

ANALYSIS OF POST-TRAUMATIC STRESS DISORDER IN NURSING PROFESSIONALS DURING THE COVID-19 PANDEMIC

Thaynara Fontes Almeida¹ 
Silmara de Oliveira Silva² 
Fernando Hiago da Silva Duarte² 
Cintia Galvão Queiroz² 
Pedro Lucas Oliveira de Araújo³ 
Rodrigo Assis Neves Dantas² 
Daniele Vieira Dantas² 
Paula Santos Nunes¹ 

¹Universidade Federal de Sergipe, Programa de Pós-Graduação em Ciências da Saúde. São Cristóvão, Sergipe, Brasil.

²Universidade Federal do Rio Grande do Norte, Programa de Pós-Graduação em Enfermagem. Natal, Rio Grande do Norte, Brasil.

³Universidade Federal do Rio Grande do Norte, Departamento de Enfermagem. Natal, Rio Grande do Norte, Brasil.

ABSTRACT

Objective: to analyze the prevalence of Post-Traumatic Stress Disorder and factors associated with its development in Nursing professionals during the COVID-19 pandemic.

Method: an observational, analytical and cross-sectional study conducted with 309 Nursing professionals, using a questionnaire to assess sociodemographic data and work-related information, in addition to the Impact Event Scale – Revised, which aims at collecting diverse information related to Post-Traumatic Stress Disorder symptoms.

Results: the study participants were 176 nurses and 133 nursing technicians: 83.82% female and 56.96% male nurses. As for the hour load, 55.66% asserted working up to 40 weekly hours 47.90% had more than one employment contract, 89.32% were active in the front line against the pandemic, and 60.19% reported an increase in workload. However, 64.40% presented symptoms or were diagnosed with COVID-19 and 43.37% indicated emotional impairment. Using the classifications of the overall Impact Event Scale – Revised score, 29 (53.40%) obtained scores of at least 33, the cutoff point for likely diagnosis of Post-Traumatic Stress Disorder.

Conclusion: it was evidenced that more than half of the study sample presented a high risk of developing Post-Traumatic Stress Disorder in the Impact Event Scale – Revised scale. Factors associated with the development of Post-Traumatic Stress Disorders in Nursing professionals during the COVID-19 pandemic include use of psychotropic drugs, age up to 35 years old, and occurrence of physical and emotional changes.

DESCRIPTORS: Health professionals. Post-Traumatic Stress Disorders. Coronavirus infections. Pandemics. Nursing. Mental health.

HOW CITED: Almeida TF, Silva SO, Duarte FHS, Queiroz CG, Araújo PLO, Dantas RAN, Dantas DV, Nunes OS. Analysis of post-traumatic stress disorder in nursing professionals during the COVID-19 pandemic. *Texto Contexto Enferm* [Internet]. 2022 [cited YEAR MONTH DAY]; 31:e20220139. Available from: <https://doi.org/10.1590/1980-265X-TCE-2022-0139en>

ANÁLISE DO TRANSTORNO DO ESTRESSE PÓS-TRAUMÁTICO EM PROFISSIONAIS DE ENFERMAGEM DURANTE A PANDEMIA DA COVID-19

RESUMO

Objetivo: analisar a prevalência de Transtorno de Estresse Pós-Traumático e os fatores associados ao desenvolvimento do Transtorno de Estresse Pós-Traumático em profissionais de enfermagem durante a pandemia da COVID-19.

Método: estudo observacional, analítico e transversal, realizado com 309 profissionais de enfermagem, utilizando questionário para avaliar dados sociodemográficos e informações sobre o trabalho, além da Escala do Impacto do Evento – Revisada (IES-R), que visa coletar informações relacionadas à sintomatologia do Transtorno de Estresse Pós-Traumático.

Resultados: o estudo contou com 176 enfermeiros e 133 técnicos de enfermagem, sendo 83,82% do sexo feminino e 56,96% de enfermeiros. Quanto ao trabalho, 55,66% possuíam carga horária de até 40 horas semanais, 47,90% tinham mais de um vínculo, 89,32% atuaram na linha de frente da pandemia e 60,19% apontaram aumento da carga de trabalho. Não obstante, 64,40% apresentaram sintomas ou foram diagnosticados com COVID-19 e 43,37% apontaram prejuízo emocional. Utilizando as classificações do escore geral da Escala do Impacto do Evento - Revisada, 29,53,40% atingiram pontuação maior ou igual a 33, ponto de corte para o provável diagnóstico de Transtorno do Estresse Pós-Traumático.

Conclusão: foi evidenciado que mais da metade da amostra do estudo apresentou na escala Escala do Impacto do Evento - Revisada alto risco de desenvolver Transtorno do Estresse Pós-Traumático. Como fatores associados ao desenvolvimento do Transtorno de Estresse Pós-Traumático em profissionais de enfermagem durante a pandemia da COVID-19, estão o uso de medicamentos psicotrópicos, idade até 35 anos, mudança financeira e emocional.

DESCRITORES: Profissionais de Saúde. Transtornos de Estresse Pós-Traumáticos. Infecções por Coronavírus. Pandemias. Enfermagem. Saúde mental.

