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SCIENTIFIC ARTICLE

Association between burnout syndrome and anxiety in residents and anesthesiologists of the Federal District



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Abstract

Background and objective: There is a shortage of studies addressing the association between burnout syndrome and anxiety among anesthesiologists. Identifying the relationship between these two conditions is of fundamental importance for the prevention, follow-up, and treatment of the professionals. Thus, we evaluated the association between burnout syndrome and anxiety in anesthesiologists and residents of anesthesiology in the Federal District.

Method: A cross-sectional study using a convenience sample of residents and anesthesiologists from the Federal District. The correlation between State Trait Anxiety Inventory and Burnout Syndrome (Maslach Burnout Inventory) was tested using multiple linear regression analysis, considering a significance level of 5%.

Results: Of the 78 completed forms, there were predominance of males (57.69%), mean age of 42 ± 9.7 years for anesthesiologists and 30 ± 2.9 years for residents. Burnout syndrome had a prevalence of 2.43% among anesthesiologists and 2.70% among resident physicians, while a high risk for its manifestation was 21.95% in anesthesiologists and 29.72% in resident physicians. There was a correlation between state-anxiety and the variables burnout emotional exhaustion, burnout depersonalization, and trait-anxiety. Regarding trait-anxiety, there was no statistically significant correlation with other variables.

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Conclusions: There is association between state-anxiety and the emotional exhaustion dimensions of burnout, burnout depersonalization, and trait-anxiety. The occurrence of anxiety can negatively influence the way the individual faces daily stressors, which may be related to the use of ineffective strategies to cope with stress.

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PALAVRAS-CHAVE

Síndrome de *burnout*;
Ansiedade;
Anestesia;
Anestesiologia

Associação entre síndrome de *burnout* e ansiedade em residentes e anesthesiologistas do Distrito Federal

Resumo

Justificativa e objetivo: Existe escassez de estudos sobre a associação entre a síndrome de *burnout* e ansiedade entre anesthesiologistas. A identificação da relação entre as duas condições é de fundamental importância para a prevenção, o acompanhamento e tratamento dos profissionais. Assim, foi avaliada a associação entre síndrome de *burnout* e ansiedade nos anesthesiologistas e residentes em anestesiologia do Distrito Federal.

Método: Estudo de corte transversal que usou amostra por conveniência composta por residentes e anesthesiologistas do Distrito Federal. Correlação entre ansiedade (*State Trait Anxiety Inventory*) e síndrome de *burnout* (*Maslach burnout Inventory*) foi testada a partir da análise de regressão linear múltipla, considerou-se nível de significância de 5%.

Resultados: Dos 78 formulários respondidos, houve predominância de indivíduos do sexo masculino (57,69%), com média de $42 \pm 9,7$ anos para os anesthesiologistas e de $30 \pm 2,9$ anos para os residentes. A síndrome de *burnout* apresentou prevalência de 2,43% entre os anesthesiologistas e 2,70% entre médicos residentes, enquanto alto risco para sua manifestação nos anesthesiologistas foi de 21,95% e para médicos residentes, de 29,72%. Observou-se correlação entre ansiedade-estado e as variáveis exaustão emocional de *burnout*, despersonalização de *burnout* e ansiedade-traço. Em relação à ansiedade-traço não houve correlação estatisticamente significativa com as demais variáveis.

Conclusão: Existe associação entre ansiedade-estado e as dimensões exaustão emocional de *burnout*, despersonalização de *burnout* e ansiedade-traço. A ocorrência de ansiedade pode influenciar negativamente a maneira como o indivíduo enfrenta os fatores estressores cotidianos, o que pode estar relacionado ao uso de ineficazes estratégias de enfrentamento diante do estresse.

