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CORRELATIONS BETWEEN STRESS AND BURNOUT IN MOBILE PREHOSPITAL NURSING CARE

CORRELAÇÕES ENTRE ESTRESSE E BURNOUT NO CUIDADO DE ENFERMAGEM PRÉ-HOSPITALAR MÓVEL

CORRELACIONES ENTRE ESTRÉS Y BURNOUT EN LA ATENCIÓN DE ENFERMERÍA PREHOSPITALARIA MÓVIL

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ABSTRACT

Objective: to identify current correlations between stress and burnout syndrome in mobile prehospital nursing care. **Method:** cross-sectional, population, correlational, exploratory-descriptive, and quantitative study. The instruments Maslach Burnout Inventory and Inventory of Stress Symptoms were applied, besides a subject characterization form. Descriptive and inferential statistics was employed for data analysis, obtaining absolute and percentage distributions, as well as statistical measurements. The study was approved by the Research Ethics Committee of the State University of Health Sciences of Alagoas (UNCISAL), under the Protocol 1414/10. **Results:** an incidence of 76.2% of burnout was identified, 32.9% with indices of stress symptoms, 34.2% with psychological symptoms, and 31.6% with physical symptoms. Strong correlation was identified between stress symptoms and emotional exhaustion, according to Pearson's correlation coefficient and Fisher's exact test. **Conclusion:** there was disagreement between the incidence of burnout and stress. Chronic occupational stress triggers emotional exhaustion, which may progress to burnout, due to ineffective coping strategies. **Descriptors:** Nursing; Occupational Health Nursing; Nursing Staff; Burnout, Professional; Stress, Physiological.

RESUMO

Objetivo: identificar as atuais correlações entre o estresse e a síndrome de burnout no cuidado de enfermagem pré-hospitalar móvel. **Método:** estudo transversal, populacional, correlacional, exploratório-descriptivo e quantitativo. Foram aplicados os instrumentos Maslach Burnout Inventory e Inventário Sintomatológico de Estresse, além de uma ficha de caracterização dos sujeitos. Foi empregada na análise dos dados a estatística descritiva e inferencial, obtendo distribuições absolutas e percentuais, bem como medidas estatísticas. O estudo foi aprovado pelo Comitê de Ética em Pesquisa da Universidade Estadual de Ciências da Saúde de Alagoas (Uncisal), sob o Protocolo n. 1414/10. **Resultados:** foi identificada uma incidência de 76,2% de burnout, sendo 32,9% com índices sintomatológicos de estresse, 34,2% com sintomas psicológicos e 31,6% com sintomas físicos. Foi identificada forte correlação entre sintomas de estresse e exaustão emocional, segundo o coeficiente de correlação de Pearson e o teste exato de Fisher. **Conclusão:** houve divergência entre a incidência de burnout e estresse. A cronificação do estresse ocupacional desencadeia a exaustão emocional, que poderá evoluir para burnout, devido a estratégias ineficientes de enfrentamento. **Descritores:** Enfermagem; Enfermagem do Trabalho; Recursos Humanos de Enfermagem; Esgotamento Profissional; Estresse Fisiológico.

RESUMEN

Objetivo: identificar las correlaciones actuales entre el estrés y el síndrome de burnout en la atención de enfermería prehospitalaria móvil. **Método:** estudio transversal, poblacional, correlacional, exploratorio-descriptivo y cuantitativo. Se aplicaron los instrumentos Maslach Burnout Inventory e Inventario Sintomatológico de Estrés, además de un formulario de caracterización de los sujetos. Se empleó estadística descriptiva e inferencial para el análisis de datos, con obtención de distribuciones absolutas y porcentuales, así como medidas estadísticas. El estudio fue aprobado por el Comité de Ética en Investigación de la Universidad Estatal de Ciencias de la Salud de Alagoas (Uncisal), bajo el Protocolo 1414/10. **Resultados:** se identificó una incidencia de 76,2% de burnout, 32,9% con índices sintomatológicos de estrés, 34,2% con síntomas psicológicos y 31,6% con síntomas físicos. Se identificó fuerte correlación entre síntomas de estrés y agotamiento emocional, según el coeficiente de correlación de Pearson y la prueba exacta de Fisher. **Conclusión:** no hubo acuerdo entre la incidencia de burnout y estrés. Estrés laboral crónico provoca agotamiento emocional, que podrá evolucionar a agotamiento profesional, debido a estrategias de afrontamiento ineficaces. **Descriptor:** Enfermería; Enfermería del Trabajo; Personal de Enfermería; Agotamiento Profesional; Estrés Fisiológico.

