Original Article
doi: https://doi.org/10.1590/1983-1447.2023.20230028.en

Trait and state anxiety in healthcare professionals of intensive care unit

Ansiedade traço e estado em profissionais da saúde de unidade de terapia intensiva

Rasgo y estado de ansiedad en profesionales de salud de unidad de cuidados intensivos

Michele Nunes Fenzke[a]
Wendy Julia Mariano Viante[a]
Bianca Fontana Aguiar[a]
Bárbara da Silva Gama[a]
Adriano Marçal Pimenta[a,b]
Fernanda Moura D'Almeida Miranda[a,b]

How to cite this article:
Fenzke MN, Viante WJM, Aguiar BF, Gama BS, Pimenta AM, Miranda FMDA. Trait and state anxiety in healthcare professionals of intensive care unit. Rev Gaúcha Enferm. 2023;44:e20230028. doi: https://doi.org/10.1590/1983-1447.2023.20230028.en

ABSTRACT

Objective: To estimate trait and state anxiety levels among intensivecare professionals during the Covid-19 pandemic.
Method: Cross-sectional, analytical study, conducted from April to July 2022, in a teaching hospital in southern Brazil, using the State-Trait Anxiety Inventory scale.
Results: Trait and state anxiety were present in more than half of the sample, being associated with gender, age group, having children, weekly workload, time working in the hospital and ICU ($p<0.05$) for the state; and associated with gender, having children, profession, daily and weekly workload, and time working in the hospital ($p<0.05$) for the trait.
Conclusion: Trait and state anxiety were medium to high level for women, young, without children, non-nurses, with a daily shift of 9 to 18 working hours, a weekly workload of more than 40 hours, with less than five years of experience in intensive care and with more than five years of experience working in the institution.
Descriptors: Anxiety. Health personnel. Occupational health. Nursing.

RESUMO

Objetivo: Estimar os níveis de ansiedade traço e estado entre profissionais da saúde daterapia intensiva durante a pandemia Covid-19.
Método: Estudo transversal, analítico, realizado de abril-julho de 2022, num hospital de ensino do sul do Brasil, utilizando a escala Inventário de Ansiedade Traço-Estado.
Resultados: A ansiedade traço e estado estiveram presentes em mais da metade da amostra, sendo associada ao sexo, faixa etária, ter filhos, carga horária semanal, tempo de trabalho no hospital e na UTI ($p<0,05$) para o estado; e associada ao sexo, ter filhos, profissão, carga horária diária e semanal, e tempo de trabalho no hospital ($p<0,05$) para o traço.
Conclusão: A ansiedade traço e estado foram de nível médio a alto para mulheres, jovens, sem filhos, não enfermeiras, com jornada diária de 9 a 18 horas trabalhadas, carga horária semanal acima de 40 horas, com experiência menor de cinco anos em terapia intensiva e quanto ao tempo de atuação na instituição maior que cinco anos.
Descritores: Ansiedade. Pessoal de saúde. Saúde ocupacional. Enfermagem.

RESUMEN

Objetivo: Estimar los niveles de ansiedad rasgo y estado entre los profesionales de salud de cuidados intensivos durante la pandemia de Covid-19.
Método: Estudio transversal, analítico, realizado de abril a julio de 2022, en un hospital escuela del sur de Brasil, utilizando la escala Inventario de Ansiedad Estado-Rasgo.
Resultados: La ansiedad rasgo y estado estuvo presente en más de la mitad de la muestra, asociándose con el género, grupo etario, tener hijos, carga horaria semanal, tiempo de trabajo en el hospital y UCI ($p<0,05$) para el estado; y asociado al género, tener hijos, profesión, carga diaria y semanal y tiempo de trabajo en el hospital ($p<0,05$) para el rasgo.
Conclusión: La ansiedad rasgo y estado fue media a alta para mujeres, jóvenes, sin hijos, no enfermeras, con jornada diaria de 9 a 18 horas, carga laboral semanal de más de 40 horas, con menos de cinco años de experiencia en terapia cuidados intensivos y tiempo de trabajo en la institución por más de cinco años.
Descriptores: Ansiedad. Personal de salud. Salud laboral. Enfermería.

