Intensive care unit physicians: socio-demographic profile, working conditions and factors associated to the burnout syndrome

Médicos plantonistas de unidade de terapia intensiva: perfil sócio-demográfico, condições de trabalho e fatores associados à síndrome de burnout

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Received from the Intensive Care Unit of the Hospital Santa Izabel – Salvador (BA), Brazil.
Submitted on March 28, 2008
Accepted on June 23, 2008

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ABSTRACT

Objectives: Burnout syndrome is a response to prolonged occupational stress involving three main dimensions: emotional exhaustion, depersonalization and reduced personal accomplishment. This study aimed to describe socio-demographic characteristics of intensive care unit physicians and evaluate factors associated to the presence of Burnout syndrome in this population.

Methods: A cross-sectional study was performed to evaluate physicians who have worked in critical care in the city of Salvador, Bahia, Brazil, with a minimum weekly workload of 12 hours. An anonymous self-reported questionnaire, divided in two parts: socio-demographic characteristics and evaluation of the Burnout syndrome was used according to the Maslach Burnout Inventory.

Results: A total of 297 physicians was studied, most of them male (70%). The mean age and time after graduation were, respectively, 34.2 and 9 years. High levels of emotional exhaustion, depersonalization, and reduced personal accomplishment were found in respectively, 47.5%, 24.6% and 28.3%. Prevalence of the Burnout syndrome, considered as high level in at least one dimension, was of 63.3%. This prevalence was statistically lower in physicians specialized in intensive care, those with more than nine years after graduation and those who intended to continue working in intensive care units for more than 10 years. Prevalence was higher in physicians who worked in the intensive care units for more than 24 uninterrupted hours per week.

Conclusions: Burnout syndrome was common among critical care physicians and it was more frequent in the younger physicians with a higher workload and with no specialization in intensive care.

Keywords: Burnout, professional/psychology; Stress; Working conditions; Intensive care units

INTRODUCTION

Intensive care unit (ICU) are traditionally considered as an important source of stress for patients and their families. Currently it has been noted that this environment is also stressful for the professional staff. This stress, due to work in the ICU is essentially caused by the closed ambient with extenuating work conditions and pace, demanding routines, ethical issues that require frequent and difficult decisions as well as living with suffering, death, the unforeseen and an excessive workload.[1]

The first reaction to work related stress is a feeling of exhaustion, fatigue, physical and mental overload and difficult relationships. Those affected become more remote and cold toward work and colleagues, feeling that it is

better to remain indifferent. The consequence of this remoteness is inefficiency.[2]

The term Burnout appeared as a metaphor to explain a man's anguish with the work environment associated to a loss of motivation and a high level of dissatisfaction resulting from exhaustion.[3]

For Maslach et al., Burnout is a professional fatigue syndrome resulting from prolonged exposure to chronic interpersonal factors at work having three dimensions: emotional exhaustion, depersonalization and inefficiency. Normally, this syndrome attacks those that care for or assist people in a risk situation or that have extreme responsibility.[4] Emotional exhaustion is characterized by emotional and physical fatigue at work. Depersonalization reflects the development of cold, negative and insensitive attitudes disclosing dehumanization, hostility and intolerance, and indifferent treatment. Finally, the feeling of low professional performance or inefficiency discloses that people with Burnout tend to believe that their professional goals were not met and experience a feeling of insufficiency and low professional self-esteem.[3] Very few studies have evaluated prevalence and factors associated to the Burnout syndrome in intensivist physicians.[1,5-6]

The objective of this study was to describe the profile of intensive care physicians in Salvador, Bahia and evaluate the relationship of socio-demographic characteristics and work conditions with Burnout syndrome in this population.

METHODS

After approval by the Ethical and Research Committee of the Hospital Santa Izabel, a descriptive cross sectional study was carried out in a population of 333 intensivist physicians from October to December 2006. The included physicians worked at adult ICU of Salvador, Bahia, Brazil and had a minimum on duty workload of 12 hours.