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INTRODUCTION

From the earliest times in the history of the evolution of human society, work is an inseparable component in this context. The very individual's trajectory and her/his collectivities bring the occupational world as inherent to every moment of human life, either as a child, when asked about "what do you want to be when you grow up?", in adolescence, when we are forced to choose our profession on an early basis, and especially in adulthood, when we enter into the mercantilist world of competitiveness for livelihood and finance ambitions.

These positions are new ways to cope with life, theoretical-philosophical concepts, perspectives of action and raise of awareness for the transformations needed to a better quality of life.¹

Work is among the sources to meet various human needs, such as self-fulfillment, maintenance of interpersonal relationships, and survival. On the other hand, it may also be a source of illness when posing health risk factors and the worker does not have sufficient instruments to protect from these risks.

Work organization has an impact on the human psychic apparatus and, under certain conditions, there emerge some suffering related to worker's individual history, with projects, hopes, wishes, which collides with the ignorance of work organization.²⁻⁴ Speaking of occupational health hazards permeates more than physical issues, but psychological ones – often unrecoverable.

In workers' experience, the lack of adaptation to the needs arising from the mental structure and ergonomic contents of tasks translates into dissatisfaction, distress, or an anxiety condition, rarely expressed by words or explained by workers themselves. The lack of appreciation generates a feeling of worthlessness, referring to the lack of qualification and work purpose.

An authoritarian, arbitrary, supervision style, where the employees' rhythm, opinions, and needs are totally or almost totally disregarded, with lack of dialogue and excessive negative feedback, cause organizational stress, leading to dissatisfaction on the part of worker and institution itself.⁵

Stress is any stimulus that is required by the external or internal environment and that taxes or exceeds the individual's adaptation sources or social system.⁶ Its stages consist of primary evaluation, conducted when the

individual is faced with the event and evaluates it as irrelevant or as a (positive) challenge or a (negative) threat and both trigger biological manifestations of a general adaptation syndrome.⁷ Previously, it was already claimed that stress is a complex phenomenon, characterized by a set of physiological, psychological, and even behavioral reactions for adaptation that the body emits when exposed to stimuli that excite, annoy, frighten, or even make it very happy. According to the European Agency for Safety and Health at Work, occupational stress affects 28% of workers in the European Union.⁸

As if stress itself was not enough as a disruptor of homeostasis, the burnout syndrome, also known as syndrome of professional exhaustion, emerges in this epidemiological illness context of occupational health. The burnout syndrome occurs as a prolonged response to chronic stressors having an emotional and interpersonal nature. Burnout seems to be an experience subsequent to the subjective and chronic experience of occupational stress and, therefore, it is an antecedent of stress consequences on workers' health.⁸ This understanding is corroborated when the burnout syndrome can be avoided, since the organizational culture favors the execution of activities to prevent chronic stress.

It is understood that every individual affected by chronic occupational stress can suffer from the burnout syndrom.⁹ Chronic stress is a major factor of burnout. The diagnosis of burnout will be analyzed by means of some specific results, such as high emotional exhaustion, high depersonalization, and low professional fulfillment.¹⁰ Thus, chronic occupational stress will trigger high emotional exhaustion and depersonalization and low professional fulfillment.

Given these reflections, the guiding questions of this study are: "What is the correlation between stress and the individual subclasses of the burnout syndrome?"; "Is this a direct and proportional rule the chronicity of occupational stress and the burnout syndrome?".