[a] Universidade Federal do Paraná (UFPR). Programa de Pós-Graduação em Enfermagem. Curitiba, Paraná, Brasil.

[b] Universidade Federal do Paraná (UFPR). Programa de Pós-Graduação em Enfermagem. Departamento de Enfermagem. Curitiba, Paraná, Brasil.

INTRODUCTION

Intensive Care Units (ICUs) are critical environments, in which there are high-pressure situations and the need for immediate decision-making in the professionals' routine[1]. With the advancement of the COVID-19 pandemic, ICUs have become crucial in treating the disease, and many professionals started working in this setting due to the emergency situation, however, the qualified workforce and capacity for healthcare were insufficient to meet the demand for severe cases[2].

The massive and sudden increase in demand for ICUs had an impact on the workload and mental health of healthcare professionals. The challenges arising from facing the pandemic can be considered potential stressors, as it is an uncertain scenario with little knowledge, which can negatively contribute to the mental health of healthcare professionals, besides the workplace itself, which corresponds to a critical hospital unit, further contributing to the development of anxiety, depression and post-traumatic stress[3].

Anxiety can be defined as an individual's response to threatening situations, which results in a state of alert, tension, and unpleasant symptoms of different intensity. Anxiety is divided according to adaptive behavior: trait and state. Trait anxiety refers to the subjective understanding of threats and potential dangerous situations, and state anxiety is determined by momentary unpleasant feelings caused by a threatening situation to the individual[4].

Given the above, it is understood that anxiety can affect various aspects of the physical and mental health and performance of healthcare professionals working in ICUs, and, therefore, identifying the presence of anxiety symptoms in these professionals who provided exclusive care to Covid-19 patients during the pandemic period is important to develop actions and work processes aimed at reducing anxiety.

Therefore, the objective of this research was to estimate the levels of trait and state anxiety among intensive care professionals during the Covid-19 pandemic.

METHOD

This is a cross-sectional and analytical study with a quantitative approach, conducted in a University Hospital Complex (UHC), in the southern region of Brazil, from April to July 2022. Due to the study design, the methodological description was based on the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) for cross-sectional studies[5].

All the 159 health professionals (nursing assistants and technicians, nurses, physical therapists, multiprofessional residents and physicians) who met the inclusion criteria (having worked for at least two months in intensive care units during the Covid-19 pandemic period) were invited to participate in the research. From these, healthcare professionals who were absent at the time of data collection or on medical leave and vacation were excluded. Thus, the final sample consisted of 100 professionals, which represented 62.9% of the total.

This is a convenience sample. However, based on a previous study that applied the State-Trait Anxiety Inventory (STAI) to nursing professionals, it was possible to estimate, respectively, 94.6% and 99.9% ($p < 0.05$) for trait and state anxiety using the binomial test, based on the following parameters: n = 100; alpha = 0.05; prevalence of moderate to high trait anxiety in the present study = 67%; prevalence of moderate to high trait anxiety in the reference study = 82%[6]; prevalence of moderate to high state anxiety in the present study = 62% and prevalence of moderate to high state anxiety in the reference study = 86%[6].

Data collection was conducted in intensive care units: surgical (8 beds), cardiology (10 beds), semi-intensive (14 beds), general (12 beds), pediatric (8 beds) and neonatal (10 beds).

Firstly, to begin data collection, the researchers visited the institution's intensive care units and presented the research to those responsible for each sector. After this, data collection took place in person in the intensive care units, conducted in the morning, afternoon and night shifts. All participants, in person, received information regarding the research, such as objective, justification, risks and benefits, legal and ethical issues. After agreeing to participate, the professionals received the tablet on which the research instruments were available on the Google Forms platform, which had the Informed Consent Form (ICF) and the questionnaires used in data collection.

