THE EUROPEAN SOCIETY OF MEDICINE
Medical Research Archives, Volume 12 Issue 8

RESEARCH ARTICLE

Burnout Syndrome in Intensive Care Unit Workers in a City in Northeastern Brazil

Joselice Almeida Góis[1], Cleide Lucilla Carneiro Santos[1], Núbia Samara Caribé de Aragão[2], Gabriella Bené Barbosa[1], Éder Pereira Rodrigues[2], Thatiane da Silva Costa Tapioca[3], Ermillo Campos Lima[3], Mônica Andrade Nascimento[1], Davi Félix Martins Júnior[1], Carlito Lopes Nascimento Sobrinho[1]

[1] State University of Feira de Santana. Feira de Santana, Bahia, Brazil.
[2] Federal University of Recôncavo. Santo Antônio de Jesus - Bahia, Brazil.
[3] State University of Feira de Santana. Feira de Santana, Bahia, Brazil.

OPEN ACCESS

PUBLISHED
31 August 2024

CITATION
Góis, JA., Santos, CLC., et al., 2024. Burnout Syndrome in Intensive Care Unit Workers in a City in Northeastern Brazil. Medical Research Archives, [online] 12(8).
https://doi.org/10.18103/mra.v12i8.5734

DOI
https://doi.org/10.18103/mra.v12i8.5734

ISSN
2375-1924

ABSTRACT

Introduction: Studies point out that intensive care workers can suffer from chronic stress and dissatisfaction with their work, which can favor the development of *Burnout* Syndrome.

Goal: To estimate the prevalence of *Burnout* Syndrome and describe the characteristics of Intensive Care Unit (ICU) workers.

Methodology: A descriptive epidemiological study was carried out on a population of 177 ICU workers - 52 doctors, 65 nurses and 60 physiotherapists - in the city of Feira de Santana, Bahia. A self-administered survey assessed sociodemographic data, work characteristics, lifestyle habits and *Burnout* Syndrome using the *Maslach Burnout Inventory* (MBI).

Results: The prevalence of *Burnout* Syndrome was 47.9%, 45.3% among doctors, 55.6% among nurses and 33.3% among physiotherapists. Emotional exhaustion was the dimension most affected in the three categories studied. Males predominated among doctors and females among nurses and physiotherapists. Almost half of the workers studied were young, aged 34 or under, with little time in the profession. The majority had a partner, but no children. In terms of work characteristics, all three categories had high weekly working hours, high weekly on-call hours and night shifts in the ICU. Most of the workers studied reported practicing physical activity, drinking alcohol and not smoking.

Final Considerations: There was a high prevalence of *Burnout* Syndrome and a high workload among the categories studied. It is necessary to reflect on the measures that can be adopted to reduce the prevalence of *Burnout* Syndrome among Intensive Care Unit workers.

Keywords: prevalence, professional burnout, doctors, intensive care unit

Introduction:

Burnout Syndrome (BS) is a situation of psychological discomfort caused by the body's reaction to a problem of chronic stress that is directly associated with the relationship and conditions of the work environment [1]. It is a process that begins with excessive and prolonged levels of stress at work and is related to the provision of services in workers who have direct and prolonged contact with other human beings, such as health workers and among these, those who work in Intensive Care Units (ICU)[2].

The term "*staff burnout*" was first used by Freudenberger in 1974 to draw the attention of the scientific community to the problems that health professionals were facing as a result of their work. This term is defined, according to English jargon, as that which has ceased to function due to an absolute lack of energy, in other words, that or someone who has reached their limit, with damage to their physical or mental performance [3,4].

The World Health Organization (WHO, 2019) in ICD11, characterized *Burnout* Syndrome as a work-related health problem and defined it as, "a syndrome resulting from chronic stress in the workplace that has not been successfully managed", being identified by three dimensions: 1) feelings of exhaustion or depletion of energy; 2) increased mental detachment from one's work or feelings of negativism or cynicism related to one's work; and 3) reduced professional effectiveness"[5].