ANÁLISIS DEL TRASTORNO DE ESTRÉS POST-TRAUMÁTICO EN PROFESIONALES DE ENFERMERÍA DURANTE LA PANDEMIA DE COVID-19

RESUMEN

Objetivo: analizar la prevalencia del Trastorno de Estrés Post-Traumático y los factores asociados al desarrollo de dicho trastorno en profesionales de Enfermería durante la pandemia de COVID-19.

Método: estudio observacional, analítico y transversal, realizado con 309 profesionales de Enfermería por medio de un cuestionario para evaluar datos sociodemográficos y diversa información sobre el trabajo, además de la Escala de Impacto del Evento – Revisada, que tiene como objetivo recolectar diversa información relacionada con la sintomatología del Trastorno de Estrés Post-Traumático.

Resultados: el estudio contó con la participación de 176 enfermeros y 133 técnicos de Enfermería: 83,82% del sexo femenino y 56,96% de enfermeros. En cuanto al trabajo, el 55,66% poseían una carga horaria de hasta 40 horas semanales, el 47,90% tenían más de un vínculo laboral, el 89,32% trabajaba en la primera línea de lucha contra la pandemia y el 60,19% señaló un aumento en la carga de trabajo. No obstante, el 64,40% presentó síntomas o fueron diagnosticados con COVID-19 y el 43,37% indicó perjuicios emocionales. Utilizando las clasificaciones de la puntuación general de la escala Escala de Impacto del Evento – Revisada, 29 (53,40%) obtuvieron un puntaje de al menos 33, punto de corte para el probable diagnóstico de Trastorno de Estrés Post-Traumático.

Conclusión: se hizo evidente que, en la escala Escala de Impacto del Evento – Revisada, más de la mitad de la muestra del estudio presentó alto riesgo de desarrollar el Trastorno de Estrés Post-Traumático. Como factores asociados al desarrollo del Trastorno de Estrés Post-Traumático en profesionales de Enfermería durante la pandemia de COVID-19 figuran los siguientes: uso de medicamentos psicotrópicos, edad de hasta 35 años, y cambios en estado financiero y emocional.

DESCRIPTORES: Profesionales de la Salud. Trastornos de Estrés Post-Traumáticos. Infecciones por Coronavirus. Pandemias. Enfermería. Salud mental.

INTRODUCTION

The changes that took place at work throughout time exerted an important impact on people's lives. Therefore, there was a change in the morbidity profile of work-related health diseases, resulting in occupational accidents and diseases, such as repetitive strain injuries and mental illness. Concern is increasing towards work-related mental disorders (WRMDs), which are a consequence of the work process¹.

Post-Traumatic Stress Disorder (PTSD) results from exposure to one or more traumatic events, which can be related to threats to one's own life or that of close people, serious accidents, violence, or witnessing of such situations².

This disorder is characterized by intrusive memories, avoidance of stimuli associated with the traumatic event, and autonomic hyperstimulation, with presence of tachycardia, sweating and dysphoria².

A 61% to 80% rate of chances for traumatic events to occur in people's lives is estimated; however, after the trauma, approximately 5% to 10% of the population develops PTSD³.

COVID-19 can exert deleterious effects on mental health, with the possibility of resulting in an increase in the stress levels, exhaustion and insomnia. Health care professionals are subjected to higher psychological distress, as they are active in the front line against the pandemic⁴. In addition to that, the challenges imposed by this scenario intensify stressful factors, such as lack of Personal Protective Equipment (PPE), shortage of beds and mechanical ventilators, lack of knowledge and training, and level of patients' complexity and severity, among other factors⁵.

A number of studies point out that, during the pandemic, psychological distress was significantly higher in Nursing professionals, especially among nurses. COVID-19 has become a risk factor for increased stress, depression and anxiety levels in health care professionals active in the front line against this disease. In this sense, the increase in PTSD is evidenced in them⁶.

Regarding this, during the SARS-CoV-2 pandemic, this disorder presented high rates among health professionals. Those who had a perception of higher risk related to COVID-19 reported more severe PTSD symptoms⁶.

It is worth noting that the varied emotional responses observed in health care professionals during the pandemic are directly related to individual and collective coping mechanisms, which change their way of acting, with anxiety as one of the main symptoms⁷.

Given the above, the following research question was formulated: which is the estimated prevalence to develop PTSD among Nursing professionals during the COVID-19 pandemic?

Therefore, the objective of this study is to analyze the prevalence of Post-Traumatic Stress Disorder (PTSD) and the factors associated with its development in Nursing professionals during the COVID-19 pandemic.

METHOD

This is an observational, analytical and cross-sectional study conducted according to the guidelines set forth in the *Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE) checklist⁸.

The study population comprised nurses and nursing technicians working in the health network from the municipality of Natal, state of Rio Grande do Norte, Brazil, during the COVID-19 pandemic, at the three health care levels. These professionals worked with a shift regime in the morning, afternoon and night periods.