From these questions, the study aims to identify current correlations between stress and the burnout syndrome in mobile prehospital nursing care.

The study population choice is justified by their occupational characteristics involving high emotional distress. Nurses refer to experience emotional distress due to work corresponding to a percentage of 42.1% at a frequency of sometimes and 26.4% at a

frequency of many times or almost always, that is, 68.5% of respondents pointed out emotional distress ranging from sometimes to almost always. Only 1/3 of the sample does not mention emotional distress at work.

METHOD

This is a cross-sectional, population, correlational, exploratory-descriptive, and quantitative study. The study population consisted of 42 nurses working at the Mobile Emergency Service in the municipalities of Maceió and Arapiraca, in Alagoas, Brazil. Out of them, 4 were excluded for having a length of service in prehospital care lower than 6 months, being on vacation, those assigned to provide this care due to staff dimensioning deficit, having a double job in urgency and emergency care, and having other professional contract to work in surgical centers, intensive care units, and burn care unit.

Prior to data collection, we introduced the free and informed consent term and a structured questionnaire, self-administered, was applied, which register socio-demographic data and possible secondary variables that can facilitate stress (in-service training, physical activity, absenteeism, working hours, patients provided with care per day, length of professional practice), the Inventory of Stress Symptoms (ISS), which identifies the incidence of physical and psychological stress symptoms. This inventory was initially prepared with 30 items, consisting of the symptoms often observed in the stress process. Such items must be answered on a 5-point Likert scale, ranging from 0 for “never” to 4 for “assiduously”, requesting that the person tick how often she/he feels the symptoms in her/his daily life.

After factor analysis, the inventory was reduced to 27 items, because 2 of the items became saturated in 2 scales (items 1 and 7) and a third had not reached the minimum of 0.30 (23). Thus, the factor psychological symptoms (PsyS) ended up consisting of 20 items and physical symptoms (PhyS) by 7. The percentage of total variance explained was 40.487%. The saturations for PsyS were between 0.754 and 0.390 with a Cronbach alpha of 0.9236 and PhyS between 0.725 and 0.330 and $\alpha = 0.7697$, indicating an adequate psychometric qualities.

For the bridging cut-off in the Brazilian population, the mean standardization values were estimated between: PhyS from 4 to 8 and PsyS from 16 to 27. Data collection was conducted by direct contact in respondents' workplace. Data were tabulated in a

spreadsheet of the software *Microsoft Excel*, version 2010.

The Maslach Burnout Inventory (MBI) was also used, an instrument validated in Brazil that identifies the symptomatic dimensions of burnout. It has 22 questions, those numbered from 1 to 9 are related to the emotional exhaustion level, from 10 to 17 we have professional fulfillment, and from 18 to 22 we have depersonalization. The scoring of items adopts a Likert scale that ranges from 0 (never) to 6 (every day). The diagnosis of burnout syndrome is determined by a high level of emotional exhaustion and depersonalization and a low level of professional fulfillment.

The cut-off values obtained were compared to the reference values provided by the Group for Study and Research on Stress and Burnout (GEPEB): emotional exhaustion (low: 0-15; average: 16-25; and high: 26-54); depersonalization (low: 0-2; average: 3-8; and high: 9-30); professional fulfillment (low: 0-33; average: 34-42; and high: 43-48).

Data collection took place by means of direct contact at respondents' workplace, always in the beginning of work activities. In the analysis, descriptive and inferential statistical techniques were used. The descriptive statistical techniques involved obtaining absolute and percentage distributions and the statistical measurements: mean, median, standard deviation, variation coefficient, minimum and maximum value, and Pearson's correlation coefficient. The inferential statistical techniques involved the tests: Student's *t* with equal or unequal variances, F (ANOVA) for a factor, Student's *t* for the zero correlation hypothesis, and Fisher's exact test if the conditions for using the chi-square test were not observed.

The evaluation of variance equality hypothesis was performed by using Levene's *F* test. The evaluation of data normality hypothesis in each category of variables was performed by using Shapiro-Wilk's test.