BS is the condition in which workers experience chronic stress, directly and prolongedly, in their work environment, in the presence of other people. It is characterized by three dimensions; emotional exhaustion, when there is a feeling of emotional and physical exhaustion; depersonalization with the emergence of indifference, distancing and hostility towards other people in the work environment; and ineffectiveness, with the emergence of feelings of low professional achievement and low self-esteem. It appears mainly as a result of work activity, although individual factors can contribute to its development. In this context, health professionals are more susceptible, as they deal with situations of suffering, anguish and death in their daily lives; becoming vulnerable to stress, physical and emotional [6,7].

Thus, within the hospital environment, the Intensive Care Unit (ICU) is a complex scenario that can favor the illness of healthcare workers due to continuous exposure to various stressors. Associated with this, exhaustive and tense work takes place in this environment; which requires technical-scientific knowledge, specific skills, rationality, carrying out complex procedures, quick decision-making, constant assessment of patients and an effort to overcome physical and mental fatigue without putting the care provided to patients at risk [8,9].

In the Brazilian literature, studies on *Burnout* Syndrome in ICU workers have increased in the last decade[10–13]. Daily work in the ICU can generate stress because it is a closed environment, with a fast pace of work, demanding routines, the need for quick action, dealing with suffering and death and a high workload. Stress at work can lead to an imbalance in the physical and mental health of workers and, as a consequence, a reduction in the quality of the services provided [10].

This context can lead to workers becoming ill, as evidenced by the studies carried out in ICUs that make important contributions to understanding the characteristics of this work environment, working conditions and the mental suffering of workers who work in these units [11–15].

This study aims to estimate the prevalence of *Burnout* Syndrome in workers (doctors, nurses and physiotherapists) in adult, pediatric and neonatal Intensive Care Units in the city of Feira de Santana, Bahia, Brazil.

Method

This is a descriptive, population-based epidemiological study of ICU doctors, nurses and physiotherapists in the city of Feira de Santana, Bahia.

Feira de Santana is the second largest city in the state of Bahia, with a territory of 1,337km² and a population of 616,272 [21].

A total of 177 professionals were studied, 52 doctors, 65 nurses and 60 intensive care physiotherapists who worked in seven of the eight hospitals that had an Intensive Care Unit. They were included in the study after their participation was authorized by the management of these hospitals. The management of a hospital did not authorize the study.

All doctors, nurses and physiotherapists who worked in intensive care and consented to take part in the study after reading and signing the Informed Consent Form (ICF) were considered eligible. The inclusion criteria were: working in the ICU for at least six months, to avoid healthy worker bias, and the exclusion criteria: being on vacation, sick leave or premium leave and working in administrative activities.

Data was collected from July to November 2016. A self-administered, anonymous questionnaire was used, consisting of nine blocks of questions: general identification; general information about the job; psychosocial characteristics of the job; *Burnout* Syndrome identified by the *Maslach Burnout Inventory* (MBI); quality of life; work ability; health-related aspects; lifestyle habits, sleep pattern and stress factors in the ICU.

The questionnaire and ICF were handed out by the researchers to each professional in the identified ICUs, and the place and time for the return were arranged with the workers. Professionals who didn't return the questionnaire on the scheduled date were contacted by telephone in order to minimize losses. The questionnaires were returned in sealed envelopes to ensure secrecy and confidentiality.

BS was measured using the MBI, an instrument made up of 22 questions about feelings and attitudes that encompass the three dimensions of the syndrome, emotional exhaustion (9 statements), depersonalization (5

statements) and personal accomplishment (8 statements), divided into three seven-point scales ranging from 0 to 6.

Therefore, the dimensions that characterize BS were described independently, using the following cut-off points; for emotional exhaustion, high level of BS (≥ 27 points), moderate level of BS (between 17 and 26 points) and low level of BS (< 16 points); for depersonalization, high level (≥ 13 points), moderate level (between 7 and 12 points) and low level (< 6 points); for personal accomplishment, high level (between 0 and 31 points), moderate level (from 32 to 38 points) and low level (≥ 39 points).

As there is no consensus in the literature on the interpretation of the MBI scale, the results were presented according to the criteria suggested by Tucunduva et al. who characterized the presence of at least one of the three dimensions at a high level as *burnout* syndrome.

