the objective stress factors related to work and give us suggestions to reduce the sources of WRS among the E.D. nurses, focused on organizational interventions.

The level of objective WRS after improvement organizational interventions, resulted reduced to low level (score=17), from medium level (score=25).

DISCUSSION

In our study ED nurses showed a greater risk of WRS and evidenced higher scores of felt stress measured by RSA scale, specifically in the clusters of anxiety and depression, than administrative employees. Among ED nurses the main issues related to objective WRS were found in the work context and content areas and were referred to difficulties in team working, in ensuring a supervisor support by head nurse and head physician, in safety trainings, in lack of involvement of nurses in decision-making. In the area of work content factors the main issues resulted linked to the specificity of hospital emergency healthcare activity. In fact it is characterized by typical stressors, such as three shift work, high exposure to physical and biological risks, variable workloads and non-programmable, working using technologies that require high responsibility, working closely with the suffering and consequently experiencing high emotional demand. These objective critical issues, related to the work content, are intrinsically characteristic of the ED nurses work and required the organization of safety training courses among nurses aimed to protect them. About the work context area it was proposed an organizational intervention aimed

Table 1.
Scores detected by RSA scale (mean and S.D.)

	Clusters					
	Anxiety	Depression	Social Support	Somatization	Aggressiveness	Total Stress Score
ED Nurses	3.6 (*) (\pm 1.8)	4.1 (**) (\pm 2.5)	2.9 (\pm 1.8)	3.3 (\pm 2.3)	2.9 (\pm 1.5)	16.9 (***) (\pm 6.3)
Administrative Employees	1.8 (\pm 1.5)	2.3 (\pm 1.9)	2.4 (\pm 1.1)	2.9 (\pm 1.9)	2.3 (\pm 1.1)	11.9 (\pm 5.1)

Compared to anxiety score of administrative employees, * $p < 0.05$
 Compared to depression score of administrative employees, ** $p < 0.05$
 Compared to total stress score of administrative employees, *** $p < 0.05$

to moderate WRS, targeted on the team development (working towards goals that include occupational safety, reflective dialogue and feedback among workers, supervisor support, feedback and involvement in decision making), the implementation of safety training programs and the adoption of the ethics code for HCW. About the interventions focused on the secondary prevention of WRS the authors, together with the psychologists of the psychology Service, organized relaxation courses aimed at nurses, according to the method Shultz and organized courses on coping, targeted on the techniques of distancing, with the purpose of improving the workers' safety. To date, the organizational interventions targeted to moderate WRS showed effective to moderate objective WRS to a low level; the interventions focused on the secondary prevention are being completed and require further studies to measure their effectiveness on the ED nurses felt stress.

Conflict of Interests

All the authors declare they have no financial or personal relationship with people or organizations that could inappropriately influence their work.

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