

Association between burnout syndrome, harmful use of alcohol and smoking in nursing in the ICU of a university hospital

Larissa Santi Fernandes ¹
Maria José Trevizani Nitsche ¹
Ilda de Godoy ¹

Abstract *The article aims to determine the presence of burnout syndrome among professionals in the field of Nursing in the Intensive Care Unit in a university hospital and a possible association with consumption of alcohol and tobacco. Participants were 160 nursing professionals from 04 intensive care unit of a university hospital in the period from March 2013 to February 2014. We used a structured questionnaire, plus the smoking history, Maslach Burnout Inventory, Alcohol Use Disorders Identification Test, Fagerström Dependence Questionnaire and the measurement of carbon monoxide. We used Fisher's chi-square or Fisher exact test. Syndrome was found in 34 professionals, most of them female, married and young adults. 18 professionals reported being smokers. 6,4% of Nursing Assistants, 50% Practical Nurses and Nurses 71,4% drank moderate; 5,4% Nursing Assistant and 14,3% Nurses scored default risk drinking and only 01 Practical Nurses had possible alcohol dependence. There was a positive association of the syndrome with smoking in 01 ICU. Final considerations: Hospital Intensive Care services need assistance from the managers of services for the purpose of caring for the health of their caregivers.*

Key words *Burnout, Intensive Care Nursing, Alcoholism, Smoking*

¹ Faculdade de Medicina de Botucatu, Universidade Estadual Paulista. Campus Universitário da UNESP - Distrito de Rubião Júnior s/n, Rubião Júnior. 18618-970 Botucatu SP Brasil. lalasfer@gmail.com

Introduction

Burnout syndrome (BS) – or Occupational Exhaustion Syndrome – is one of the consequences of occupational stress and is an occupational disease¹ and a Public Health issue^{2,3}. It is characterized by the response to chronic sources of emotional and interpersonal stress at work and affects more health professionals^{2,4-6}. This is the result of constant human interactions in health services, which involve feelings of affection, insecurity, lack of motivation, fear and anguish, and are beyond the individual's coping capacity^{2,7-10}. This syndrome has a multidimensional conception characterized by emotional exhaustion (EE), reduced personal accomplishment (PA) at work and depersonalization of the other^{3,4}.

The syndrome becomes more evident in nursing professionals as a consequence of several factors, such as demand, work overload, double shift, insufficient number of personnel, occupational hazards, poor material resources, work pressure, conflicting interpersonal relationships, direct contact with pain and death, and lack of qualified personnel, recognition, social support, feedback and participation in decision-making and autonomy^{2,11-15}, as well as direct and intense contact with patients and their families, severe problem of these patients, complex activities developed, level of responsibility and constant search for specialization in the area to improve care^{2,11-15}.

Therefore, progressive exposure to these factors considered as stressors leads to physical and emotional exhaustion, interfering in the quality of life, impairing interaction with their functions, decreasing the quality of care, as well as increasing turnover and absenteeism, thus harming the work environment^{11,16}.

The harmful use of alcohol is the third reason for absence from work and the eighth cause of sickness benefits granted by Social Security^{17,18}. It affects health and quality of life, including family members; each year, 2.5 million people die from the consequences of alcohol use^{17,18}. Its harmful use is directly related to violence, negligence, the worker's prejudice with regard to his work, absenteeism and increased work accidents, mainly due to changes in reaction, perception and reflexes^{17,18}.

Tobacco use and alcohol abuse are a major Public Health problem. They interfere with the physical and mental health of the population and significantly with the country's economy and the quality of the environment¹⁹.

This study aimed to verify the presence of Burnout Syndrome among nursing professionals of Intensive Care Units (ICUs) of a university hospital and its association with alcohol and tobacco consumption.

Methods

This is a quantitative approach performed with nursing professionals who worked in the Adult, Coronary, Neonatal and Pediatric ICUs of a university hospital, in rural São Paulo, from March 2013 to February 2014. Of the total of 184 Nursing professionals who were invited to participate in the study, 24 individuals were excluded for the following reasons: 14 refused to participate, 05 did not return the questionnaire and 05 were on medical leave. Therefore, 160 individuals from three different professional categories participated in the study. We decided to use the total population, due to the reduced number of some professional categories in the Coronary and Pediatric ICUs.

All the nursing professionals of the Adult, Coronary, Neonatal and Pediatric ICUs of a university hospital of rural São Paulo were previously instructed on the research, its objective and invited to participate in it. Those who accepted signed two copies of the Informed Consent Form, one for the researcher and the other for the professional.

