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Occupational stress and coping strategies among nursing professionals in hospital environment

Estresse ocupacional e estratégias de enfrentamento entre profissionais de enfermagem em ambiente hospitalar

Estrés laboral y estrategias de afrontamiento entre los profesionales de enfermería hospitalaria

*Teixeira, CAB **Gherardi-Donato, E C da S *Pereira, S S ***Cardoso, L. ****Reisdorfer, E

* Nurse. Doctoral student in Psychiatric Nursing. School of Nursing of Ribeirão Preto. EERP/USP.. Brazil. E-mail: carlinhateixeira@hotmail.com **Associate Professor, Department of Psychiatric Nursing. School of Nursing of Ribeirão Preto. EERP/USP *** Professor, Department of Psychiatric Nursing. School of Nursing of Ribeirão Preto. EERP/USP ****Nurse. Postdoctoral. University of Alberta, Canada

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Palabras clave: Salud Mental; El estrés en el trabajo; Estrategias de afrontamiento

ABSTRACT

The study **aimed** to analyze the occupational stress and coping strategies used by technicians and nursing assistants of a university hospital as well as its association with sociodemographic variables.

Method: This is a cross-sectional study with a random sample of 310 technicians and nursing assistants. It was intended for evaluation of occupational stress and coping strategies applied to Job Stress Scale and the Scale Mode Confronting problems. The sample was mostly composed of women, with a mean age of 47.1 years, married or with a partner, who were nursing assistants, with only one employment and who had withdrawal the previous year. Of them, 17.1% of the sample was highly exposed to occupational stress.

Results: The strategies focused on the problem proved to be protective with respect to stress.

Conclusion: This way of dealing with stressors in the hospital can be optimally worked among professionals.

RESUMO

Objetivo: O estudo objetivou analisar o estresse ocupacional e as estratégias de enfrentamento utilizadas por técnicos e auxiliares de enfermagem de um hospital universitário, bem como a sua associação com variáveis sociodemográficas.

Método: Estudo transversal realizado com uma amostra aleatorizada de 310 técnicos e auxiliares de enfermagem. Para avaliação do estresse ocupacional e estratégias de enfrentamento aplicou-se a *Job Stress Scale* e a Escala Modos de Enfrentamento de Problemas. A amostra foi composta por uma maioria de mulheres, com idade media de 47,1 anos, casados ou com companheiro, auxiliares de enfermagem, com único vínculo empregatício e que tiveram afastamento do trabalho no último ano. Estavam altamente expostos ao estresse ocupacional 17,1% da amostra.

Resultados: As estratégias focadas no problema mostraram-se protetoras em relação ao estresse.

Conclusiones: Esta forma de lidar com os estressores em ambiente hospitalar pode ser trabalhada de forma otimizada entre os profissionais.

RESUMEN

El **objetivo** del estudio fue analizar el estrés laboral y las estrategias de afrontamiento utilizadas por técnicos y auxiliares de enfermería de un hospital universitario, así como su asociación con variables sociodemográficas.

Método: Estudio transversal con una muestra aleatoria de 310 técnicos y auxiliares de enfermería. Para la evaluación del estrés laboral y las estrategias de afrontamiento se aplicó la *Job Stress Scale* y la Escala Modos de Enfrentamiento de Problemas. La muestra se compone de una mayoría de mujeres, con una edad media de 47,1 años, casadas o en pareja, auxiliares de enfermería, con único vínculo de empleo y que tuvieron trabajo en el último año. Estuvieron altamente expuestas al estrés laboral 17,1% de la muestra.

Resultados: Las estrategias centradas en el problema resultaron ser protectoras en relación al estrés.

Conclusiones: Esta manera de hacer frente a los factores de estrés en el hospital se puede trabajar de manera optimizada entre los profesionales.

INTRODUCTION

Currently, hospital appears as the main institutional framework to provide care of high and medium complexity, with a range of professionals with diverse backgrounds working together with the user of this system[1].

