

# BURNOUT SYNDROME AND ASSOCIATED FACTORS AMONG HEALTH PROFESSIONS STUDENTS

## SÍNDROME DE BURNOUT E FATORES ASSOCIADOS EM ESTUDANTES DA ÁREA DA SAÚDE

## SÍNDROME DE BURNOUT Y FACTORES ASOCIADOS EN ESTUDIANTES DEL ÁREA DE LA SALUD

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**Objective:** to investigate the prevalence of Burnout Syndrome among health professions undergraduate students and its association with sociodemographic and academic variables. **Method:** cross-sectional study, carried out with 231 health professions undergraduate students between September and October 2020. The Maslach Burnout Inventory-Student Survey was applied to evaluate Burnout Syndrome and a questionnaire was associated with a survey of sociodemographic and academic variables. The association between categorical variables was evaluated using the Chi-square and Fisher's Exact tests. A 5% significance level was considered. **Results:** the prevalence of Burnout Syndrome was 31.2%. The course variable showed statistical significance ( $p < 0.05$ ) for Burnout Syndrome, with higher prevalence among Veterinary Medicine and Dentistry students. **Conclusion:** there is evidence of a high prevalence of Burnout Syndrome among health professions undergraduate students.

**Descriptors:** Burnout. Students. Mental Health. Burnout Psychological. Quality of Life.

*Objetivo:* investigar a prevalência da Síndrome de Burnout entre universitários da área da saúde e a sua associação com variáveis sociodemográficas e acadêmicas. *Método:* estudo transversal, realizado com 231 universitários da área da saúde entre os meses de setembro e outubro de 2020. Aplicou-se o Maslach Burnout Inventory/ Student Survey para avaliar a Síndrome de Burnout e associou-se um questionário para levantamento das variáveis sociodemográficas e acadêmicas. A associação entre variáveis categóricas foi avaliada por meio dos testes Qui-quadrado e Exato de Fisher. Considerou-se nível de significância de 5%. *Resultados:* a prevalência da Síndrome de Burnout foi de 31,2%. A variável curso apresentou significância estatística ( $p < 0,05$ ) para Síndrome de Burnout, com maior prevalência nos

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*alunos dos cursos de Medicina Veterinária e Odontologia. Conclusão: há indícios de alta prevalência de Síndrome de Burnout entre universitários da área da saúde.*

*Descritores: Burnout. Estudantes. Saúde Mental. Esgotamento Psicológico. Qualidade de Vida.*

*Objetivo: investigar la prevalencia del Síndrome de Burnout en estudiantes de pregrado del área de la salud y su asociación con variables sociodemográficas y académicas. Método: estudio transversal, realizado con 231 estudiantes de pregrado del área de salud entre los meses de septiembre y octubre de 2020. Se aplicó el Maslach Burnout Inventory/ Student Survey para evaluar el Síndrome de Burnout y se asoció un cuestionario para relevar las variables sociodemográficas y académicas. La asociación entre variables categóricas se evaluó mediante las pruebas de Chi-cuadrado y Prueba Exacta de Fisher. Se consideró un nivel de significación del 5%. Resultados: la prevalencia del síndrome de Burnout fue del 31,2%. La variable curso presentó significación estadística ( $p < 0,05$ ) para el Síndrome de Burnout, con mayor prevalencia en los estudiantes de Medicina Veterinaria y Odontología. Conclusión: existe evidencia de una alta prevalencia del Síndrome de Burnout entre los estudiantes de pregrado de salud.*

*Descriptores: Burnout. Estudiantes. Salud Mental. Agotamiento Psicológico. Calidad de vida.*

## Introduction

Burnout Syndrome (BS) is defined as a psychosocial disorder characterized by the constant presence of stressful and negative feelings, which can manifest as emotional exhaustion, depersonalization, and low professional effectiveness<sup>(1-2)</sup>. Emotional exhaustion is followed by physical and mental fatigue, discouragement, stress, irritability, headaches, muscle pain, and sleep alterations. These manifestations are associated with psychological efforts made in the acting activity, in which individuals have difficulties in adapting to the environment and lack emotional energy to deal with the tasks demanded<sup>(1-3)</sup>.

