Predictors of burnout syndrome in intensive care nurses

Preditores da síndrome de burnout em enfermeiros de unidade de terapia intensiva

Predictores del síndrome de burnout em enfermeras de La unidad de terapia intensive

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ABSTRACT

Objective: To identify the prevalence and analyse the existence of predictors of burnout syndrome in intensive care nurses.
Methods: The quantitative, descriptive, cross sectional study with 91 intensive care nurses. Two instruments were used to collect data in July 2014: a sociodemographic form and the Maslach Burnout Inventory - Human Services Survey. Pearson's Chi-Square test or Fisher's exact test were applied to verify the association between the occurrence of burnout and the categorical variables.
Results: Burnout affected 14.3% of the sample. Of the studied variables, only the duration of holidays had a significant association with the occurrence of burnout (p = 0034/OR = 3.92).
Conclusions: The prevalence of burnout in the nurses was 14.3%. Duration of the holidays was the only variable that showed a significant association with the occurrence of burnout.
Keywords: Nurses. Intensive care units. Nursing research. Stress, psychological. Burnout, professional. Prevalence.

RESUMO

Objetivo: Identificar a prevalência e analisar a existência de fatores preditores da síndrome de burnout em enfermeiros de unidade de terapia intensiva.
Métodos: Estudo quantitativo, descritivo, transversal, com 91 enfermeiros de terapia intensiva. Utilizaram-se na coleta dos dados, em julho de 2014, dois instrumentos: um sociodemográfico e o Maslach Burnout Inventory - Human Services Survey. Para verificar a associação entre a ocorrência do burnout e as variáveis categóricas foram aplicados o teste Qui-Quadrado de Pearson ou o teste Exato de Fisher.
Resultados: Apresentaram burnout 14,3% da amostra. Das variáveis estudadas, a duração das férias foi a única que apresentou associação significativa com a ocorrência do burnout (p=0,034 / OR=3,92).
Conclusões: A prevalência do burnout nos enfermeiros correspondeu a 14,3%. A duração das férias foi a única variável em que houve associação significativa com a ocorrência do burnout.
Palavras-chave: Enfermeiras e enfermeiros. Unidades de terapia intensiva. Pesquisa em enfermagem. Estresse psicológico. Esgotamento profissional. Prevalência.

RESUMEN

Objetivo: Identificar la prevalencia y analizar la existencia de predictores del síndrome de burnout en enfermeras de la unidad de cuidados intensivos.
Métodos: Estudio cuantitativo, descriptivo, transversal, con 91 enfermeros de terapia intensiva. Se utilizaron en la recolección de datos, en julio de 2014, dos instrumentos: un sociodemográfico y el Maslach Burnout Inventory - Human Services Survey. Para verificar la asociación entre la ocurrencia del burnout y las variables categóricas se aplicó la prueba Qui-cuadrado de Pearson o la prueba Exacto de Fisher.
Resultados: Presentaron burnout 14,3% de la muestra. De las variables estudiadas, la duración de las vacaciones fue la única que presentó asociación significativa con la ocurrencia del burnout (p = 0,034 / OR = 3,92).
Conclusiones: La prevalencia del burnout en los enfermeros correspondió al 14,3%. La duración de las vacaciones fue la única variable en la que hubo asociación significativa con la ocurrencia del burnout.
Palabras-clave: Enfermeros. Unidades de cuidados intensivos. Investigación en enfermería. Estrés psicológico. Agotamiento profesional. Prevalencia.

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INTRODUCTION

The fast pace of organizational, social, and legal transformations has affected the health/sickness process of workers[1]. Prolonged exposure to environmental and situational stressors leads to occupational stress, which can increase emotional exhaustion and depersonalisation, and reduce professional accomplishment[2].

Stressors commonly found in the workplace include long working hours, low pay, conflicts with colleagues, complexity of procedures, and lack of personal and material resources[2-5].

Intensive care nurses suffer the continuous effects of several stressors in the workplace. These workers are more susceptible to occupational stress due to their exhaustive and tense work[4], which in time can lead to burnout and other mental disorders[6]. Burnout and stress are the most widely addressed subjects by researchers in the area of mental health for workers[1].

It has been reported that burnout is more common among nurses than other health workers[7] because of the stressful situations nurses experience at work and their direct contact with critically ill patients with different prognoses and varying degrees of suffering[8].

