

Occupational stress and burnout in health professionals of perioperative units

Estresse ocupacional e *burnout* em profissionais de saúde de unidades de perioperatórioEstrés laboral y *burnout* en profesionales de la salud de unidades de perioperatorioOclaris Lopes Munhoz¹  <https://orcid.org/0000-0001-8901-7148>Tatiele Soares Arrial¹  <https://orcid.org/0000-0002-5184-4639>Edison Luiz Devos Barlem²  <https://orcid.org/0000-0001-6239-8657>Graziele de Lima Dalmolin¹  <https://orcid.org/0000-0003-0985-5788>Rafaela Andolhe¹  <https://orcid.org/0000-0003-3000-8188>Tânia Solange Bosi de Souza Magnago¹  <https://orcid.org/0000-0002-5308-1604>

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Abstract

Objective: To analyze the relationship between occupational stress and burnout in healthcare professionals working in perioperative units.

Methods: Analytical, cross-sectional study developed with 146 health professionals from various categories working in perioperative units. The Job Stress Scale and the Maslach Burnout Inventory were used. Descriptive and inferential statistics were used for data analysis.

Results: Regarding occupational stress, 93 (64.5%) health professionals had high psychological demands and 83 (57.3%) had low control over work. Fifteen (10.3%) professionals were burnout. There was a statistically significant association between high psychological demand and high emotional exhaustion ($p=0.0001$) and between high psychological demand and high depersonalization ($p=0.007$). There was a statistically significant association between the presence of burnout and high psychological demands ($p=0.049$).

Conclusion: Emotionally strained professionals who move away from colleagues have high psychological demands. As psychological demands increase, so does emotional exhaustion and depersonalization. On the other hand, when the psychological demand is low, the professional is not experiencing burnout.

Resumo

Objetivo: Analisar a relação entre estresse ocupacional e *burnout* em profissionais de saúde de unidades de perioperatório.

Métodos: Estudo transversal analítico, desenvolvido com 146 profissionais de saúde de unidades de perioperatório, representantes de diversas categorias. Utilizou-se os instrumentos *Job Stress Scale* e o *Inventário Maslach de Burnout*. Para a análise dos dados empregou-se estatística descritiva e inferencial.

Resultados: Quanto ao estresse ocupacional, constatou-se que 93(64,5%) profissionais de saúde encontravam-se com altas demandas psicológicas e 83(57,3%) estavam com baixo controle sobre o trabalho. Observou-se que 15(10,3%) profissionais apresentaram *burnout*. Houve associação estatisticamente significativa entre alta demanda psicológica e alto desgaste emocional ($p=0,0001$) e, entre alta demanda psicológica e alta despersonalização ($p=0,007$). Evidenciou-se associação estatisticamente significativa entre presença de *burnout* e altas demandas psicológicas ($p=0,049$).

Conclusão: Profissionais desgastados emocionalmente e que se afastam dos colegas possuem altas demandas psicológicas. À medida que as demandas psicológicas aumentam, também aumentam o desgaste emocional e a despersonalização. Por outro lado, quando a demanda psicológica é baixa, o profissional não está em *burnout*.

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Conflicts of interest: none to declare.

Resumen

Objetivo: Analizar la relación entre el estrés laboral y *burnout* en profesionales de la salud de unidades de perioperatorio.

Métodos: Estudio transversal analítico, realizado con 146 profesionales de la salud de unidades de perioperatorio, representantes de diferentes categorías. Se utilizaron los instrumentos *Job Stress Scale* y el *Cuestionario Maslach de Burnout*. Para analizar los datos se aplicó estadística descriptiva e inferencial.

Resultados: Respecto al estrés laboral, se constató que 93 (64,5%) profesionales de la salud se encontraban con altas demandas psicológicas y 83 (57,3%) tenían un bajo control sobre el trabajo. Se observó que 15 (10,3%) profesionales presentaron *burnout*. Hubo relación estadísticamente significativa entre la alta demanda psicológica y el alto desgaste emocional ($p=0,0001$), y entre la alta demanda psicológica y la alta despersonalización ($p=0,007$). Se constató relación estadísticamente significativa entre presencia de *burnout* y altas demandas psicológicas ($p=0,049$).