Depersonalization is related to skepticism and the presence of defensive behavior, and low professional efficacy is associated with feelings of low self-esteem, inferiority, insufficiency, impotence, and insecurity<sup>(3-4)</sup>. In health professions student, BS can be related to a feeling of overload due to an extensive workload of studies; difficulty in time management; and the need to deal with suffering and the possibility of death in direct contact with the patient<sup>(5)</sup>. Such manifestations can generate physical and psychological consequences, such as cardiovascular diseases, insomnia, irritability, apathy, social isolation, low self-esteem, and depressive symptoms<sup>(3,5)</sup>.

Health professions students experience a period of intense mental development as they study to acquire technical knowledge and skills<sup>(4)</sup>. The initial phase of health courses is marked by significant changes in student, personal and social life, which can contribute to the emergence of adversities, such as possible doubts and discontent with their choices, for example<sup>(6)</sup>. Added to this, there are the contact with critically ill patients, the living with death, the deprivation of leisure, which collaborates to the development of suffering and stress<sup>(6)</sup>.

Thus, studies are being conducted on this subject to understand how learning mechanisms in university courses influence the well-being of this population in the professional training phase<sup>(7)</sup>. Thereby, scholars have a high risk of developing BS<sup>(8)</sup>. The prevalence of the syndrome increases as students progress through the course, which negatively affects their academic performance, mental health, quality of life, capacity for empathy, and compassion<sup>(9)</sup>. In addition, the manifestation of Burnout Syndrome before contact with patients can lead to a reduction in the quality of care<sup>(8)</sup>.

BS is frequently investigated in healthcare workers, especially in recent years<sup>(1,6,10)</sup>. Studies with students are scarce and a considerable part of them is carried out in medical students<sup>(10-11)</sup>.

Existing research in other populations indicate that dentistry students, when compared to medical students, present a greater tendency towards Burnout Syndrome, and nursing students present a higher level of the syndrome, when compared to the general population<sup>(12-13)</sup>. As such, studies that investigate this issue and explore the different courses in the health field are few, but necessary, since the early identification of BS enables for more effective interventions regarding the damage, as well as optimizes the future professional<sup>(3,8)</sup>.

From this perspective, it is relevant to investigate BS in a more extensive sample of health students in different university courses in order to identify it and recognize the risk groups, as well as to make assertive interventions in this population. Thus, this study aimed to investigate the prevalence of BS among health professions undergraduate students and its association with sociodemographic and academic variables.

## Method

Cross-sectional observational study, guided by the *Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE) tool<sup>(14)</sup> about BS and its association with sociodemographic and academic variables in a private university center, located in the city of Belo Horizonte, Minas Gerais, Brazil. All individuals were informed about the objectives and procedures of the study, read and signed the Informed Consent Form (ICF). This study was submitted to and approved by Research Ethics Committee of University center Newton Paiva, according to Consolidated Opinion 4.261.132 and Ethical Appreciation Certificate number 36058820.2.0000.5097.

The inclusion criteria were: being 18 years old or older, being an undergraduate student at the selected university center, being enrolled in dentistry, pharmacy, psychology, aesthetics and cosmetology, veterinary medicine, nursing, or physiotherapy. Students enrolled in the exact sciences campus or other courses at the university were excluded from the study.

The sample calculation was performed to evaluate the prevalence of SB in students using the formula<sup>(15)</sup>, as follows:

$$\frac{N \left( z_{\frac{\alpha}{2}} \right)^2 \hat{p} (1 - \hat{p})}{(N - 1) E^2 + \left( z_{\frac{\alpha}{2}} \right)^2 \hat{p} (1 - \hat{p})}$$

Where: N: total population;  $\alpha$ : significance level;  $Z_{\alpha/2}$ : quantile of the Standard Normal distribution referring to the significance level;  $\hat{p}$ : estimated proportion; E: maximum allowed error. Considering a total of 2.883 students enrolled in the health field, 5% significance, 5% error, and a conservative approach for  $\hat{p}$  (which considers it as 50%), the sample size was 340 participants. The sample was also stratified among the courses proportionally to the number of students in each course. An expected loss rate of 20% was considered, and thus 416 questionnaires were sent out.

Based on scientific recommendations, a questionnaire was designed to collect sociodemographic and academic data<sup>(3)</sup>. The instrument was validated, submitted to pilot testing with 12 undergraduate students from health courses at a private university center in Belo Horizonte and adapted for better targeting of questions to the objectives of this study. The demographic variables were: gender, age in years, marital status, and whether the participant had children or not.