The term burnout is used to describe physical or mental exhaustion caused by stress. Burnout is a syndrome with specific symptoms (irritability, muscle pain, lack of appetite, mental and physical exhaustion) and it is subdivided into three dimensions, namely emotional exhaustion, depersonalisation, and personal accomplishment[9].

In the second decade of the 21st century, researchers deepened investigations to understand the possible association between burnout and its predictors[1, 4-5], which motivated this study. The guiding question of this study was to analyse the existence of factors in an intensive care unit that can be considered predictors of burnout in nurses. Based on these characteristics, we sought to identify the prevalence of burnout in intensive care nurses and detail the three dimensions.

The rationale for this study is based on the need to analyse the existence of predictors of burnout in intensive care nurses and shed light on the relationship between the work of nurses and burnout syndrome. The results can support important discussions on how to promote health at work and create occupational health programmes in the institution where this study was conducted to prevent and detect these diseases in intensive care nurses.

Consequently, the aim of this study was to identify the prevalence and analyse the existence of predictors of burnout syndrome in intensive care nurses.

METHODS

This is a quantitative, descriptive, and cross-sectional study conducted at a large teaching hospital in the city of São Paulo (SP), Brazil. The hospital caters to all medical specialties, especially high-complexity procedures. It is highly representative for the authorities of Greater São Paulo at a local and state level, and it also attends patients of other states.

The sample was defined using non-probability convenience sampling. Selection depended on the presence of the subjects in the data collection period, resulting in a sample of 91 participants. The inclusion criteria were nurses, working in the intensive care unit or in the sectors associated with the intensive care units (emergency room, dialysis, and burn treatment). No exclusion criteria were adopted.

The intensive care units involved in the study were neurosurgery, pneumology, paediatrics, neonatal, cardiac surgery, internal medicine, cardiac, burn treatment, health plan, and general. Nurses who worked in the closed emergency unit, the dialysis unit, and the burn treatment unit also participated in the study. These units specialise in care for critical patients and work with the intensive care unit in the provision of high-complexity care and in emergency situations similar to those found in the intensive care.

Data were collected in July 2014 by the researcher responsible for the work sectors of the participants. The participants were given two instruments to answer before starting their shifts and the instruments were collected after the end of the shifts. The instruments were a sociodemographic data collection form and the Maslach Burnout Inventory (MBI) version Human Services Survey (HSS).

The sociodemographic data collection form consists of multiple choice questions and open-ended questions, including gender, age, sector, marital status, children, shift, workload, time in the intensive care unit, number of patients seen per day, duration of holidays, the practice of physical activity, and participation in training at the hospital.

The MBI-HSS, geared toward health workers and translated and adapted by Benevides-Pereira, was used to identify the percentage of employees with burnout syndrome[10].

The cut-off points were the reference values of the Group of Studies and Research on Stress and Burnout: emotional exhaustion syndrome (low: zero to 15; mild: 16 to 25; and high: 26 to 54); depersonalisation (low: zero to 2; mild: 3 to 8; and high: 9 to 30); and personal accomplishment (low: zero to 33; mild: 34 to 42; and high: 43 to 48)[11]. Burnout is the combination of high emotional exhaustion, high depersonalisation, and low personal accomplishment[9].

The results were expressed using descriptive statistics: mean, coefficient of variation, standard deviation, and per-

centage for the categorical variables. Cronbach's alpha was used to verify the internal consistency of each dimension and the total score of the MBI-HSS. To verify the association between the occurrence of burnout and categorical variables, we applied the Pearson Chi-square test or the Fisher exact test, when the conditions for using the Chi-square test were not been verified. The strength of the association between the variables was evaluated by means of the OR (Odds Ratio) with the corresponding confidence interval (CI).

The margin of error used in the statistical test decisions was 5% ($p< 0.05$) and the confidence level was 95%. The statistical calculations were entered and obtained using Statistical Package for the Social Sciences (SPSS) version 21.

After the hospital administration approved the project, it was submitted for review to the research ethics committee and approved under opinion CEP 332.462. Before applying the instruments, all the participants signed an informed consent statement. This study is based on a master´s dissertation[11] that complied with all national and international standards of ethics in research involving humans.