The margin of error adopted for deciding the statistical tests was 5.0%. For data entry and to obtain the statistical calculations we used the software *Statistical Package for the Social Sciences* (SPSS), version 15.

The study was approved by the Research Ethics Committee of the State University of Health Sciences of Alagoas (UNCISAL), under the Protocol 1414/10.

RESULTS

For assessing sociodemographic data (Table 1), we observed that participants’ age ranged between 23 and 57 years, 97.4% are women. Most individuals has a monthly income

between 6 and 9 minimum wages, something which reflects a reasonable condition of social and economic life of participants. In a comparison using statistical methods, there was no statistically significant difference according to the F test (ANOVA).

Table 1. Sample distribution according to the variables under study, 2010.

Variable	n	%
Age group		
Up to 39	27	75.0
≥ 40	9	25.0
Total ⁽¹⁾	36	100.0
Gender		
Male	1	2.6
Female	37	97.4
Children		
Yes	22	57.9
No	16	42.1
Total	38	100.0
Income (minimum wages)		
Up to 5	6	16.7
6 to 9	19	52.8
≥ 10	11	30.6
Total ⁽¹⁾	36	100.0
Physical activity		
Regularly	13	34.2
Occasionally	12	31.6
No	13	34.2
Total	38	100.0

(1) Information not available for 2 participants.

In the study sample, 68.4% had 37 or more months of length of experience in emergency; 78.9% had more than 41 working hours per week; 51.4% provided care for up to 10 patients per day. It was identified that, regarding education, 34.2% reported having received some training. Half of respondents said they never miss a working day, 41.7% said they occasionally lose miss it, and 8.3% said they often miss a working day.

In the descriptive analysis of data set, by means of PsyS and PhyS scores of stress, we identified low variability of central tendency measurements, as well as of absolute dispersion measurements, something which represents the homogeneity of data. In this framework we highlight that: the mean PhyS scores was 0.06 higher than the mean PsyS scores (2.16 × 2.10), and the standard

deviation values were, respectively, 0.68 and 0.76. The maximum values in the scale ranged from 1 to 3.

Table 2 highlights data distribution regarding frequencies and percentages of PsyS and PhyS. We observe a considerably high rate, around 34%, for PsyS, and 31% for PhyS. These data suggest that about 30% of respondents are already classified into the (emotional) exhaustion phase of stress, with probable illness, because they have a high rate of symptoms. Another alarming piece of information is that nearly 50% of subjects have an average rate of psychophysiological symptoms of stress, with an apparent likelihood to have high levels of these symptoms. More than half have physical symptoms, indicating psychosomatization (52.6%).

Table 2. Distribution of results for psychological and physical symptoms of stress, 2010.

Measurement	n	%
Psychological symptoms		
Low	9	23.7
Average	16	42.1
High	13	34.2
Total	38	100.0
Physical symptoms		
Low	6	15.8
Average	20	52.6
High	12	31.6
Total	38	100.0

Most professionals were classified with high emotional exhaustion (88.9%), high depersonalization (100.0%), and low professional fulfillment (97.4%), in addition to the mean values of each subclass of the burnout syndrome, where we can observe that

the variability expressed by the variation coefficient is not high, since the measurement was at most equal to 33.08% for professional fulfillment; 76.3% have the burnout syndrome and 23.7% did not suffer from burnout (Table 3).

Table 3. Condition assessment of the burnout symptom dimensions.

Variable	n	Mean	%
Emotional exhaustion	30.18		
Average	8		21.1
High	30		88.9
Total	38		100.0
Depersonalization	15.87		
High	38		100.0
Total	38		100.0
Professional fulfillment	18.71		
Low	37		97.4
Average	1		2.6
Total	38		100.0

Table 4 displays Pearson’s correlation values for each dimension, with average values for symptoms. The only correlation

statistically different from zero ($p < 0.05$) refers to emotional exhaustion and PsyS, with positive and reasonable value (0.488).