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Introduction

Work-related emotional exhaustion, also known as burnout syndrome, is characterized by emotional exhaustion, depersonalization, and decreased professional achievement, more common among individuals who deal with people at work.¹

Emotional exhaustion is related to reduction of internal emotional resources, caused by interpersonal demands. Depersonalization reflects the development of cold, negative and insensitive attitudes toward the recipients of a service rendered. The sense of decreased professional achievement shows that people suffering from burnout syndrome tend to believe that their professional goals have not been met and experience a sense of inadequacy and low professional self-esteem.^{1,2}

In the medical field, including anesthesiology, burnout syndrome is related to physical and mental exhaustion, lack

of energy, cold and impersonal contact with patients, attitudes of cynicism, irony and indifference, dissatisfaction with work, low self-esteem, lack of motivation, and desire to leave the job. It is due to work shifts, sleep deprivation, long working hours, incomplete or impaired staff, constant exposure to risk, time pressure and urgency, and dealing with suffering and death.^{3,4} The syndrome is considered an occupational disease that affects the professional performance of anesthesiologists.⁴

Symptoms of anxiety often occur in chronic occupational diseases, causing a high degree of personal, social, and occupational dysfunction. The prevalence of anxiety among physicians ranges from 18% to 35%.⁵

Current models of anxiety have as their starting point the dichotomy: stimulus-oriented anxiety versus anxiety as a response. In the first hypothesis, anxiety is seen as a response to a specific stimulus (situations, thoughts, and emotions), while in the second, anxiety is explored as

the emotional response itself, irrespective of the stimulus. There is evidence that anxiety disorders are independently associated with poor quality of life.⁶

A measurement tool to assess anxiety is the State-Trait Anxiety Inventory (STAI), a self-assessment scale developed in 1970.⁷ The validated version in Portuguese has the same original structure.⁸

To date, literature is scarce in studies of the association between burnout syndrome and anxiety among anesthesiologists. The identification of the association between the two conditions is of fundamental importance for the prevention, follow-up, and treatment of these patients. The diagnosis and treatment of anxiety are less complex than those of the burnout syndrome. The early identification of anxiety can lead to burnout prevention. Thus, this study aimed at evaluating the association between burnout syndrome and anxiety in anesthesiologists and residents of anesthesiology in the Federal District.

Method

Cross-sectional study approved by the Human Research Ethics Committee of the *Hospital das Forças Armadas de Brasília* under protocol CAAE N° 37896914.2.0000.0025. A convenience sample composed of anesthesiologists and residents of anesthesiology enrolled in the Anesthesiology Society of the Federal District was used. We excluded the questionnaires that were incompletely answered.

Data were collected in November and December of 2014 and January of 2015, in the operating room environment of different hospital units of the Federal District, a place of greater concentration of anesthesiologists and residents of the field. For this step, two standardized and self-administered questionnaires were used: the first included the Maslach Burnout Inventory (MBI), the standard tool for assessing the syndrome.⁹ For the analysis of MBI data, the sum of each dimension (emotional exhaustion, professional achievement, and depersonalization) was performed. The values obtained were compared with the reference values of the Nucleus of Advanced Study on Burnout Syndrome in Brazil (NEPASB),⁹ shown in [Table 1](#).

The diagnosis of burnout syndrome using the MBI was defined after the analysis of all dimensions and its principle is the classification of a low score for the professional achievement dimension and a high score for the emotional exhaustion and depersonalization dimensions. The presence of these three dimensional criteria in a professional indicates the manifestation of burnout syndrome and the presence of two criteria determines a high risk for its development.⁹

Table 1 Maslach Burnout Inventory (MBI) values developed by the *Núcleo de Estudos Avançados sobre a Síndrome de Burnout*⁹ (Advanced Study on Burnout Syndrome Group).

Dimensions	Low	Medium	High
Emotional exhaustion	0–15	16–25	26–54
Professional achievement	0–33	34–42	43–48
Depersonalization	0–2	3–8	9–30

The second tool used was the STAI⁷ questionnaire adapted to the Portuguese language, one of the most used tools for assessing anxiety.⁸

The correlation between the anxiety-trait, anxiety-state, time of experience, and age variables was evaluated with the Friedman test. To test the hypothesis of the association between categorical variables and numerical or ordinal variables, the Wilcoxon and Mann–Whitney tests were used. For multivariate analysis, associations between anxiety-state and anxiety-trait, with all other variables investigated, were tested with multiple linear regression analysis, using anterograde selection with maximal R^2 as a criterion for model selection. The null hypothesis was rejected when $p < 0.05$.