RESULTS

According to the established inclusion criteria, the total number of the sample in this study was 91 nurses. Of these nurses, 81 (89.0%) were women, 57 (62.6%) were single, and 65 (71.4%) reported they did not have children. Their ages ranged between 22 and 59 years with the average of 30.82 years and a standard deviation of 6.42. The age distribution was even; 46 (50.5%) subjects were between 30 and 59 years old and 45 (49.5%) were between 22 and 29 years old. The sector with the highest percentage of nurses was the general intensive care unit, with 18.7%. The predominant employment bond was public-sector employees, totalling 78 (85.7%) nurses. With regard to the shift, the highest percentage was that of the night nurses, with 34.0%. Most of the nurses did not have another job (93.4%), they worked between 30 and 40 hours a week (53.8%), their last holiday lasted 30 days (78.3%), they had been working in intensive care for more than 5 years (41.8%), they attended fewer than 10 patients a day (80.2%), and they participating in courses at the hospital (57.1%).

According to the results of the MBI, of the 91 nurses who participated in the study, 78 (85.7%) did not exhibit burnout and 13 (14.3%) suffered from burnout.

Table 1 shows the percentage of individuals with high emotional exhaustion, depersonalization, and low personal accomplishment, respectively 47.2%, 34.1%, and 34.1%. The reliability of the instrument was assessed using Cronbach's alpha. The MBI obtained a value of 0.72 and was therefore considered trustworthy. The coefficient of emotional exhaustion was 0.87, the coefficient of depersonalization was 0.64 and the coefficient of personal accomplishment was 0.79.

According to Table 2, the percentage of nurses with burnout was higher for the 22 and 29 age group (20.7%), women (16%), single nurses (17.5%) and among the nurses who had no children (16.9%).

According to the results of Table 3, most of the nurses with burnout did not practice physical activity (14.9%) and received 10 or more minimum wages (21.4%).

As shown in Table 4, two (33.3%) of the six individuals who had another job suffered from burnout and most of

Table 1 - Distribution of nurses according to levels of the dimensions, average score, standard deviation, coefficient of variation and Cronbach's alpha of the Maslach Burnout Inventory (MBI). São Paulo (SP), Brazil, 2014.

Dimension	Level	n (%)	Average Score	DP	CV	CA	CA (MBI)
Emotional Exhaustion	High	43 (47.2)	25.82	10.68	0.41	0.87	0.72
	Mild	31 (34.1)					
	Low	17 (18.7)					
Depersonalisation	High	31 (34.1)	6.84	5.36	0.78	0.64	
	Mild	35 (38.4)					
	Low	25 (27.5)					
Personal Accomplishment	High	19 (20.9)	36.21	6.92	0.19	0.79	
	Mild	41 (45.0)					
	Low	31 (34.1)					

Source: Research data, 2014.
DP: depersonalisation; CV: coefficient of variation; CA: Cronbach's alpha; MBI: Maslach Burnout Inventory.

Table 2 - Prevalence of burnout according to the sociodemographic variables of the nurses. São Paulo (SP), Brazil, 2014

Variable	*Burnout*						*p-value*	OR (CI 95%)
	Present		Absent		Total			
	n	%	n	%	n	%		
Age group (years)								
22 to 29	9	20.0	36	80.0	45	100.0	p(1) = 0.123	2.63 (0.75 to 9.25)
30 to 59	4	8.7	42	91.3	46	100.0		1.00
Sex								
Male	-	-	10	100.0	10	100.0	p(2) = 0.347	**
Female	13	16.0	68	84.0	81	100.0		
Marital status								
Married	3	8.8	31	91.2	34	100.0	p(2) = 0.357	1.00
Single	10	17.5	47	82.5	57	100.0		2.20 (0.56 to 8.63)
Children								
Yes	2	7.7	24	92.3	26	100.0	p(2) = 0.335	**
No	11	16.9	54	83.1	65	100.0		
Total group	13	14.3	78	85.7	91	100.0		

Source: Research data, 2014.
OR: Odds Ratio; CI: Confidence Interval. (**): Not possible to determine due to the occurrence of zero and very low frequencies. (1): Pearson's Chi-square test. (2): Fisher's exact Test.