In order to trace the profile of the students, the instrument addressed whether the student had a paid job and whether they practiced physical activity or leisure. In addition, they were asked about daily hours of sleep; self-perception of feeling of rest when they wake up in the morning; when, in months, was the last visit to a physician; and frequency of being in the presence of family members, in days.

In addition, the questionnaire discussed the course currently attended, academic period, shift, academic weekly hours (practical and theoretical), whether they participate in extracurricular activities, and the main source of funding for studies. Finally, it was asked whether the participant has thought or is thinking about

quitting the course, as well as expectations and self-perception of performance in the course.

The dependent variable evaluated was BS, by means of the Maslach Burnout Inventory - Student Survey (MBI-SS), translated and validated for the Brazilian context. The instrument is composed by 15 questions, divided into three subscales: I) emotional exhaustion, composed by 5 items, maximum 30 points; II) disbelief, comprises 4 items, maximum 24 points; and III) professional effectiveness, groups 6 items, maximum 36 points. These are evaluated according to the frequency that ranges from 0 (never) to 6 points (every day)<sup>(16-18)</sup>.

The invitation to participate in the research was disseminated on social networks: Facebook, Instagram and WhatsApp. The survey volunteer was then directed to a Google Forms link, composed by the invitation form to participate in this study. The link directed the volunteer to the ICF, in case they free consented through digital signature, to other pages made available, so that the variables could be evaluated. Data collection was carried out between the months of September and October 2020. The questionnaire was applied online to the participants.

The data collected were calculated using a Likert type frequency scale and BS was defined when the participant simultaneously presented scores above 14 points for emotional exhaustion, above 6 points for disbelief and below 23 points for reduced professional effectiveness. It is considered high risk of developing the syndrome the participant who manifests two of the three criteria, and for low risk of development those who have only one of the three criteria analyzed<sup>(16)</sup>.

Categorical variables were shown as absolute and relative frequencies and numerical variables as mean  $\pm$  standard deviation and median (1st quartile – 3rd quartile). The association between categorical variables was performed by the Chi-squared distribution and Fisher's Exact tests, when appropriate. The analyses were performed

using the R version 4.0.3 software and a 5% significance level was considered.

## Results

In the total sample, 168 participants (73%) were female, with a predominance of 21-27 years old, mean  $\pm$  standard deviation  $26 \pm 7.0$ . Moreover, 182 students (79%) declared to be single, 198 (86%) reported not having children and 127 (55%) said they had a paid job.

According to the practice of physical activity, the most part (65%) reported practicing it. Most of the students, 120 (52%), slept on average from 5 to 7 hours a day/night. Regarding the question "When you wake up in the morning, do you feel rested?", 98 (42%) participants agreed or partially disagreed with the question. About the last visit to a physician, 108 (47%) needed to visit a physician for some reason in the last 6 months. About being present with the family, 176 (76%) reported being present every day.

From the health professions students, 56 (24%) were studying Nursing, 128 (55%) were studying in the evening shift, 72 (31%) reported to have completed most of the 10<sup>th</sup> period subjects, and 87 (38%) had a workload of 15 to 20 hours a week in academic activities. Most students (62%) declared they did not participate in any extracurricular activity. Regarding their economic status, 87 (38%) students declared they had a partial scholarship and depended on family resources. Regarding the intention of dropping out of the course, 89 (39%) did not state this intention or never stated it (Table 1). The variables "expectations about the course" and "performance in the course" obtained high values, with means and standard deviation of  $8.8 \pm 1.4$  and  $7.4 \pm 1.4$  respectively, on a scale of 0 to 10, being 0 (terrible) and 10 (excellent).