A structured, self-administered questionnaire was used for data collection according to the model used in a study conducted by Jodas and Haddad²⁰, which was modified due to the additional data on tobacco use history, to allow the evaluation of the relationship between the Syndrome and tobacco use. This questionnaire contained sociodemographic and professional data, information on leisure, predictive factors and somatic symptoms related to BS. To complement this information, we used Maslach Burnout Inventory (MBI), Alcohol Use Disorders Identification Test (AUDIT), Fagerström Dependence Questionnaire (FDQ), and Measurement of Carbon Monoxide in Exhaled Air (COex).

The Maslach burnout Inventory identifies the syndrome's symptoms and classifies as burnout syndrome a high level of emotional exhaustion and depersonalization and low level of personal accomplishment²⁰. The AUDIT assesses problems associated with alcohol consumption, detects the pattern of risk consumption, identifies alcohol quantity, frequency and dependence, and the in-

dividual scoring eight points and over is classified as being at risk²¹. Finally, the Fagerström dependency questionnaire assesses the level of nicotine dependence, and a result greater than six points is likely to point to a high level of dependence and would evidence withdrawal symptoms when quitting²².

Carbon monoxide was measured in the exhaled air of all the professionals who worked in the ICUs in order to ascertain tobacco use with greater reliability. The measurement was performed after the professionals completed the questionnaire. A descriptive analysis of the studied population was carried out through the calculation of the mean, standard deviation and median for the quantitative variables. For the variables, frequencies, percentages and p-values were calculated. Tukey's test was used to compare the different ICUs and the professional categories in issues related to emotional exhaustion and personal accomplishment. The Gamma distribution was used for depersonalization. Associations between the categorized variables were made using the chi-square test, or Fisher's exact test, considering variables of emotional exhaustion, reduced personal accomplishment, depersonalization, syndrome outcome, alcohol abuse and tobacco use. A significance level of 5% or the corresponding p-value was set for all tests.

The Research Ethics Committee (CEP) of the Faculty of Medicine of Botucatu (FMB) – UNE-SP approved this study in 2013.

Results

The mean age of the professionals was 35.1 years (± 9.6). They worked in the facility for a mean period of 9 years (± 7.8) and with an average weekly workload of 38.7 hours (± 10). Some 48% were married, 72.5% worked 12/36 hours shifts, 68.1% had a Consolidated Labor Laws (CLT) employment relationship, 53.7% consumed alcoholic beverages and 11.2% were smokers. All nursing assistants, 94.5% of technicians and 92.8% of nurses were female.

The median tobacco use time of smokers was 10 years, with daily consumption of nine cigarettes and two weekly packets. The median level of nicotine dependence of tobacco users (QDF) was 1.5 points, and 61.1% showed very low, 27.8% low and 11.1% high dependence. Nineteen professionals were evaluated as smokers by the measurement of carbon monoxide in the exhaled air (02 assistants, 14 technicians and 03

nurses). The COex median was 2 points. Among the professionals who reported being non-smokers, one was classified as smoker according to the measurement of carbon monoxide in the exhaled air.

Former smokers made use of the cigarette with median of 10 years, consumed 15 cigarettes/day and three packets/week. They stopped smoking, with a median of 2 years.

According to the AUDIT, 74 professionals did not consume alcohol, 73 drank moderately, 12 showed a risk-drinking pattern and only one evidenced possible alcohol dependence.

The mean EE was 23.4 points (± 13) and PA was 31.4 points (± 10.6). The median depersonalization score was 4 points.

Therefore, considering the classifications, BS was identified in 34 professionals. In the Adult ICU, 26 professionals were classified with BS (three nursing assistants, 17 nursing technicians and six nurses); in the Coronary ICU, one nursing technician; in the Neonatal ICU, one nursing assistant, two nursing technicians and two nurses; and in the Pediatric ICU, two nursing technicians.

In the Adult ICU, most of the married professionals, with children, a CLT work contract, working 12/36 hours, secondary school and had high depersonalization standards were nursing technicians. Most of the single who had specialization were nurses in the Adult ICU. In the Coronary ICU, most of the professionals who attended secondary school were nursing technicians.

Regarding nursing technicians, the lowest number of daily cigarettes consumed was in the Pediatric ICU (4.2 daily cigarettes). Former smokers nursing technicians from the Neonatal ICU consumed cigarettes for a longer time (24.3 years). The longest smoking quitting time was found in the Pediatric ICU (13 years). Pediatric ICU technicians consumed more cigarettes per day (20 cigarettes/day) and packet/day (12 packets/week).