An anonymous self-applicable questionnaire was used for data collection. It was divided in two parts, the first regarding overall identification, socio-demographic characteristics and work conditions. The second evaluated the Burnout syndrome in its three dimensions (emotional exhaustion, depersonalization and inefficacy) ranking them as mild, moderate and high level. For this purpose, the *Maslach Burnout Inventory* (MBI) with 22 questions on the three dimensions of the Burnout syndrome was used.[4] Professional exhaustion was evaluated by nine items, depersonalization by five and inefficiency by eight. Each question was scored from 0 to 6 and for each dimension the points were added in the group of questions. For emotional exhaustion a score higher or equal to 27 shows a high level; from 17 to 26, moderate level; and less than 16, low level. For depersonalization scores equal to or higher than 13 indicated a high level, from 7 to 12, moderate and less than 6, low level. For inefficiency scores from zero to 31 indicated a high level, from 32 to 38 a moderate and greater than or equal to 39 a low level.

While there is no consensus in literature for diagnosis of the Burnout syndrome, a high level of at least one of the dimensions was used as a definition.[7-8]

Participation in the study was voluntary and confidential, without identification of the intensivists that completed the questionnaire. Questionnaires were given to the physicians together with a free informed consent by a group of previously trained medical and psychology students.

The software *Statistical Packcage for Social Science* (SPSS) 11.0 was used for data analysis. Descriptive statistical parameters were used and the usual measurements of central and dispersion tendencies and simple and relative frequencies calculations were adopted. Prevalence ratio (PR) was used in order to analyze the association of sociodemographic variables and work conditions with the MBI results.

RESULTS

Two hundred and ninety seven on duty physicians were interviewed corresponding to 89.2% of those eligible of which 71.7% were male and mean age was 34.2 ± 6.9 years, ranging from 24 to 58 years. Among the interviewees, 79.4% were below 40 years old, 59.3% were graduated less than 10 years ago, 27% were boarded-certified intensivists and 46.5% had children. In relation to the work load, 66.4% had 60 to 90 hours dedicated to medical work/week, including other activities not related to intensive care, and 51.0% had 12 to 24 hours dedicated to intensive care work/week. The approximate monthly income achieved with medical work was over R$ 5,000.00 for 79.82% of the assessed physicians (Table 1). Mean time of graduation was 10.0 ± 6.7 years. Mean time of ICU work was 7.4 ± 6.4 years with a mean number of hospitals where doctors work in the ICU of 1.7 ± 0.8 (median 2.0). Mean number of patients under care each work shift was 10.0 ± 2.9 (Tabela 2).

Table 1 – Demographic characteristics of on-duty physicians in adults intensive care unit, Salvador, Bahia, 2007 (n = 297)*

Variables	N (%)
Male gender	208 (71.7)
Age bracket (years)	297 (100.0)*
24 - 30	113 (38.0)
31 - 39	123 (41.4)
40 - 49	49 (16.6)
> 49	12 (4.0)
Marital status	296 (100.0)*
Single	122 (41.2)
Married	154 (52.0)
Widower	01 (0.3)
Divorced/Separated	19 (6.4)
Children	137 (46.8)
Boarded-certified intensivists	80 (27.0)
Time after graduation (years)	295 (100.0)*
< 10 years	175 (59.3)
11 - 20 years	92 (31.2)
> 21 years	28 (9.5)
Weekly workload (h)	292 (100.0)*
10 - 59	39 (13.4)
60 - 90	194 (66.4)
> 91	59 (20.2)
Weekly workload in ICU (h)	293 (100.0)*
12 to 24	149 (51.0)
25 to 48	107 (36.5)
> 49	37 (12.5)

* Valid replies. ICU – intensive care unit, N – number. h - horas

Table 2 - Workload of on-duty physicians in adults intensive care unit, Salvador, Bahia, 2007 (n = 297)

Variables (hours)	Mean ± SD (limits)
Weekly workload in ICU	33.7 ± 17.2 (12 - 96)
Total weekly workload on duty	52.6 ± 24.2 (12 - 138)
Total weekly workload of medical work	74.6 ± 20.7 (12 – 140)
Habitual workload in your on duty shift	15.6 ± 8.7 (6 – 84)
Workload during weekends	16.3 ± 10.0 (0 – 48)
Number of uninterrupted working hours on duty	21.6 ± 10.1 (6 – 60)

ICU – intensive care unit, SD – standard deviation

Among the main medical specialties of the interviewees, the most common was general surgery (36.3%, n=103), followed by internal medicine (32%, n= 91), cardiology (10.6%, n=30), anesthesiology (9.9%, n= 28), pneumology (3.2%, n=9) and intensive care medicine (2.5%, n=7). Most interviewees (67.7%) stated that they had some hobby, the most frequently reported were: reading, movies, music and sports. As for customary physical activity during the last year, 61.4% stated that they exercise mostly 2 to 4 times a week.