In the hospital environment, different and complementary stressors have been evidenced in the nursing work process. One can cite the small number of professionals; excess of activity; the difficulty of defining the roles of the professionals of the team (nurses, technicians and assistants); the complexity of interpersonal relationships; responsibility towards customers; organizational constraints arising from the hospital system; stagnation and devaluation of wages; multiple employments; the fulfillment of long and stressful working hours[2].

The nursing worker is a professional who has care as the primary function, which is mainly performed by the technical and/or nursing assistant. However, the literature shows that the number of actions composing the care provided by these professionals is still underappreciated in the hospital environment[3].

The nursing work in the hospital environment is recognized as highly stressful. Several stressful conditions are linked to the responsibilities assigned to Nursing[4].

"Stress" is one of the most repeated words in the contemporary world and has been regarded by many researchers from different schools of thought. However, regardless of the conceptual current, the "adaptive response" element permeates the settings, which leads us to consider how the individual reacts to certain internal or external stimulus as a significant factor for the development or not of a pathological condition[5-6].

One of the currently most widely used theoretical frameworks is the Job Strain Model (JSM). As the JSM, increased distress situation for workers and greater exposure to occupational stress, which result in increased risk for the development of occupational diseases, is set by the combination of high levels of psychological demands and low control at work. In moderate levels of demand with high control, they provide a favorable situation for growth and healthy development at work[7].

Several research outlined from the JSM model revealed association of occupational stress with physical and mental illness[8] where the situations inferred as outcome from symptomatology to pathological condition.

Faced with a stressful situation, individuals develop different ways of coping, which are related to personal factors, situational demands and available resources, and aim to restore the balance of the organism against the reactions triggered by the stressor. It is important to note that the types of coping strategies used in a specific situation vary according to the personality or experiences of the subject as well as the characteristics of the situation[9].

That is, coping strategies are intended to maintain well-being, trying to write off the harmful effects of stressful situations. From this context, the coping used by the individual has acquired relevance in studies on stress at work, because it refers to the subject's efforts that can both enhance and reduce the effects of stressful events[10-12]. From the individual construction of each subject and knowledge of stressful situations, observing the relationship between work stress and coping strategies, an overview of how these workers react to the work environment and conflicting situations is possible to be obtained. This scenario can assist in the development of actions specifically for the target audience, to be developed in a continuing and deepening of this study.

Thus, this study aimed to identify occupational stress and coping strategies used by technicians and nursing assistants from a university hospital as well as the association between occupational stress and coping strategies with sociodemographic variables.

METHODS

This is a cross-sectional, descriptive exploratory, with a quantitative approach epidemiological study.

The research was developed in a larger-scale university hospital in the State of São Paulo. The research population included all nursing technicians and assistants working in that hospital. To calculate the sample size the formula $N = Z^2.p.q / E^{2(13)}$) was applied.

As there are few references on a reliable prevalence, we opted for the safer value of 50%. Thus, the sample size was calculated to detect an estimated prevalence of 50% with 95% confidence and 5% maximum error. That is, the sample size should ensure

such accuracy by detecting prevalence in the range from 45% to 55% with 95% probability. Prevalence values further away than 50% will result in lower error or greater power estimation[13].

Substituting the values Z = 1.96, p = 0.50 and E = 0.05 yields n(initial) = 384. The finite population correction was performed through the expression: n=n (initial)/{1+n(initial)/Population}, where n(initial) = 384 and population = 1055 takes the value n(intermediate) = 282. Thus, assuming partial refusals and responses in approximately 20%, the final value was: n(final) = 338. There was obtained 91.7% of the sample calculation due to losses and refusals, totaling 310 technicians and nursing assistants in the study.

Professionals that met the criterion and were exercising their professional activities at least a year, both genders, were included to the sampled. Those professionals who were away from work due to withdrawal or on vacation during the data collection were excluded.