In order to compare the information and identify possible typing errors, the data collected was double-entered using the *EpiData* for Windows program, version 3.1, in order to correct possible errors and inconsistencies. After this stage, the data was exported to the *Statistical Package for Social Science* (SPSS) program.

The descriptive analysis of the data was carried out by calculating the absolute and relative frequencies of the categorical variables and the mean of the numerical variables. The data collected was presented in tables.

The prevalence of *Burnout* Syndrome and its three dimensions was estimated. The following variables were described: personal characteristics: gender, age, marital status, having children, monthly income and years of work; work characteristics: usual ICU shift hours, weekly ICU shift hours, night ICU shift hours, total weekly work hours and whether they had another job before the ICU shift.

The study complied with all the recommendations related to ethics in research with human beings. It was approved by the Research Ethics Committee of the State University of Feira de Santana (CEP/UFES), Report No. 1.355.188, CAAE 49119315.4.0000.0053, thus complying with Resolution 466/201212.

Results

PA total of 177 intensive care professionals took part in the study: 52 (29,4%) doctors, 65 (36.7%) nurses and 60 (33.9%) physiotherapists. The average age of the population was 34,4 (± 10) years.

Among the doctors studied, 63,5% were male, 50% were over 34 years old, 60% reported having a partner and no children (51,9%). With regard to academic training, 75% of the doctors reported having completed some kind of specialization course, such as postgraduate studies.

Among the nurses studied, 91% were female, 62,9% were over 34 years old, 58,1% reported having a partner and 53,2% had no children. With regard to academic training, 95,2% of the nurses reported having completed some kind of specialization course, such as postgraduate studies.

Among the physiotherapists 80% were female, with less 33 years old and 58,3% no reported having a partner and no children. With regard to academic training, 86,7% reported having completed some kind of specialization, such as postgraduate studies (Table 1).

Table 1. Sociodemographic characteristics of the population of intensive care workers (doctors, nurses and physiotherapists), Feira de Santana, Bahia, 2016

Variables	Doctors N* (%)	Nurses N* (%)	Physiotherapists N* (%)
Gender			
Male	33 (63.0%)	06 (9.0%)	12 (20.0%)
Female	19 (37.0%)	59 (91.0%)	48 (80.0%)
Age			
≤34 years old	26 (50.0%)	23 (37.1%)	42 (70.0%)
Above 34 years old	26 (50.0%)	39 (62.9%)	18 (30.0%)
With children			
Yes	25 (48.1%)	29 (46.8%)	25 (41.7%)
No	27 (51.9%)	33 (53.2%)	35 (58.3%)
Marital status			
With a partner	31 (60.0%)	36 (58.1%)	25 (41.7%)
Without a partner	21 (40.3%)	26 (41.9%)	35 (58.4%)
Postgraduate studies			
Yes	39 (75.0%)	59 (95.2%)	52 (86.7%)
No	13 (25.0%)	03 (4.8%)	08 (13.3%)

Note* Valid answers excluded or ignored

With regard to the type of ICU, (60,4%) of the doctors studied work in an adult ICU, (62%) reported having a weekly workload of more than 24 hours, (62%) reported having a weekly workload of more than 54 hours, (86%) worked night shifts and (40,4%) reported rarely coming from another shift to take up their ICU duties. With regard to the type of institutional relationship (55,1%), they reported that it was through a legal entity.

The nurses (45,8%) worked in the adult ICU, (61,3%) reported a weekly workload of more than 54 hours,(66.0%) reported a weekly workload of 36 hours or less. With regard to night shifts, (51%) of the nurses worked between 12 and 24 hours, (39%) reported rarely coming in from another shift and (45,3%) were private salaried workers (Table 2).

As for the physiotherapists, (52%) worked in the adult ICU, (64.0%) had a weekly workload of more than 24 hours, (50.0%) reported a total weekly workload of more than 54 hours, (90%) reported working between 12 and 24 hours at night and (48%) reported not coming to the ICU from another job (Table 2).

Table 2. Work characteristics of the population of intensive care workers (doctors, nurses and physiotherapists). Feira de Santana, Bahia.

