



Predictors of burnout syndrome in nurses in the prehospital emergency services*

Preditores da Síndrome de Burnout em enfermeiros de serviços de urgência pré-hospitalar

Predictores del Síndrome de Burnout en enfermeros de servicios de urgencia pre-hospitalaria

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ABSTRACT

Objective: To analyze the predictors of *burnout syndrome* presented by nurses from the mobile prehospital emergency services. **Methods:** A descriptive, exploratory, quantitative study with 38 nurses. A structured questionnaire was used, along with the *Maslach Burnout Inventory* in September, 2010. For data analysis, descriptive and inferential statistical techniques (t-test and F-test (ANOVA)) were used. Verification of the hypothesis of equality was conducted using Levene's F-test, and normality was tested using the Shapiro-Wilk test. **Results:** The variability expressed by the coefficient of variation was not high, since the measure was, at most, equal to 33.17. **Conclusion:** There was no statistically significant difference between variables and symptom dimensions of *burnout syndrome*. The syndrome may be more related to organizational factors of work than with the type of activity performed by professionals or their demographic findings.

Keywords: Nursing; Burnout professional/epidemiology; Stress, psychological/epidemiology; Work; Prevalence

RESUMO

Objetivo: Analisar os preditores da Síndrome de *Burnout* apresentados por enfermeiros de serviços de urgência pré-hospitalar móvel. **Métodos:** Estudo descritivo, exploratório, quantitativo com 38 enfermeiros. Utilizou-se questionário estruturado acrescido do *Maslach Burnout Inventory* em setembro de 2010. Na análise dos dados, foram usadas técnicas de estatística descritiva e inferencial (teste t-Student e teste F (ANOVA)). A verificação da hipótese de igualdade foi realizada pelo teste F de Levene e a de normalidade pelo teste de Shapiro-Wilk. **Resultados:** A variabilidade expressa pelo coeficiente de variação não se mostrou elevada, desde que a referida medida foi, no máximo, igual a 33,17. **Conclusão:** Não houve diferença estatisticamente significativa entre as variáveis estudadas e as dimensões sintomatológicas da Síndrome de *Burnout*. A Síndrome pode estar mais relacionada com fatores organizacionais do trabalho do que com o tipo de atividade desenvolvida pelos profissionais ou de achados sociodemográficos.

Descritores: Enfermagem; Esgotamento profissional/epidemiologia; Estresse psicológico/epidemiologia; Trabalho; Prevalência

RESUMEN

Objetivo: Analizar los predictores del Síndrome de *Burnout* presentados por enfermeros de servicios de urgencia pre-hospitalaria móvil. **Métodos:** Estudio descriptivo, exploratorio, cuantitativo realizado con 38 enfermeros. Se utilizó un cuestionario estructurado acrecentado del *Maslach Burnout Inventory* en setiembre del 2010. En el análisis de los datos, se usaron técnicas de estadística descriptiva e inferencial (test t-Student y test F (ANOVA)). La verificación de la hipótesis de igualdad fue realizada por el test F de Levene y la de normalidad por el test de Shapiro-Wilk. **Resultados:** La variabilidad expresada por el coeficiente de variación no se mostró elevada, puesto que la referida medida fue, máximo, igual a 33,17. **Conclusión:** No hubo diferencia estadísticamente significativa entre las variables estudiadas y las dimensiones sintomatológicas del Síndrome de *Burnout*. El Síndrome puede estar relacionada más con factores organizacionales del trabajo que con el tipo de actividad desarrollada por los profesionales o de hallazgos sociodemográficos.

Descritores: Enfermería; Agotamiento profesional/ epidemiología; Estrés psicológico/epidemiología; Trabajo; Prevalencia

* Study performed in the Service of Mobile Urgent Care (SMUC), in the cities of Maceió and Arapiraca (AL), Brazil.

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INTRODUCTION

The social changes of recent decades also trigger changes in regard to work, professional performance, and the quality of services provided. The professional qualification is based on the capacity to organize, coordinate, innovate, act predictably across situations, and the decision to cooperate with the work team. These transformations occur not only in the context of work operations, but also within the psychology of the workers.