The randomization processing of the sample was performed using the SPSS software version 16.0. Randomized professionals were then invited to participate in the study, and replacement in case of refusal was not possible. Collection took place during the second half of 2012.

For data collection the following instruments were used: Sociodemographic questionnaire, working and health conditions, Job Stress Scale (JSS) and the Scale Mode of Coping (EMEP). The sociodemographic questionnaire included sociodemographic and labor data. JSS is a Likert scale consisting of 17 items divided into three dimensions (demand, control and social support), which assesses stress at work[14]. EMEP is comprised of 45 items, divided into four factors that try to analyze the set of specific responses to specific stressful situation, identifying coping strategies most used by the subject[15].

For response processing, data was coded and tabulated in Microsoft Excel 2010 data sheet, double-typing. Then, a database validation was performed using the statistical EpiInfo 6 software.

For analysis, descriptive statistics of the population characteristics and variables was used through frequency distribution, absolute numbers and percentage, average, minimum and maximum. In order to verify the internal consistency and reliability of the JSS and EMEP scales for sample, the *Cronbach's Alpha* was calculated. *Cronbach's Alpha* values can range from 0 to 1, with values above 0.70 considered acceptable[16].
For JSS, from the responses obtained in the psychological demand and work control dimensions, the combinations were grouped to the four categories of the Job Strain Model: Work on low demand (low demand and high control); passive work (low demand and low control); active work (high demand and high control) and work on high demand (high demand and low control). Then, the four types of work were reassembled to provide a measure of exposure to occupational stress according to three categories: more exposure (high demand); intermediate exposure (active and passive work) and less exposure or reference group (low demand).

To associate coping strategies with sociodemographic variables a bivariate analysis of each of the four strategies that make up the instrument with the sociodemographic variables was performed. Strategies and sociodemographic characteristics that were

not statistically significant were excluded. The analysis final model for search strategies for social support resulted from the logistic regression with multiple variables.

For association of occupational stress (outcome variable) with the coping strategies, a logistic regression analysis was conducted, considering the level of statistical significance $p<0.05$. For this analysis the occupational stress variable was dichotomized, considering the high distress/high exposure category to stress to group composition with occupational stress.

RESULTS

The study sample (n=310) was composed mostly by women (76.1%), aged over 40 years (67.7%), with high school (81.0%), married or cohabitating (58.1%), with children (74.5%) and Catholic (53.2%) (Table 1).

Table 1 – Distribution of nursing assistants and technicians according to demographic variables. Ribeirão Preto-SP, 2012.

Variable	N*	%
Gender		
Male	74	23.9
Female	236	76.1
Age Group		
< 30 years	18	5.8
31 to 40 years	82	26.5
41 to 50 years	87	28.1
51 to 60 years	82	26.5
< 60 years	41	13.1
Education		
Elementary School	29	9.3
High School	251	81.0
Higher Education	30	9.7
Civil Status		
Married or with a partner	180	58.1
Single	77	24.6
Divorced	48	15.6
Widow	5	1.7
Children		
No children	79	25.5
With children	231	74.5