EE and depersonalization showed higher mean in the Adult ICU (29.2 and 11.3 points, respectively). PA showed the highest mean in the Pediatric ICU (36.06 points).

Table 1 shows the distribution of the Maslach Burnout Inventory (MBI) categories by work unit. With regard to emotional exhaustion ($p < 0.0001$) and personal accomplishment ($p = 0.0011$), there was a difference between Adult ICU and the others. Regarding depersonalization ($p = 0.0015$), there was a difference between

Adult ICU and Coronary and Neonatal ICUs; and between Coronary ICU and Pediatric ICU.

The distribution of variables categorized according to emotional exhaustion, depersonalization and burnout syndrome are shown in Table 2. There was no significant association between categorized variables and personal accomplishment.

The association between EE and work period showed a significant difference ($p = 0.0139$), and most professionals with high EE worked in 12/36 hours shifts (56 professionals), as well as depersonalization ($p = 0.0030$), where 40 professionals were classified with high depersonalization.

Females showed a difference between the low classification and the other classifications in relation to depersonalization ($p = 0.0030$), as well as in relation to having BS, between whether or not developing the syndrome ($p = 0.0217$). Therefore, we can affirm that females evidenced had a higher probability of having the syndrome (29 professionals), and most of the professionals with the syndrome were married (21 professionals).

Table 3 shows the distribution of categorized variables by personal accomplishment, depersonalization and BS in the Adult ICU; and emotional exhaustion, depersonalization, and BS in the Neonatal ICU.

In the Adult ICU, most former smokers and non-smokers had low professional achievement (75 and 78 professionals, respectively). Those working 12/36 hours shifts had high depersonalization (31 professionals) as well as non-smokers (29 professionals). Among nonsmokers, 21 were classified as having BS.

In the Neonatal ICU, those who practiced physical activity showed low emotional exhaustion (65%), whereas those who did not practice presented high EE (48.9%) ($p = 0.0191$). Regarding depersonalization, both those who practiced physical activity and those who did not showed low depersonalization (80% and 46.8%, respec-

tively) ($p = 0.0150$). BS was diagnosed in two professionals who worked six hours a day in the Neonatal ICU ($p = 0.0122$). Professionals who had children were classified as non-smokers by COex (79.5%) ($p = 0.0171$).

Table 4 shows the distribution of variables categorized by Alcohol Use Disorders Identification Test (AUDIT) and measurement of carbon monoxide in the exhaled air (COex).

Most married professionals were nondrinkers (46 professionals), as well as those with children (48 professionals). Single people (62%), CLT workers (49.5%), graduates (60.6%), specialists (60.7%), smokers (58.8%) and passive smokers (30.8%) drank moderately.

Regarding the measurement of carbon monoxide in the exhaled air, one passive smoker, one former smoker and eight non-smokers were classified as smokers by COex.

Table 5 shows the distribution of variables categorized according to the Alcohol Use Disorders Identification Test (AUDIT) and measurement of carbon monoxide in the exhaled air (COex) in the Adult ICU; and Alcohol Use Disorders Identification Test (AUDIT) in the Neonatal ICU. In the adult ICU, most CLT (56.8%) and statutory (76.9%) professionals, graduates (85.8%) and non-smokers (61%) drank moderately. Two professionals self-classified as smokers were classified as non-smokers by the measurement of carbon monoxide in the exhaled air (COex).

In the Neonatal ICU, most of the married professionals (29 professionals) who have children (33 professionals), are CLT workers (25 professionals), statutory workers (20 professionals), who attended secondary school (37 professionals) and who do not attend university or a course (39 professionals) were nondrinkers. Single people (12 professionals) and those without children (15 professionals) drank moderately.

Table 1. Distribution of Maslach Burnout Inventory categories by work unit. São Paulo-SP / Brazil, 2014.

Work places/ MBI issues	Adult ICU	Coronary ICU	Neonatal ICU	Pediatric ICU	p-value
Emotional Exhaustion*	29.08±8.83 a	19.31±10.73 b	20.94±14.24 b	14.75±14.69 b	<0.0001
Personal Accomplishment*	27.68±10.63 a	35.85±8.56 b	33.04±10.65 b	36.06±7.55 b	0.0011
Depersonalization**	10.38±7.29 a	3.92±4.33 b	3.52±5.44 bc	5.63±7.74 ac	0.0015

*- Anova followed by Tukey. **- Gama. Means followed by the same letters do not differ statistically from each other.

Table 2. Variables categorized by level of emotional exhaustion, depersonalization and Burnout syndrome. São Paulo-SP / Brazil. 2014.