Table 3 - Prevalence of burnout according to the sociodemographic variables and habits. São Paulo (SP), Brazil, 2014

Variable	*Burnout*						*p-value*	OR (CI 95%)
	Present		Absent		Total			
	n	%	n	%	n	%		
Practice physical activity								
Yes	6	13.6	38	86.4	44	100.0	p(1)= 0.864	1.00
No	7	14.9	40	85.1	47	100.0		1.11 (0.34 to 3.60)
Total group	13	14.3	78	85.7	91	100.0		
Income[3]								
2 to 5	3	7.1	39	92.9	42	100.0	p(2) = 0.234	1.00
6 to 9	5	18.5	22	81.5	27	100.0		2.95 (0.64 to 13.56)
10 or more	3	21.4	11	78.6	14	100.0		3.55 (0.63 to 20.09)
Total group	11	13.3	72	86.7	83	100.0		

Source: Research data, 2014.
OR: Odds Ratio; CI: Confidence Interval. (1): Pearson's Chi-square test. (2): Fisher's exact Test. (3): Eight respondents did not report income.

the sufferers of burnout (14.3%) worked between 30 and 40 hours a week, had worked in intensive care for 2 to 3 years (30.8%), assisted less than 10 patients a day (13.7%) and did not participate in hospital training (17.9%).

Of the studied variables, only the duration of holidays showed a significant association with the occurrence of burnout (p = 0.034, OR = 3.92 with an interval that excludes the value of 1). The nurses who had holidays for up to 25

Table 4 - Prevalence of burnout according to variables related to the occupation, São Paulo (SP), Brazil, 2014

Variable	*Burnout*						*p-value*	OR (CI 95%)
	Present		Absent		Total			
	n	%	n	%	n	%		
Shift								
Morning	5	16.7	25	83.3	30	100.0	p(1) = 0.805	1.04 (0.27 to 4.03)
Afternoon	3	10.0	27	90.0	30	100.0		0.58 (0.13 to 2.67)
Night	5	16.1	26	83.9	31	100.0		1.00
Has another job								
Yes	2	33.3	4	66.7	6	100.0	p(1) = 0.203	**
No	11	12.9	74	87.1	85	100.0		
Workload								
< 30 hours	-	-	7	100.0	7	100.0	p(1) = 0.270	**
30 to 40 hours	7	14.3	42	85.7	49	100.0		**
41 to 50 hours	3	23.1	10	76.9	13	100.0		**
51 to 60 hours	3	27.3	8	72.7	11	100.0		**
> 60 hours	-	-	11	100.0	11	100.0		**
Duration of holidays (days)								
Up to 25 days	6	30.0	14	70.0	20	100.0	p(1) = 0.034*	3.92 (1.14 to 13.46)
30 or more	7	9.9	64	90.1	71	100.0		1.00
Time working in intensive care unit								
6 months to 1 year	1	7.1	13	92.9	14	100.0	p(1) = 0.202	**
> 1 to 2 years	2	15.4	11	84.6	13	100.0		**
> 2 to 3 years	4	30.8	9	69.2	13	100.0		**
> 3 to 5 years	3	23.1	10	76.9	13	100.0		**
> 5 years	3	7.9	35	92.1	38	100.0		**
Patients seen per day								
Less than 10	10	13.7	63	86.3	73	100.0	p(1) = 0.716	1.00
10 or more	3	16.7	15	83.3	18	100.0		1.26 (0.31 to 5.15)
Participation in training courses at hospital								
Yes	6	11.5	46	88.5	52	100.0	p(2) = 0.546	1.00
No	7	17.9	32	82.1	39	100.0		1.68 (0.52 to 5.46)
Total group	13	14.3	78	85.7	91	100.0		

Source: Research data, 2014.
OR: Odds Ratio; CI: Confidence Interval. (*): Significant association at the level of 5.0. (**): Not possible to determine due to the occurrence of zero and very low frequencies. (1): Fisher's exact Test. (2): Pearson's Chi-square test.

days were 3.92 times more likely to suffer from burnout compared to the nurses who had holidays for 30 days or more. The percentage of participants with burnout was higher among those who had a holiday of 25 days or less than among those who had a holiday of 30 days or more (30.0% x 9.9%).

DISCUSSION

The study sought to investigate the prevalence and possible sociodemographic factors, life habits and work habits associated with the occurrence of burnout. The re-

sults showed that the prevalence of nurses with burnout was 14.3%, similar to the results found in literature[8, 12].

The participants showed high levels of emotional exhaustion (47.2%) and depersonalisation (34.1%), as well as a low level of personal accomplishment (34.1%). Similar results were found in studies with emergency and intensive care nurses[12-15].

Although most nurses with burnout were women, single, and childless[16-18], there was no significant association between the occurrence of burnout and those variables[1, 13, 15]. An international study, however, shows a contradictory result, in which the variable sex was considered a predictor of the syndrome[4].

The predominance of women is consistent with the preference of women for healthcare and occupations involving care, and the higher frequency of women in the nursing practice[16-17].