* N total = 310

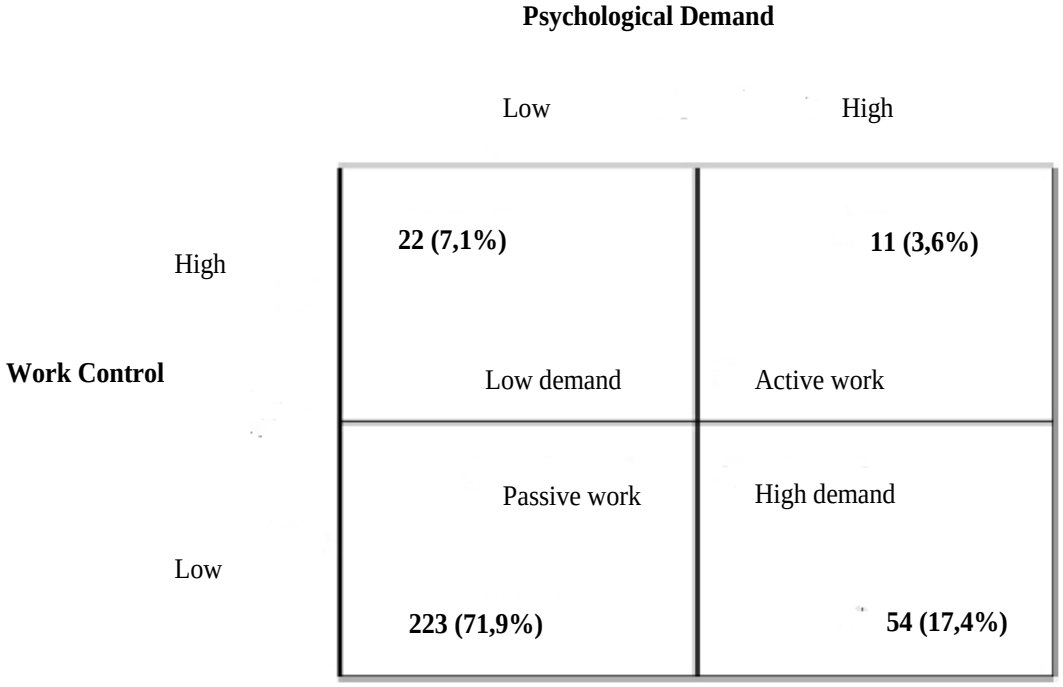
The results of training and working conditions showed that most participants had professional training as nurse assistants (63.9%), exercising the office as nurse assistants (85.5%) worked in highly complex services (88.7%), had an average service life of 12.6 years and average time of service of 15.9 years, had only employment (79.4%) and worked up to 30 hours per week (78.0%).

The distribution of participants according to the score on the stress scale showed that 88.4% of the professional of the study worked under high psychological demand, 21.0% had low control as to the work to be performed and 35.2% had low social support.

The exposure analysis regarding occupational stress, according to the Job Strain Model, showed that 17.4% of assistants and technicians were subjected to high stress level; 75.5% were exposed to the intermediate level and low exposure to stress appeared in 7.1% of the sample. (Figure 1).

Figure 1 – Distribution of nursing technicians and assistants according to the type of work in the Job Strain Model. Ribeirão Preto-SP, 2012.

Figure 1:



Coping strategies of problems were assessed through the EMEP, and the Cronbach's Alpha value was obtained in the sample equal to 0.85, which makes appropriate the internal consistency of the instrument.

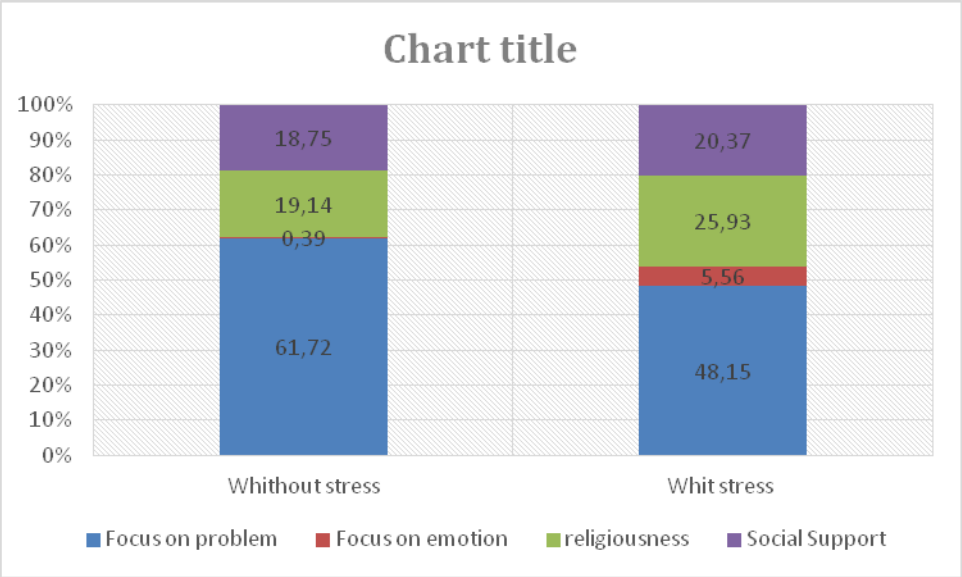
Among the four factors evaluated by the EMEP, strategies focused on the problem had higher average scores (3.7), followed by religious practices (3.3). The lowest average score resulted from strategies focused on emotion.
The type of strategy used by most practitioners study was focused on the issue, corresponding to 59.4% of the sample. The strategies focused on emotion had the lowest frequency, identified in only 1.3% of professionals (Table 2).

