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Stress Level in Health Professionals Involved in the Management of Patients with COVID-19

Lopes CCC[1]*, Dias TG[2], de Oliveira AP[3], Lopes EB[4], Lopes LC[5], Barros VS[4], Zanatta L[4], dos Santos D[4], Lemos M[6], Nardi G[7], da Costa MM[8], Bealuka LV[9], Vaz ADF[9], Silva PS[10], Borges LSS[4], Naomi A[4], Pitanga FH[4], Vanuzzi FK[11], Dala Costa LB[4] and Ammar YE[12]

[1]University of the Region of Joinville, Joinville, SC, Brazil

[2]USP School of Arts, Sciences and Humanities, São Paulo, Brazil

[3]Universityof São Paulo, São Paulo, Brazil

[4]Alto Vale University of Rio do Peixe, Caçador - SC, Brazil

[5]Federal University of Santa Catarina, Florianópolis – SC, Brazil

[6]Contestado University, Concordia – SC, Brazil

[7]Faculty of Applied Social Sciences, Xaxim– SC, Brazil

[8]Lutheran Educational Association, Faculty IELUSC - Joinville – SC, Brazil

[9]Unisul – Tubarão - SC, Brazil

[10]UniSociesc - Joinville, Brazil

[11]Federal University of Rio de Janeiro, Rio de Janeiro, Brazil

[12]University of the South of Santa Catarina/Tubarão, Brazil

Abstract

Stress comes from the English word "Stress" which originates from the Italian word "stringere" and has the meaning of distressing, tightening. It has been used to describe a threatening situation on the organism, debilitating it and depleting its life energy reserve. Stress is a reaction of the body with psychological, physical, mental, behavioral and hormonal components, which occurs to adapt to an event or situation of intense distress. Coronaviruses are a large family of viruses that cause illnesses ranging from the common cold to more serious illnesses such as Middle Eastern Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). In December 2019 the China Centers for Disease Control and Prevention described a new coronavirus called SARS-CoV-2 and announced a first stage of an outbreak, which can lead to a mild to severe acute respiratory syndrome, which has been called by the World Health Organization as COVID-19. The aim of this study will be to verify the level of stress in health professionals involved in the management of patients with COVID-19. This study is characterized as descriptive, with a cross-sectional design and a quantitative approach. The sample consists of 178 health professionals (doctors, nurses, physiotherapists, nursing technicians and X-ray technicians) from all regions of Brazil, who answered two questionnaires: The first questionnaire that included the sample and the second is the Maslach Burnout Inventory questionnaire. The aim of this study will be to verify the level of stress in health professionals involved in the management of patients with COVID-19. This study is characterized as descriptive, with a cross-sectional design and a quantitative approach. The sample consists of 178 health professionals (doctors, nurses, physiotherapists, nursing technicians and X-ray technicians) from all regions of Brazil, who answered two questionnaires: The first questionnaire that included the sample and the second is the Maslach Burnout Inventory questionnaire. The aim of this study will be to verify the level of stress in health professionals involved in the management of patients with COVID-19. This study is characterized as descriptive, with a cross sectional design and a quantitative approach. The sample consists of 178 health professionals (doctors, nurses, physiotherapists, nursing technicians and X-ray technicians) from all regions of Brazil, who answered two questionnaires: the first questionnaire that included the sample and the second is the Maslach Burnout Inventory questionnaire.

Keywords: Stress; Health Professionals; COVID-19; Coronavirus

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Correspondence:
Cristianne Confessor Castilho Lopes, University of the Region of Joinville - Joinville – SC – Brazil, E-mail: cristiannelopes3@gmail.com

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Introduction

Stress comes from the English word "Stress" which originates from the Italian word "stringere" and has the meaning of distressing, tightening [1]. It has been used to describe a threatening situation on the organism, debilitating it and depleting its life energy reserve [2]. Stress is a reaction of the body with psychological, physical, mental, behavioral and hormonal components, which occurs to adapt to an event or situation of intense distress [3].

As stated Silva et al. [4], over the last thirty years, stress in the work environment is perceived as something that threatens individuals, rather than enabling the growth and transformation of citizens.

Brotto and Dalbello-Araujo [5] concluded that health professionals have lowered their ability to produce, performing activities with less accuracy, increasing their absence from work, getting sick frequently, working stressed and tired. Furthermore, many have anxiety, anger and depression, with a low level of attention, lack of motivation and low personal fulfillment due to the high level of stress in their work.