Categorized variables	Emotional Exhaustion						p-value
	High		Medium		Low		
	n	%	N	%	n	%	
Work period							0,0139*
6 hours	9 ac	29	6 a	19	16 bc	52	
12/36 hours	56 b	48.7	30 a	26.1	29 a	25,2	
> 12 hours	9 a	69.2	3 ab	23.1	1 b	7,7	
	Depersonalization						p - value
	High		Medium		Low		
	n	%	N	%	n	%	
Gender							0,0030*
Female	45 a	30	40 a	26.7	65 b	43,3	
Male	7 a	77.8	2 a	22.2	-	-	
Work period							0,0163*
6 hours	5 a	16.1	6 a	19.4	20 b	64,5	
12/36 hours	40 a	34.8	33 a	28.7	42 a	36,5	
> 12 hours	7 a	53.8	3 a	23.1	3 a	23,1	
	Burnout syndrome						p - value
	Present		Absent				
	n	%	n	%			
Gender							0,0217*
Female	29 a	19.2	122 b	80.8			
Male	5 a	55.6	4 a	44.4			

*- Fisher. Numerical values followed by the same letters do not differ statistically from each other.

Discussion

Nursing professionals that are in constant contact with patients and/or family members, experience stress situations and are not psychologically prepared can make work difficult and affect their personal life⁴, as well as move away from people they provide care to, building a barrier⁸.

The results of our study showed that most professionals who developed BS were female, married, and young adults, corroborating studies conducted in ICUs^{4,23-27}.

Nursing is an area in which women and young adults predominate, situation that stems from the large number of existing nursing professionals and composition by young people⁸. Young professionals are more likely to develop BS because of work inexperience and non-adaptation to working conditions and organizations²⁸, resulting in poor quality of care²⁶.

This study reports that nurses with children, in addition to their working hours, dedicate a large part of their time to their children, causing a high rate of physical and emotional exhaustion²⁹. The results of our study showed that 54.4% of the professionals had children, of whom only 16.7% were nurses.

The fact of having children and being married can be considered a protective factor, since the professional feels supported and the feeling of affection arises, which protects against the development of BS³⁰.

Among all participants, 46.5% had a high standard for emotional exhaustion, 54.7% had a low standard for personal accomplishment and 32.7% had high scores for depersonalization, which were higher than those of literature²⁴. However, in another study, results showed that 45% of professionals had high EE rate, 38% had high depersonalization rate and 46% had low PA

Table 3. Distribution of categorized variables by personal accomplishment pattern, depersonalization and Burnout Syndrome in Adult ICU; and emotional exhaustion, depersonalization and Burnout Syndrome in Neonatal ICU. São Paulo-SP / Brazil. 2014.

Adult ICU							
Categorized variables	Personal accomplishment						p - value
	High		Medium		Low		
	n	%	n	%	n	%	
Tobacco use							0.0154*
Smoker	1 a	12.5	5 a	62.5	2 a	25	
Passive Smoker	2 a	33.3	-	-	4 a	66.7	
Former Smoker	1 a	12.5	1 a	12.5	6 b	75	
Non-smoker	3 a	7.4	6 a	14.6	32 b	78	
Depersonalization							
Categorized variables	High		Medium		Low		p - value
	n	%	n	%	n	%	
Work period							0.0150*
6 hours	3 a	30	1 a	10	6 a	60	
12/36 hours	31 b	62	13 a	26	6 a	12	
> 12 hours	3	100	-	-	-	-	
Tobacco use							0.0147*
Smoker	1 a	12.5	4 a	50	3 a	37.5	
Passive Smoker	2 a	33.3	3 a	50	1 a	16.7	
Former Smoker	5 a	62.5	2 a	25	1 a	12.5	
Non-smoker	29 b	70.7	5 a	12.2	7 a	17.1	
Burnout syndrome							
Categorized variables	Present		Absent				p - value
	n	%	n	%			
Tobacco use							0.0406*
Smoker	-	-	8	100			
Passive Smoker	2 a	33.3	4 a	66.7			
Former Smoker	3 a	37.5	5 a	62.5			
Non-smoker	21 a	51.2	20 a	48.8			
Neonatal ICU							
Emotional exhaustion							
Categorized variables	High		Medium		Low		p - value
	n	%	n	%	n	%	
Physical activity							0.0191*
Yes	3 a	15	4 a	20	13 b	65	
No	23 bc	48.9	9 a	19.2	15 ac	31.9	
Depersonalization							
Categorized variables	High		Medium		Low		p - value
	n	%	n	%	n	%	
Physical activity							0.0150*
Yes	-	-	4 a	20	16 b	80	
No	11 a	23.4	14 ac	29.8	22 bc	46.8	
Burnout syndrome							
Categorized variables	Present		Absent				p - value
	n	%	n	%			
Work period							0.0122*
6 hours	2 a		11,8		15 b	88.2	
12/36 hours	1 a		2.2		45 b	97.8	
> 12 hours	2 a		50		2 a	50	

*- Fisher. Numerical values followed by the same letters do not differ statistically from each other.