Subsequently, the first instrument for completion was a self-administered semi-structured questionnaire developed for this research, called "Sociodemographic and Occupational Questionnaire", which consists of 27 questions, with eight items related to the sociodemographic profile and 19 corresponding to occupational aspects.

The second instrument was the STAI, translated and adapted for Brazil[7], formed by 40 statements about the participants' feelings, divided into two parts, the first of which is classified as trait anxiety, and the second, as state anxiety[8].

The STAI response options were based on how the participant felt "right now, at this moment", classified on a 4-point Likert scale (1-absolutely not; 2-a little; 3- a lot; and 4-very much) and how they "generally feel", whose scale was also a 4-point Likert scale (1- almost never; 2- sometimes; 3- often; and 4- almost always)[9].

The STAI has 10 items from the state subscale (1,2,5,8,10,11,15,16, 19 and 20) and nine items from the trait subscale (21,23,26,27,30,33,34, 36 and 39) which are inverted, since they refer to questions about positive feelings. Thus, they were counted in an inverted manner in the sum of the scores, with: 4 equivalent to 1, 3 to 2, and so on. The remaining 29 items are not inverted, as they relate with questions on negative feelings. The final score ranged from 20 to 80 points and anxiety levels were obtained, where 20 to 40 points was a low level of anxiety; 41 to 60 points, medium level of anxiety; and finally, 61 to 80 points, with a high level of anxiety[8].

After the data collection stage, the data were organized in a Microsoft Excel® Software database and then transferred to the Stata statistical software (version 13.1), with the support of a statistical expert. The sociodemographic and occupational characteristics of the participants were described using absolute (n) and relative frequencies (%).

Furthermore, the means and standard deviations of trait and state anxiety levels were presented based on sociodemographic and occupational factors, and differences were evaluated using the Student's t-test or ANOVA at a statistical significance level of 5%.

The research was approved by the Research Ethics Committee of the University Hospital Complex, opinion number 5,313,848 and Certificate of Presentation of Ethical Appreciation (CAAE): 52215921,0,0000,0096. The ethical precepts of the research were ensured, such as the privacy of participants by signing the ICF and other data collection questionnaires, in which participants provided the printed ICF document and registered their participation in the online document.

RESULTS

A total of 100 healthcare professionals participated in the research, 72% (n=72) were female, 55% (n=55) aged between 30 and 39 years old, 68% (n=68) self-identified as white. Regarding marital status, 60% (n=60) had a stable union, 55% (n=55) had children, 84% (n=84) were residents of the city of Curitiba and 72% (n=72) used their own transportation to get to work (Table 1).

Regarding the occupational profile of the participants, 73% (n=73) were from the nursing team, 53% (n=53) had a daily workload of 9 to 18 hours, 75% (n=75) worked up to 40 hours per week and 51% (n=51) worked during daytime. Furthermore, 63% (n=63) were CLT workers, 68% (n=68) had no other employment bonds, 35% (n=35) had been working in the institution for at least two years and 52% (n=52) had been working in the ICU for more than five years (Table 2).

In relation to the profile of participants regarding Covid-19, 58% (n=58) worked in the Covid-19 ICU for 12 to 24 months and 97% (n=97) underwent a diagnostic test for Covid-19, with 90.73 % (n=88) had the Polymerase Chain Reaction (PCR) test and 65% (n=65) had a positive result. Due to Covid-19, 56% (n=56) of infected participants had to take 7 to 14 days off work, however, the majority did not require hospitalization (96%; n=96). Furthermore, all participants were vaccinated against Covid-19 and 97% (n=97) had completed the third vaccination dose (Table 3).

Regarding trait anxiety, the mean was 45.31, with a standard deviation of 9.54, median of 46.00 and interquartile range between 38.50-51.50. In state anxiety, the mean was 43.12, standard deviation of 11.91, median of 44.50 and interquartile range between 32.50-52.50. Still, in categorical terms, regarding the level of trait anxiety, 33% of healthcare professionals had a low level, 61% a medium level and 6% a high level. In state anxiety, 38% of health professionals had a low level, 57% a medium level and 5% a high level (data not shown).

