Original Article

Professional Burnout Syndrome among Intensive Care Physicians in Salvador, Brazil

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ABSTRACT

Objective. To describe the prevalence of burnout syndrome among intensive care physicians in Salvador, Brazil, and analyze it for associations with demographic data and aspects of their working conditions (psychological demands and control over tasks).

Methods. This was a cross-sectional study investigating associations between psychosocial aspects of work and professional burnout in a population of 297 intensive care physicians in Salvador. A self-administered individual questionnaire was used to collect data on psychosocial features of work using the demand-control model (Job Content Questionnaire) and on the mental health of the physicians using the Maslach Burnout Inventory (MBI).

Results. An elevated level of working hours overload and on-call work overload was observed. The prevalence of professional burnout was 7.4% and was more strongly associated with the psychological demands of work than with intensive care physician's control over that work.

Conclusions. Physicians doing highly demanding work (many demands and little control) suffered 10.2 times more burnout than those with undemanding work (few demands and a high degree of control).

Key words: Work. Burnout syndrome. Intensive care physicians.

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Introduction

Over the last fifty years, the way that physicians work has undergone significant changes as a result of major scientific and technological developments and the institutionalization of healthcare. The location where medicine is predominantly practiced has changed from the consulting room or surgery to modern hospital institutions. Inside hospitals and health services medical work has begun to be affected by tension between the autonomy of the traditional model and the heteronomy of the social and institutional order.[1,2,3]

The scientific-technological dimension of medicine has become dominant, directing modern working practices and imposing a new style of training and qualification anchored in the highly technified structure of teaching hospitals and aimed towards the acquisition of scientific knowledge and entering the employment market through specialization.[1,2,3]

It is known that becoming a medical professional involves the development of both technical and behavioral skills and abilities. The process demands a certain knowledge (recognition of personal and existential limits) if the professional role is not to damage the physician's physical and mental health. These professionals need to understand the processes to which they are subjected in their daily work and take ownership of them, being alert to factors such as emotional tension, feelings of impotence and the pressure of the constant battle against suffering, pain and death.[2,4,5,6]

Professional burnout is a very well-defined condition, characterized by emotional exhaustion, depersonalization and ineffectiveness.[7] Emotional exhaustion is when a person's emotional resources have been exhausted. It is considered the initial sign of burnout and is primarily caused by personal conflict and overload in interpersonal relations.[7,8,9] Depersonalization is characterized by

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emotional instability on the part of the professional, who begins to treat patients and colleagues in a cold and impersonal manner.[7,8] This is a fundamental defining feature of professional burnout, since its other characteristics can be observed in depressive disorders in general.[7,8] The final element, ineffectiveness (or feelings of incompetence) reveals a negative self-assessment associated with unhappiness and dissatisfaction at work.[7,8]

The most widespread definition of burnout approaches the phenomenon as a psychological syndrome resulting from the chronic emotional tension endured by professionals whose roles involve intense and frequent relationships with people in need of care and/or treatment.[7,9,10]

There is consensus among authors about the importance of the role played by work and about the relational dimension of the syndrome. Many authors state that the distinguishing feature of burnout (contrasting it with other types of reactions to stress) is the interpersonal framework of the phenomenon. They also agree that professionals who work directly with other people, whether caring for them, or whether responsible for their development and wellbeing, are more susceptible to burnout.[7-11]

If we evaluate the variables responsible for triggering burnout, we find personal characteristics (age, educational level, marital status etc), employment characteristics (time in profession, type of occupation, time at institution, relationship with clients / colleagues, conflicts over personal values etc.), organizational characteristics (physical environment, organizational changes, institutional standards, atmosphere, bureaucracy, communication, etc.) and social characteristics (social support, family support, culture and prestige).[8,9]

Intensive medicine is a particularly stressful specialty for a number of reasons. One of these is the greater exposure to death, which comes into conflict with the mission of curing people for which physicians are trained. The daily work of physicians in ICUs demands technical knowledge, skills, attention, rapid thinking and the emotional control to deal with issues related to patients and their families. They also need to constantly update their scientific knowledge in response to the development that the specialty has undergone over recent years.

A small number of studies have been undertaken into the health status of physicians in Brazil, the majority of which have focused on their mental health.[12-17] Even in developed countries, few studies have attempted to associate physicians' working conditions with their health, and once more there is a preponderance of studies into mental disorders within the profession among those that exist.[12,18-23]

This study investigated the association between psychosocial aspects of physicians' work and burnout syndrome among intensive care physicians in the city of Salvador, BA, Brazil.