Table 4. Pearson’s correlation of physical and psychological symptoms between the symptomatic dimensions, 2010.

Pearson’s correlation		
Symptomatic dimensions	PsyS	PhyS
	r(p)	r(p)
Emotional exhaustion	0.488 (0.002)*	0.163 (0.329)
Depersonalization	0.189 (0.257)	-0.084 (0.617)
Professional fulfillment	0.049 (0.768)	-0.114 (0.497)

(*) Statistically different from zero.

Table 5 displays the study of association between the results of psychological and physical symptoms with the results of emotional exhaustion. In this table we highlight that: only 8 respondents had average emotional exhaustion and the remaining 30 had high emotional exhaustion; for the margin of error fixed (5.0%) we observe an association between emotional exhaustion and physical

symptoms and for that variable we found that the percentage with low and high physical symptoms were correspondingly higher among those who had average emotional exhaustion and the opposite occurred with those who had moderate physical symptoms, higher among those who had high emotional exhaustion (70.0% x 25.0%).

Table 5. Classification of psychological and physical symptoms according to emotional exhaustion, 2010.

Variable	Emotional exhaustion				Group total		P value
	Average		High				
	n	%	n	%	n	%	
Total	8	100.0	30	100.0	38	100.0	
Psychological symptoms							
Low	4	50.0	6	20.0	10	26.3	p ⁽¹⁾ = 0.266
Moderate	2	25.0	9	30.0	11	28.9	
High	2	25.0	15	50.0	17	44.7	
Physical symptoms							
Low	3	37.5	2	6.7	5	13.2	p ⁽¹⁾ = 0.014*
Moderate	2	25.0	21	70.0	23	60.5	
High	3	37.5	7	23.3	10	26.3	

(*) Significant association at 5.0%.

(1) Through Fisher’s exact test.

DISCUSSION

Nursing follows the evolution of reflections on stress and it incorporates maneuvers that promote health among the nursing staff, especially the health of people performing complex and stressful activities, such as emergency and intensive care.

The nursing profession has been regarded in the literature, often, as a particularly stressful job, characterized by continuous physical and emotional demands that professionals receive from their patients and a poor recognition by customers.

A larger length of professional experience combined to a more advanced age may be associated with professional maturity, something which generates greater control over stressful moments.⁹ In the study population, most individuals are under 40 years of age, they are working at the emergency service for less than 3 years, suggesting the possibility of professional immaturity and commitment to work, reinforcing the theoretical models of imbalance between effort and reward.¹

Analyzing the existence of children among the subjects under study, it was possible to identify differences when comparing this survey with most studies, however, there are similar aspects in some studies conducted.¹¹ Professionals who have no children experience higher stress levels. This is due to the fact that the presence of children implies engaging in various activities outside the workplace, renewing daily life.

In prehospital care, perhaps a factor can explain the high rates (88.9%) of emotional exhaustion among nurses, work overload; 78.9% of nurses work for 40 or more hours per week, a predictive factor for stress, according to the survey.¹²

The fact of being a woman is constantly related to stress among nurses. Considering that, in many investigations, the number of professional women is much greater than the number of men, some of these results are not conclusive, as they do not have statistical significance. Another possible contributing factor for stress is the lack of practical training and personal preparation (education). The rapid current changes and the small gap to address innovations can cause critical anxiety among professionals. This situation becomes worse when there are unrealistic expectations on oneself and in relation to the patient.⁵

Out of the total number of study participants, 34.2% did not practice any

physical activity, something which characterized the subjects as sedentary. Physical activity provides relief from anxiety and frustration. This finding confirms the follow-up of studies¹³ pointing out higher stress levels among sedentary individuals.

The association between the presence of stress and the large number of physical and psychological symptoms was presented by a study¹⁴ that indicates an incidence of 66.7% of stress among intensive care nurses, with quite similar occupational characteristics to those involved in urgency and emergency care.