The sample of this study was comprised by 309 professionals: 176 nurses and 133 nursing technicians. It is noted that no sample size calculation was performed due to absence of the number

of professionals registered in the Regional Nursing Council (*Conselho Regional de Enfermagem, COREN*) stratified by area of performance; however, the council was not allowed to provide data from the registered professionals due to the Personal Data Protection Law, which made it difficult to perform sample size calculation and to achieve a larger sample. The professionals were recruited via *Instagram* and *WhatsApp* for five months, from December 21st, 2020, to April 29th, 2021.

The research included Nursing professionals in the city of Natal who performed their work activities during the COVID-19 pandemic, whether active in the front line or not, in the public and private service. The forms belonging to the Nursing assistants category were excluded.

Two instruments were used for data collection: the first one, designed by the authors, included personal data, work characteristics, lifestyle, occupational risks and problems in the participant's area of performance; the second instrument was the Impact Event Scale - Revised (IES-R), translated and validated to Portuguese with changes, a Likert scale that aims at collecting diverse information related to PTSD symptoms. After applying the questionnaire, the total IES-R score was obtained, based on the sum of the score for each question and ranging from 0 to 88; values from 24 to 32 points indicate low risk or partial PTSD, and scores of 33 points or above are the cutoff point for likely diagnosis or high risk of PTSD⁹.

Noteworthy, the Impact Event Scale - Revised is an instrument that showed discriminant validity and diagnosis usefulness for screening PTSD; thus, it can be used in any stage of development of PTSD symptoms⁹.

The database was created in EXCEL format, version 2017, and the R free statistical software, version 4.2.0, was used to create descriptive tables and apply statistical tests.

For the qualitative variables, a descriptive analysis was performed through distribution of absolute and relative (%) frequencies. Meanwhile, for the quantitative variables, descriptive statistics of central tendency and dispersion measures were analyzed, such as minimum, maximum, mean, standard deviation and interquartile range. In order to verify data reliability, Cronbach's alpha was applied, where data consistency is classified as satisfactory for values above 0.80.

When comparing the sociodemographic profile to the IES-R dimensions, the *t* and Chi-Square statistical tests were applied. Subsequently, a logistic regression analysis was conducted with the objective of fitting a final model, where the statistically significant variables were analyzed. The significance level adopted for all the statistical tests applied was 5%.

This study was approved by the Research Ethics Committee (of *Universidade Federal do Rio Grande do Norte, via Plataforma Brasil*, following the norms set forth in Resolution No. 466/2012 of the National Health Council. The participants signed the Free and Informed Consent Form (FICF).

RESULTS

The study included 309 Nursing professionals, and it was not possible to perform sample size calculation, especially due to difficulty accessing the number of professionals registered in the Regional Nursing Council (COREN) during the pandemic.

In relation to the sociodemographic data, 83.82% of the professionals are female and aged up to 35 years old (55.02%). Regarding the categories, 56.96% were nurses and 88.35% had worked for more than six months. As for the hour load, 55.66% asserted working up to 40 weekly hours 47.90% had more than one employment contract. In addition to that, 41.75% reported practicing some physical activity and 31.39% had comorbidities, with the following standing out: obesity (34.02%), arterial hypertension (24.74%) and dyslipidemia (22.68%).

It is noted that 89.32% of the professionals were active in the front line against COVID-19. Regarding the work routine during the pandemic, 60.19% mentioned an increase in the number of activities. 91.91% also reported working with suspected COVID-19 patients and 85.76% stated having

worked with diagnosed patients. In addition to that, 69.40% presented COVID-19 symptoms or were diagnosed with the disease (Table 1).

Regarding the classification of the overall IES-R score, 53.40% obtained scores of at least 33 points, representing a likely PTSD diagnosis (Table 2).

Table 1 – Aspects related to the COVID-19 pandemic according to the Nursing professionals. Natal, RN, Brasil, 2021. (n=309)

Characterization		Absolute frequency	%
Performance in the front line against COVID-19	No	33	10.68
	Yes	276	89.32
Performance sector in the front line against COVID-19	ICU	108	39.13
	Ward	64	23.19
	Urgency	40	14.49
	ER	21	7.61
	Basic Care	19	6.88
	SAMU	8	2.90
	Not reported	16	5.80
You remained in social isolation during most of this pandemic	No	73	23.62
	Yes	236	76.38
Work routine during the pandemic	It increased	186	60.19
	It remained unchanged	105	33.98
	It was reduced	6	1.94
	It was interrupted	12	3.89
In your work environment, you feel somehow more exposed to the Coronavirus than the general population	No	23	7.44
	Yes	286	92.56
You work or have worked in direct contact with suspected COVID-19 patients	No	25	8.09
	Yes	284	91.91
You work or have worked in direct contact with patients with a confirmed COVID-19 diagnosis	No	44	14.24
	Yes	265	85.76
You presented COVID-19 symptoms or were diagnosed with the disease	No	110	35.60
	Yes, I presented symptoms	76	24.60
	Yes, I was diagnosed with the disease	123	39.80
The Coronavirus damaged you economically	No	175	56.63
	Yes	134	43.37
The pandemic affected you in some way	No	12	3.88
	Yes	297	96.12
Way in which the pandemic affected you	Emotionally	264	88.89
	More human	105	35.35
	Financially	67	22.56
Total		309	100.00

Table 2 – Classification of the Impact of Event Scale - Revised. Natal(RN), Brazil, 2021. (n=309)

Answer	Absolute frequency	%	
IES-R* classification	<23	90	29.12
	24 – 32	54	17.48
	≥33	165	53.40
	Total	309	100.00

*IES-R: Impact of Event Scale – Revised.