Zanelli [6] demonstrated that among the stressful agents in the work environment, the following stand out: The high demands of the effective conditions of production or provision of quality services; time pressure; reduced worker participation in the organization's decisions; long working hours; little professional recognition; difficulties in raising their positions; excessive bureaucracy, among others.

In Brazil, according to Decree No. 3048, of May 06th, 1994, which deals with pathogens of professional or occupational diseases, Burnout Syndrome is classified as work-related mental and behavior disorders (group V of the ICD-10, code Z73.0), manifesting itself as the feeling of being exhausted and appearing as a synonym for Professional Burnout Syndrome [7].

The Ministry of Health in Brazil points to the prevalence of the syndrome, especially in field service professionals or caregivers when in direct contact with users, such as doctors, nurses, social workers, teachers, police officers, correctional agents, among others. Every professional in direct contact with clients is susceptible to stress at work. Therefore, there is an urgent need for health professionals to have sufficient knowledge and to be able to distinguish and deal with work related illnesses such as Burnout. This is inextricably linked to maintaining the health of workers in their own working environment [7].

Currently, the physical and emotional burden during care for hospitalized patients is often neglected by health professionals. It is not worthy that the hospital environment is seen as unhealthy and stressful. It is in this work environment that the health team is often exposed to various factors that compromise their physical and mental health, such as dealing with pain, suffering and death, also through the system of continuous shifts or work in uninterrupted shifts relay and provision of services 24 h a day, seven days a week [8].

Coronaviruses are a large family of viruses that cause illnesses ranging from the common cold to more serious illnesses such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) (World Health Organization, 2020). In December 2019 the China Centers for Disease Control and Prevention described a new coronavirus called SARS-CoV-2 and announced a first stage of an outbreak, which can lead to a mild to severe acute respiratory syndrome, which it has called by the World Health Organization as COVID-19 [9,10].

COVID-19 has proven to be a highly transmissible virus and health professionals, especially those who deal with suspected or infected patients, must be rigorously protected with personal protective equipment and the great importance of hand hygiene [11].

All the transmission mechanisms of COVID-19 are not yet known, which makes social prevention measures and measures among health professionals difficult to be implemented. Health professionals cannot isolate them at home or practice strict interpersonal distancing and are at the forefront in treating and guiding the exposed or infected population. Health professionals are being very affected by this virus, and there are already reports of thousands of professionals infected due to COVID-19.

Within this context, this study aimed to verify the level of stress in health professionals involved in the management of patients with COVID-19. To respond to the general objective of this study, the following specific objectives were presented:

1. Assess the stress level of health professionals involved in the management of COVID-19;

2. Know the profile of health professionals involved in the management of COVID-19.

This study aimed to verify in what way(s) the pandemic caused by SARS-CoV-2 and the uncertainties related to this pathology affect health professionals and their quality of life psychologically. Knowledge of these conditions can be used to develop strategies to promote health and quality of life, to avoid future health problems.

Materials and Methods

This study is characterized as descriptive, with a quantitative method and supported by a literature review.

Data were collected through an online questionnaire developed at Google docs. The recruitment of professionals participating in the research was carried out through the researchers' Facebook® and Instagram® social networks. The disclosure took place in the period from July to September 2020.

The questionnaire consists of multiple-choice questions covering the general characteristics of the sample and the assessment of the level of stress. The level of stress was assessed using the Burnout Syndrome questionnaire.

For its development, all ethical principles of research involving

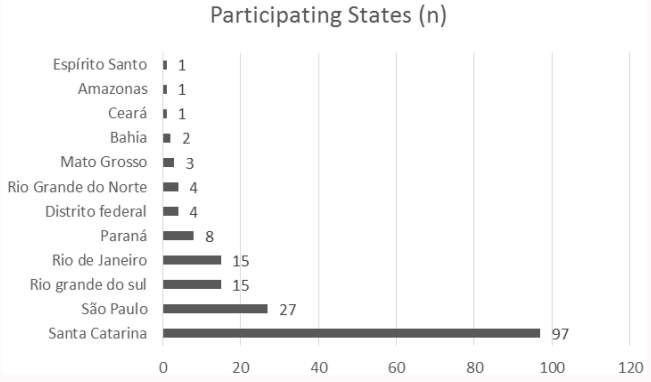

Figure 1: The researched group consisted of 178 health professionals distributed in Brazilian states.