Table 2 – Nursing technicians and assistants according to the type of coping strategies. Ribeirão Preto-SP, 2012.

EMEP Factors	n	%
Strategies focused on the problem	184	59.4
Strategies focused on emotion	4	1.3
Search strategies for religious practices	63	20.3
Search strategies for social support	59	19.0
Total	310	100.0

Among the professionals identified without occupational stress there was a predominance of strategies focused on the problem in 61.72%. For the group of professionals with occupational stress this percentage was 48.15%. Strategies focused on emotion were present in only 1 subject of the group without occupational stress and 5.56% of subjects with occupational stress. The search strategies for religious practices/wishful thinking prevailed in 19.14% of subjects identified with no occupational stress and 25.93% of that identified with occupational stress. In the group with no occupational stress, search strategies for social support were the most used by 18.75% of the professionals, while in the group with stress this percentage was 20.37% (Chart 1).

Chart 1 – Percentage of coping strategies, according to presence or absence of occupational stress.



According to the logistic regression applied to the occupational stress and coping strategies variables, the results suggest that strategies focused on the problem are presented as a protective factor for occupational stress (OR = 0.58; 95% CI =0.32-1.03) in the sample. The strategies focused on emotion presented as a risk factor for occupational stress; however, the small number of observations and the large confidence interval undertakes the completion of the observed phenomenon. The odds ratio obtained in the search for religious practices suggests that this strategy behaves as risk factor for occupational stress. According to the results, the search strategies for social support could behave both as a risk factor as a protective factor for occupational stress in the sample, considering the CI=0.53 to 2.31 (Table 4).

Table 4 – Association between occupational stress and coping strategies used by nursing assistants and technicians. Ribeirão Preto-SP, 2012.

Coping Strategies	No Stress	With Stress	OR	CI 95%
Focused on the problem	158	26	0.58	0.32-1.03
Focused on emotion	01	03	15.00	1.53-147.10
Search for religious practices/wishful thinking	49	14	1.48	0.75-2.93
Search for social support	48	11	1.11	0.53-2.31

DISCUSSION

In this study women comprised 76.1% of subjects starting from a random sample; the prevalence of female among the participants reflects a condition already outlined in other studies with regard to the composition of Nursing human resources[17].

It is noteworthy that in addition to the hospital workload, women are still inserted in a socio-cultural context in which the demands are not extinguished at the end of a shift. Studies state that women are more susceptible to stress than men, requiring greater attention on the emotional stress[18]. A situation found in a study on education and stress in which authors infer that women are more affected than men in all age groups corroborate the scenario found in this study[19].

The predominant age group was concentrated between 31 and 60 years. It is noteworthy the percentage of 13.1% professionals with 60 years of age, considering the physical demand of assistance activities provided by nursing assistants and technicians. A study with the same professional category has identified only 2.6% of individuals in this age group[17]. As to education, the majority was professionals with the average level of education (80.0%) and only 9.7% had higher education. The percentage of professionals with higher education was lower than that found in another study, in which professionals with higher education accounted for 25.5% of the sample[17].