The Chi-square test (χ^2) revealed a statistical association between the classification of the total IES-R score with the following variables: age, use of psychotropic drugs, presenting COVID-19 symptoms or being diagnosed with the disease, economic damages, occurrence of some type of change due to the pandemic, emotional change, financial change, and becoming more human.

The likelihood of professionals aged up to 35 years old obtaining an IES-R score above 33 points is 2.25 times higher than that of those over 35 years of age. In turn, the chance of those who did not use psychotropic drugs presenting an IES-R score above 33 points is 75% lower, when compared to that of the professionals who used medication (Table 3).

The professionals who did not undergo any type of emotional change due to the pandemic had a 27% lower chance of obtaining an IES-R score above 33 points when compared to those who underwent this type of change.

Added to the above, the chance of the professionals who did not undergo any type of financial change due to the pandemic presenting an IES-R score above 33 points is 56% lower than that of those who underwent this type of change (Table 4).

Table 5 addressed the logistic regression by the Stepwise method, for a 5% significance level. There was statistical evidence of an association between stress and age group, use of psychotropic drugs, presenting COVID-19 symptoms or being diagnosed with the disease, financial damages due to COVID-19 pandemic, occurrence of emotional changes due to the pandemic, and becoming more human during the pandemic, as shown below.

DISCUSSION

The study points out that the health care professionals who provide care to patients with confirmed or suspected COVID-19 do not receive attention from health authorities concerning identification and follow-up of these groups at high risk for developing emotional and psychiatric problems⁹. Nurses and nursing technicians especially, despite being used to face critical situations, were directly active in the front line during the pandemic, which often exerted negative effects on their mental health¹⁰.

The Nursing team played a major role during the COVID-19 outbreak; thus, managing this team of professionals is important to optimize work and prevent the development of diseases. Therefore, a study conducted with 377 professionals at a hospital from Madrid in 2020, of which 65% were nurses and 28.2% were nursing technicians, showed that nurses have the highest risk of developing mental health-related disorders, such as PTSD¹⁰.

From this perspective, a study found a higher prevalence of PTSD among nurses aged over 29 years old and associated the disorder with longer working time, with higher rates among the professionals who developed COVID-19 symptoms¹¹. However, a difference was observed with regard to the performance locus, evidencing higher prevalence of PTSD among nurses working in the isolation units for patients diagnosed with COVID-19, followed by those working in the ward and in the ICU¹¹.

Table 3 – Classification of the total score of the Impact of Event Scale - Revised according to the characteristics of the professionals' sociodemographic, labor and health data. Natal (RN), Brazil, 2021. (n=309)

Characterization	IES-R*		Total	p-value†	Prevalence Ratio [95% CI]‡	
	≥33	<33				
Gender	Female	55.60% (n=144)	44.40% (n=115)	100.00% (n=259)	0.078	1.73 [0.94; 3.19]
	Male	42.00% (n=21)	58.00% (n=29)	100.00% (n=50)		
Age group	≤35 years old	62.35% (n=106)	37.65% (n=64)	100.00% (n=170)	<0.001	2.25 [1.42; 3.55]
	>35 years old	42.45% (n=59)	57.55% (n=80)	100.00% (n=139)		
Marital status	Single	57.49% (n=96)	42.51% (n=71)	100.00% (n=167)	0.118	1.43 [0.91; 2.24]
	Married	48.59% (n=69)	51.41% (n=73)	100.00% (n=142)		
Position held	Nurse	52.27% (n=92)	47.73% (n=84)	100.00% (n=176)	0.648	0.90 [0.57; 1.41]
	Nursing technician	54.89% (n=73)	45.11% (n=60)	100.00% (n=133)		
Hour load	≤40 weekly hours	51.74% (n=89)	48.26% (n=83)	100.00% (n=172)	0.514	0.86 [0.55; 1.35]
	>40 weekly hours	55.47% (n=76)	44.53% (n=61)	100.00% (n=137)		
Time working in the institution	≤6 months	52.78% (n=19)	47.22% (n=17)	100.00% (n=36)	0.937	0.97 [0.48; 1.95]
	>6 months	53.48% (n=146)	46.52% (n=127)	100.00% (n=273)		
More than one contract	No	51.55% (n=83)	48.45% (n=78)	100.00% (n=161)	0.498	0.86 [0.55; 1.34]
	Yes	55.41% (n=82)	44.59% (n=66)	100.00% (n=148)		
Having a health plan	No	58.00% (n=58)	42.00% (n=42)	100.00% (n=100)	0.262	1.32 [0.81; 2.13]
	Yes	51.20% (n=107)	48.80% (n=102)	100.00% (n=209)		
Practicing physical activity	No	57.22% (n=103)	42.78% (n=77)	100.00% (n=180)	0.111	1.45 [0.92; 2.28]
	Yes	48.06% (n=62)	51.94% (n=67)	100.00% (n=129)		
Comorbidity	No	50.47% (n=107)	49.53% (n=105)	100.00% (n=212)	0.127	0.68 [0.42; 1.11]
	Yes	59.79% (n=58)	40.21% (n=39)	100.00% (n=97)	<0.001	0.25 [0.11; 0.53]
Using some psychotropic medication (anxiolytics, antidepressants and antipsychotics)	No	49.06% (n=130)	50.94% (n=135)	100.00% (n=265)		
	Yes	79.55% (n=35)	20.45% (n=9)	100.00% (n=44)	0.549	0.80 [0.39; 1.65]
Active in the front line	No	48.48% (n=16)	51.52% (n=17)	100.00% (n=33)		
	Yes	53.99% (n=149)	46.01% (n=127)	100.00% (n=276)	0.780	—
Performance sector in the front line	Basic Care	57.89% (n=11)	42.11% (n=8)	100.00% (n=19)		
	Ward	62.50% (n=40)	37.50% (n=24)	100.00% (n=64)		
	SAMU	50.00% (n=4)	50.00% (n=4)	100.00% (n=8)		
	ER	57.14% (n=12)	42.86% (n=9)	100.00% (n=21)		
Urgency		50.00% (n=20)	50.00% (n=20)	100.00% (n=40)		
	ICU	51.85% (n=56)	48.15% (n=52)	100.00% (n=108)		