Conclusión: Profesionales desgastados emocionalmente y que se alejan de los compañeros tienen altas demandas psicológicas. A medida que las demandas psicológicas aumentan, también aumenta el desgaste emocional y la despersonalización. Por otro lado, cuando la demanda psicológica es baja, el profesional no está en estado de *burnout*.

Introduction

Workplaces are often considered stressful places and factors such as work stress and burnout compromise the health of professionals. Thus, in recent decades, there has been a growing need for studies addressing the impact of stress on workers' health and care activities, because in addition to workers' health, patient safety is also compromised.^(1,2)

In this perspective, among the theoretical models developed to evaluate work-related stress of psychosocial nature, the demand-control model (DC-M) is among the most used. This model seeks to elucidate the mental demands that affect the work of professionals, thus, the higher the work demands, the greater the psychological demand of the professional.^(3,4) The excess of high complexity psychological demands that need to be done in a short time increase the psychological demands. Such demands involve time pressure, level of concentration, interruption of tasks and the need to depend on others. Control at work is when professionals can use their skills (creativity and strategies) and make decisions to fulfill their demands thereby combating stressors.^(3,4)

When professionals are unable to have control over their work and do not use coping strategies, they may become ill and be affected by burnout⁽¹⁾, which is related to the consequences of work on the health of professionals. Burnout affects those working in direct contact with patients and is recognized for being an occupational risk process in professions involving education, care and human services.^(5,6)

The Socio-Environmental Conception is one of the theories that define an explanatory model

for Burnout, and according to which, socio-environmental factors are precursors to the development of the syndrome. Factors originating from the work environment can weaken an individual and trigger the syndrome.^(5,7) The socio-environmental model lists multidimensional factors of burnout and considers individual aspects associated with work conditions and relationships. These factors are subdivided into three dimensions: emotional exhaustion, related to physical, mental and emotional strain; depersonalization, indicating that the personality of the individual is undergoing changes as a consequence of his/her work and; professional achievement, which shows satisfaction with work activities.^(5,7)

This study is justified by the fact that perioperative environments are among the health work scenarios with more stressors, as a result of the complexity of procedures performed and the competence and autonomy required in this type of environment.^(1,8,9) A study within this context found that professionals working in the surgical setting were dissatisfied with their work, unwilling to work, tired, had few hours of sleep and considered the material resources insufficient, thus demonstrating a greater susceptibility to the development of stress and burnout.⁽¹⁾ In another study, the surgical clinic unit was the sector with predominance of the highest levels of stress among professionals.⁽⁹⁾

Research on stress and burnout, and measures of acute and chronic stress, respectively, have contributed to the identification of factors associated with professional illness that have consequences for patient safety.^(1,2,6) However, few studies address

these factors in perioperative units, where the peculiarities require professionals prepared for the care of surgical patients.

In light of these considerations, emerges the question: is there a relationship between occupational stress and burnout in health professionals in perioperative units? When the individual has low control and high psychological demands in relation to occupational stress, this situation may characterize as the initial chronification of stress, which makes one more susceptible to burnout. Thus, the hypothesis of this study is that professionals with low control and high psychological demands are in burnout. The aim of this article is to analyze the relationship between occupational stress and burnout in health professionals of perioperative units.

Methods

Type of study

This was an analytical cross-sectional study conducted with health professionals from a teaching hospital in the central region of the state of Rio Grande do Sul.

Scenario and population

The study was conducted in perioperative units that correspond to the Surgical Ward, the Anesthetic Recovery Room, the Intermediate Recovery Room and the General Surgery Unit - Inpatient Service. In these units, is provided care to patients in need of surgical intervention before surgery, intraoperatively and postoperatively. The study participants were the nursing staff, physicians, psychologists, social workers, physiotherapists, dentists, speech therapists, nutritionists and health assistants.

Population definition and selection criteria

Population selection criteria were defined as health professionals with at least four weeks of work and minimum workload of 20 hours per week in the working unit. These criteria are necessary for the evaluation of burnout.⁽⁷⁾ Professionals on leave for

any reason during the collection period were excluded. This was a convenience and non-probabilistic population, in which 146 out of 181 health professionals working in perioperative units participated in the study, representing 80.7% of the eligible population.