Methods

This was a cross-sectional epidemiological study of a population of 333 intensive care physicians are living in the city of Salvador and registered with the Bahia Intensive Care Society (Sociedade de Terapia Intensiva da Bahia).

A standardized questionnaire was used for data collection which was completed by physicians themselves with no need to identify themselves. The questionnaire comprised six blocks of questions, as follows, block 1: general characteristics of the interviewee, designed to characterize the study population in terms of sex, age, specialty, time in the profession, hours worked per week, shift worked, etc; block 2: characteristics of the working environment considered by the physicians themselves as harmful to their health (Job Content Questionnaire - JCQ); block 3: quality of life (*WHOQOL-Bref*); block 4: health problems and diseases - in order to assess the overall health status of the study population; block 5: assessment of the degree of burnout (Maslach Burnout Inventory - MBI); block six: general questions, stressful elements of the working environment and lifestyle habits.

The JCQ identifies two important aspects of working conditions: psychological demands and the worker's control over their job.[24,25,26] Psychological demands refer to the importance of the job to the worker in terms of control over the time to perform the task and of any social conflicts that may exist. The workers' control over their job relates to their skill and ability to perform the tasks assigned to them and to the extent to which they have the opportunity to participate in decision-making at work. On the basis of the results, job content is assigned to a quadrant based on the combination of psychological demands and the worker's control over their job: undemanding (a combination of few demands and a high degree of control), passive work (few demands and little control), active work (many demands and a high degree of control) and highly demanding (many demands and little control).[24]

The scores indicating demands and control were arrived at by summing the variables relating to each indicator, respecting the model's recommended weightings. The median for each indicator was calculated and used to classify scores as high/low demand and high/low control. The assumption on which the demands-control model is based is that exposure is greatest when people are working under conditions of many demands, but little control (highly demanding. At the other extreme, minimum exposure is when people are working with few demands and a high degree of control (undemanding). All other combinations indicate working conditions of intermediate exposure.[27]

The Portuguese version of the JCQ consists of 41 questions: 17 about control over work (six about abilities and 11 about decision-making), 13 questions on demands (eight about psychological demands and five about physical demands), and 11 questions about social support. Thirty-eight questions were scored on a scale from one to four (1 = disagree; 2 = partially disagree; 3 = agree and 4 = strongly agree).

Validation studies of the JCQ indicate that it performs well.[28] A validation study carried out in Brazil found satisfactory results.[29] Studies conducted in Brazil have reported results consistent with those observed in other countries.[30]

The Maslach Burnout Inventory (MBI) is made up of 22 statements of attitudes and feelings that cover the syndrome's three basic dimensions, scored on three seven-point scales running from 0 to 6.[7] In this manner, the scale describes each of the three dimensions characterizing professional burnout independently.

Professional exhaustion is assessed in nine items, depersonalization in five and personal achievement in eight. The cutoff scores were the same as those used by Maslach.[7]

Scores greater than or equal to 27 indicate severe emotional exhaustion; with moderate exhaustion from 17 to 26 and scores less than 16 points classed as a low degree of emotional exhaustion. Depersonalization scores of 13 or over indicate severe depersonalization, while 7 to 12 is scored as moderate and 5 or less as low.[7] The scale for ineffectiveness is inverted, since scores from zero to 31 indicate severe ineffectiveness, from 32 to 38 is moderate and greater than or equal to 39 indicates a low degree of ineffectiveness.

Since there is no consensus in the literature on how to interpret the MBI, we chose to describe the results both according to the criteria used by Ramirez et al. and also according to the criterion used by Grunfeld et al. (apud Tucanduva et al., 2006).[31] The first of these studies defined professional burnout as all three dimensions scored in the severe zone, whereas Grunfeld considers that if any of the dimensions are scored as severe, then burnout is present, irrespective of which dimension.[31]

This study was advertised in the journals of the medical boards of the state of Bahia and flyers and posters were put up in all intensive care units in the city of Salvador. Questionnaires were delivered to intensive care physicians, together with a free and informed consent form, by a group of previously trained medicine and psychology students. Envelopes were also provided for the specialists to use when returning the questionnaires, thereby guaranteeing confidentiality. The study was approved by the Research Ethics Committee at the Santa Izabel Hospital.[32] Data collection was carried out from October to December of 2006.