*IES-R: Impact of Event Scale – Revised; †Student's T test; ‡Chi-Square test

Table 4 – Classification of the total score of the Impact of Event Scale - Revised according to the characteristics related to the COVID-19 pandemic. Natal, RN, Brazil, 2021. (n=309)

Characterization	IES-R*		Total	p-value†	Prevalence Ratio [95% CI]‡	
	≥33	<33				
You remained in social isolation during most of this pandemic	No	45.21% (n=33)	54.79% (n=40)	100.00% (n=73)	0.108	0.65 [0.38; 1.10]
	Yes	55.93% (n=132)	44.07% (n=104)	100.00% (n=236)		
In your work environment, you feel somehow more exposed to the Coronavirus than the general population	No	52.17% (n=12)	47.83% (n=11)	100.00% (n=23)	0.903	0.95 [0.40; 2.22]
	Yes	53.50% (n=153)	46.50% (n=133)	100.00% (n=286)		
You work or have worked in direct contact with suspected COVID-19 patients	No	52.00% (n=13)	48.00% (n=12)	100.00% (n=25)	0.884	0.94 [0.41; 2.13]
	Yes	53.52% (n=152)	46.48% (n=132)	100.00% (n=284)		
You work or have worked in direct contact with patients with a confirmed COVID-19 diagnosis	No	40.91% (n=18)	59.09% (n=26)	100.00% (n=44)	0.073	0.56 [0.29; 1.06]
	Yes	55.47% (n=147)	44.53% (n=118)	100.00% (n=265)		
You presented COVID-19 symptoms or were diagnosed with the disease	No	45.45% (n=5)	54.55% (n=60)	100.00% (n=110)	0.037	0.61 [0.38; 0.97]
	Yes	57.79% (n=115)	42.21% (n=84)	100.00% (n=199)		
The Coronavirus damaged you economically	No	44.00% (n=77)	56.00% (n=98)	100.00% (n=175)	<0.001	0.41 [0.26; 0.65]
	Yes	65.67% (n=88)	34.33% (n=46)	100.00% (n=134)		
You underwent some type of change due to the pandemic	No	8.33% (n=1)	91.67% (n=11)	100.00% (n=12)	<0.001	0.07 [0.09; 0.58]
	Yes	55.22% (n=164)	44.78% (n=133)	100.00% (n=297)		
Emotional change	No	35.56% (n=16)	64.44% (n=29)	100.00% (n=45)	0.009	0.73 [0.22; 0.82]
	Yes	56.44% (n=149)	43.56% (n=115)	100.00% (n=264)		
You became more human	No	48.04% (n=98)	51.96% (n=106)	100.00% (n=204)	0.008	0.52 [0.32; 0.85]
	Yes	63.81% (n=67)	36.19% (n=38)	100.00% (n=105)		
Financial change	No	49.17% (n=119)	50.83% (n=123)	100.00% (n=242)	0.005	0.44 [0.25; 0.78]
	Yes	68.66% (n=46)	31.34% (n=21)	100.00% (n=67)		

*IES-R: Impact of Event Scale – Revised; †Student's T test; ‡Chi-Square test.

Table 5 – Final logistic regression model - Stepwise method. Natal, RN, Brazil, 2021. (n=309)

Variables	β^*	S.E.†	Wald statistic‡	DoF§	p-value	Exp (β)¶	95% CI**	
							L.L.††	U.L.‡‡
Age group (up to 35 years old)	0.763	0.253	9.077	1	0.003	2.145	1.306	3.525
Using some psychotropic medication (anxiolytics, antidepressants and antipsychotics) (Yes)	1.209	0.421	8.261	1	0.004	3.349	1.469	7.638
Presented some COVID-19 symptom or was diagnosed with the disease (Yes)	0.534	0.261	4.190	1	0.041	1.706	1.023	2.845
The Coronavirus damaged you economically (Yes)	0.832	0.255	10.660	1	0.001	2.299	1.395	3.790
Emotional change (Yes)	0.799	0.370	4.663	1	0.031	2.224	1.077	4.594
Became more human (Yes)	0.717	0.273	6.900	1	0.009	2.049	1.200	3.500
Constant	-2.044	0.439	21.697	1	<0.001	0.129		

* β : Regression coefficient; †S.E: Standard Error; ‡Wald statistic: Hypothesis test; §DoF: Degree of Freedom; ||p-value: Student's t; ¶Exp (β): Beta exponential; **CI: Confidence Interval; ††L.L.: Lower Limit; ‡‡U.L.: Upper Limit.