Work characteristics	Doctors	Nurses	Physiotherapists
ICU type			
Adult	29 (60.4%)	27 (45,8%)	31 (51.7%)
Pediatric	08 (16.7%)	11 (18.6%)	12 (20.0%)
Neonatal	11 (22,9%)	21 (35.6%)	17 (28.3%)
Total weekly working hours			
> 54 hours			
< 54 hours	31 (62.0%)	38 (61.3%)	19 (31.7%)
	19 (38.0%)	24 (38.7%)	41 (68.3%)
Night duty hours			
12-24 hours	37 (86.0%)	31 (66.0%)	54 (90%)
≥ 36 hours	06 (1.0%)	16 (34.0%)	06 (10%)
Usually come from another job			
Never	09 (17.3%)	25 (39.0%)	11 (18.0%)
Rarely	21 (40.4%)	20 (31.0%)	27 (45.0%)
Often	14 (26.9%)	16 (25.0%)	16 (27.0%)
Always	08 (15.4%)	03 (5.0%)	06 (10.0%)
Institutional contracts			
Private Employees			
Public employee	-	29 (45.0%)	16 (27.7%)
Cooperative	-	18 (28.0%)	14 (23.3%)
Corporate	20 (40.8%)	09 (14.0%)	13 (21.7%)
Others	27 (55.1%)	-	02 (3.3%)
	02 (4.1%)	08 (12.5%)	15(24,9%)

Note* Valid answers excluded or ignored//**Other: service provider, temporary contract

Regarding the lifestyle habits of ICU health workers, (65,4%) of the doctors reported doing some kind of physical activity, (84,6%) were non-smokers and (55,8%) used alcohol. Among the nurses studied, (53,8%) were physically active, (95,3%) were non-smokers and (56,7%) did not drink alcohol. Among the physiotherapists, the majority (56,7%) reported taking part in physical activity, (88,3%) were non-smokers and (41,7%) did not drink alcohol (Table 3).

Table 3. Lifestyle habits of intensive care workers (doctors, nurses and physiotherapists) Feira de Santana, Bahia.

Lifestyle habits	Doctors	Nurses	Physiotherapists
Physical activity			
Yes	34 (65.4%)	35 (53,8%)	34 (56.7%)
No	18 (34.6%)	30 (46.2%)	26 (43.3%)
Smoking			
Yes	01 (1.9%)	-	01(1.7%)
No	44 (84.6%)	61 (95,3.0%)	53 (88.3%)
Former smoker	04 (7.7%)	02(3,1%)	04 (6.7%)
Another answer	03 (5,8%)	01(1,6%)	02(3,3%)
Alcoholism			
Yes	29 (55,8%)	33 (50.8%)	25(41.7%)
No	23 (44.2%)	32 (49.2%)	35(58.3%)

Note* Valid answers excluded or ignored

The prevalence of *burnout* syndrome was 47,9%. Nurses had a prevalence of 53,6%, doctors 47,9% and physiotherapists 33,3%. Emotional exhaustion was observed in 44,0% of doctors, 41,0% of nurses and 38,3% of physiotherapists. The prevalence of the depersonalization dimension among doctors was (15,4%), nurses (6.5%) and physiotherapists (16,7%). In the ineffectiveness dimension, doctors had a prevalence of (10%), nurses (16,7%) and physiotherapists (15,0%) (Table 4).

Table 4. Presence of burnout in its dimensions in the population of intensive care workers (doctors, nurses and physiotherapists) Feira de Santana-Bahia, 2016

	Doctors	Nurses	Physiotherapists
Prevalence BS	45,3%	53,6%	33,3%
Emotional Exhaustion	50	61	59
High	22 (44%)	25 (41.0%)	23 (38.3%)
Moderate/Low	28 (56%)	36 (59.0%)	36 (61,7%)
Depersonalization	52	62	60
High	08 (15,4%)	04 (6.5%)	10 (16,7%)
Moderate/Low	44 (84,6%)	58 (93,5%)	50 (83,3%)
Inefficiency	50	60	60
High	05 (10%)	10 (16,7%)	09 (15%)
Moderate/Low	45 (90%)	50 (83.3%)	51 (85%)

Source: Own elaboration.
*Valid answers, excluding those ignored

Discussion

The results of this study, a profile of workers similar to that of other studies carried out with intensive care physicians was observed: age less than or equal to 40 years, predominantly male, married and working time in the ICU less than ten years [10,11,22–25].