Regarding sociodemographic characteristics, women, participants aged 22 to 29 years and participants who did not have children had higher mean levels of trait anxiety ($p < 0.05$). Also, women and participants who did not have children had higher means of state anxiety ($p < 0.05$) (Table 4).

Regarding the occupational profile, participants with a weekly workload of more than 40 hours per week and those who had worked in the ICU for less than five years had higher mean levels of trait anxiety ($p < 0.05$). Moreover, participants who were not from the nursing field, those with 9 to 18 hours of daily workload, who worked more than 40 hours per week and who had worked at the institution for 5 or more years had higher means of state anxiety ($p < 0$ .05) (Table 5).

Table 1 – Characterization of the sociodemographic profile of the sample (n=100). Curitiba, Paraná, Brazil, 2023

Characteristics	Absolute frequency (n)	Relative frequency (%)
Gender		
Female	72	72
Male	28	28
Age group		
22 to 29 years old	15	15
30 to 39 years old	55	55
40 to 49 years old	24	24
50 to 57 years old	6	6
Color or race		
White	68	68
Black	30	30
Other	2	2
Stable union		
Yes	60	60
No	40	40
Children		
Yes	55	55
No	45	45
Residence		
Curitiba	84	84
Metropolitan region	16	16
Means of transportation to work		
Own transport	72	72
Walking	15	15
Public transport	10	10
Application	3	3

Source: Research data, 2023.

Table 2 – Characterization of the occupational profile of the sample. Curitiba, Paraná, Brazil, 2023

Characteristics	Absolute frequency (n)	Relative frequency (%)
Profession		
Nursing assistant	1	1
Nursing Technician	37	37
Nurse	35	35
Physician	15	15
Physical therapist	10	10
Resident Professional	2	2
Daily workload		
4 to 8 hours	46	46
9 to 18 hours	53	53
Weekly workload		
Up to 40 hours	75	75
Over 40 hours	25	25
Work shift		
Daytime	51	51
Night shift/duty*	49	49
Intensive Care Unit		
Cardiology	25	25
Surgical	19	19
Semi-intensive	22	22
Pediatric	12	12
Neonatal	11	11
General	11	11
Other employment bond		
Yes	32	32
No	68	68

Table 2 – Cont.

Characteristics	Absolute frequency (n)	Relative frequency (%)
Employment contract		
Statutory Public Employee	12	12
CLT Public Employee	63	63
Others**	25	25
Working time at the hospital		
Up to 2 years	35	35
2 to 5 years	31	31
5 or more years	34	34
Working time at ICU		
Up to 5 years	47	47
5 or more years	52	52

Source: Research data, 2023.
Note: * 12h or 24h shift; **Others: Resident or temporary work.

Table 3 – Characterization of the sample profile regarding COVID-19. Curitiba, Paraná, Brazil, 2023

Characteristics	Absolute frequency(n)	Relative frequency(%)
Working time in COVID-ICU		
Up to 11 months	42	42
12 to 24 months	58	58
Performed COVID test		
Yes	97	97
No	3	3
Test		
PCR	88	90.73
Fast	4	4.12
Serological	5	5.15

Table 3 – Cont.

Characteristics	Absolute frequency(n)	Relative frequency(%)
Tested positive for COVID-19		
Yes	65	65
No	35	35
Medical leave		
Yes	67	67
No	33	33
Duration of leave		
No	33	33
Up to 7 days	28	28
8 to 14 days	28	28
15 or more days	11	11
Hospitalization		
Yes	4	4
No	96	96
Days of hospitalization		
1	1	25
22	1	25
3	1	25
8	1	25
Vaccinated against COVID-19		
Yes	100	100
No	0	0
Number of vaccine doses		
1	1	1
2	2	2
3	97	97

Source: Research data, 2023.