The predominant civil status in the sample was married people or living with a partner (58.1%). The proportion of married people is lower than in the study conducted in Rio Grande do Sul with this category of professionals, whose percentage of married subjects was 70.9%[4].

On occupational stress, measured from the application of the Stress Scale at Work (JSS), 88.4% of professionals of the study worked under high psychological demand, 21.0% had low control on work and 35.2% showed low social support. The work done in low control and high demand conditions is harmful to the workers' health and can trigger the majority of adverse reactions from work[8]. Similar research developed with nursing professionals indicated the association between work on high demand and mental illness[4-5].

The combination of demand and control showed that 7.1% had low demand (low demand and high control), 3.6% had active work (high demand and high control), 71.9% had passive work (low demand and low control) and 17.4% of them worked in high demand (high psychological demand and low control over the work performed). This last result, according to the Job Strain Model, corresponds to the worst working condition, which confers greater risk for physical and mental illness due to high exposure to stress[8,14].

Nurses, technicians and assistants of emergency in the South region had a prevalence for high psychological demand of 37.9%, 57.0% for low control and 21.4% for working on high distress[20]. The difference found when comparing with this study confirms the combined analysis of size and control, as although we found higher proportion of high demand and lower proportion of low control in relation to the comparison study, practitioners of this study are subject to high distress in smaller proportion than in the comparison study.

The search related to coping strategies used by individuals has shown that the most used strategies by the sample of this research were strategies focused on the problem (60.0%). This strategy corresponds to an active way to react to stressful situation, because coping, focused on the problem, is intended to remedy the stressful situation. In another study conducted among community health agents, the means of EMEP factors were similar to that found in this study, being 3.93 to strategies focused on the problem, 3.44 to search for religious practices, 3.38 to search for social support and 2.38 for strategies focused on emotion[12].

The second coping strategy category most commonly used by individuals was the search for religious/mystical practices, with 21.3%. It is a strategy used in order to ease tensions and is considered palliative, since it does not involve the problem itself[11].

With regard to strategies focused on the problem, most prevalent in this study, the association with occupational stress suggests that these strategies can act as protective factors for stress (OR=0.58; CI95% 0.32-1.03). This result may be related to the fact that when the subjects use the strategy of focusing on the problem, they evaluate the stressful situation as resolvable, and by mobilizing internal and external demand in the resolution of the stressor[21], the problem itself loses locus when solved, thus acting as a protection to the subject in similar situations in the future.

The higher the work control level, the greater the probability of nursing professionals to use active strategies to deal with stress. Thus, increasing the autonomy of professionals and offering training courses are strategies that can be used to reduce stress on the hospital environment as well as helping people to actively cope with the problems[22].

CONCLUSION

There was a tendency for strategies focused on problem to perform against occupational stress, considering the odds and the confidence interval. In future studies, this can orientate to more policy interventions regarding this professional category that suffers in debilitated work situations.

The result of association analysis for occupational stress and coping strategies was statistically significant for strategies focused on emotion, identifying these strategies as a risk factor for occupational stress. However, the number of observations of this factor prevents us to declare with confidence the observed phenomenon, indicating the need for further studies to better understand this relationship, which is, therefore, a limitation of this study.

Furthermore, the findings of this research indicate the relevance of studies on occupational stress and coping strategies in order to measure the problem in the work context of nursing assistants and technicians working in hospital environment. In this sense, the behavior of strategies focused on emotion and focused on the problem in relation to occupational stress revealed information that may help guide the intervention promotion direction of mental health more assertively in the work environment of these professionals, from actions that focus on reduction and resolution of these stressful situations related to how the subjects react to being exposed to occupational stress.

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