It is noted that, during the pandemic, there was an increase in workload among more experienced professionals. In this sense, they assumed the task of training and supervising less experienced workers, in view of the complexity of care and the high demand for health services imposed by COVID-19, which conferred greater stress and vulnerability to mental illness¹².

With regard to the marital status of the nurses who worked in the COVID-19 context, a research study conducted in China with 3,149 professionals reported that 73.4% of them were married and that COVID-19 can cause disorders such as PTSD due to anguish resulting from social isolation and uncertainty concerning a disease that may affect the professionals' family members¹³.

In addition, it is noted that women obtained higher IES-R scores, which is consistent with the literature, where it is evidenced that female nurses exposed to traumatic events are more likely to develop PTSD when compared to their male counterparts¹⁴.

A study conducted by Faria et al. (2021) found that the prevalence of PTSD ranged from 38% to 55% and observed the following risk factors for increased stress, in general: being female, being young, and having few years of study¹⁵.

Another important finding of the study that is in line with the literature is the association between development of PTSD and presence of comorbidities. Noteworthy, a study conducted in Ethiopia with 736 health care professionals observed a 4.65-fold higher chance of developing PTSD in professionals with some comorbidity. In addition to that, this study found a higher propensity to PTSD in those with poor social support¹⁶.

With regard to increased exposure to the coronavirus, these professionals showed feelings of fear and tension and concerns due to prolonged time of service since, in addition to increased risk for professionals' self-contamination, it can also cause transmission of the virus to their family members¹⁷. Added to this, these feelings experienced by Nursing professionals are directly related to high mortality rates, repeated exposure to traumatic events, unpredictable course of the virus, and lack of effective treatment guidelines¹⁸.

According to an article published in a University Hospital from Croatia, in 2020, 22.2% of the nurses diagnosed with COVID-19 developed PTSD. This shows that the physical illness experienced by these professionals is completely correlated with the onset of psychological disorders, thus being consistent with the results obtained in this study¹⁹.

The Urgency department exposes health care professionals to higher chemical and physical risks, requiring responsibility and agility, as it is a department that treats seriously-ill patients. These professionals deal continuously with the imminent risk of death, where complexity of care, combined with personal factors, leads to stress²⁰. A study developed in Taiwan with professionals who worked in a hospital Emergency department showed 21.4% prevalence for likely diagnosis of PTSD²¹.

This research found a high risk for development of PTSD in the professionals who reported having become more human during the pandemic. A study conducted with 175 nurses during the COVID-19 pandemic showed corresponding data, when associating PTSD to compassion fatigue, a form of exhaustion among professionals who provide health care²².

The chance of the professionals who did not use psychotropic drugs to obtain an IES-R score above 33 points is 75% lower than that of those who used this type of medication. Similarly, a study conducted in Madrid confirmed that the professionals who used psychotropic drugs had an up to six-fold higher chance of developing PTSD¹⁰.

A study points out that some Nursing professionals who perceived risks for their health eventually quit their job. However, those who continued to work during the pandemic experienced increased workload and were more prone to develop PTSD²³.

As the main study limitation, it is worth highlighting the fact that the data were collected online due to the safety measures imposed by the pandemic, in order to prevent the researcher's exposure

to SARS-CoV-2, which increased the risk of bias. In addition, there was no sample size calculation, as the number of professionals registered in the Regional Nursing Council (COREN) was not available in a stratified way by area of performance in the city of Natal. It is noted that, due to the Personal Data Protection Law, the council was not allowed to provide data from the registered professionals, which made it difficult to perform sample size calculation and to achieve a larger sample. In addition, the study was conducted during the COVID-19 pandemic.

CONCLUSION

The study showed that more than a half of the Nursing professionals obtained an IES-R score compatible with likely diagnosis of PTSD, and that another percentage of the sample obtained scores compatible with partial PTSD. In addition, factors such as age up to 35 years old, use of psychotropic drugs and financial and emotional changes are associated with increased IES-R scores, which reveals an increased risk for developing PTSD. Therefore, it can be inferred that the COVID-19 pandemic has exerted a negative impact on the life and health of Nursing professionals, affecting their mental health.

It was evidenced that 89.32% of the professionals participating in this research were active in the front line against COVID-19 and that more than 60% reported an increase in their work activities in the health service, which exerted a direct impact on increased stress, with most of the sample presenting symptoms of the disease or being diagnosed with it.