Table 4 – Bivariate association between sample sociodemographic profile characteristics and anxiety. Curitiba, Paraná, Brazil, 2023

Characteristics	Anxiety					
	Trait			State		
	Mean	Standard deviation	p-value	Mean	Standard deviation	p-value
Gender			**0.024**			**0.018**
Female	46.63	9.45		44.86	11.65	
Male	41.89	9.01		38.64	11.58	
Age group			**0.049**			**0.109**
22 to 29 years old	50.66	7.19		49.53	7.82	
30 to 39 years old	45.40	10.52		42.89	12.46	
40 to 49 years old	41.95	6.68		40.20	11.89	
50 to 57 years old	44.50	10.57		40.83	11.78	
Race or ethnicity			**0.977**			**0.686**
White	45.27	9.65		42.50	11.78	
Black/Brown	45.46	9.69		44.20	12.61	
Other	44.00	5.65		48.00	4.24	
Stable union			**0.096**			**0.056**
Yes	44.01	9.71		41.26	11.45	
No	47.25	9.03		45.90	12.19	
Children			**0.003**			0.041
Yes	42.83	8.48		40.92	11.59	
No	48.33	9.96		45.80	11.86	
Residence			**0.711**			**0.857**
Curitiba	45.15	9.85		43.21	11.99	
Metropolitan region	46.12	7.86		42.62	11.84	
Means of transportation to work			**0.831**			**0.799**
Own transport	45.09	9.76		42.77		
Walking	44.40	10.43		42.66		
Public transport	47.70	6.83		46.70		
Application	47.00	10.14		41.66		

Source: Research data, 2023.
Note: p-value from Student's t-test or Analysis of Variance (ANOVA).

Table 5 – Bivariate association between sample occupational profile characteristics and anxiety. Curitiba, Paraná, Brazil, 2023

Characteristics	Anxiety					
	Trait			State		
	Mean	Standard deviation	p-value	Mean	Standard deviation	p-value
Profession			0.086			**0.049**
Nursing team	44.31	9.09		41.69	12.37	
Other healthcare professionals	48.00	10.32		46.96	9.75	
Daily workload			0.090			**0.035**
4 to 8 hours	43.69	9.47		40.54	11.39	
9 to 18 hours	46.94	9.35		45.56	11.98	
Weekly workload			**0.010**			**0.029**
Up to 40 hours	43.90	9.13		41.62	12.02	
Over 40 hours	49.52	9.65		47.60	10.57	
Work shift			0.649			0.227
Daytime	44.88	10.17		41.70	11.71	
Night/Others	45.75	8.91		44.59	12.06	
Intensive care unit			0.977			0.402
Adult	45.32	9.41		42.57	11.62	
Pediatric	45.26	10.14		44.95	12.92	
Other employment bond			0.194			0.162
Yes	43.50	11.10		40.68	13.45	
No	46.16	8.47		44.26	11.03	
Employment contract			0.050			0.125
Statutory Public Employee	43.75	7.16		40.00	9.84	
CLT Public Employee	44.01	9.84		42.11	13.00	
Others*	49.32	8.88		47.16	8.91	
Working time at the hospital			0.337			**0.010**
Up to 2 years	46.78	10.33		45.57	11.31	
2 to 5 years	43.22	9.98		37.83	11.13	
5 or more years	46.00	8.12		45.41	11.96	
Working time at ICU			**0.027**			0.094
Up to 5 years	47.40	10.87		45.02	12.24	
5 or more years	43.19	7.65		41.03	11.20	

Source: Research data, 2023.
Note: p-value from Student's t-test or Analysis of Variance (ANOVA).

DISCUSSION

The profile of the participants is similar to another study conducted with 85 healthcare professionals from an Emergency Room (ER) in Várzea Grande, which also has structural and administrative characteristics similar to the location of the present research, as it is a large tertiary-level public emergency care unit. In this study from Várzea Grande, the prevalence of females (84.8%) was identified, nursing technicians (51%) and nurses (29%), aged between 26 and 60 years, with an average of 39.7 years[10].