**Table 1** – Sociodemographic characteristics descriptions of the research participants. Belo Horizonte, Minas Gerais, Brazil – 2020. (N=231) (continued)

Variable	n (%)
<b>Gender</b>	
Female	168 (73)
Male	63 (27)
<b>Marital status</b>	
Single	182 (79)
Civil Union	18 (7.8)
Married	27 (12)
Divorced	4 (1.7)
<b>Do you have any children?</b>	
Yes	33 (14)
No	198 (86)
<b>Do you have any paid activity?</b>	
Yes	127 (55)
<b>Do you practice physical/leisure activity?</b>	
Yes	150 (65)
<b>Weekly hours reserved for physical activity</b>	
Up to 2 hours	20 (13)
From 2 to 4 hours	59 (39)
From 4 to 6 hours	32 (21)
From 6 to 8 hours	21 (14)
More than 8 hours	18 (12)
<b>Sleeping hours per day/night</b>	
Up to 3 hours	2 (0.9)
From 3 to 5 hours	30 (13)
From 5 to 7 hours	120 (52)
From 7 to 9 hours	76 (33)
More than 9 hours	3 (1.3)
<b>When you wake up, do you feel rested?</b>	
I strongly agree	10 (4.3)
I mostly agree	42 (18)
I agree or partially disagree	98 (42)
I largely disagree	64 (28)
I strongly disagree	17 (7.4)
<b>Last visit to the physician</b>	
Less than 6 months	108 (47)
From 6 to 12 months	67 (29)
From 12 to 18 months	33 (14)
From 18 to 24 months	8 (3.5)
More than 24 months	15 (6.5)
<b>Frequency you are with your family</b>	
Everyday	176 (76)
Monthly	37 (16)
Half yearly	12 (5.2)
Yearly	2 (0.9)
I don't see my family for more than a year	4 (1.7)
<b>Course you are attending to</b>	
Nursing	56 (24)
Aesthetics and Cosmetics	14 (6.1)
Pharmacy	26 (11)
Physiotherapy	14 (6.1)
Veterinary Medicine	43 (19)
Dentistry	51 (22)
Psychology	27 (12)

**Table 1** – Sociodemographic characteristics descriptions of the research participants. Belo Horizonte, Minas Gerais, Brazil – 2020. (N=231) (conclusion)

Variable	n (%)
<b>Which shift?</b>	
Morning	101 (44)
Afternoon	2 (0.87)
Evening	128 (55)
<b>Course Period</b>	
1st period	6 (2.6)
2nd period	25 (11)
3rd period	8 (3.5)
4th period	26 (11)
5th period	14 (6.1)
6th period	20 (8.7)
7th period	9 (3.9)
8th period	35 (15)
9th period	16 (6.9)
10th period	72 (31)
<b>Academic workload per week</b>	
Up to 15 hours-class	34 (15)
From 15 to 20 hours-class	87 (38)
From 20 to 25 hours-class	54 (23)
From 25 to 30 hours-class	33 (14)
More than 30 hours-class	23 (10)
<b>Participates in extracurricular activity</b>	
Yes	89 (39)
<b>Weekly hours invested in extracurricular activities</b>	
Up to 2 hours	10 (11)
From 2 to 4 hours	30 (34)
From 4 to 6 hours	25 (28)
From 6 to 8 hours	6 (6.7)
More than 8 hours	18 (20)
<b>Funding your studies</b>	
Scholarship Program	32 (14)
Family	29 (13)
Paid work	27 (12)
Family + Scholarship Program	87 (38)
Paid work + Scholarship Program	45 (20)
Other	11 (4.8)
<b>Have you thought or are considering dropping out of the course?</b>	
Never	89 (39)
Rarely	50 (22)
Sometimes	59 (26)
Often	28 (12)
Always	5 (2.2)

Source: Created by the authors.

Seventy-two (31%) undergraduate students showed signs of Burnout Syndrome, 68 (30%) manifested high risk and 51 (22%) low risk. However, 40 (17%) had no signs of the syndrome. Regarding signs of the presence of the disease among the courses of the institution,

22 (51%) students studied Veterinary Medicine, 11 (41%) Psychology, 5 (36%) Physiotherapy, 16 (31%) Dentistry, 7 (27%) Pharmacy and 11 (20%) Nursing. However, in the Aesthetics and Cosmetics course, no evidence of BS was identified among the undergraduates.



In the present study, it was considered signs of BS to simultaneously present scores above 14 for emotional exhaustion, above 6 for disbelief, and below 23 for professional effectiveness, these cut-off points being obtained by the average of responses among all study participants. Considering the objective of the present study, the results showed that 72 (31%) undergraduate students presented signs of BS, 68 (29%) manifested high risk and 51 (22%) low risk. However, 40 (17%) had no evidence of the syndrome.