There was a high prevalence of *burnout* syndrome (47.9%), which remained high in the three categories studied (doctors, nurses and physiotherapists). The prevalence of *burnout* found in this study was higher than that observed in other studies consulted in the literature [10,22,23].

The main dimension affected among the workers evaluated was emotional exhaustion. This dimension is considered the first reaction to stress generated by work demands and refers to the individual's physical and mental exhaustion, resulting from overload and personal conflict in interpersonal relationships. Once exhausted, people feel physical and emotional tiredness and the internal resources to face situations experienced at work are reduced, as is the energy to carry out activities[11,22,26–28].

Within this work environment, the importance of intensivists for the care of seriously ill people is clear, and these repercussions of burnout can lead to inability to work and compromise patient care. It is worth highlighting the need to identify the syndrome early in the initial stage of its development to support individual and/or organizational interventions to prevent these situations [11].

A study reports that when a worker falls ill, it unbalances the employee-employer relationship, as the illness possibly interferes with the organization's productivity and the worker's effectiveness, a common fact in cases of burnout. Such involvement is also associated with decreased satisfaction and commitment to work or the organization [28].

The prevalence of burnout found in this study was lower than that observed in the study by Tironi at al (2016)[11] and Aragão et al (2019)[29], where prevalence rates of 63.8% were found for doctors working in adult ICUs. and 56.6% for those working in pediatric and neonatal ICUs. When analyzed separately, the most affected dimension was exhaustion with a prevalence of 38.3%, which is considered a reaction to work demands and may be related to work overload, which can be both physical and emotional [30]. Depersonalization was the second most affected dimension with a prevalence of 16.7% and, lastly, ineffectiveness 15.0%. These results were similar to the prevalence found in other studies with physiotherapists. In the study by Gisbert, Los Fayos and Montesinos (2008)[31]. a prevalence of 35.3% of emotional exhaustion, 21.3% of depersonalization and 19.4% of ineffectiveness was observed, and in the study by Nowakowska-Domagala, et al., (2015)[30] a prevalence of 17% emotional exhaustion, 16% depersonalization and 15% ineffectiveness.

With regard to the nurses' work profile, as working in an adult ICU, high weekly shift workload, with more than 24 hours of night shift workload, was similar to other studies available in the literature that pointed to damage to the health of these workers and especially night shifts,[32]. In addition, the overload of hours worked in the ICU environment can interfere with the quality of nursing care, putting the safety of the patient at risk[33,34].

In relation to the lifestyle habits of intensive care workers (doctors, nurses and physiotherapists), the majority reported taking part in physical activity. The literature points to significant benefits associated with incorporating physical activity into the daily routine, which is an important factor for quality of life, improving sleep quality, increasing cognitive function, reducing the risk of heart disease, cancer, stress and depression; in other words, improving the physical, psychological and social state, regardless of age or gender [35,36].

The aspects related to the work of physiotherapists in this study show similar results to other studies found in the literature[16], with a predominance of females, singles, an average age of less than 40 years and up to 5 years working in the profession.[37,38]. And with the studies carried out with ICU nurses [29,39], there was a predominance of females and an age range of less than 40 years.

With regard to the predominance of females, the studies consulted corroborate that health work is carried out more by females because it has gender characteristics, which are associated with the qualities required for professional activities related to caring for human beings,

and in relation to the age group of younger workers, occupying ICU jobs, it may be related to the type of work activity that requires high physical demands [12,20,37,38].