The statistical analysis was carried out with the aid of SPSS for Windows 9.0,[33] at the Health IT Laboratory in the Health Department of the *Universidade Estadual de Feira de Santana*. The burnout scores (from the MBI) were adopted as the dependent variable and analyses were run to detect associations between this outcome and the independent variables, age group, sex, working on-call, hours worked on-call per week, hours worked as a physician per week, monthly income from practicing medicine, position in employment market (public sector worker and private service provider) and JCQ demand and control scores and their resulting quadrants. Prevalence ratios were used to measure associations between the study variables.[34] Since this was a population study, no calculations of statistical significance were used.[35]

Results

We studied 297 intensive care physicians, which equates to 89.2% of the 333 people who were initially eligible. There were 36 (10.8%) refusals in the form of physicians contacted by students collecting the data who did not complete their questionnaires.

The sample was 71.7% male and had a mean age of 34.2 ± 6.9 years. Mean time since graduation was 10.0 ± 6.7 years and mean time working in an ICU was 7.4 ± 6.4 years. Marital status broke down as 52% married and 41.2% single. One hundred and sixty (53.2%) of the specialists did not have children (Table 1).

The majority (73%, n = 218) of the sample had not qualified as an Intensive Care Specialist, despite working in intensive care. The most common medical specialties were: General Surgery - 36.3% (103); Internal Medicine - 32% (91); Cardiology - 10.6% (10); Anesthesia - 9.9% (28); Pulmonology/Respiratory Medicine - 3.2% (09); Intensive Care - 2.5% (07); Nephrology - 0.4% (01) and others - 5.3% (15) (Table 1).

Approximate monthly income from medical practice was less than or equal to R$ 5,000.00 for 20.2% (49) while 79.8% (242) earned more than R$ 5,000.00 per month.

This sample of physicians had a mean working week of 74.8 hours, while 86.6% (253) had a working week of more than 60 hours. Mean time spent on-call in an ICU was 33.7 hours per week and 49% (144) of the sample worked 24 hours or more per week on-call in an ICU (Table 1).

All of the MBI questions were answered by 99.7% of the 297 physicians. The prevalence of a severe score in one of the three MBI dimensions was 63.4% (188). The prevalence of severe scores in all three MBI dimensions was 7.4% (22) and the prevalence rates for severe scores in each dimension analyzed were 47.6% (141) for emotional exhaustion, 24.7% (73) for depersonalization and 28.4% (84) for ineffectiveness.

The prevalence of professional burnout was associated with an age of 33 or younger (PR = 1.82), having graduated 9 years previously or less (PR = 2.13), not taking part in physical activity (PR = 5.04) and not having a hobby (PR = 3.36) (Table 2).

The prevalence of professional burnout was associated with working more than 12 hours at the weekend (PR = 2.15), working more than 24 hours on-call per week in an ICU (PR = 2.15), earning R$ 5,000.00 or less per week (PR = 1.84) and having worked in an ICU for 7 years or less (PR = 1.54) (Table 2).

The prevalence of burnout syndrome (severe scores in all three dimensions) varied according to the demand-control model quadrants. Highly demanding working conditions (many demands and little control) were associated with the highest prevalence of burnout - 13.3%. At the other extreme, undemanding working conditions (few demands and a high degree of control) were associated with the lowest prevalence - 1.3%. Active work (many demands and a high degree of control) and passive work (few demands and little control) exhibited intermediate

Table 1 – Sociodemographic characteristics and features of the work of intensive care physicians in Salvador, BA, Brazil, in 2007

Personal and Functional Characteristics	N*	%
Sex	290	100
Female	82	28.3
Male	208	71.7
Age group	297	100
24-30	113	38.0
31-39	123	41.4
40-49	49	16.6
>49	12	4.0
Marital status	296	100
Single	122	41.2
Married	154	52.0
	01	0.3
Divorced / Separated	19	6.4
Children	293	100
Yes	137	46.8
No	156	53.3
Qualified Intensive Care Specialist	293	100
Yes	79	27.0
No	214	73.0
Time Since Graduation	295	100
< 10 years	175	59.3
11 – 20 years	92	31.2
> 21 years	28	9.5
Working Week (hours)	292	100
10 – 59	39	13.4
60 – 90	194	66.4
> 91	59	20.2
Hours worked on-call in an ICU per week	293	100
12-24	149	51.0
25-48	107	36.5
>49	37	12.5

* Valid answers

Table 2 – Associations between sociodemographic variables, lifestyle habits and burnout in all three dimensions among intensive care physicians in Salvador, BA, Brazil, 2007.