Table 1: Association between sociodemographic characteristics and worse levels in the dimensions of Burnout Syndrome in health professionals involved in the management of patients with COVID-19.

		Exhaustion		Depersonalization		Low achievement professional	
	Total	N(%)	RP(CI(%5)	N(%)	RP(CI(%5)	N(%)	RP(CI(%5)
Total	178	83 (46.37%)		98 (54.75%)		144 (80.5%)	
sex							
masculine	62	19 (30.7%)	1	35 (56.5%)	1	53 (85.5%)	1
feminine	116	64 (55.2%)	1.80* (1.19-2.71)	63 (54.3%)	0.96 (0.73-1.27)	90 (77.6%)	0.91* (0.79-1.05)
age							
between 20 to 30 years old	34	16 (47.1%)	1	20 (58.8%)	1	31 (91.2%)	1
between 30 to 40 years old	71	43 (60.6%)	1.29 (0.86-1.93)	47 (66.2%)	1.13 (0.81-1.56)	60 (84.5%)	0.93 (0.80-1.07)
between 40 and 50 years old	41	17 (41.5%)	0.88 (0.53-1.47)	17 (41.5%)	0.70* (0.45-1.12)	29 (70.7%)	0.77* (0.62-0.97)
over 50 years old	30	7 (21.9%)	0.46* (0.22-0.98)	14 (43.8%)	0.74 (0.46-1.21)	23 (71.9%)	0.79* (0.62-1.00)
marital status							
No partner	66	35 (53.0%)	1	40 (60.6%)	1	53 (80.3%)	1
With partner	112	48 (42.9%)	0.81* (0.59-1.10)	58 (51.8%)	0.86 (0.66-1.11)	90 (80.4%)	1.00 (0.87-1.16)

human beings were complied with, in accordance with the Resolution of the National Health Council No. 466 of December 12th, 2012, having been approved by the Univille ethics committee under number 4,100,327. Participants agreed to the informed consent form before starting to answer the questionnaire.

The researched group consisted of 178 health professionals distributed in Brazilian states. 01 from Amazonas, 1 from Ceará, 01 from Espírito Santo, 02 from Bahia, 03 from Mato Grosso, 04 from the Federal District, 04 from Rio Grande do Norte, 08 from Paraná, 15 from Rio Grande de Sul, 15 from Rio de Janeiro , 27 from São Paulo and 97 from Santa Catarina, which are represented in Figure 1.

The percentage of the group of professionals surveyed in the Brazilian states was distributed as follows: 52.7% in Santa Catarina, 14.7% in São Paulo, 9.8% in Rio de Janeiro, 8.2% in Rio Grande do Sul, 4.9% in Paraná, 2.7% in Rio Grande do Norte, 2.2% in the Federal District, 1.6% in MatoGrosso, 1.1% in Bahia, 1.1% in Espírito Santo, 0.5% in Ceará and 0.5% in Amazonas, which are represented in Figure 2.

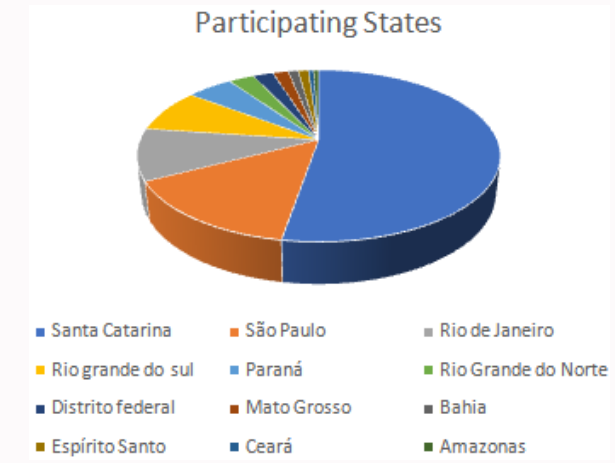

Figure 2: The percentage of the group of professionals surveyed in the Brazilian states.

Results and Discussion

The pandemic in question demanded even more from health professionals, especially physicians, nursing technicians and nurses, as they are the professionals with the greatest interaction with patients. This characteristic is an intrinsic and important factor in the perception of Burnout in all its dimensions (emotional exhaustion, depersonalization and professional fulfillment) [12].