Data collection and instruments used

Data were collected from March to July 2018, following ethical procedures and institutional authorization. Prior to the beginning of collection, the managers of units were contacted with the aim to inform the objectives and invite professionals to participate in the study. After consent was given through signature of the Informed Consent form (IC), health professionals were invited to participate in the study and fill out the collection instruments in a reserved place, in their respective work units. During the collections, an envelope containing the Job Stress Scale (JSS) and the Maslach Burnout Inventory-Human Service Survey (MBI-HSS) was delivered.^(4,7) The reduced version of the JSS instrument adapted to the Brazilian reality with Cronbach's alpha between 0.63 and 0.86 was used to evaluate occupational stress.⁽⁴⁾ This version has 17 questions divided into three domains: the first one represents the psychological demand (PD), evaluated by five questions through a Likert scale with the following answer options: often, sometimes, rarely and never; the second is control (C), interpreted by six Likert-type questions (1-4), also ranging from often to never; the third domain is social support (SP), which was not used because it was not the objective of analysis of this study. The score for the PD domain can range from a minimum of five to a maximum of 20 points (the higher the score the higher the psychological demand). Domain C ranges from six to 24 points (the higher the score the higher the control). Questions # 4 and # 9 have reverse scores.⁽⁴⁾ For the burnout level survey, the MBI-HSS with Cronbach's alpha of 0.89 was used. This instrument has 22 items subdivided into the dimensions emotional exhaustion (EE), depersonalization (DP) and professional accomplishment (PA). For all answer

options, there is a Likert scale ranging from 0 “never” to 4 “daily”, in which professionals mark the frequency with which they perceive or feel about the statement of each question.⁽⁶⁾

Data analysis and processing

Data were entered into Excel spreadsheets and processed using the Statistical Package for the Social Sciences (SPSS), version 18.0, with validation and consistency checks. The Fisher’s exact test or chi-squared test were used to identify the association between occupational stress and burnout. The Pearson’s correlation was used for correlations between quantitative variables. Data normality was analyzed by the Kolmogorov-Smirnov test. Statistically significant associations were considered when *p*-value was less than or equal to 0.05. According to data distribution, the median was used for the dichotomization of the JSS domains. The values obtained were categorized according to each dimension, corresponding to low and high psychological demand (7 - 13 points = Low PD; 14 - 19 points = High PD) and low and high control (11 - 18 points = Low C; 19 - 22 points = High C). For burnout analysis, the cutoff points for the domains were obtained by tertiles, as recommended by the MBI Manual.⁽⁷⁾ The tertile establishes the sample cutoff point at each subscale. Sample cutoff points: Emotional Exhaustion: Low EE ≤ 6; Mean EE = between 6.1 and 10.9; High EE ≥ 11; Depersonalization: Low DP ≤ 1; Mean DP = between 1.1 and 2.9; High DP ≥ 3; Professional Achievement: Low PA ≤ 20; Mean PA = between 20.1 and 23.9; High PA ≤ 24. The interval established by tertiles is important to determine the criteria that indicate the presence of burnout, that is, when high scores of emotional exhaustion and depersonalization are associated with a low professional achievement score, the individual is in burnout.⁽⁷⁾

Ethical aspects

This study is in line with Resolution 466/2012 of the National Health Council and was approved by the Research Ethics Committee of the Universidade Federal de Santa Maria in December

2017 under number 2.447.277 and CAAE: 80587417.0.0000.5346.

Results

Of the health professionals participating in this study, 93 (64.5%) had high psychological demands and 51 (35.5%) had low psychological demands. In addition, 83 (57.3%) had low control over work and 62 (42.7%) had high control over work. When analyzing the presence of burnout among health professionals of perioperative units, 15 (10.3%) presented the syndrome. Table 1 shows the associations between psychological demand and burnout dimensions.