Sociodemographic variables, lifestyle habits and features of job (reference)***	N*	Prevalence of Burnout**	p
Female (male)	289	6.2%	0.496
Age ≥ 33 years (< 33 years)	296	5.1%	0.212
Has hobby (has no hobby)	290	4.1%	0.002***
Does not do physical activity (does do physical activity)	291	11.7%	0.012***
Single (married)	295	7.8%	0.714
Graduated >9 years previously (£ 9 years)	294	4.6%	0.058
Time on-call without breaks >24h (£24h)	296	7.6%	0.031***
Works ≥12h at weekend (does not)	296	8.2%	0.503
Works ≥2 night shifts (< 2)	277	7.4%	0.91
>24h worked on-call per week in an ICU (£24h)	296	4.8%	0.022***
Working week >72h (£72 h)	296	6.4%	0.729
Monthly income £ R$ 5,000.00 (> R$ 5,000.00)	290	6.6%	0.569
Qualified intensive care specialist (Not a qualified intensive care specialist)	292	8.9%	0.026**

*Valid answers with unanswered questions excluded
**Prevalence of burnout in all three dimensions
***Reference variable is numerator

Table 3- Association between demand-control model results and burnout in all three dimensions among intensive care physicians in Salvador, BA, Brazil, 2007.

DEMAND-CONTROL MODEL QUADRANTS	N*	BURNOUT IN ALL 3 DIMENSIONS	P
Undemanding: ¯ Demands + Control	79	1.3%	0.020**
Passive work: ¯ Demands + ¯ Control	56	8.9%	
Active work: Demands + Control	62	6.5%	
Highly demanding: Demands + ¯ Control	83	13.3%	
TOTAL	280	7.4%	

*Total number of valid answers
** Results statistically significant (p<0.05) with significance level less than 5%
*** Significance level <0.05

prevalence rates of 6.5% and 8.8%, respectively. Analysis of the results indicate that physicians with highly demanding jobs exhibited 10.2 (PR=10.2) times more burnout than those with undemanding jobs (Table 3).

Discussion

The profile of these intensive care physicians from Salvador, BA, Brazil was a young, predominantly male population, qualified less than 10 years previously, who were working long hours, particularly on call, and the majority of whom had not qualified as Intensive Medicine Specialists. Other authors have also observed that intensive care physicians are predominantly male.[40] However, mean age, time since becoming qualified and time working in an ICU were all lower than have been reported in Brazilian and international studies.[40,41,42] One study, conducted by Schein (2006),[42] investigated physicians working in adult and pediatric ICUs in Porto Alegre, RS, Brazil, and found that median time working in an ICU was 9 years and median time since becoming qualified was 14 years.

Work overload was particularly prevalent when working on-call. Other studies of physicians have reported similar findings.[34,37-40] This situation is far from ideal, because medical practice within an ICU is characterized by a need for follow-up time and time to investigate patients, in addition to the time needed to keep up-to-date with the science and technology of the area.

The prevalence of burnout in this study, taken as a severe score in at least one MBI dimension, was 63.3%. However, this prevalence varies greatly in the literature, depending on the population assessed and the conceptual values taken as reference. High degrees of burnout have been reported in around one third of American intensive care physicians and in 46.5% of French intensive care physicians.[40,46] Lima (2007)[45] observed that the prevalence of burnout among pediatricians working in a public hospital in the South of Brazil was 53.7%. In a study of 1,000 American oncologists, Whinppen and Canellos (1991)[46] found that 56% of those investigated were suffering from some degree of burnout. Grunfels et al. (2000),[48] Diaz and Stella (2006)[44] and Tucanduva et al. (2006),[31] in Canada, Argentina and Brazil, respectively, observed lower burnout prevalence rates than in our study, using the same criteria adopted here. It is therefore to be concluded that these intensive care physicians had a greater prevalence of burnout than observed within other medical specialties and among physicians in other countries.