Part of the physicians (55.3%, n= 162) reported that never or only sporadically do they spend five minutes talking to their patients on spontaneous ventilation in the ICU. As for the time dedicated to emotional needs of patients and families, 66.4% stated that they allocated little on duty time to this activity. Furthermore, the majority (81.4%) admitted having a difficulty in dealing with the distress of relatives.

The assessed physicians pointed to the excessive noise and possibility of complications in the care to admitted patients as the main stress factors of the ICU environment. Data on stress factors in the ICU are in table 3.

Table 3 – Stress factors in the intensive care units mentioned by the on-duty adults intensivists, Salvador, Bahia, 2007 (n = 297)

Variables	N (%)
Too much noise in the ICU	219 (73.7)
Possibility of complications in the care of patients	189 (64.5)
Administrative problems	188 (63.3)
Deal with suffering and death	178 (60.2)
Commitment to lead with various issues at the same time	129 (58.9)
Number of patients per physician	170 (57.5)
Accelerated rhythm of professional activities	169 (57.1)
Lack of material resources	163 (54.6)
Commitment of the team	152 (51.2)
Relationship with the team	108 (36.4)
Cares with the terminal patient	107 (36.1)
Pressure to discharge patients	105 (35.3)

ICU – intensive care unit, N – number

When asked about how long they intend to work in an ICU, 55.8% of the intensivist physicians reported that they expect to continue working in an ICU for up to 5 years, 35.0% from 5 to 10 years and only 9.2% for more than 10 years.

Most interviewees (75.8%, n= 225) reported some complaint or health problem as illustrated in figure 1. Regarding the sleep pattern of the assessed physicians, 52.8% (n=157) reported that they were sleeping less than usual

because of work, 25% (n=74) have excessive day sleepiness and 16.2% (n=48) have difficulties to fall asleep.

Prevalence of the Burnout syndrome in the assessed population was of 63.3% (Table 4). Burnout syndrome was more prevalent in physicians who reported work uninterrupted shift > 24 hours (RP: 2.0), ICU week work shift > 24 hours (RP: 1.44), were married (RP: 1.36) and had a maximum number of patients per work shift > 10 patients (RP: 1.34) (Table 5 and 6). Burnout syndrome was less prevalent in physicians who reported a hobby (RP: 0.47), had regular physical activity (RP: 0,64), were boarded-certified intensivists (RP: 0.51), had a time of ICU work > 7 anos (RP: 0.53), degree time > 9 anos (RP: 0.57) and age > 33 years (RP: 0.66) (Tables 5 and 6).

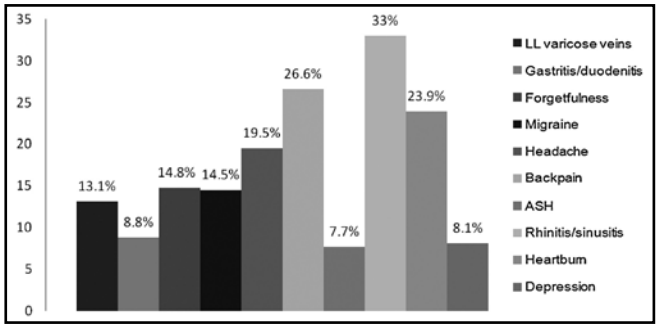

Figure 1 – More common diseases and problems among physicians on duty in an adult intensive care unit. in Salvador, Bahia, 2007 (n = 297). ASH = systemic arterial hypertension; LL = lower limbs

Table 4 – Criteria to identify Burnout syndrome in on-duty physicians in adults intensive care unit, Salvador, Bahia, 2007 (n = 297)