The rapid pace of work-related transformations has provided a growing recognition of the importance of a mediator between different social levels and human health. From this perspective, three theoretical perspectives can be highlighted from distinct areas of knowledge, and that are based on studies:⁽¹⁾

- Psychophysiological, focusing on the concept of stress;
- Psychodynamics of work, integrating the psychoanalytic approach with the analysis of experiences in the workplace, highlighting the concept of mental distress, and
- The dynamics of domination, which intertwines with power relationships, focusing on the concept of losses which may be concrete, potential or symbolic, and which are able to cover, simultaneously, the biological, psychological and social dimensions.

In recent years, the level of physical and emotional breakdown of workers has reached high proportions.⁽²⁾ However, many institutional employers prefer to ignore the suffering of their employees and understate this reality, insisting on capitalizing on the work of their employees.

Pioneering researchers studying the mental health of workers tried to identify common stressful aspects of the work environments of health professionals, to identify what professionals lived with in this respect. They then utilized specific techniques to overcome stress, and identified what effects they had when they sought to prevent it. *Burnout* and stress are the most discussed themes in the scientific research that addresses the mental health of the worker.

The term, burnout, was first used publicly by Maslach, at the *Annual Congress of the American Psychological Association*, in 1997.⁽³⁾ This syndrome is manifested by specific symptoms, and can be developed due to the chronic stress overload with work. This syndrome was developed as a construct that included three factors: emotional exhaustion, depersonalization, and, a decreased sense of personal accomplishment.⁽⁴⁾

The daily process of working in urgent and emergency care includes the possibility of uninterrupted work in caring for the seriously ill who need immediate care due

to life-threatening conditions. Some studies have shown and discussed the levels of stress in professionals working in hospital emergency departments; the stress levels in mobile emergency medical services (mobile EMS) are not well understood, but can be considered similar to other emergency units. Additionally, this is aggravated by the need to complete this work with speed, which creates an event that poses a risk to life or a detriment to the infirmity itself. These working conditions make for a more unhealthy work condition in the mobile EMS (pre-hospital) units.

The mobile EMS units include all assistance provided directly or indirectly outside of the hospital environment.⁽⁵⁾ Within Brazil, mobile EMS care was initiated in the 1980s with the *Group of Emergency Relief*, which was affiliated with a unit of the Fire Brigade of the State of Rio de Janeiro. Today the mobile EMS is operated by the *Service of Mobile Urgent Care* (SMUC), present in all Brazilian states, with 157 Centers of Medical Regulation covering 1,372 municipalities. There are more than 109 million people who rely on the service, with thousands of nursing professionals involved in this care, and who are exposed to working conditions of stress and emotional exhaustion, inherent to the job.

Chronic stress, which develops from the demands of the process of nursing work in mobile EMS units, can result in development of *burnout syndrome* in these workers. The development of *burnout syndrome* involves several individual and labor-related factors, and is therefore multicausal, in which the social and environmental variables are supporting the process.⁽⁶⁾ Its appearance depends on several predisposing factors, which can be organizational, work, social and / or personal. The identification of these predictors is an essential part of the scientific discussion on *burnout* and the work of nursing. Considering the aforementioned context, it becomes relevant to answer the question guiding this study: How do we analyze the predictors of *burnout* in nurses within mobile EMS units? The objective of this study was to analyze the predictors of *burnout syndrome* presented by nurses from the mobile EMS unit.

METHODS

This study used a descriptive, exploratory, qualitative research approach, approved by the Research Ethics Committee of the State University of Health Sciences of Alagoas (Opinion No. 1414-10). The study population consisted of 42 nurses working in the *Service of Mobile Urgent Care* (SMUC), in the cities of Maceió and Arapiraca, in the state of Alagoas (AL). Data collection was conducted in September 2010, through direct contact at the workplace of the participants.

Prior to data collection, we provided the *Terms of Free and Informed Consent* to obtain the consent and

signature of the 38 nurses interviewed. We used a structured, self-reported questionnaire, which recorded sociodemographic data, along with 22 questions of the instrument, *Maslach Burnout Inventory*, which identify the symptomatic dimensions of *burnout*. The questions were related to the following dimensions: 1 to 9 (emotional exhaustion); 10 to 17 (Personal accomplishment); and, 18 to 22 (depersonalization). The diagnosis of burnout syndrome is given for obtaining a high level for emotional exhaustion and depersonalization, and a low level for personal accomplishment.