In 1974, Herbert Freudenberger used the expression "staff burn-out" for the first time. It is currently considered a disease with the International Code of Diseases (ICD) under code 11, (ICD11). Its symptoms or perceptions are a feeling of physical and emotional exhaustion, perception of changes in personality traits with decreased empathy and impression of incompetence and impotence, all these feelings related to work activities [13].

Burnout can present physical symptoms such as a perception of a lot of tiredness, insomnia, respiratory problems and problems in the gastrointestinal system, sexual problems, muscle pain, decreased immune defenses, changes in the menstrual cycle and cardiovascular problems [14].

Furthermore, the perception of Burnout is related to a personal perception, which can be different, depending on the personnel management and organizational climate of each health unit, whether it is a hospital, a basic or specialized health unit. This finding could be observed in the results obtained in nursing technicians, nursing assistants and nurses in four hospitals in the city of Porto Alegre. The first one was private and not referenced for the treatment of patients with COVID-19; the second one, also private but referenced for the treatment of patients with COVID-19 and affiliated to the SUS; the third one was public and not referenced to the care of COVID-19 and the last one was public referenced to the care of patients with COVID-19. In this study, it was observed that the worst scores for emotional exhaustion [15].

As shown in Table 1, we could observe the behavior of the various variables studied and use the prevalence ratio calculation, inferring a protection factor or a risk for a given outcome.

The sample consisted of 178 health professionals, 116 women, representing 65.2%.

The study showed that female individuals had an 80% higher risk for emotional exhaustion and 9% protection for low professional

Table 2: Association between work characteristics and worst levels in the dimensions of Burnout Syndrome in health professionals involved in the management of patients with COVID-19.

		Exhaustion		Depersonalization		Low achievement professional	
	Total	N (%)	RP(CI(%5)	N(%)	RP(CI(%5)	N(%)	RP(CI(%5)
Profession							
doctor	65	26 (40%)	1	38 (58.5%)	1	57 (87.7%)	1
nurse	66	38 (57.8%	1.44*(1.00-2.07)	39 (59.1%)	1.01 (0.76-1.35)	54 (81.8%)	0.93 (0.81-1.08)
nursing technician	30	10 (33.3%)	0.83 (0.46-1.50)	14 (46.7%)	0.80 (0.52-1.23)	18 (60%)	0.68* (0.50-0.93)
others	17	9 (52.4%)	1.32 (0.77-2.27)	7 (41.2%)	0.70 (0.38-1.29)	14 (83.4%)	0.94 (0.74-1.19)
Work hours							
<= 40 hours	61	29 (39.7%)	1	40 (54.8%)	1	59 (80.8%)	1
> 40 hours	105	54 (51.4%)	1.29* (0.92-1.82)	58 (55.2%)	1.00 (0.77-1.32)	84 (80%)	0.99 (0.85-1.15)
workplace							
hospital	135	64 (47.4%)	1	70 (51.9%)	1	104 (77.0%)	1
others	43	19 (44.2%)	0.93 (0.64-1.36)	28 (65.1%)	1.25* (0.95-1.65)	39 (90.7%)	1.18* (1.03-1.34)
Working time							
< 1 year	39	22 (56.4%)	1	23(59.0%)	1	38 (97.4%)	1
1 to 5 years	53	26 (4.1%)	0.87 (0.59-1.28)	33 (62.3%)	1.05 (0.75-1.48)	42 (79.4%)	0.81* (0.70-0.94)
5 to 10 years	38	20(52.6%)	0.93 (0.62-1.40)	20 (52.6%)	0.89 (0.60-1.33)	31 (81.6%)	0.84* (0.71-0.98)
>10 years	48	15(31.3%)	0.55* (0.33-0.92)	22 (45.8%)	0.78 (0.52-1.17)	32 (66.7%)	0.68* (0.56-0.84)

Table 3: Regression of Poisson of factors associated with worse levels in the dimensions of the Syndrome burnout in health professionals involved in the management of patients with COVID-19.