Moreover, women are more susceptible to burnout because they have a greater tendency to get involved in the problems of patients. There is a strong predominance of women in this professional category, although it not possible to ignore the influence of gender on burnout[17].

With regards to age, most studies show a predominance of burnout among younger nurses[1,18], with a significant association[4, 18], which is contrary to the results found in this study. Young nurses in the beginning of their careers are considered inexperienced and are still gaining dexterity with the procedures and experience managing critical intensive care patients in emergency situations, all of which makes them more tense and prone to occupational stress, in time possibly leading to burnout[1, 18]. Another study showed that burnout affects older people, between 41 and 60 years of age, since age is considered an important factor for the onset of mental disorders due to the reduced capacity to adapt to stressful conditions at work[16].

Most nurses suffering from burnout did not practice physical activities and there was not significant association in literature[1], confirming the findings of this study.

Nurses with burnout received 10 or more minimum wages, that is, they were well-paid professionals[16]. National studies show that there was no significant association [1,15] and it is believed that this was due to the peculiar characteristics of the sample and the small amount of participants. A significant association, however, was found in an international study, showing that the lower the income, the greater the occurrence of burnout, as low wages (reward) are incompatible with the effort required to perform tasks[4-5].

The work shift was considered a predictor of burnout. An international survey conducted with residents of the American Society of Plastic Surgeons showed that night shifts are considered as a significant risk factor for burnout, demonstrating a significant association with this variable[5].

Most of the workers with burnout in this study did not have another job, contradicting national literature, where professionals with more than one job accumulate functions and feel they have insufficient resources to carry out their activities. This insufficiency triggers feelings of chronic imbalance since the work requires more than the individuals can give and their resources are far less than they need[17-19].

Nurses who work more than 30 hours a week were more affected by burnout, which contradicts national literature, as nurses with a high workload and two jobs suffer from work overload, and this is one of the facilitating factors of burnout[19]. A significant association was found between the occurrence of burnout and workload[4-5], contrary to the findings of this study.

With respect to the duration of holidays and the occurrence of burnout, the present study showed that holidays lasting up to 25 days can be considered a facilitator of burnout. This result is new in national literature since no studies were found with this variable among intensive care nurses. The holiday period allows workers to spend more time with their families, participate in leisure activities, rest, and generally restore their emotional balance. In this institution, however, nurses divided their holiday time or sold part of their holidays to increase their income, which could have facilitated the occurrence of burnout in these workers.

According to national and international literature, the percentage of nurses with burnout is higher when they have worked between two to five years in the area[13, 17]. A significant association was found between the occurrence of burnout and years of work[4], contrary to the findings of this study. Workers with less practice time suffer from higher levels of exhaustion and negative work-related feelings and attitudes associated with unfulfilled expectations and difficulties envisioning possibilities of improvement in their working conditions[1, 13, 17].

Most of the nurses with burnout attended less than 10 patients a day, but there was no significant association with this variable[1]. Burnout syndrome affects workers who deal with people and need solid interpersonal skills to perform their activities[7-8]; however, these workers are overworked and do not have sufficient resources to effectively cope with the work demands, which can lead them to lose faith in their work.

It is believed that sociodemographic or personal characteristics such as age, sex, marital status, and children can facilitate or inhibit the effects of stressors[11]. Regardless, the so-called predictors of burnout are mere facilitators or non-facilitators of burnout, as burnout it triggered by the

sum of sociodemographic factors (age, sex, marital status), especially work-related factors (type of occupation, shift, work burden) and organisational factors (physical environment, reward, bureaucracy, safety)[1, 4-5].

CONCLUSIONS

The prevalence of nurses with burnout accounted for 14.3% of the sample. According to the results obtained, there was no significant association between the studied variables and the occurrence of burnout, except with respect to the duration of the holidays, which was the only variable with a significant association.

One of the limitations of this study was the number of participants, preventing the generalisation of results. Moreover, the MBI-HSS has no power of diagnosis, that is, to confirm burnout it is preferable to obtain the evaluation of an experienced psychiatrist. This study can be used as a basis for the creation of an institutional occupations health programme as this data provides valuable insight into the risk profiles that lead to burnout.

The results of this study contribute to knowledge on the mental health of workers since this is the first national study with intensive care nurses that found a significant association between the duration of holidays and the occurrence of burnout. Future research should examine the different relationships between these variables and the occurrence of burnout in nurses working in public and private hospitals. It is also important to replicate this study in intensive care units in other Brazilian states to compare and improve the generalisation of the results.

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