For data analysis we used descriptive and inferential statistical techniques, involving the acquisition of absolute distributions, percentages and statistical measures. In addition, we used the Student t-test, with equal or unequal variances, and the F-test (ANOVA) for one factor. The verification of the hypothesis of equal variances was performed using Levene's F-test. The verification of the hypothesis of normality of the data in each category of variables was performed using the Shapiro-Wilk test. The margin of error used for the decision about the statistical tests was 5.0%.

The cutoff values obtained were compared to the reference of the Center for Advanced Studies on Burnout Syndrome: emotional exhaustion (low: 0-15, medium: 16-25, high: 26-54); depersonalization (low: 0-2; medium: 3-8; high: 9-30); and personal accomplishment (low: 0-33; medium: 34-42; and high: 43-48).

RESULTS

The population consisted of 42 nurses; 38 were interviewed. Of these, 76.3% presented with *burnout syndrome*. The majority of the professionals were classified with high emotional exhaustion (88.9%), high depersonalization (100.0%), and low personal accomplishment (97.4%). With regard to the means of each subclass of *burnout syndrome*, it was possible to verify that the variability expressed by the coefficient of variation was not elevated, because that measure was at most equal to 33.17 for depersonalization associated with any physical activity, and with the maximum difference between the means found in the variances of 4.94.

It was possible to highlight that the means for emotional exhaustion were, approximately, equal among nurses with ages less than 30 years, and those ages with ages of 30 years or more (Table 1). The means were higher among workers who were 30 years of age or more than among those younger than 30, however the fixed margin of error (5.0%) did not show any significant difference between the two age groups regarding the mean for any of the dimensions ($p > 0.05$).

When children existed (Table 1), the means for each of the dimensions were higher among professionals with

children than among those without. However, there was no significant difference between the two subgroups regarding the means of each dimension ($p > 0.05$).

Table 1. Distribution of mean and standard deviation of symptom dimensions of *burnout*, according to age group and children (September, 2010).

Symptom Dimensions	Individual Variable Mean \pm SD		
	Age Group		
Emotional exhaustion	<29	>30	p-value
	30.48 \pm 5.79	30.44 \pm 7.92	$p^{(1)} = 0.988$
	Children		
Depersonalization	Yes	No	p-value
	30.41 \pm 6.03	29.88 \pm 6.81	$p^{(1)} = 0.800$
	Age Group		
Personal accomplishment	<29	>30	p-value
	15.41 \pm 3.40	18.22 \pm 5.12	$p^{(1)} = 0.068$
	Children		
Emotional exhaustion	Yes	No	p-value
	16.77 \pm 4.37	14.63 \pm 3.38	$p^{(1)} = 0.110$
	Age Group		
Personal accomplishment	<29	>30	p-value
	18.74 \pm 4.98	19.78 \pm 8.63	$p^{(2)} = 0.739$
	Children		
Emotional exhaustion	Yes	No	p-value
	19.14 \pm 6.39	18.13 \pm 6.06	$p^{(1)} = 0.626$

⁽¹⁾ By Student's t test with equal variances.

⁽²⁾ By Student's t test with unequal variances.

Regarding the differences between income groups (Table 2) and the means of the dimensions, we found that although the differences were not very high, the most elevated measures of emotional exhaustion and depersonalization corresponded to the professionals with an income of six to nine times the minimum wage. The mean for personal accomplishment was higher among those with incomes of up to five times the minimum wage, and lower among those with income equal to ten or more times the minimum wage. However, there were no significant differences ($p > 0.05$) between income groups in relationship to the means of the variables in question.

The data (Table 2) highlight that the mean of emotional exhaustion was higher among those who practice any physical activity; the means of depersonalization and personal accomplishment was higher among those who practiced regular physical activity. However, there were no significant differences between those who practiced physical activity, either regularly or irregularly ($p > 0.05$).

In relation to the workload (Table 3), the only significant difference ($p < 0.05$) was recorded in the variable of depersonalization, in which higher means were presented among those with a schedule of less than 40 hours, than among those with 41 hours or more.