Regarding the results of the isolated assessment of the BS factors, it was found that

the Emotional Exhaustion dimension presented a mean score of  $17.0 \pm 7.0$ . In Disbelief, the mean score was  $9.0 \pm 6.3$ . Regarding the feeling of Professional Effectiveness, the average of points was  $22.9 \pm 7.7$ .

Table 2 shows that there were statistically significant differences in the number of students with signs of BS among the Nursing, Aesthetics and Cosmetics, Pharmacy, Physiotherapy, Veterinary Medicine, Dentistry and Psychology courses ( $p=0.004$ ). There was no statistical significance for any other academic or sociodemographic variable.

**Table 2** – Comparison of Burnout Syndrome dimensions among sociodemographic variables. Belo Horizonte, Minas Gerais, Brazil – 2020. (N=231) (continued)

Variables	Burnout Syndrome		p-Value
	Yes n (%)	No n (%)	
<b>Gender</b>			>0,99(1)
Female	52 (72)	116 (73)	
Male	20 (28)	43 (27)	
<b>Marital status</b>			0.82(2)
Single	56 (78)	126 (80)	
Civil Union	5 (6.9)	13 (8.2)	
Married	9 (13)	18 (11)	
Divorciado	2 (2.8)	2 (1.3)	
<b>Do you have any children?</b>			0.09(1)
Yes	15 (21)	18 (11)	
No	57 (79)	141 (89)	
<b>Do you currently do any paid work?</b>			0.15(1)
Yes	34 (47)	93 (59)	
No	38 (53)	66 (42)	
<b>Do you practice any physical activity or reserve some time for leisure?</b>			0.82(1)
Yes	48 (67)	102 (64)	
No	24 (33)	57 (36)	
<b>Who do you currently live with?</b>			0.24(1)
Family	59 (82)	122 (77)	
Friends, colleagues	4 (5.6)	19 (12)	
Alone	2 (2.8)	9 (5.7)	
Other	7 (9.7)	9 (5.7)	
<b>What course are you currently attending to?</b>			0.004(1)
Nursing	11(15)	45 (28)	
Aesthetics and Cosmetics	- (-)	14 (8.8)	
Pharmacy	7 (9.7)	19 (12)	
Physiotherapy	5 (6.9)	9 (5.7)	
Veterinary Medicine	22 (31)	21 (13)	
Dentistry	16 (22)	35 (22)	
Psychology	11 (15)	16 (10)	

**Table 2** – Comparison of Burnout Syndrome dimensions among sociodemographic variables. Belo Horizonte, Minas Gerais, Brazil – 2020. (N=231) (conclusion)

Burnout Syndrome		
<b>Which shift do you study in?</b>		0.25(2)
Morning	36 (50)	65 (41)
Afternoon	1 (1.4)	1 (0.6)
Evening	35 (49)	93 (59)

Source: Created by the authors.

Note: Conventional signal used:

- Numeric data equal to zero not resulting from rounding.

(1) Chi-square tests.

(2) Fisher's Exact tests.

## Discussion

In the sample analyzed, a prevalence of 31.2% was obtained for signs of Burnout Syndrome. Various methodologies to evaluate signs of BS were used in other studies applying the same questionnaire, resulting in a prevalence of 12.5% of this syndrome in medical students at the University of Vassouras<sup>(19)</sup>. In turn, a literature review study obtained as a result a variable prevalence of 4% to 85.7%<sup>(20)</sup>, while for medical students the prevalence was 14.4%<sup>(21)</sup>.

It is verified that the non-standardization of a conceptual value used for the criterion of signs of the syndrome generates a difficulty in the comparison between the data obtained, with discrepancies in data analysis. However, it makes visible the validity and reliability of the application of the scale in the different contexts in which the syndrome has been studied, as in this study.

Such syndrome, in health professions undergraduate students, can occur due to their exposure to various stressors that will affect rational and emotional aspects of the individual leading, consequently, to the emergence of feelings such as anguish, doubt and disappointment<sup>(20)</sup>. Furthermore, authors affirm that, besides the stressful factors characteristic of teaching, the period of curricular internships, which represents the decisive stage of the course and the direct action with people, are also important and differentiated factors for the emergence of the Burnout Syndrome<sup>(7)</sup>.