Criteria	N (%)
Emotional exhaustion	
Low	60 (20.2)
Moderate	95 (32.0)
High	141 (47.5)
Depersonalization	
Low	145 (48.8)
Moderate	78 (26.3)
High	73 (24.6)
Inefficiency	
Low	134 (45.1)
Moderate	78 (26.3)
High	84 (28.3)
High levels in at least one of the three dimension	188 (63.3)
High levels in at least two of the three dimensions	88 (29.7)
High levels in the three dimensions	22 (7.4)

N – number

Table 5 – Association among the socio-demographic variables, life style and Burnout syndrome in on-duty physicians in adults intensive care unit, Salvador, Bahia, 2007 (n = 297)

Variables	PR
Female gender	0.70
Age ≥ 33 years	0.66
Have some hobby	0.47
Regular physical activity	0.64
Marital status- married	1.36
Have children	1.06

PR – prevalence ratio

Table 6 – Association between work aspects and Burnout syndrome in on-duty physicians in adult intensive care unit, Salvador, Bahia, 2007 (n = 297)

Variables	PR
Time after graduation > 9 years	0.57
Time of uninterrupted on duty shift > 24 hours	2.00
Time of work in ICU ≥ 7 years	0.53
Maximum number of patients per on duty shift ≥ 10 patients	1.34
Weekly workload in ICU > 24 hours	1.44
Weekly workload > 72 hours	1.17
Monthly income > R$ 7,000.00	0.98
Boarded-certified intensivist	0.51

PR – prevalence ratio, ICU – intensive care unit

DISCUSSION

The profile of on duty physicians in the ICU of Salvador-Ba is a young population, predominantly male, graduated less than 10 years, who have an excessive workload, mainly on shift duty. Most are not boarded-certified in intensive care medicine. Prevalence of the male gender among the

interviewees was also noted by other authors.[5] However median of age, time after graduation and work in the ICU was less than that in other Brazilian and international papers.[5,9]

Schein (2007), for instance, evaluated physicians in adult and pediatric ICU, in Porto Alegre and found a median of nine years of work time in an ICU and 14 years after graduation.[9] A high prevalence of Burnout was found in this study (63.3%). However in literature it varies widely between studies and depends upon the assessed population and the conceptual reference values. High levels of Burnout have already been described in about one third of the North-American intensivists and in 46.5% of those in France.[1,5]

Lima observed that in pediatricians of a public hospital in Southern Brazil, the prevalence of Burnout was of 53.7%.[10] Further, in a study of 1,000 North-American oncologists, 56% disclosed some level of Burnout.[11] Using the same criteria as those adopted here, Tucunduva et al. and Grunfeld et al. respectively in Brazil and Canada, found a prevalence of Burnout of about 50% in oncologists.[7,8] Therefore, it was concluded that the study's intensivist physicians presented a higher prevalence of Burnout than that of other medical specialties such as oncology and pediatric and it was also higher than intensivists in other countries.

Among the evaluated physicians, the main dimension affected was emotional exhaustion, considered as the first reaction to stress caused by work demands. Once exhausted, people feel physical and emotional fatigue and are unable to relax.[4] When exhausted inner resources of the professionals to face the situations experienced at work, as well as the energy to carry out the activities, are diminished.[3] As such, characteristics of this dimension are easily accepted by the professional when expressing consistent Burnout aspects.[12]

In view of the psychological and physical symptoms, the professional develops depersonalization, characterized by cold and negative attitudes, accompanied by a derogatory posture towards those directly involved with work. The worker even becomes cynical and ironic with recipients of his work.[13] This is the less prevalent dimension found in the current study.

Since the professional feels inefficient, with less self-reliance and a feeling of failure, reduced personal fulfillment at work occurs.[4,10] Inefficiency during performance of medical activities was observed in almost one third of the surveyed population. It is noteworthy that some authors consider this dimension as the final reaction to stress generated by work demands.[4,14]

In a study of oncologists, insufficient personal time was pointed out as the main reason for emergence of the Burnout syndrome.[15] Thomas et al. found results suggesting that the syndrome may be associated to depression and difficulty in caring for patients.[16] Although many studies evaluated prevalence of Burnout in various populations, the major challenge now is to identify the

main factors (of risk) related to this syndrome. Personal characteristics, as well as work demands are surveyed as determinants of the symptoms of this syndrome in various studies.