Table 2. Distribution of the mean and standard deviation of symptom dimensions of burnout according to income and physical activity

Symptom Dimensions	Individual Variable Mean ± SD			p-value
	Wage / Salary			
Emotional exhaustion	< 5	6 - 9	> 10	p(1) = 0.831
	28.83 ± 6.62	30.58 ± 5.71	29.73 ± 7.43	
Physical Activity				
Emotional exhaustion	Regularly	Occasionally	None	p(1) = 0.124
	28.23 ± 5.95	33.17 ± 5.78	29.38 ± 6.49	
Wage / Salary				
Depersonalization	< 5	6 - 9	> 10	p(1) = 0.742
	15.00 ± 3.22	16.16 ± 2.91	15.18 ± 5.78	
Physical Activity				
Depersonalization	Regularly	Occasionally	None	p(1) = 0.362
	17.15 ± 3.76	15.50 ± 4.42	14.92 ± 4.05	
Wage / Salary				
Personal accomplishment	< 5	6 - 9	> 10	p(1) = 0.807
	20.00 ± 3.95	19.00 ± 5.69	17.91 ± 8.51	
Physical Activity				
Personal accomplishment	Regularly	Occasionally	None	p(1) = 0.869
	19.46 ± 7.22	18.42 ± 6.96	18.23 ± 4.55	

⁽¹⁾ Using F-test (ANOVA).

Table 3. Distribution of mean and standard deviation of symptom dimensions of burnout, based on workload (September, 2010).

Symptom dimensions	Workload		p-value
	<40 Mean + SD	> 41 Mean + SD	
Emotional exhaustion	30.75 ± 8.15	30.03 ± 5.85	p(1) = 0.779
Depersonalization	19.25 ± 4.50	14.97 ± 3.52	p(1) = 0.007*
Personal accomplishment	19.00 ± 8.55	18.63 ± 5.59	p(1) = 0.884

^(*) Significant difference at the level of 5.0%.

⁽¹⁾ For the Student t-test with equal variances.

The means of the dimensions were compared among the respondents who attended up to ten patients a day (Table 4), and those who cared for more than ten patients a day. There was no significant difference between the two study groups ($p > 0.05$).

Table 4. Distribution of mean and standard deviation of symptom dimensions of burnout, based on the number of patients seen per day (September 2010)

Symptom dimensions	Number of patients seen per day			p-value
	< 10 Mean + SD	>11 Mean + SD		
Emotional exhaustion	30.89 ± 6.99	29.47 ± 5.58	p(1) = 0.513	
Depersonalization	15.61 ± 4.58	15.53 ± 3.56	p(1) = 0.954	
Personal accomplishment	18.72 ± 7.51	18.94 ± 4.74	p(1) = 0.919	

⁽¹⁾ For the Student t-test with equal variances.

The means for emotional exhaustion and personal accomplishment were less elevated among those who received in-service training (Table 5), and the mean for depersonalization was less elevated among those who received regular training, without any significant difference for any of the dimensions ($p > 0.05$).

Table 5. Distribution of mean and standard deviation of symptom dimensions of burnout related to in-service training

Symptom dimensions	Was there regular training?			p-value
	Yes Mean ± SD	Occasionally Mean ± SD	No Mean ± SD	
Emotional exhaustion	31.08 ± 4.73	28.57 ± 7.72	31.18 ± 6.00	p ⁽¹⁾ = 0.494
Depersonalization	15.31 ± 3.73	16.21 ± 5.26	16.09 ± 2.88	p ⁽¹⁾ = 0.835
Personal accomplishment	19.92 ± 4.65	16.93 ± 7.37	19.55 ± 6.17	p ⁽¹⁾ = 0.406

⁽¹⁾ Using F-test (ANOVA).

DISCUSSION

Personal characteristics, such as age, sex, educational level, marital status, having children and personality, are not by themselves triggers of the phenomenon, but facilitators or inhibitors of the action of stressors.⁽⁷⁾ This statement correlates with the results presented in the current study that, by means of verification of the variability expressed by the coefficient of variation, variability was not high when we compared the variables in this study with the symptom dimensions of *burnout*. It is understood that the “uncertain” predictors of *burnout* syndrome may or may not facilitate the development of the syndrome.