A study involving nursing students observed that the prevalence of signs of BS among students was 10.5%<sup>(22)</sup>. Still, other studies observed a prevalence for the syndrome of 20% in psychology students and 8.7% in dentistry students<sup>(21-22)</sup>. In the sample analyzed, it was found a prevalence of BS of 15% for psychology and nursing students and 22% for dentistry students<sup>(22-24)</sup>.

In relation to the students of the veterinary medicine course, a prevalence of 32.3% was evidenced for BS<sup>(25)</sup>. This finding is in agreement with the results of this study, which indicated the highest prevalence of signs of the syndrome among students in this area (31%). Despite being significantly prevalent, there is still, in the national context, a significant lack of research on the subject covering this population<sup>(17)</sup>.

In the context of studies with undergraduate students, a research conducted with physiotherapist in training identified that those who do not perform extracurricular activities, such as monitoring, scientific initiation, internship, extension project, among others, have a lower predisposition to develop BS; however, the present study found no significant association between the variables<sup>(26)</sup>. Researchers also claim that, in addition to the weekly academic workload performed by students, there is the need for daily studies, which consequently contribute to the emergence of the stressful component and the reduction of time for leisure and rest<sup>(27)</sup>.

In the sample analyzed, the university profile of the participants in this research is similar



to the profile of studies conducted previously, predominantly female, individuals who do not have partners, who live with family and who have never expressed the intention to quit the course<sup>(7,28)</sup>. It is highlighted that the predominance of women in healthcare courses is a fact already evidenced in several studies, since no studies were found in which the majority of the student sample was male, which leads to a higher prevalence of women with Burnout Syndrome. Thus, in the present study, a higher prevalence of the syndrome was found among women, corroborating research carried out by other authors<sup>(18,20,28)</sup>.

Most participants said they lived with their families (78.4%), demonstrating the relevance of this variable for the presence of the Emotional Exhaustion dimension. This finding, therefore, shows to be a protective factor for BS, since a previous study indicates that college students who lived alone, away from their parents, had higher rates of emotional exhaustion<sup>(3)</sup>.

This research was carried out in a specific population of undergraduate students of Dentistry, Pharmacy, Psychology, Aesthetics and Cosmetology, Veterinary Medicine, Nursing and Physiotherapy of a private university center in Belo Horizonte, limiting the generalization of results by not including students from other health courses, such as Medicine, Biomedicine and Nutrition, for example. Another limitation was not reaching the sample size established by the calculation; however, as no course had a number of participants much lower than the sample estimate, there was no impediment to the analyses.

This study contributes to the knowledge of the risk groups and the socio-demographic and academic determinants so that the educational institutions can recognize and provide better pedagogical environments and methodologies, minimizing and preventing Burnout Syndrome in order to improve the quality of life of the students.

## Conclusion

The present investigation revealed a prevalence of signs of Burnout Syndrome among health professions undergraduate students in 31.2% of the total number of students, 29.0% of whom presented a high risk of developing the syndrome. In this sense, there is a significant need to implement and evaluate the long-term effect of prevention strategies for the syndrome in the study population. No sociodemographic variable mentioned was associated with the outcome and, among the academic variables, the course the student attended was statistically significant ( $p < 0.05$ ) for evidence of BS. Among the investigated courses, students of Veterinary Medicine and Dentistry were the ones who presented the highest prevalence of signs of BS. However, the variable living with the family showed relevance for the presence of the emotional exhaustion dimension.

The high prevalence of signs of Burnout Syndrome in healthcare students deserves attention. Recognizing the risk groups, safeguarding well-being during academic education, early detection and intervention for the treatment of the syndrome are relevant, since this syndrome can persist throughout professional life.

## Collaborations:

1 – conception and planning of the project: Amanda Stephanie de Oliveira Lima, Karolayne Lacerda Periard Lopes, Tamires Fernanda da Silva Cruz and Valquíria Fernandes Marques Vieira;

2 – analysis and interpretation of data: Amanda Stephanie de Oliveira Lima, Karolayne Lacerda Periard Lopes, Tamires Fernanda da Silva Cruz and Valquíria Fernandes Marques Vieira;

3 – writing and/or critical review: Ana Paula Goulart de Freitas, João Dias Naves, Lavínia Vasconcellos Patrus Pena, Amanda Stephanie de Oliveira Lima, Karolayne Lacerda Periard Lopes, Tamires Fernanda da Silva Cruz and Valquíria Fernandes Marques Vieira;

4 – approval of the final version: Valquíria Fernandes Marques Vieira.