The research outcomes also point out to the high presence of trait and state anxiety at a medium to high level, reaching 67% and 62% of participants, respectively. Which means, according to the definition described by Baggio, Natalício and Spielberger (1977), that people with trait anxiety are more likely to feel anxious in ordinary daily circumstances; Those with a state of anxiety react in this way, temporarily, only in certain specific threatening situations[10].

Among the variables that most affect the state of anxiety, gender stands out, where women have a higher level of anxiety when compared to men. This relation between gender and emotional was also highlighted in a study with 90 nurses from a university hospital in Recife (PE) amidst the COVID-19 pandemic. Through the Symptom Assessment Scale (SAS-40), which covers the dimensions: psychoticism; obsessiveness; somatization; and anxiety, the researchers found that the most prevalent dimension was obsessiveness.

Another noteworthy finding in this research was that professionals without children had a higher mean level of anxiety when compared to professionals with children. In this regard, a research conducted in Rio Grande do Norte with 490 nursing professionals who worked in medium and high complexity healthcare services during the pandemic, identified the positive influence of family and friends in preventing anxiety and depression, with emphasis on importance of dialogue between professionals and their support network[11].

It can be inferred, therefore, that family interaction facilitates the exchange of experiences and serves as a support point for coping with problems. However, two literature reviews that aimed at identifying the impact of the pandemic on the population's mental health, pointed to higher levels of anxiety among professionals with children[12,13], which does not corroborate the findings of this study and reveals divergent results regarding the relationship between anxiety and having children, highlighting the need for further research on this topic.

Another finding that deserves importance was the fact that more than half of the participants (58%) had worked in a Covid-19 ICU for a period of 12 to 24 months, which is already a predictive factor for anxiety, given that recent research demonstrates an exacerbation of psychological distress among healthcare professionals during this period, with worsening of depressive, anxious, insomnia and stress symptoms[11,14,15].

Another study, with 1257 healthcare professionals who worked in the first months (January and February 2020) of the new Coronavirus outbreak, distributed in 34 Chinese hospitals, 60.5% of which were in Wuhan, the epicenter of the pandemic, identified that more than half of them had depressive and stress symptoms, 44.6% had anxious symptoms and 34% insomnia[12]. In both studies, nursing professionals are those most affected by psycho-emotional disorders[14,15].

Regarding nursing professionals specifically, it's worth mentioning the study conducted in Rio Grande do Norte with 490 professionals who worked to cope with COVID-19, where 30.4% of the sample had been diagnosed with some mental disorder in the last year, 39.6% with moderately severe or severe anxiety symptoms and 38% with moderately severe or severe depression. The significant percentage of professionals with Burnout Syndrome (62.4%) stands out in this research, which is characterized by physical and mental exhaustion related to work[11].

As highlighted in an integrative literature review, this suffering experienced by professionals during the COVID-19 pandemic was driven by factors such as facing an unknown disease and the difficulties in combating it, the high mortality rate and the lack of PPE, supplies and medicines[16].

Part of the sample with the highest mean level of trait anxiety were professionals with a weekly workload of over 40 hours, and those with a higher mean level of anxiety were those with a daily workload of nine to 18 hours. Research conducted with 123 healthcare professionals from a public hospital in the south of the country, identified the presence of common mental disorders in 40% of the sample, as well as exhaustion and burnout in 60% and 41%, respectively. Furthermore, it was also noticed that 45% of participants had a moderate to high perception of stress and that 49% were distant from work, with difficulty concentrating and dedicating themselves to activities. All these factors were associated with intense workload, added to weaknesses in human and material resources in the work environment. As a coping strategy, the study suggested prioritizing rest and breaks in special scale[17].

Regarding time of experience, professionals with less than five years of experience were those who showed more signs of anxiety, which can be justified by the lack of confidence resulting from their short experience. This result was also found in a study conducted with residents of a multiprofessional

team at a university hospital in Rio Grande do Norte, where researchers identified the prevalence of moderate to severe anxiety in younger residents and, corroborating these results, a narrative review also correlated the short time of experience with anxiety[18,19].