The greatest prevalence rates of burnout were observed among physicians who were male, aged 33 or less, did not have a hobby, did not take part in physical activity, had graduated 9 years previously or less, who had worked in an ICU for 7 years or less, who worked more than 12 hours during the weekend and who worked more than two night shifts._

The doctors we studied described their work as making heavy psychological demands on them. This result is similar to what has been reported in other studies of physicians.[37,38]

The elevated prevalence of burnout observed in the highly demanding zone of the demand-control model confirms the model's primary prediction, which is that highly demanding work concentrates the greatest risk to workers' health. The greater prevalence of burnout associated with passive work, when compared with active work, suggests that roles in which workers have little control may be detrimental to the mental health of intensive care physicians, even when they are subject to few demands. These findings suggest that control may play a more relevant role than psychological demands in causing psychological suffering among intensive care physicians in Salvador. This result contrasts with the results reported by Nascimento Sobrinho[37] in a study about the work and mental health of physicians in Salvador.

The principal dimension affected among the physicians described here was emotional exhaustion, which is considered the first reaction to stress caused by the demands of work. Once they are exhausted, people feel physical and emotional tiredness and find it hard to relax and to perform their work.[9,41]

This dimension's characteristics, when contrasted with the characteristics of the other two dimensions, mean that it is more easily accepted and that professionals admit more easily to features consistent with burnout.[10]

In response to these psychological and physical symptoms, affected professionals may progress to depersonalization, which is characterized by cold and negative attitudes, and people directly involved with work are not appreciated. The worker begins to behave cynically and ironically with relation to their clients.[10] This was the dimension with the lowest prevalence in our study.

If a professional feels ineffective, with reduced self-confidence and feelings of failure, then personal achievement at work will be reduced.[11,45] Ineffectiveness while carrying out medical duties was observed in almost a third of our study population. It is important to stress that many authors consider this dimension to be the last reaction to the stress created by the demands of work.[11,47]

In one study with oncologists, lack of personal time was identified as primary cause for the appearance of burnout syndrome.[49,50] Results suggest that this syndrome may be associated with depression and with difficulties caring for patients. Many studies have investigated the prevalence of burnout in diverse populations, but the greatest challenge today is to identify the main risk factors related with the syndrome. Both personal characteristics and the demands of the job have been investigated as possible determinants of the symptoms of this syndrome in a range of different studies.

The study described here is pioneering in the sense that it provides a detailed profile of the physicians working in ICUs in a particular city in Brazil and evaluates the prevalence of burnout syndrome in this population. Notwithstanding, certain methodological considerations must be mentioned. Initially, the limitations of cross-sectional

studies must be acknowledged. In this type of study one collects data relating to the members of a particular group. It is only during data analysis that subsets are formed, since it is in this phase that exposed and not exposed people, who may be healthy or not, are identified. A cross-sectional study examines the relationship between exposure and disease in a given population or sample at a specific moment, providing a snapshot of the relationship between different variables at that moment. For this reason, this type of study does not establish a causal nexus, merely indicating the associations between the variables investigated. Furthermore, our study was of an exploratory nature, only investigating bivariate relationships, without analyzing confounding factors or interactions, which are important procedures for arriving at more definitive conclusions.[34]

One inconvenience of conducting studies using self-administered questionnaires is that the person being interviewed may not reply to all of the questions, making it difficult to control data losses.[34] However, the coherence and consistency of the findings indicate an association between highly demanding working conditions and a high prevalence of burnout syndrome.

Conclusion

The physicians investigated were predominantly young and male and were working a large number of hours per week and a majority of them did not intend to always work in an ICU. The results indicated an elevated prevalence of burnout syndrome among the on-call physicians investigated, primarily those who described their work as imposing many demands and providing little control (highly demanding), which, in this study, was identified as the situation of greatest exposure. Thought should therefore be given to measures that could be adopted to modify working conditions, the doctor-patient relationship and these professionals' motivation. After all, an ICU is an environment in which physicians are constantly exposed to stressful factors, primarily related to the fact that they are caring for patients at risk of imminent death.

The results of this research have encouraged the authors to undertake further statistical analysis, such as stratified and multivariate analysis, which will make it possible to delineate the associations observed with greater precision and to initiate further investigations in order to more precisely characterize exposure to excessive psychological demands within intensive care units, in the search for improved understanding of the working processes to which intensive care physicians are subjected.

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