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## References

- Zhang XJ, Song Y, Jiang T, Ding N, Shi TY. Interventions to reduce burnout of physicians and nurses: An overview of systematic reviews and meta-analyses. *Medicine*. 2020;26;99(26):e20992. DOI: 10.1097/MD.00000000000020992
- Edú-Valsania S, Laguía A, Moriano JA. Burnout: A Review of Theory and Measurement. *Int J Environ Res Public Health*. 2022;19(3):1780. DOI: 10.3390/ijerph19031780
- Moura G, Brito M, Pinho L, Reis V, Souza L, Magalhães T. Prevalência e fatores associados à Síndrome de Burnout entre universitários: revisão de literatura. *Psicol saúde doenças*. 2019;20(2):300-18. DOI: <http://dx.doi.org/10.15309/19psd200203>
- Li Y, Cao L, Mo C, Tan D, Mai T, Zhang Z. Prevalence of burnout in medical students in China: A meta-analysis of observational studies. *Medicine*. 2021;100(26):e26329. DOI: 10.1097/MD.00000000000026329
- Salvagioni DAJ, Melanda FN, Mesas AE, González AD, Gabani FL, Andrade SM. Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PLoS One*. 2017;12(10):e0185781. DOI: <https://doi.org/10.1371/journal.pone.0185781>
- Raulino MEFG, Lino MM, Sanes MD, Amadigi FR, Willemann MC, Maffissoni AL. Nível de estresse percebido de estudantes de Enfermagem em uma universidade pública do Brasil. *Rev Min Enferm*. 2021;25:e-1366. DOI: <http://www.dx.doi.org/10.5935/1415-2762-20210014>
- Mota ÍD, Farias GO, Silva R, Folle A. Síndrome de burnout em estudantes universitários: um olhar sobre as investigações. *Motrivivência*. 2017;29(esp). DOI: <https://doi.org/10.5007/2175-8042.2017v29nespp243>
- Bullock G, Kraft L, Amsden K, Gore W, Prengle B, Wimsatt J, et al. The prevalence and effect of burnout on graduate healthcare students. *Can Med Educ J [Internet]*. 2017 [cited 2022 Jul 21];8(3):e90-e108. Available from: <https://pubmed.ncbi.nlm.nih.gov/29098051/>
- Prata TSC, Calcides DAP, Vasconcelos EL, Carvalho AA, Melo EV, Oliva-Costa EF. Prevalence of Burnout Syndrome and associated factors in medical students under different educational models. *Rev Assoc Med Bras*. 2021;67(5):667-74. DOI: <https://doi.org/10.1590/1806-9282.20200937>
- Maresca G, Corallo F, Catanese G, Formica C, Buone VL. Coping Strategies of Healthcare Professionals with Burnout Syndrome: A Systematic Review. *Medicina*. 2022;58(2):327. DOI: 10.3390/medicina58020327
- Barbosa-Medeiros MR, Caldeira AP. Saúde mental de acadêmicos de medicina: estudo longitudinal. *Rev bras educ med*. 2021;45(3):e187. DOI: <https://doi.org/10.1590/1981-5271v45.3-20190285>
- Prinz P, Hertrich K, Hirschfelder U, Zwaan M. Burnout, depression and depersonalisation – Psychological factors and coping strategies in dental and medical students. *GMS Z Med Ausbild*. 2012;29(1):Doc10. DOI: 10.3205/zma000780
- Sveinsdóttir H, Flygenring BG, Svavarsdóttir MH, Thorsteinsson HS, Kristófersson GK, Bernharðsdóttir J, et al. Predictors of university nursing students burnout at the time of the COVID-19 pandemic: A cross-sectional study. *Nurse Educ Today*. 2021;106:105070. DOI: <https://doi.org/10.1016/j.nedt.2021.105070>
- Malta M, Cardoso LO, Bastos FI, Magnanini MMF, Silva CMFPD. Iniciativa STROBE: subsídios para a comunicação de estudos observacionais. *Rev Saúde Pública*. 2010;44(3):559-65. DOI: <https://doi.org/10.1590/S0034-89102010000300021>
- Bolfarine H, Bussab WO. Elementos de Amostragem. São Paulo: Edgard Blucher; 2005.
- Schaufeli WB, Salanova M, González-romá V, Bakker AB. The Measurement of Engagement and Burnout: A Two Sample Confirmatory Factor Analytic Approach. *J Happiness Stud*. 2002;3:71-92. DOI: <https://doi.org/10.1023/A:1015630930326>
- Carlotto MS, Câmara SG. [ARTIGO PARCIALMENTE RETRATADO]: Propriedades psicométricas do Maslach Burnout Inventory em uma amostra multifuncional. *Estud psicol*. 2007;24(3):325-32. DOI: <https://doi.org/10.1590/S0103-166X2007000300004>
- Aguiar RLB, Aguiar MCM, Mercedes MC. Síndrome de Burnout em estudantes de medicina de universidade da Bahia. *Rev Psicol Divers*