Results

Of the 78 questionnaires, 41 were answered by anesthesiologists (21 males and 20 females) and 37 by residents (24 males and 13 females). Of these, there was a predominance of male subjects (57.69%), with a mean of 42 ± 9.7 years for anesthesiologists and 30 ± 2.9 years for residents. Regarding the time of experience in the field, it was identified that anesthesiologists have an average of 14.5 ± 9.1 years of experience, while the residents have 2 ± 0.8 years.

The psychological analysis of emotional exhaustion showed that the three MBI items evaluated were more prevalent in the resident group: 35.13% had a high level of emotional exhaustion, 37.83% showed decreased professional achievement, and 32.43% had a high level of depersonalization. These are characteristics that establish the diagnosis for burnout syndrome manifestation or high risk for its development ([Table 2](#)).

Burnout syndrome had a prevalence of 2.43% among anesthesiologists and 2.70% among resident physicians, while a high risk for its manifestation in anesthesiologists was 21.95% and 29.72% in resident physicians.

In STAI analysis of anxiety, the anesthesiologists presented an average score of 36 for state-anxiety and 34 for trait-anxiety. The mean scores of resident physicians for state-anxiety and trace-anxiety were 39 and 36, respectively.

There was a correlation between state-anxiety and the burnout variables emotional exhaustion, depersonalization, and trait-anxiety. According to the multiple linear regression model generated, the mean predicted values for the

Table 2 Prevalence (%) of MBI dimensions in anesthesiologists and residents of the Federal District.

MBI dimensions	Anesthesiologists (n = 41)	Residents (n = 37)
Emotional exhaustion (high level)	24.39	35.13
Professional achievement (low level)	34.14	37.83
Depersonalization (high level)	29.26	32.43

Table 3 Final models obtained from the multiple linear regression of STAI questionnaire for anesthesiologists and residents in the Federal District.

Models	Variables	Beta coefficient	<i>p</i>
State-anxiety ^a	Intercept	10.51	<0.001
	<i>Emotional exhaustion of burnout</i>	3.30	0.042
	<i>Depersonalization of burnout</i>	3.57	0.017
	Trait-anxiety	0.72	<0.001
Trait-anxiety ^b	Intercept	41.67	<0.001
	Age	-0.16	0.125

^a Adjusted for professional achievement, burnout, experience time, and age.
^b Adjusted for experience time, male, and resident.

STAI questionnaire for state-anxiety increased by 3.3 points in cases with emotional exhaustion; 3.5 points in cases with depersonalization and 0.7 point at each point in the STAI scale regarding trait-anxiety. This multiple regression was performed with anterograde selection with the use of maximum adjusted R^2 as target, the adjusted R^2 of the final model was 0.6547 with $p < 0.0001$.

None of the variables assessed was a statistically significant predictor of the trait-anxiety variable (Table 3).

Discussion

Anesthesiology is a medical field marked by several stressful factors, such as long working hours, little time for rest and social life, sleep deprivation, constant pressure for results and professional responsibility.^{4,10} This reality experienced by the anesthesiologist predisposes to changes in their emotional status, such as anxiety and burnout syndrome.^{2,11,12}

The assessment was performed in a sample of 78 anesthesiologists and residents of anesthesiology in the Federal District. The interviewees' profile is of a young population, predominantly male, with a practice time of 14.5 years among anesthesiologists and 2 years among residents, similar to another study conducted in the Federal District.¹³

The MBI evaluates three dimensions and is considered the standard tool for investigating burnout syndrome. The most affected dimension in the sample studied was the reduced professional achievement. Similar data have also been described by other researchers with a prevalence of 47.7% for reduced professional achievement.¹³ The expression that best portrays this state is the individual questioning about his choice of profession and the doubt about his aptitude to exercise it. The individual no longer gets involved with the work and feels personally and professionally inadequate. This behavior affects their skills for work and contact with people, in addition to reducing their productivity.¹⁴ This may be due to the poor working conditions in which anesthesiologists are inserted and the high workload that can cause the feeling that the work is not rewarding.^{4,15,16}