Through the results of this research, it was possible to identify the necessary demands to the implementation of strategies aimed at promoting mental health and preventing mental illness among healthcare professionals, focusing on sensitive topics such as gender, inequalities and equity at workplace. It is essential to emphasize the importance of healthcare services regulating and monitoring the work process/organization to reduce the exposure of healthcare professionals to psychosocial risks and physical and emotional exhaustion. It is important for the nursing category, the largest group of participants in this research, the approval of a minimum wage linked to a reduction in weekly working hours so that it can contribute to a reduced workload and improved quality of life.

Regarding the limitations of the study, stand out the sample size, the research location being only a public hospital, the use of an online platform for data collection and the absence of previous measures of anxiety with the study population. It is necessary to conduct future research to expand the population studied and covering public and private health services in different Brazilian regions, with the aim of deepening comparative analyses and providing more information that points to actions for health promotion of these professionals in their workplace. It is believed that the results found in this research provide valuable information that identifies the main causes of anxiety levels among ICU healthcare professionals during the Covid-19 pandemic, which can contribute to the implementation of actions within healthcare services aimed at promoting mental health and preventing mental illness among these professionals.

CONCLUSION

The present research estimated the levels of trait and state anxiety among healthcare professionals working in ICUs during the Covid-19 pandemic, and concluded that the participants who had the higher mean trait anxiety were women, aged 22 to 29 years old, without children, non-nurses, with 9 to 18 hours of work per day, weekly working hours over 40 hours, less than five years of experience in intensive care, and more than five years of institutional experience.

In view of the findings, it is evident that there is a need to alleviate anxiety among healthcare professionals in ICU, through compliance with regulated working hours, rest times, as well as the provision of suitable conditions for carrying out their work, along with psychological support by healthcare services.

REFERENCES

1. Romero-García M, Delgado-Hito P, Galvez-Herrer M, Angel-Sesmero JA, Velasco-Sanz TR, Benito-Aracil L, et al. Moral distress, emotional impact and coping in intensive care unit staff during the outbreak of COVID-19. IntensiveCrit Care Nurs. 2022;70:103206. doi: https://doi.org/10.1016/j.iccn.2022.103206
2. Craveiro KL, Rocha DS, Rocha GS, Teixeira ER. Nurses' challenges in managing COVID-19 carein an Adult Intensive Care Unit. Res Soc Dev. 2022;11(6):e58211629438. doi: https://doi.org/10.33448/rsd-v11i6.29438
3. Greenberg N, Weston D, Hall C, Caulfield T, Williamson V, Fong K. Mental health of staff working in intensive care during COVID-19.Occup Med. 2021;71(2):62-7. doi: https://doi.org/10.1093/occmed/kqaa220
4. Bee Seok C, Abd Hamid HS, Mutang JÁ, Ismail R. Psychometric properties of the state-trait anxiety inventory (form y) among Malaysian university students. Sustainability. 2018;10(9):3311. doi: https://doi.org/10.3390/su10093311
5. von Elm E, Altman DG, Egger M, Pocock SJ, Gotzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. Lancet. 2007;370(9596):1453-7. doi: https://doi.org/10.1016/S0140-6736(07)61602-X
6. Oliveira LK, Almeida GA, Lelis ER, Tavares M, Fernandes Neto AJ. Temporomandibular disorder and anxiety, quality of sleep, and quality of life in nursing professionals. Braz Oral Res. 2015;29:1-7. doi: https://doi.org/10.1590/1807-3107BOR-2015.vol29.0070
7. Spielberger CD, Gorsuch RL, Lushene RD. Manual for the State-Trait Anxiety Invetory. Palo Alto, CA: Consulting Psychologists Press; 1970.
8. Biaggio AMB, Natalício L. Manual para o Inventário de Ansiedade Traço-Estado (IDATE). Rio de Janeiro: CEPA; 1979.
9. Biaggio AMB, Natalício L, Spielberger CD. Desenvolvimento da forma experimental em português do Inventário de Ansiedade Traço-Estado (IDATE), de Spielberger. ArqBrasPsic Apl. 1977 [cited 2022 Mar 12];29(3):31-44. Available from: http://bibliotecadigital.fgv.br/ojs/index.php/abpa/article/view/17827/16571
10. Bonazza DSS, Schuh C. Avaliação dos níveis de ansiedade em profissionais da saúde: plantonistas diurnos e noturnos. ConnectionLine.2020;(22):4-16. doi: https://doi.org/10.18312%2Fconnectionline.v0i22.1518
11. Santos KMR, Galvão MHR, Gomes SM, Souza TA, Medeiros AA, Barbosa IR. Depression and anxiety in nursing professionals during the covid-19 pandemic.Esc Anna Nery. 2021;25(spe):e20200370.doi: https://doi.org/10.1590/2177-9465-ean-2020-0370
12. Silva HGN, Santos LES, Oliveira AKS. Effects of the new Coronavirus pandemic on the mental health of individuals and communities. J Nurs Health. 2020;10(4):e20104007. doi: https://doi.org/10.15210/jonah.v10i4.18677
13. Dias IC, Almeida CH, Melo EMM, Dias HC, Luz IS, Santos JLD, et al. The impacts of the COVID-19 pandemic on the mental health of the population. Rev EletrAcervoCient. 2021;(30):e8218. doi: https://doi.org/10.25248/reac.e8218.2021
14. Korkmaz S, Kazgan A, Çekiç S, Tartar AS, Balcı HN, Atmaca M. The anxiety levels, quality of sleep and life and problem-solving skills in healthcare workers employed in COVID-19 services. J ClinNeurosci. 2020(80):131-6. doi: https://doi.org/10.1016/j.jocn.2020.07.073
15. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to Coronavirus Disease 2019. JAMA Netw Open. 2020;3(3):e203976. doi: https://doi.org/10.1001/jamanetworkopen.2020.3976