- Saúde. 2018;7(2):267-76. DOI: <https://doi.org/10.17267/2317-3394rpd.v7i2.1893>
19. Farias IO, Peruzini GA, Souza MCA, Vilela LFF, Capute ACS. Prevalência da Síndrome de Burnout entre Acadêmicos de Medicina da Universidade de Vassouras - RJ. *Revista de Saúde*. 2019;10(1):2-8. DOI: <https://doi.org/10.21727/rs.v10i01.1686>
  20. Trigo TR, Teng CT, Hallak JEC. Síndrome de burnout ou estafa profissional e os transtornos psiquiátricos. *Arch Clin Psychiatry*. 2007;34(5):223-33. DOI: <https://doi.org/10.1590/S0101-60832007000500004>
  21. Assunção D, Gonçalves Fábio, Andrade A, Rocha J, Gonçalves Fernando. A ocorrência da Síndrome de Burnout em universitários de cursos da área da saúde de uma instituição privada na região Norte de Minas Gerais: um estudo transversal. *Rev Ciênc Méd Biol*. 2019;18(1):15-20. DOI: <http://dx.doi.org/10.9771/cmbio.v18i1.27685>
  22. Galdino MJQ, Almeida LPBM, Silva LFR, Cremer E, Scholze AR, Martins JT, et al. Burnout among nursing students: a mixed method study. *Invest Educ Enferm*. 2020;38(1):e07. DOI: [10.17533/udea.iee.v38n1e07](https://doi.org/10.17533/udea.iee.v38n1e07)
  23. Castro-Silva II, Maciel JA, Melo MM. Saúde mental e vida universitária: desvendando burnout em estudantes de Psicologia. *Rev Sustinere*. 2021;9(1):5-22. DOI: <https://doi.org/10.12957/sustinere.2021.50314>
  24. Magri LV, Melchior MD, Jarina L, Simonaggio FF, Bataglion C. Temporomandibular disorders and Burnout syndrome in students of the eighth period of dentistry course. *Rev Gaúch Odontol*. 2019;67:e20190055. DOI: <https://doi.org/10.1590/1981-863720190005520180011>
  25. Puertas-Neyra K, Mendoza TG, Cáceres LS, Falcón PN. Síndrome de Burnout en estudiantes de Medicina Veterinaria. *Rev investig vet Perú*. 2020;31(2):e17836. DOI: <http://dx.doi.org/10.15381/rivep.v31i2.17836>
  26. Santos CLC, Nascimento Sobrinho CL, Barbosa GB. Síndrome de Burnout em fisioterapeutas: uma revisão sistemática. *Rev Pesqui Fisioter*. 2017;7(1):103-14. DOI: <https://doi.org/10.17267/2238-2704rpf.v7i1.1099>
  27. Prado MSFM, Norte NM, Carvalho IGM, Souza IF, Almeida RJ. Avaliação da Síndrome de Burnout entre estudantes do último ano de um curso de medicina do Brasil. *Arch Health Sci [Internet]*. 2019 [cited 2022 Jul 21]; 26(1):41-6. Available from: <https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1046065#:~:text=Conclus%C3%A3o%3A,s%C3%ADndrome%20neste%20grupo%20de%20alunos>
  28. Sanches GF, Vale BC, Pereira SS, Almeida CC, Preto VA, Sailer GC. Burnout syndrome among graduates of undergraduate nursing course. *Rev Enferm UFPE*. 2017;11(1):31-9. DOI: [10.5205/1981-8963-v11i1a11875p31-39-2017](https://doi.org/10.5205/1981-8963-v11i1a11875p31-39-2017)

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