Table 4. Distribution of categorized variables according to AUDIT, nicotine dependence level (QDF) and measurement of carbon monoxide in the exhaled air (COex). São Paulo-SP / Brazil. 2014.

Categorized variables	Alcohol Use Disorders Identification Test (AUDIT)								p-value
	Non-drinker		Moderate drinker		Risk drinking pattern		Possible alcohol dependence		
	n	%	n	%	n	%	n	%	
Marital Status									0.0002**
Married	46 a	59.7	30 b	39	1 c	1.3	-	-	
Separated	13 a	68.4	5 b	26.3	1 b	5.3	-	-	
Single	13 a	20.6	39 b	62	10 a	15.9	1 c	1,6	
Children									0.0318*
Yes	48 a	55.1	33 b	38	6 c	6.9	-	-	
Employment Relationship									0.0054*
CLT	46 a	42.2	54 a	49.5	8 b	7.3	1 c	1	
Statutory	25 a	61	16 a	39	-	-	-	-	
Temporary	1 a	12.5	3 a	37.5	4 a	50	-	-	
Education									0.0011**
Secondary School	57 a	59.4	35 b	36.5	4 c	4.1	-	-	
Higher Education	10 a	30.3	20 b	60.6	2 a	6.1	1 a	3	
Specialist	6 a	21.4	17 b	60.7	5 a	17.9	-	-	
Tobacco use									0.0259*
Smoker	4 a	22.2	12 b	66.7	2 a	11.1	-	-	
Passive Smoker	6 a	35.3	10 b	58.8	1 a	5.9	-	-	
Former Smoker	5 a	38.4	4 b	30.8	4 a	30.8	-	-	
Non-smoker	58 a	51.8	48 a	42.8	5 b	4.4	1 b	1	
	Measurement of carbon monoxide in the exhaled air (COex)								p-value
	Smoker				Non-smoker				
	n	%	n	%	n	%	n	%	
Tobacco use									< 0.0001**
Smoker	9 a	50	9 a	50					
Passive Smoker	1 a	5.9	16 b	94.1					
Former Smoker	1 a	7.7	12 b	92.3					
Non-smoker	8 a	7.1	104 b	92.9					

*-Fisher **-Qui-quadrado. Valores numéricos seguidos das mesmas letras não diferem estatisticamente entre si.

rate, and that these results were associated with professionals' anxiety²⁹. These results were similar to those of our study.

The workload of more than 12 daily hours showed a positive significance with a high EE standard ($p = 0.0139$), as well as depersonalization ($p = 0.0163$). This can be justified by work organization, in which daytime professionals carry out procedures, while nighttime professionals only perform medication in order not to disturb pa-

tients, thus overloading daytime period⁸. This can be an influencer of EE and consequently of BS⁸.

It should also be considered that when it is not possible to negotiate between the subject and the organization or leadership, the latter should be more flexible and interfere with the work-related problems to minimize the effects of stress on the team and individuals, thus reducing the impairment of the psyche and, consequently, its exclusion^{1,27}. When this does not occur, the prac-

Table 5. Categorized variables distribution according to the Alcohol Use Disorders Identification Test (AUDIT) and Measurement of carbon monoxide in the exhaled air (COex) in the Adult ICU; and Alcohol Use Disorders Identification Test (AUDIT) in the Neonatal ICU. São Paulo-SP / Brazil. 2014.