This study is a pioneer in terms of estimating the prevalence and investigating factors associated with *Burnout* Syndrome in ICU workers in Feira de Santana, Bahia, but it is necessary to make some methodological considerations. The cross-sectional design does not allow us to observe a chronological relationship between the variables studied and, therefore, it is not possible to establish a causal link. In this study, due to the size of the population studied, it was decided not to carry out confounding and interaction analyses, which are important procedures for more robust conclusions. The use of a self-administered questionnaire, due to the subjective nature of the respondent, can influence the results depending on the degree of understanding, as well as allowing questionnaires with incomplete answers to be returned.

Final Consideration

This study found a high prevalence of *burnout* syndrome in general and in the three categories studied (doctors, nurses and physiotherapists).

The results presented serve as a warning of the need to reflect on the measures that can be adopted to reduce the prevalence of Burnout Syndrome among these workers.

References

1. Güler Y, Şengül S, Çaliş H, Karabulut Z. Burnout syndrome should not be underestimated. *REV ASSOC MED BRAS*. 2019;65(11):1356-1360.Acessado em 31 de out de 2023
2. Benevides-Pereira AMT. Considerações sobre a síndrome de burnout e seu impacto no ensino. *Boletim de Psicologia*. 2012;62(137):155-168.
3. Marques GLC, Carvalho FL, Fortes S, Miranda Filho HR, Alves GS. Síndrome de burnout entre médicos plantonistas de unidades de terapia intensiva. *J Bras Psiquiatr*. 67(3):186-193. doi:https://doi.org/10.1590/0047-2085000000202. Acessado em 23 de out de 2023
4. Coronavirus - OPAS/OMS | Organização Pan-Americana da Saúde. Accessed February 26, 2024. https://www.paho.org/pt/topicos/coronavirus. Acessado em 27 de agosto de 2023
5. Cabral MJA, Pimentel IVC, Silva WC da. Síndrome de Burnout em profissionais médicos com atividades em uti COVID-19 em Teresina/PI. *Research, Society and Development*. 2021;10(16):e306101623872-e306101623872. doi:10.33448/rsd-v10i16.23872.Acessado em 21 de setembro de 2023
6. Ramli, SNB, Ahayalimudin, NA. Burnout Level and Its Associated Factors Among Critical Care Nurses: A Literature Review. *International Journal of Care Scholars*. 2023;6(1):59-70. doi:0.31436/ijcs.v6i1.277. Acessado de 22 de setembro de 2023
7. Bruyneel A, Smith P, Tack J, Pirson Mi. Prevalence of burnout risk and factors associated with burnout risk among ICU nurses during the COVID-19 out breakin French speaking. *ntensive & Critical Care Nursing 6*. 2021;65:1-7. doi:https://doi.org/10.1016/j.iccn.2021.103059. Acessado em 21 de junho de 2023
8. Kumar A, Sinha A, Varma JR, Prabhakaran AM, Phatak AG, Nimbalkar SM. Burnout and its correlates among nursing staff of intensive care units at a tertiary care center. *J Family Med Prim Care*. 2021;10(01):443-448. doi:10.4103/jfmpc.jfmpc_1651_20. Acessado em 15 de agosto de 2023
9. Barros MM dos S, Almeida SP de, Barreto ALP, Faro SRS, Araújo MRM de, Faro A. Síndrome de Burnout em médicos intensivistas: estudo em UTIs de Sergipe. *Temas em Psicologia*. 2016;24(1):377-389. doi:10.9788/TP2016.1-26. Acessado em 22 de agosto de 2023
10. Tironi MOS, Teles JMM, Barros D de S, et al. Prevalência de síndrome de *burnout* em médicos intensivistas de cinco capitais brasileiras. *Rev bras ter intensiva*. 2016;28:270-277. doi:10.5935/0103-507X.20160053 Acessado em 16 de maio de 2023