Table 1. Association between psychological demand and burnout dimensions

Psychological demand	Emotional exhaustion			<i>p</i> -value
	Low n(%)	Mean n(%)	High n(%)	
Low demand	27(54,0)	16,0(32,0)	7(14,0)	0,0001†
High demand	20(21,5)	29(31,2)	44(47,3)	
Psychological demand	Depersonalization			<i>p</i> -value
	Low n(%)	Mean n(%)	High n(%)	
Low demand	21(41.1)	16(31.4)	14(27.5)	0.007†
High demand	25(26.9)	17(18.3)	51(54.8)	
Psychological demand	Professional achievement			<i>p</i> -value
	Low n(%)	Mean n(%)	High n(%)	
Low demand	13(25.5)	14(27.5)	24(47.1)	0.540†
High demand	29(31.2)	29(31.2)	35(37.6)	

† Pearson’s chi-square test

According to table 1, there was a statistically significant association between high psychological demand and high emotional exhaustion (*p*=0.00001) and between high psychological demand and high depersonalization (*p*=0.007). There was no statistically significant association between psychological demand and professional achievement. Regarding analyzes between control over work and burnout, there was no statistically significant association for any dimension (*p*≥0.05). Table 2 shows the association between occupational stress and burnout, showing that health professionals experiencing burnout have high psychological demands (*p*=0.049).

Table 2. Association between occupational stress (JSS) and burnout (MBI)

Dimensions DC-M		Burnout		<i>p-value</i>
		Present n(%)	Absent n(%)	
Control over work	Low	7(8.4)	76(91.6)	0.273†
	High	8(12.9)	54(12.9)	
Psychological demand	Low	2(3.9)	49(96.1)	0.049‡
	High	13(14.0)	80(86.0)	

†Pearson's chi-square test; ‡Fisher's exact test

Discussion

Health professionals of perioperative units had high psychological demands and low control over their work, which represents a scenario of high strain job and results in adverse reactions to their health. In this situation, there may be mental fatigue and anxiety, factors that endanger the health of professionals as a result of their work environment.^(3,4) Furthermore, health professionals with low control over work activities may not cope with work stressors, which results in a risk of illness.⁽¹⁾

These findings differ from those from another study, in which professionals with low demand and high control over work prevailed. On the other hand, in that same study, the surgical unit was the second with the highest prevalence of stressed professionals compared to the intensive care unit and the emergency care unit.⁽¹⁰⁾ Some factors may be related to the stress experienced in perioperative environments, such as the performance of a high number of complex procedures and emergency surgeries, in addition to patient turnover. These situations are characterized as stressors and require technical and psychological preparation from health professionals.⁽¹⁰⁻¹²⁾

In another investigation, although professionals had high psychological demands, they had high control over work. This is equivalent to active work, where professionals have decision-making authority and, although demands are high, the high control benefits their health.⁽¹¹⁾ In this case, the psychological demands of the work environment are faced as challenges, but also provide growth and professional learning.⁽³⁾

Still regarding psychological demands and the control over work of health professionals in the

present study, the units where they work involve high psychological demands, given the great patient turnover, many complexities, and the high number of procedures performed. This reality is in line with the framework propositions of the evaluated construct, as the excessive work demand and high complexity increase the psychological demands from professionals. The authors emphasize that control is directly related to the possibility of professionals using their skills (creativity and strategies) to meet their demands and combat stressors. However, a considerable percentage of professionals were classified as having low control over their work demands.^(3,4)

In addition, in this study, 15 (10.3%) health professionals had burnout syndrome, which is similar to findings from other studies in which the prevalence of burnout was 12.5% and 14.4%.^(1,13) If professionals do not keep occupational stress under control, the prevalence of burnout may increase. Hence the relevance of strategies of professional valorization maintained by the institution, as well as the provision of spaces to cope with stress.