There was no difference in the impact caused by the COVID-19 pandemic among the professionals who were active in the front line against the disease and those who were not. Therefore, it was evidenced that the pandemic exerted an impact on Nursing professionals in general. Other studies are required, in other regions and including other professional categories, in order to explain the impact caused by the COVID-19 pandemic and to develop strategies to face these consequences.

REFERENCES

1. Cordeiro TMSCE, Mattos AIS, Cardoso M de CB, Santos KOB, Araújo TM. Reporting of work-related mental disorders among workers in Bahia: a descriptive study, 2007-2012. *Epidemiol Serv Saude* [Internet]. 2016 [cited 2021 Dec 24];25(2):363–72. Available from: <https://doi.org/10.5123/S1679-49742016000200015>
2. Nascimento JCP, Costa TMS, Sarmento SDG, Santos KVG, Dantas JKS, Queiroz CG, et al. Analysis of post-traumatic stress disorder in emergency professionals. *Acta Paul Enferm* [Internet]. 2022 [cited 2022 May 16];35:eAPE03232. Available from: <http://doi.org/10.37689/acta-ape/2022AO03232>
3. Fouad HA, Alanazey M, Amer M, Alruwaili K, Farhan A, Alanazi M, et al. Post-traumatic Stress Disorder Following COVID-19 Pandemic: A Review. *J Pharm Res Int* [Internet]. 2021 [cited 2022 May 13];33(56B):37-42. Available from: <https://doi.org/10.9734/JPRI/2021/v33i56B33929>
4. Chen C, Tang S. Profiles of grief, post-traumatic stress, and post-traumatic growth among people bereaved due to COVID-19. *Eur J Psychotraumatol* [Internet]. 2021 [cited 2022 May 16];12(1):1947563. Available from: <https://doi.org/10.1080/20008198.2021.1947563>
5. Souza IMJ de, Oliveira LG dos R, Cavalcante K de O, Fernandes DCA, Barbosa E da S, França AHR, et al. Impact on the health of nursing professionals at the forefront of the covid-19 pandemic. *Braz J Heal Rev* [Internet]. 2021 [cited 2022 May 05];4(2):6631–9. Available from: <https://doi.org/10.34119/bjhrv4n2-214>
6. Ouyang H, Geng S, Zhou Y, Wang J, Zhan J, Shang Z, et al. The increase of PTSD in front-line health care workers during the COVID-19 pandemic and the mediating role of risk perception: a one-year follow-up study. *Transl Psychiatry* [Internet]. 2022 [cited 2022 May 05];12(1):180. Available from: <https://doi.org/10.1038/s41398-022-01953-7>

7. Faria MGA, França KCFG, Guedes FC, Soares MS, Gallasch CH, Vasconcelos LV. Repercussions for mental health of nursing professionals who are in the face of The Covid-19: integrative review. *Rev Enferm UFSM* [Internet]. 2021 [cited 2022 May 15];11:e70. Available from: <https://doi.org/10.5902/2179769264313>
8. Cuschieri S. The STROBE guidelines. *Saudi J Anaesth* [Internet]. 2019 [cited 2021 Dec 20];13(5):S31–4. Available from: https://doi.org/10.4103/sja.sja_543_18
9. Caiuby AVS, Lacerda SS, Quintana MI, Torii TS, Andreoli SB. Cross-cultural adaptation of the Brazilian version of the Impact of Events Scale-Revised (IES-R). *Cad Saúde Pública*. [Internet]. 2012 [cited 2022 Oct 25];28(3):597-603. Available from: <https://doi.org/10.1590/S0102-311X2012000300019>
10. Blanco-Daza M, Vieja-Soriano M, Macip-Belmonte S, Tercero-Cano MDC. Posttraumatic stress disorder in nursing staff during the COVID-19 pandemic. *Enferm Clin* [Internet]. 2022 [cited 2022 May 18];32(2):92-102. Available from: <https://doi.org/10.1016/j.enfcle.2021.10.006>
11. Moon D, Han MA, Park J, Ryu SY. Post-traumatic Stress and Related Factors Among Hospital Nurses during the COVID-19 Outbreak in Korea. *Psychiatr Q* [Internet]. 2021 [cited 2022 May 16];92(4):1381-91. Available from: <https://doi.org/10.1007/s1126-021-09915-w>
12. Tavares JP, Cócáro MG, Olinó L, Vieira LS, Magnago TSBS, Dantas Filho FF, et al. Psychological changes in nursing professionals belonging to the risk group for complications of covid-19. *Texto Contexto Enferm* [Internet]. 2022 [cited 2022 Jun 28];31:e20220449. Available from: <https://doi.org/10.1590/1980-265X-TCE-2021-0449pt>
13. Jiang H, Huang N, Tian W, Shi S, Yang G, Pu H. Factors Associated With Post-traumatic Stress Disorder Among Nurses During COVID-19. *Front Psychol* [Internet]. 2022 [cited 2022 May 17];13:745158. Available from: <https://doi.org/10.3389/fpsyg.2022.745158>
14. Wang Y, Guo H, Du X, Song W, Lu C, Hao W. Factors associated with post-traumatic stress disorder of nurses exposed to coronavirus disease 2019 in China. *Medicine* [Internet]. 2020 [cited 2022 May 20];99(26):e20965. Available from: <https://doi.org/10.1097/MD.00000000000020965>
15. Faria MGA, França KCFG, Guedes FC, Soares MS, Gallasch CH, Alves LVV. Repercussões para saúde mental de profissionais de enfermagem atuantes no enfrentamento Covid-19: revisão integrativa 19: revisão integrativa 19: revisão integrativa. *Rev Enferm UFSM* [Internet]. 2021 [cited 25 Oct 2022];11(70):1-17. Available from: <https://doi.org/10.5902/2179769264313>
16. Asnakew S, Legas G, Liyeh TM, Belete A, Haile K, Yitbarek GY, et al. Prevalence of post-traumatic stress disorder on health professionals in the era of COVID-19 pandemic, Northwest Ethiopia, 2020: A multi-centered cross-sectional study. *PLoS One* [Internet]. 2021 [cited 2022 May 26];16(9):e0255340. Available from: <https://doi.org/10.1371/journal.pone.0255340>
17. Eleres FB, Abreu RNDC, Magalhães FJ, Rolim KMC, Cestari VRF, Moreira TMM. Coronavirus infection has reached Brazil, what now? Nurses' emotions. *Rev Bras Enferm* [Internet]. 2021 [cited 2022 May 25];74(Suppl 1):e20201154. Available from: <https://doi.org/10.1590/0034-7167-2020-1154>
18. Cockerham M, Beier ME, Branson S, Boss L. Nurse adaptability and post-traumatic stress disorder symptoms during the covid-19 pandemic: the effects of family and perceived organizational support. *Front Psychol* [Internet]. 2022 [cited 2022 May 20];12:749763. Available from: <https://doi.org/10.3389/fpsyg.2021.749763>
19. Dolic M, Anticevic V, Dolic K, Pogorelic Z. Difference in pandemic-related experiences and factors associated with sickness absence among nurses working in COVID-19 and non-COVID-19 Departments. *Int J Environ Res Public Health* [Internet]. 2022 [cited 2022 May 26];19(3):1093. Available from: <https://doi.org/10.3390/ijerph19031093>