11. Embriaco N, Papazian L, Kentish-Barnes N, Pochard F, Azoulay E. Burnout syndrome among critical care healthcare workers. *Curr Opin Crit Care*. 2007;13(5):482-488. doi:10.1097/MCC.0b013e3282efd28a. Acessado em 11 de julho de 2023
12. Pascoal KPMF, Santos ACBC, Fernandes, VMS, Sousa MN. Avaliação da qualidade de vida, estresse e saúde mental dos profissionais de saúde das unidades de terapia intensiva. *Revista interdisciplinar em saúde*. 2019;6(5):19-30. Acessado em 22 de abril de 2023
13. Silva APF, Carneiro,LV, Ramalho JPG. Burnout syndrome among critical care nursing professionals. *R pesq: cuid fundam online*. 2020;12(127986):915-920. doi:10.9789/2175-5361.rpcfo.v12.7986. Acessado em 11 de fevereiro de 2024
14. Santos CLC, Barbosa GB, Nascimento DSS, Martins Júnior DF, Nascimento Sobrinho CL. Prevalência de Síndrome da Estafa Profissional e fatores associados em fisioterapeutas intensivistas. *Prevalência de Síndrome da Estafa Profissional e fatores associados em fisioterapeutas intensivistas*. 2018;8(3):336-44. doi:10.17267/2238-2704rpf.v8i3.2032. Acessado em 20 de agosto de 2023
15. Nascimento D dos SS, Barbosa GB, Santos CLC, Martins Júnior DF, Nascimento Sobrinho CL. Prevalência de distúrbio psíquico menor e fatores associados em enfermeiros intensivistas. *Rev baiana enferm*. Published online 2019:e28091-e28091. Acessado em 23 de julho de 2023
16. Silva APF, Carneiro LV, Ramalho JPG. Incidence of Burnout Syndrome in nursing professionals in intensive therapy unit. *REV Pesqui*. 2020;12:915-920. doi:0.9789/2175-5361. Acessadoa em 14 de junho de 2023
17. Aragão NSC, Barbosa GB, Santos CLC, et al. Burnout Syndrome and Associated Factors in Intensive Care Unit Nurses. *Rev Bras Enferm*. 2021;74(Suplemento 3):1-8. doi:https://doi.org/10.1590/0034-7167-2019-0535Acessado em 2 de março de 2024
18. Alvares MEM, Thomaz EBAF, Lamy ZC, Nina RVAH, Uchoa MLP, Garcia JBS. Burnout syndrome among healthcare professionals in intensive care units: a cross-sectional populationbased study. *Burnout syndrome among healthcare professionals in intensive care units: a cross-sectional populationbased study*. 2020;32(2):251-260. doi:https://doi.org/10.5935/0103-507X.20200036. Acessado em 2 de abril de 2024
19. Censo 2022 | IBGE. Accessed February 5, 2024. https://www.ibge.gov.br/estatisticas/sociais/trabalho/22827-censo-demografico-2022.html. Acessado em 10 de janeiro de 2024
20. Saravanabavan L, Sivakumar M, Hisham M. Stress and Burnout among Intensive Care Unit Healthcare Professionals in an Indian Tertiary Care Hospital. *Indian J Crit Care Med*. 2019;23(10):462-466. doi:10.5005/jp-journals-10071-23265. Acessado em 20 de janeiro de 2024
21. Fisher R, Mattos P, Teixeira C, Ganzerla DS, Rosa,RG, Bozza FA. Association of Burnout With Depression and Anxiety in Critical Care Clinicians in Brazil. *JAMA Network Open*. 2020;3(12):e2030898. doi:10.1001/jamanetworkopen.2020.30898.Acessado em 14 de maio de 2023
22. Fumis RRL, Costa ELV, Dal'Col SVC, Azevedo LCP, Pastore Junior L. Burnout syndrome in intensive care physicians in time of the COVID-19: a cross-sectional study. *BMJ Open*. Published online 2022:e057272-e057272.Acessado em 10 de julho de 2023
23. Shbeer A, Ageel M. Assessment of Occupational Burnout among Intensive Care Unit Staff in Jazan, Saudi Arabia, Using the Maslach Burnout Inventory.