“Feeling extremely tired or exhausted”, “unwillingness to get up in the morning”, “difficulties in maintaining a peaceful sleep”, “tendency to eat, drink, or smoke more than usual”, and “migraines and headaches” represent the health indicators more often experienced and reported by up to 35% of nursing professionals³, indices which corroborate the results found in this study. It is known that 32% of nurses have psychological symptoms.¹⁵ A study on stressors and coping among hospital emergency nurses indicates that 26.4% reports the frequency many times or almost always as for emotional exhaustion at work.

Emotional exhaustion refers to a feeling of fatigue and energy depletion that empties the individual’s emotional resources. This component portrays the aspect of individual stress of burnout and this is conceptualized as the central aspect of this syndrome, besides being the factor with highest average among nurses, having high correlations with work overload factors.¹⁶

Emotional exhaustion is the first response to chronic occupational stress, accompanied by physical stress and depletion of emotional resources to deal with the stressful situation.¹⁷ Such a statement corroborates the data found in this study that point out greater emotional exhaustion as a factor more correlated to stress. Correlations between burnout and stress proved to be strong between emotional exhaustion, factors inherent to the work and stressful career roles, in addition to highlight that interpersonal relationships have a moderate correlation, according to a study conducted with nurses working at a teaching hospital with high complexity.¹⁸

Results obtained by some studies allow us to claim that the relation of health problems to emotional exhaustion is particularly intense^{8,19,20}, replicating the results. Relations between health problems and the three burnout dimensions are apparent, although the primary role of emotional exhaustion

leads to conclude in some studies with nursing professionals that this is the only significant predictor of psychosomatic symptoms.²¹

Emotional exhaustion has shown an independent and significant relation to the four measurements of physical and psychological health (somatic complaints, post-traumatic symptoms, suicidal ideation, and well-being), both directly as indirectly.^{17,19} Therefore, it has been proved that chronic occupational stress leads to emotional exhaustion and not to the burnout syndrome in its ongoing process of feeling some inadequacy to the job, lack of resources to tackle the job, and decreased ability to solve problems. While stress can have positive (eustress) or negative (distress) aspects, burnout will always have a negative nature.

Coping strategies, either effective or not, will result in evolution or not regarding emotional exhaustion for the burnout syndrome. If this correlation was direct and consensual, the same group of subjects who had “x” burnout incidence, might have at least “y” incidence greater than that found in burnout, and never lower.

Having a reasonable health status is directly related to low stress level and the use of problem-focused coping, what is regarded as positive to cope with the stress process at work.¹ The way how the individual uses coping strategies is partly determined by her/his internal and external resources (health, beliefs, support, material resources, and others).

The nursing professionals who work at prehospital care or even at any of the working areas, although having various factor that trigger stress at the workplace, which interfere with their work activities, seek to diminish them by means of defense mechanisms, such as getting away from responsibilities, sublimating problems, or also predicting them.²²

CONCLUSION

Studying stress and burnout at the workplace of nurses allows a better understanding of their causes, in-depth discussion and analysis of results, which contributes to elucidate everyday situations, besides expressing statistically consistent data as a source to plan multidisciplinary care actions and provide occupational health care. Such risks and conditions, when not adequate and well-adjusted, directly influence on the physical and mental health of these individuals, contributing to the onset of high levels of psychophysiological stress symptoms

and consequent emotional exhaustion, negatively interfering on labor.

This chain of uninterrupted occupational illness will result in burnout syndrome and its ongoing evolution process towards reduced professional fulfillment and depersonalization, which, in turn, will aggravate the emotional exhaustion condition, thus completing an illness cycle. It is noteworthy that the measures to disrupt the illness chain derive both from coping individually planned and executed by the professional and that designed at an organizational level.²³ Personal characteristics are not direct predictors of stress, emotional exhaustion, and/or burnout. They may facilitate the illness process.

There is a strong correlation between psychophysiological stress symptoms and emotional exhaustion and a null correlation to the other burnout subclasses, with the exception of a moderate correlation between physical symptoms and low professional fulfillment, something which indicates the possibility of psychosomatization among the subjects under analysis. This study was restricted to the number of subjects investigated, even though this is a population study.

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