In the present study, burnout syndrome had a prevalence of 2.43% among experienced physicians and 2.70% among

resident physicians, a prevalence below that expected for this professional class, which is considered to be at high risk. The prevalence of burnout syndrome among anesthesiologists in Brazil is still unknown, but a study performed previously in the Federal District showed a prevalence of 10.4% in anesthesiologists interviewed.¹³ Although this study found a low prevalence of burnout syndrome, which can be explained by the sample size and the sampling technique used, this prevalence was higher in the resident group when compared to anesthesiologists. This can be justified by the high workload, professional inexperience, and low payment.¹⁷

A study evaluating the stress and quality of life among resident physicians in *São José do Rio Preto* (SP, Brazil) found that there is a poor quality of life with increased stress among residents.¹⁸ According to the literature, this prevalence varies greatly between studies, depending on the population evaluated and the conceptual values used as reference. A research using the same assessment tool with 120 residents of the Federal University of *Uberlândia* (MG, Brazil) revealed the existence of burnout syndrome in 20.8% of the sample.¹⁷

STAI analysis for anxiety showed a higher score for resident physicians both in trait-anxiety and state-anxiety. One possible explanation for state-anxiety is the fact that medical residency is a stressful period in the training of physicians who are under constant pressure, presenting tiredness, fatigue, and fear of making mistakes.¹⁹ This period, marked by extensive personal development, requires a lifestyle change that often ends up as a burnout syndrome, impairing the physical and mental health of physicians. Trait-anxiety is characteristically determined by the personality of each individual and little variation is expected over the years.

This study found a correlation between state-anxiety and two burnout syndrome dimensions: emotional exhaustion and depersonalization. The literature demonstrates that burnout syndrome is associated with some variables (personal, organizational, work, and social characteristics); they are not necessarily triggers of the syndrome, but are facilitators or inhibitors of the reaction to stressor agents.⁴ The presence of anxiety may negatively influence the way a person faces everyday stressors, which may be related to the use of ineffective coping strategies.²⁰ Identifying this association may serve to better approach professionals who are at high risk for burnout syndrome. This fact may favor this complex syndrome prevention, follow-up, and treatment.²¹

A cross-sectional study in the medical field has the advantages of low cost, analytical simplicity, high descriptive potential and rapid data collection, besides the easy representativeness of a population. However, among its limitations are the difficulty in investigating conditions of low prevalence and the non-establishment of causality.²² Another limitation of the present study is the use of a convenience sample, which limits the power of generalization and inference from the findings. However, despite the caution in analyzing the results of this study, it describes the prevalence of the burnout syndrome dimensions and its association with anxiety among anesthesiologists and resident physicians in the Federal District. The importance of this study lies in the potential to motivate discussions and changes in the practices of these professionals.

Given the severity of burnout syndrome consequences, some recommendations suggested by the American Society of Anesthesiologists for Occupational Health of Surgical Teams are considered to be healthy ways of coping and, perhaps, may ease the high level of daily stress of anesthesiologists. Among them, it is suggested to stay healthy through exercise and good nutrition, learn new skills or develop intellectual interest beyond medicine, dedicate time to cultural activities (concerts, cinema, museums), and to make friends with other people not involved with medicine.²³ Further studies can assess the impact of these recommendations on anxiety and burnout syndrome in this population.

The association between anxiety and burnout identified in this study is of fundamental importance, since the diagnosis of anxiety is less complex, which facilitates the identification of potential cases of this syndrome, favoring the early action in its prevention.

In conclusion, this study found association between state-anxiety and the burnout syndrome dimensions of emotional exhaustion, depersonalization, and trait-anxiety.

Conflicts of interest

The authors declare no conflicts of interest.

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