Categorized variables	UTI Adulto						p-value		
	Alcohol Use Disorders Identification Test (AUDIT)								
	Non-drinker		Moderate drinker		Risk drinking pattern				
	n	%	n	%	n	%			
Employment Relationship							0.0186*		
CLT	14 a	31.8	25 b	56.8	5 c	11.4			
Statutory	3 a	23.1	10 b	76.9	-	-			
Education							0.0055*		
Secondary School	15 a	42.9	18 a	51.4	2 b	5.7			
Higher Education	1 a	7.1	12 b	85.8	1 a	7.1			
Tobacco use							0.0215*		
Smoker	2 a	25	5 a	62.5	1 a	12.5			
Passive Smoker	-	-	5	83.3	1	16.7			
Former Smoker	2 a	25	2 a	25	4 a	50			
Non-smoker	14 a	34.1	25 b	61	2 c	4.9			
	Measurement of carbon monoxide in the exhaled air (COex)						p-value		
	Smoker		Non-smoker						
	n	%	n	%					
Tobacco use						0.0011*			
Smoker	5 a	62.5	3 a	37.5					
Passive Smoker	-	-	6	100					
Former Smoker			8	100					
Non-smoker	2 a	4.9	39 b	95.1					
Categorized variables	UTI Neonatal								p-value
	Alcohol Use Disorders Identification Test (AUDIT)								
	Non-drinker		Moderate drinker		Risk drinking pattern		Possible alcohol dependence		
	n	%	n	%	n	%	n	%	
Marital Status								0.0019**	
Married	29 a	82.9	6 b	17.1	-	-	-	-	
Separated	11 a	84.6	2 b	15.4	-	-	-	-	
Single	4 a	21	12 b	63.2	2 a	10.5	1 a	5.3	
Children								0.0021**	
Yes	33 b	84.6	5 a	12.8	1 a	2.6	-	-	
No	12 a	41.4	15 a	51.8	1 b	3.4	1 b	3.4	
Employment Relationship								0.0092*	
CLT	25 a	59.5	15 a	35.7	1 b	2.4	1 b	2.4	
Statutory	20 a	87	3 b	13	-	-	-	-	
Temporary	-	-	1 a	50	1 a	50	-	-	
Education								0.0045**	
Secondary School	37 b	82.2	7 a	15.6	1 a	2.2	-	-	
University/course								0.0350*	
No	38 a	73.1	12 b	23.1	2 c	3.8	-	-	

*- Fisher. Numerical values followed by the same letters do not differ statistically from each other.

itioner develops defense mechanisms that lead to a reduced pressure and source of stress and, if used routinely, can become novice and generate resistance to change and alienation, masking severe anxiety, resulting in the development of BS²⁷.

In the Adult ICU, most nursing professionals were classified with high EE. This finding is in line with literature, in which most of the evaluated units showed high EE scores²⁵. At work, stress is potentiated and highlights the signs of emotional exhaustion⁴. Thus, psychological exhaustion is a consequence of work, and wear is because the individual is pushed to perform beyond his limits of resistance⁴.

Social support has positive results in the reduction of EE, while the workload has negative results in care²⁴. In one study in Germany, social support curbed EE, as well as improved care and professional relationships²⁹.

ICUs with low PA scores are the least favorable to work, considering the amount of bed and care required by the Adult, Pediatric and Coronary ICUs from their professionals. Younger professionals are more likely to develop feelings of depersonalization because of poor professional experience²⁸. Non-recognition of work leads to psychic decompensation, which can lead to decreased personal accomplishment and depersonalization²⁷.

Results from a previous study showed that 50% of the nurses were positively evaluated for BS³¹ and that the fact of being a nurse predisposes the professional to develop burnout due to workload and stress^{20,32}. However, our study showed that 19% of nurses showed SB.

It is suggested that BS develops in units where there is work overload and there is no positive relationship between investments and results²³. Other research shows that professionals working fewer hours a day need more than one job to increase family income, triggering the syndrome²⁵. These results diverged from ours, since professionals who worked for a period of 6 hours per day evidenced a lower rate of the syndrome.

Tobacco and alcohol abuse can be a form of behavioral manifestation of flight or forgetfulness of work, as well as the pursuit of pleasure that they cannot achieve in their daily work activities due to poor working conditions⁶. Constant

stress situations lead professionals to alcohol abuse, used as a relaxant, tranquillizer, anxiolytic and even as a flight³³; nursing professionals are more prone to substance abuse and suicide¹¹. In our study, in general, there was no association of alcohol abuse and smoking with the syndrome.

Final considerations

The BS was found among the nursing professionals evaluated, in a higher proportion, among assistants (50%), nursing technicians (20%) and, finally, nurses (19%). In total, 34 professionals were evaluated positively for BS, of which 26 are from the Adult ICU, one from the Coronary ICU, five from the Neonatal ICU and two from the Pediatric ICU. These results are worrying, and evidence threatening and syndrome-triggering work conditions.

In the MBI categories analyzed separately, a high rate for EE (46.5%) and low rate for PA (54.7%) prevailed. This outcome shows the need for measures to alleviate this situation, considering that the ICU is a stressful environment, which demands a lot from professionals and entails high prevalence of the syndrome.