Burnout can trigger consequences at individual work and work organization, and social consequences.⁽¹⁴⁾ In the individual sphere, there is development of pain, allergies, gastrointestinal disorders, lack of concentration, aggressiveness and low self-esteem. Regarding work, burnout increases the chances of care errors and compromises the relationship between team members. Regarding work organization, it generates higher expenses with time and money as a result from the turnover of sick professionals. The social sphere is weakened, because burnout leads to family disharmony and makes professionals less satisfied in their relationship with patients.⁽¹⁴⁾

The routine of the units studied, given the high number of procedures performed, patient turnover and complexity of actions developed, may have contributed to trigger the aforementioned consequences in professionals affected by burnout. Considering that burnout is a form of chronic stress and professionals often do not realize they are affected by this syndrome, there are unfavorable predisposing factors to the development of burnout, as well as

other protective agents that help with coping and prevention.^(1,15-17)

The unfavorable factors are mainly lack of professional recognition, conflicting interpersonal relationships, conflicting relationships with direct management, double employment engagement and high workload.^(15,16) The protective factors are related to an organized work environment, with institutional support, open dialogue and support from direct management. In addition, younger professionals and those married with children are less likely to develop the syndrome.^(1,16-18)

There was a statistically significant association between health professionals with high psychological demand and high emotional exhaustion, and those with high psychological demand and high depersonalization. These findings converge with the model proposed by Karasek and Theörel and Maslach and Jackson, since an emotionally exhausted professional who moves away from colleagues will have high psychological work demands. This will be a person without energy and motivation to work that avoids interpersonal relationships, especially with co-workers.^(3,7) In addition, this analysis is important because it may indicate that people with high psychological demands are more susceptible to developing burnout.

It appears that emotional exhaustion and depersonalization may be involved with the autonomy of professionals and their control over work, which, in the population studied, characterized mostly the professionals with low control. On the other hand, if these professionals have control over their work environment, they will face work stressors with more autonomy, and this will collaborate to avoid their emotional exhaustion.⁽¹⁹⁾

In addition, some investigations have shown associated factors with high emotional exhaustion, high depersonalization and high psychological demands.^(20,21) For example, the excess of demands is a negative predisposing factor to the development of burnout syndrome. This situation is in line with the reality of health professionals in this study, since most of them presented high psychological demands.⁽²⁰⁾ Working in care units with critically ill patients, which is also experienced by profession-

als of this study, reflects in a high strain job and undermines workers' quality of life.⁽²⁾ Burnout also predisposes the occurrence of respiratory, gastrointestinal and cardiovascular problems.⁽²¹⁾

Health professionals experiencing burnout have high psychological demands. This finding is consistent with those proposed by the authors of these constructs, because burnout is related to the consequences that work brings to professionals, in this case, the high psychological demands.^(3,7) Thus, factors arising from the work environment weaken individuals and predispose them to burnout syndrome⁽⁷⁾, and high strain jobs favor the development of occupational stress.⁽³⁾ These realities were evidenced in the studied population. In this sense, the vulnerability to the development of burnout is strengthened by work stressors that cause high psychological demands on workers.^(2,19,20)

This study contributes to knowledge advancements in the area of occupational health, especially regarding professionals working in perioperative units, while showing important associations between occupational stress, the Demand-Control Model and burnout. High psychological demands were associated with the presence of burnout among these workers. For this reason, studies involving this scenario are needed to identify possible strategies that favor coping with stressors and the control of professionals over psychological demands, as well as the improvement of professional practice conditions. This way, workers' health will be favored, and safer care will be provided.

Conclusion

Perioperative environments are known to be stressful and create work of high psychological demands for professionals, which can result in emotionally exhausted professionals, who turn away from colleagues, or are experiencing burnout with high psychological demands. In short, the hypothesis of this study was confirmed, as professionals with high psychological demands and low control over these, experience burnout. Furthermore, as psychological demands increase, so does emotional exhaustion

and depersonalization. On the other hand, when the psychological demand is low, the professional does not experience burnout. Health professionals in perioperative units perform their activities with little control over work and this situation directly affects the interface of workers' health and patient safety. The temporal bias is considered a limitation of the present study, since it relates to cross-sectional studies, which prevented the estimation of a cause and effect relationship between exposure and outcome.

Collaborations

Munhoz OL, Arrial TS, Barlem ELD, Dalmolin GL, Andolhe R and Magnago TSBS contributed to the project design, writing of the article, relevant critical review of the intellectual content and final approval of the version to be published.

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