20. Preto VA, Pedrão LJ. Stress among professional nurses working in intensive care units. *Rev Esc Enferm USP* [Internet]. 2009 [cited 2022 May 12];43(4):841-8. Available from: <https://doi.org/10.1590/s0080-62342009000400015>
21. Carmassi C, Gesi C, Corsi M, Cremone IM, Bertelloni CA, Massimetti E, et al. Exploring PTSD in emergency operators of a major University Hospital in Italy: A preliminary report on the role of gender, age, and education. *Ann Gen Psychiatry* [Internet]. 2018 [cited 2022 May 23];17:17. Available from: <https://doi.org/10.1186/s12991-018-0184-4>
22. Hockwarter W, Jordan S, Kiewitz C, Liborius P, Lampaki A, Franczak J, et al. Losing compassion for patients? The implications of COVID-19 on compassion fatigue and event-related post-traumatic stress disorder in nurses. *J Manag Psychol* [Internet] 2022 [cited 2022 May 24];37(3):206-23. Available from: <https://doi.org/10.1108/JMP-01-2021-0037>
23. Kabunga A, Okalo P. Frontline Nurses' Post-Traumatic Stress Disorder and Associated Predictive Factors During the Second Wave of COVID-19 in Central, Uganda. *Neuropsychiatr Dis Treat* [Internet]. 2021 [cited 2022 May 25];17:3627-33. Available from: <https://doi.org/10.2147/NDT.S340771>

NOTES

ORIGIN OF THE ARTICLE

Article extracted from the - Post-Traumatic Stress Disorder in Nursing professionals during the COVID-19 pandemic, presented at the Graduate Program in health Sciences of *Universidade Federal de Sergipe*, in 2021.

CONTRIBUTION OF AUTHORITY

Study design: Almeida TF.

Data collection: Almeida TF.

Data analysis and interpretation: Almeida TF, Silva SO, Duarte FHS, Queiroz CG, Araújo PLO.

Discussion of the results: Almeida TF, Silva SO, Duarte FHS, Queiroz CG, Araújo PLO.

Writing and/or critical review of the content: Dantas DV, Dantas RAN, Nunes PS.

Review and final approval of the final version: Dantas DV, Dantas RAN, Nunes PS.

ACKNOWLEDGMENT

I dedicate this paper to all the lives lost and/or affected by COVID-19 and to the health professionals that courageously fought to save them.

APPROVAL OF RESEARCH ETHICS COMMITTEE IN RESEARCH

Approved by the Ethics Committee in Research of the *Universidade Federal do Rio Grande do Norte* under Opinion No.4,432,227 and Certificate of Presentation for Ethical Appraisal No. 39194120.1.0000.5537.

CONFLICT OF INTEREST

There is no conflict of interest.

EDITORS

Associated Editors: Jaime Alonso Caravaca-Morera, Monica Motta Lino.

Editor-in-chief: Elisiane Lorenzini.

HISTORICAL

Received: June 29, 2022.

Approved: November 03, 2022.

CORRESPONDING AUTHOR

Rodrigo Assis Neves Dantas

rodrigoenf@yahoo.com.br