The highest incidence of *burnout syndrome* was present in young professionals, particularly those who had not yet reached 30 years of age.^(6,8) The lack of self-confidence and an inadequate knowledge base could be factors that contributed to additional stress within the decision-making process, suggesting that these individuals lacked the necessary life experience, becoming more prone to *burnout syndrome*. The more time one has in the profession, the greater job security and lower physical and emotional distress in relation to tension.^(6-7,9-10)

The issue of having children or not, is controversial for some researchers who consider the fact that children provide a motive to balance work for the professional, thereby enabling better strategies to cope with conflicting situations and occupational stress agents.⁽⁷⁾ Other studies have not found significant differences in this respect,⁽¹¹⁾ a fact which corroborates data from our research that does not show any significant correlation.

Another important variable was the workload, considered to be an interfering factor. In this study it was demonstrated to have the opposite, with the higher prevalence of emotional exhaustion occurring in the group that worked less than 40 hours. Professionals, in order to feel exhausted, have reported a feeling of physical and emotional overload accompanied by a difficulty relaxing, and referring to a daily state of fatigue.⁽²⁾ These workers, when they are exhausted, have reduced internal resources to cope with situations experienced at work, as well as a lack of energy to perform activities.⁽¹²⁾

The means for emotional exhaustion and personal accomplishment were less elevated among those who received any training, and the mean depersonalization was less elevated among those who received regular training. These data corroborate studies that indicate a lack of training on a regular basis for nurses causes serious consequences in caring for the population. This, combined with the high level of tension for health professionals, makes the efficiency and agility of actions difficult in front of the victims of trauma and clinical emergencies that they attend in the mobile EMS unit.⁽¹³⁾

When workers suffer physical and emotional breakdown, they are not solely responsible for the fatigue, anger, and attitude of indifference that they adopt. This breakdown is a sign of significant dysfunction in the organizational environment and, therefore, reveals more about the workplace than about those who work within it.⁽²⁾ The physical and emotional exhaustion of professionals is a situation arising from the work environment. The unhealthy workplace contributes to the physical and emotional exhaustion of professionals, a situation that results from the work environment and that is not generated by problems arising from the professionals.⁽¹³⁾

An evaluation in medical oncologists of the prevalence of burnout and some variables such as mean *number of patients seen per day* and *physical activity*, found no statistically significant correlations between *burnout syndrome* and these variables, which corroborates the results of this study.⁽¹⁴⁾ *Burnout* is not a problem of people, but principally of the place where the person works.⁽²⁾

The organizational variables, identified by the literature as predictors of *burnout syndrome*, were not highlighted in this study, limiting the discussion and analysis of the possibilities for development of *burnout* related to organizational factors.

CONCLUSIONS

According to the data obtained, no statistically significant difference between variables and symptom dimensions of *burnout syndrome* was identified. This result suggests that burnout may be more related to organizational factors (physical environment, organizational changes, institutional norms, climate, bureaucracy, communication, autonomy, rewards, security) than to other individual factors (age, sex, educational level, children, leisure, etc.), work (occupational type, length of service, time at institution, rotating or night shift work, overload, client type, etc.), and / or socio-demographic findings of the research subjects. In this sense, this study corroborates other research and reviews that show that *burnout syndrome* develops as a result of a sum of factors.

The type of work performed can be a precipitating factor in *burnout syndrome*, in addition to personal factors that are exacerbated by institutional factors. Poor working conditions in nursing are a longstanding problem, and have been discussed for decades by professional associations linked to the category of professional nursing.

It is necessary to highlight important points for further discussion:

- Studies aiming to evaluate and correlate other personal facilitators, such as idealism, motivation, pessimism, optimism and perfectionism could be developed;

- Studies aiming to evaluate and correlate other organizational facilitators could be developed, in order to raise discussion and reflection about the real facilitators of *burnout* and, thereby, public policy for protection and prevention of *burnout* can be (re)designed and (re)implemented;
- Studies on stress, resilience and depression could be compared with findings on *Burnout Syndrome*.

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