Alcohol consumption was positively associated with work, titration and children, and in some cases, consumption was considered excessive and could interfere with work. Tobacco consumption also showed statistical significance in the three MBI variables, evidencing that emotional exhaustion, reduced personal accomplishment and depersonalization might lead to increased tobacco consumption as a means of escape.

The positive associations between the variables studied and BS were significant, but the number of professionals categorized by ICU was reduced, requiring further studies, in addition to the need to measure the workload of ICU professionals.

The prevalence of BS, the occurrence of the syndrome's realms in isolation, the consumption of alcohol and tobacco shown by the results of this study suggest that the Intensive Care services of the Hospital das Clínicas of Botucatu require intervention of the service managers in order to take care of the health of their caregivers.

Collaborations

LS Fernandes contributed to the preparation of the initial project, data collection, analysis and interpretation, writing the final project, writing and reviewing the paper for publication. MJT Nitsche contributed to the preparation of the initial project, review of the final project, writing and review of the paper for publication. I Godoy contributed to the preparation of the initial project, data analysis and interpretation, writing the final project, writing and review of the paper for publication.

References

1. Moreno F, Gil GP, Haddad MCL, Vannuchi MTO. Estratégias e intervenções no enfrentamento da síndrome de burnout. *Rev Enferm UERJ* 2011; 19(1):140-145.
2. Ayala E, Carnero AM. Determinants of burnout in acute and critical care military nursing personnel: a cross-sectional study from Peru. *PLoS ONE* 2013; 8(1):e54408.
3. Braga LC. *Síndrome do esgotamento profissional entre trabalhadores da rede básica de saúde de município do interior paulista* [tese]. Botucatu: Faculdade de Medicina de Botucatu; 2012.
4. Ezaías GM, Gouveia PB, Haddad MCL, Vannuchi MTO, Sardinha DSS. Síndrome de burnout em trabalhadores de saúde em um hospital de média complexidade. *Rev Enferm UERJ* 2010; 18(4):524-529.
5. Franco GP, Barros ALBL, Nogueira-Martins LA, Zeitoun SS. Burnout in nursing residents. *Rev Esc Enferm USP* 2011; 45(1):12-18.
6. Ezaías GM, Haddad MCL, Vannuchi MTO. Manifestações psico-comportamentais do burnout em trabalhadores de um hospital de média complexidade. *Rev Rene* [periódico na internet]. 2012 [acessado 2014 jun 29]; 13(1). Disponível em: <http://www.revistarene.ufc.br/revista/index.php/revista/article/view/12>
7. Trindade LL, Lautert L, Beck CLC. Coping mechanisms used by non-burned out and burned out workers in the family health strategy. *Rev Lat Am Enfermagem* 2009; 17(5):607-612.
8. Meneghini F, Paz AA, Lautert L. Fatores ocupacionais associados aos componentes da síndrome de Burnout em trabalhadores de enfermagem. *Texto Contexto Enferm* 2011; 20(2):225-233.
9. Mallmann CS, Palazzo LS, Carlotto MS, Castro Aerts DRG. Fatores associados à síndrome de burnout em funcionários públicos municipais. *Psicol Teor Prática* 2009; 11(2):69-82.
10. Lasebikan VO, Oyetunde MO. Burnout among nurses in a Nigerian general hospital: prevalence and associated factors. *ISRN Nurs* [periódico na internet]. 2012 Abr [acessado 2014 maio 27]. Disponível em: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3350958/>
11. Mealer M, Burnham EL, Goode CJ, Rothbaum B, Moss M. The prevalence and impact of post traumatic stress disorder and burnout syndrome in nurses. *Depress Anxiety* 2009; 26(12):1118-1126.
12. Ruviano MFS, Bardagi MP. Síndrome de burnout e satisfação no trabalho em profissionais da área de enfermagem do interior do RS. *Barbarói* 2010; (33):194-216.
13. Tito R. *Burnout e transtornos mentais comuns nos trabalhadores de enfermagem que assistem crianças com cardiopatia grave* [dissertação]. São Paulo: Universidade de São Paulo; 2013.