Crit Care Res Pract. 2022;2022:1298887. doi:10.1155/2022/1298887. Acessado em 20 de julho de 2023

24. Barros D de S, Tironi MOS, Nascimento Sobrinho CL, et al. Médicos plantonistas de unidade de terapia intensiva: perfil sócio-demográfico, condições de trabalho e fatores associados à síndrome de burnout. *Rev bras ter intensiva*. 2008;20:235-240. doi:10.1590/S0103-507X2008000300005. Acessado em 3 de abril de 2023
25. Barros MM dos S, Almeida SP de, Barreto ALP, Faro SRS, Araújo MRM de, Faro A. Síndrome de Burnout em médicos intensivistas: estudo em UTIs de Sergipe. *Temas em Psicologia*. 2016;24(1):377-389. doi:10.9788/TP2016.1-26. Acessado em 23 de março de 2023
26. Azevedo KCC, Batista JBV, Azevedo RC, Araújo ALB. National scientific production on Burnout Syndrome in ICU nurses and physicians: a bibliometric study. *Rev Assoc Med Bras*. 65(5):1-8. doi:https://doi.org/10.1590/1806-9282.65.5.722.Acessado em 2 de agosto de 2023
27. Aragão NSCD, Barbosa GB, Santos CLC, et al. Burnout Syndrome and Associated Factors in Intensive Care Unit Nurses. *Rev Bras Enferm*. 2021;74(suppl 3):e20190535. doi:10.1590/0034-7167-2019-0535. Acessado em 10 de março de 2023
28. Nowakowska-Domagala K, Jablkowska-Górecka K, Kostrzanowska-Jarmakowska,L, Morton M, Stecz P. The Interrelationships of Coping Styles and Professional Burnout Among Physiotherapists: A Cross-Sectional Study. *Medicine*. 2015;94(24):e906. doi:10.1097/MD.0000000000000906. Acessado em 23 de junho de 2024
29. Gisbert MFS, Enrique Los Fayos,JG, Montesinos MDH. Burnout em fisioterapeutas Españoles. *Psicothema*. 2008;20(3):361-368.Acessado 21 de abril de 2023
30. Nazario EG, Silva RM, Beck CLC, et al. Fatigue and sleep in intensive care nursing workers in the COVID-19 pandemic. *Acta Paul Enferm*. 36:eAPE000881. doi:https://doi.org/10.37689/acta-ape/2023AO000881. Acessado 22 de abril de 2023
31. Rivaz M, Tavakolinia M, Momenasab, M. Nursing professional practice environment and its relationship with nursing outcomes in Intensive Care Units: a test of the structural equation model. *Scand J Caring Sci*. 2021;35(2):609-615. doi:10.1111/scs.12877. Epub 2020 Jun 28. Acessado em 13 de maio de 2024
32. Assis SF, Vieira DFVB, Sousa FREG, Pinheiro CEO, Prado PR. Adverse events in critically ill patients: a cross-sectional study. *Rev esc enfermUSP*. 2022;56(e20210481):1-8. doi:https://doi.org/10.1590/1980-220X-REEUSP-2021-0481en. Acessado em 20 de março de 2024
33. Oliveira P, Melo T, Lopes A, Lima M, Filho D, Carvalho V. Frequência da Síndrome de Burnout em médicos residentes. 2019;9(2):91-96. doi:10.25060/residpediatr-2019.v9n2-02. Acessado em 11 abril de2024
34. Zamai CA, Bortolim L, Minetti GSC. Atividades físicas praticadas em academia: análise dos benefícios. *Revista Saúde e Meio Ambiente – RESMA-UFMS*. 2021;3(1):38-49. Acessado 21 maio 2023
35. Guerrer FJL, Bianchi ERF. Characterization of stress in intensive care unit nurses. *Rev esc enferm USP*. 42(2):1-8. doi:https://doi.org/10.1590/S0080-62342008000200020. Acessado em 10 março 2023.
36. Inoue KC, Versa GLGS, Murassaki ACY, Melo WA, Matsuda LM. Occupational stress in intensive care nurses who provide direct care to critical patients. *Rev Bras Enferm*. 2013;66(5):722-729. doi:https://doi.org/10.1590/S0034-71672013000500013.Acessado em 4 de julho2023.
37. Gois JA, Freire MRS, Santos CLC, et al. Psychosocial aspects of labor and minor psychic disorders in intensivist nurses. *Contribuciones a Las Ciencias Sociales*. 2023;16(8):1315-13125.Acessado em 10 de julho de2023.