In this study prevalence of Burnout was lower among intensive care boarded-certified physicians, who reported having some hobby or who had regular physical activity. The syndrome was more prevalent among physicians less than nine years after graduation, who worked in the ICU for less than seven years and who reported a change in the sleep pattern. Although there was no important relationship with the weekly workload, physicians that are on duty for more than 24 hours uninterrupted have a higher prevalence of Burnout.

These data suggest that physicians specialized in intensive care medicine, that is to say those that have worked for more time in the area, are boarded-certified, and wish to work for a longer time in the ICU and have a lower incidence of Burnout.

The majority of the population studied is comprised of physicians that probably work in an ICU only in a complementary and temporary way, which would lead to a greater predisposition to develop Burnout syndrome. This group is mainly comprised of young physicians, at the beginning of their career, often exposing themselves to an extenuating workload as a way of improving income, which may lead to intense physical and psychological stress. However, there are currently too few studies to determine the causal agent and/or identify characteristic high risk profiles for Burnout.

This is a pioneer study, in the sense that it provides a detailed profile of the physicians working in ICU in a city of Brazil and to evaluate the prevalence of Burnout Syndrome in this population.

Nevertheless, results presented should be viewed taking into account some of the limitations involved. In this study, hypotheses were made about socio-demographic and work related factors that may be associated to the high prevalence of Burnout among intensivists. It would be required a more complex statistical analysis to corroborate these results, including more objective variables that do not belong to the main purpose of this study, but should be addressed in future works

CONCLUSION

The herein surveyed physicians are predominantly young, male, with a heavy weekly workload and in their majority do not intend to work for a long time in an ICU. Results point to high prevalence of the Burnout syndrome among the on duty physicians surveyed, mainly those that are not intensive care medicine specialists. Therefore, consideration must be given to measures which might be adopted to modify working conditions, the physician-patient relationship and the motivation of these professionals. Indeed the ICU is an environment where the physician is permanently exposed to stress factors, principally related to the fact of caring for severely ill patients with imminent risk of death.

RESUMO

Objetivos: A síndrome de *Burnout* é uma reação de estresse excessivo relacionada ao trabalho que se apresenta em três dimensões: exaustão emocional, despersonalização e ineficácia. O objetivo deste estudo foi descrever o perfil de médicos plantonistas de unidades de terapia intensiva (UTI) e avaliar os fatores associados à presença de síndrome de *Burnout* nessa população.

Métodos: Estudo descritivo de corte transversal, avaliando os médicos que trabalham em UTI adulto de Salvador-BA, com carga mínima de 12 horas de plantão semanal. Foi distribuído um questionário auto-aplicável dividido em duas partes: a primeira referente a características sócio-demográficas e a segunda de avaliação da síndrome de *Burnout* segundo o *Maslach Burnout Inventory*.

Resultados: Foram avaliados 297 plantonistas, sendo 70% homens. A média de idade e de tempo de formado foi de 34,2 e 9 anos, respectivamente. Níveis elevados de exaustão emocional, despersonalização e ineficácia foram encontrados em 47,5%, 24,6% e 28,3%, respectivamente. A prevalência da síndrome de *Burnout*, considerada como nível elevado em pelo menos uma dimensão, foi de 63,3%. Esta prevalência foi estatisticamente menor nos médicos que possuíam título de Especialista em Medicina Intensiva (MI), com mais de nove anos de formado e que ainda pretendem trabalhar por mais de 10 anos em UTI. A prevalência foi maior nos médicos com mais de 24 horas de plantão ininterrupto em UTI por semana.

Conclusões: A prevalência de síndrome de *Burnout* foi elevada entre os médicos avaliados, sendo mais freqüente nos plantonistas mais jovens, com elevada carga de trabalho e sem especialização em MI.

Descritores: Esgotamento profissional/psicologia; Estresse; Condições de trabalho; Unidades de terapia intensiva

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