14. Silva JLL, Dias AC, Teixeira LR. Discussion on the burnout syndrome. *Aquichán* 2012; 12(2):144-159.
15. Frade Mera MJ, Gaspar RV, García IZ, Sánchez SV, Melero EA, González SA, Martín PM. Síndrome de burnout en distintas unidades de cuidados intensivos. *Enferm Intensiva* 2009; 20(4):131-140.
16. Pereira CA, Miranda LCS, Passos JP. The occupational stress of the nursing team in closed sector. *Rev Pesqui Cuid Fundam* [periódico na internet]. 2009 [acessado 2014 jun 9]; 1(2). Disponível em: <http://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=21755361&AN=52408253&h=%2FPgZ2jVp7qeRR62BrNM AfjBW%2BsmVGroQPhjvIGp8M7GmrJWuPtcjHa%2FFAQjC0BorStmZey1auSyXdDhoB1sSrA%3D%3D&cr=c>
17. Donato M, Zeitoune RCG. Reinsertion of the alcoholic worker: perception, limits and possibilities of the labor nurse's intervention. *Esc Anna Nery* 2006; 10(3):399-407.
18. World Health Organization. Alcohol [Internet]. WHO [acessado 2014 abr 25]. Disponível em: http://www.who.int/substance_abuse/facts/alcohol/en/
19. Echer IC, Corrêa APA, Ferreira SAL, Lucena AF. Smoking in a nursing school in southern Brazil. *Texto Amp Contexto - Enferm* 2011; 20(1):152-159.
20. Jodas DA, Haddad MCL. Síndrome de burnout em trabalhadores de enfermagem de um pronto socorro de hospital universitário. *Acta Paul Enferm* 2009; 22(2):192-197.
21. Rubiatti AMM, Campos JADB. Alcoolismo – estudo epidemiológico no município de Araraquara (SP). *Alim Nutr Araraquara* 2009; 20(2):279-288.
22. Halty LS, Hüttner MD, Oliveira NIC, Santos VAD, Martins G. Analysis of the use of the Fagerström Tolerance Questionnaire as an instrument to measure nicotine dependence. *J Pneumol* 2002; 28(4):180-186.
23. Van Bogaert P, Clarke S, Roelant E, Meulemans H, Van de Heyning P. Impacts of unit-level nurse practice environment and burnout on nurse-reported outcomes: a multilevel modelling approach. *J Clin Nurs* 2010; 19(11-12):1664-1674.
24. Van Bogaert P, Kowalski C, Weeks SM, Van Heusden D, Clarke SP. The relationship between nurse practice environment, nurse work characteristics, burnout and job outcome and quality of nursing care: a cross-sectional survey. *Int J Nurs Stud* 2013; 50(12):1667-1677.
25. França FM, Ferrari R, Ferrari DC, Alves ED. Burnout and labour aspects in the nursing teams at two medium-sized hospitals. *Rev Lat Am Enfermagem* 2012; 20(5):961-970.
26. Panunto MR, Guirardello EB. Professional nursing practice: environment and emotional exhaustion among intensive care nurses. *Rev Lat Am Enfermagem* 2013; 21(3):765-772.
27. Monteiro JK, Oliveira ALL, Ribeiro CS, Grisa GH, Agostini N. Adoecimento psíquico de trabalhadores de unidades de terapia intensiva. *Psicol Ciênc Prof* 2013; 33(2):366-379.
28. Özden D, Karagözoğlu Ş, Yildirim G. Intensive care nurses' perception of futility: job satisfaction and burnout dimensions. *Nurs Ethics* 2013; 20(4):436-447.
29. Czaja AS, Moss M, Mealer M. Symptoms of posttraumatic stress disorder among pediatric acute care nurses. *J Pediatr Nurs* 2012; 27(4):357-365.

30. Rossi SS, Santos PG, Passo JP. A síndrome de burnout no enfermeiro: um estudo comparativo entre atenção básica e setores fechados hospitalares. *Rev Pesqui Cuid Fundam Online* [periódico na internet]. 2010 [acessado 2014 out 5]; 2(0):381-384. Disponível em: <http://www.seer.unirio.br/index.php/cuidadofundamental/article/view/950>
31. Cho SH, June KJ, Kim YM, Cho YA, Yoo CS, Yun SC, Sung YH. Nurse staffing, quality of nursing care and nurse job outcomes in intensive care units. *J Clin Nurs* 2009; 18(12):1729-1737.
32. Cimiotti JP, Aiken LH, Sloane DM, Wu ES. Nurse staffing, burnout, and health care-associated infection. *Am J Infect Control* 2012; 40(6):486-490.
33. Matos L, Peres RL, Silva AMR, Pires JS, Costa LLL, Neves DS, Barbosa RA, Vilela KF. Causas ambientais para síndrome de burnout em uti neonatal. *Rev Eletrônica em Gest Educ e Tecnol Ambient* 2012; 7(7):1291-1296.

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