16. Duarte AAS, Ribeiro KRA. Factors associated with stress, anxiety and depression in intensive care nursing in the context of the COVID-19 pandemic. Rev PesqCuid Fundam. 2022;(14):e11599. doi: https://doi.org/10.9789/2175-5361.rpcfo.v14.11599
17. Horta RL, Camargo EG, Barbosa MLL, Lantin PJS, Sette TG, Lucini TCG, et al.Front line staff stress and mental health during COVID-19 pandemic in a general hospital. J Bras Psiquiat. 2021;(70):30-8. doi: https://doi.org/10.1590/0047-2085000000316
18. Dantas ESO, Araújo Filho JD, Silva GWS, Silveira MYM, Dantas MNP, Meira KC. Factors associated with anxiety in multiprofessional health care residents during the COVID-19 pandemic. RevBrasEnferm. 2021;74(Suppl 1):e20200961. doi: https://doi.org/10.1590/0034-7167-2020-0961
19. Pereira ACC, Pereira MMA, Silva BLL, Freitas CM, Cruz CS, David DBM, et al. O agravamento dos transtornos de ansiedade em profissionais de saúde no contexto da pandemia da COVID-19. Braz J Hea Rev. 2021;4(2):4094-110. doi: https://doi.org/10.34119/bjhrv4n2-009

Authorship contribution:

Formal analysis: Adriano Marçal Pimenta, Michele Nunes Fenzke.
Conceptualization: Michele Nunes Fenzke, Bárbara da Silva Gama.
Data curation: Adriano Marçal Pimenta.
Writing-original draft: Bárbara da Silva Gama, Wendy Julia Mariano Viante.
Writing-review & editing: Michele Nunes Fenzke, Wendy Julia Mariano Viante.
Methodology: Bianca Fontana Aguiar.
Software: Adriano Marçal Pimenta.
Supervision: Fernanda Moura D'Almeida Miranda.

The authors declare that there is no conflict of interest.

Corresponding author:

Michele Nunes Fenzke
E-mail: myfenzke@hotmail.com

Associate editor:
Gabriella de Andrade Boska

Received: 03.02.2023
Approved: 06.30.2023

Editor-in-chief:
João Lucas Campos de Oliveira