Variable	IRR	P	95% CI
Emotional exhaustion			
Feminine gender	1.7	*0.013	(1.12-2.59)
Age - 30 to 40 years old	1.26	0.34	(0.79-2.01)
Age – 40 to 50 years old	1	0.998	(0.54-1.85)
Age 50 years or more	0.55	0.149	(0.24-1.24)
Working time - 1 to 5 years	0.86	0.46	(0.58-1.28)
Time of Work 5 to 10 years	0.85	0.453	(0.55-1.31)
Working time >10 years	0.74	0.3	(0.42-1.31)
Profession -Nurse	1.08	0.704	(0.74-1.57)
Profession 2- Nursing technician	0.74	0.32	(0.49-1.35)
Profession 3 - others	1.08	0.803	(0.59-1.99)
working hours >40 hours	1.31	0.119	(0.93-1.84)
Civil State-with companion	0.88	0.432	(0.65-1.20)
depersonalization			
Workplace - Others	1.27	0.073	(0.98-1.65)
Age - Between 30 and 40 years old	1.17	0.34	(0.85-1.62)
Age - Between 40 and 50 years old	0.73	0.168	(0.46-1.150
Age - Over 50 years old	0.77	0.294	90.47-1.26)
Professional achievement			
Working time - 1 to 5 years	0.85	*0.028	(0.74-0.98)
Working time - 5 to 10 years	0.88	0.22	(0.72-1.08)
Working time - 10 years or more	0.78	*0.037	(0.62-0.98)
Workplace - Others	1.12	0.09	(0.98-1.28)
Profession - Nurse	0.96	0.666	(0.82-1.13)
Profession - Nursing Technician	0.74	*0.040	(0.56-0.99)
Profession - Others	0.98	0.883	(0.76-1.27)
Age - Between 30 and 40 years old	1	0.975	(0.83-1.20(
Age - Between 40 and 50 years old	0.91	0.484	(0.70-1.18)
Age - Over 50 years old	0.89	0.454	(0.66-1.20)
Feminine gender	0.94	0.376	(0.81-1.08)

recognition.

When analyzing the age of the sample, we found that individuals aged between 40 and 50 years had a protective effect for depersonalization in 30% and 23% for low professional achievement. Being 50 years old or more represented protection from emotional exhaustion and low professional fulfillment. Having a steady partner had a 19% protective effect for emotional exhaustion.

In studies carried out by Andrade et al. [13], Campos Junior et al. [14], Vieira et al. [15] and Magalhães et al. [16] on Burnout analysis in health professionals working on the front lines in the care of patients with COVID-19, demonstrated that the samples were similar in gender, study locations, marital status and working time.

In Table 2, it can be seen that the study sample is composed of several health professionals, with the highest prevalence for nurses (37.10%) and physicians (36.50%). 59% of these professionals work 40 h or more weekly. 75.84% work in hospitals, and 29.8% work from 1 to 5 years and 27% for more than 10 years.

When analyzing the different professions, we observed different outcomes. Among them, we observed that being a nurse represented a 44% higher risk for emotional exhaustion (44%); on the other hand, being a nursing technician represented a protection factor of 32% for low professional fulfillment.

Regarding the workload, we found that working 40 h or more per week increases the risk of emotional exhaustion by 29%. Working in basic health units showed an increase of 18% for low professional fulfillment in relation to professionals in the hospital area.

Professionals who have been working for 10 years or more demonstrated an association with a 45% protection factor for emotional exhaustion, 1 to 5 years represented a 19% protection, from 5 to 10 a 16% protection.

To verify the association between the studied variables and all burnout dimensions, a Poisson logistic regression was performed with data that obtained a significance of P<0.20, as shown in Table 3.

The study demonstrated that female gender was associated with a 70% higher risk for emotional exhaustion. On the other hand, working from 1 to 5 years was a protection factor in 15% and working 10 years or more in 22% for low professional achievement. Working as a nursing technician represented a 26% protective factor for low professional achievement.

A limitation of our work is the collection of data through a questionnaire, as it depends on the participants' answers, which may be influenced by their memory. Another limitation is that our study verifies the perception of health professionals working on the front line, caring for patients with COVID-19 regarding the three dimensions of Burnout (emotional exhaustion, depersonalization and professional fulfillment), however, it did not assess the reasons for their perception, since they are different in each health unit evaluated, therefore, further studies must be carried out in order to discover the reasons that trigger such perceptions, thus seeking a better working environment for health professionals on the front line.

Conclusion

At the end of our study, we were able to conclude that health professionals who work on the front line treating patients with COVID-19 are at greater risk of having Burnout in its different dimensions (emotional exhaustion, depersonalization and low professional fulfillment).

In this sense, we could verify that the individuals with the greatest risk for emotional exhaustion are female professionals. Individuals who presented protective factors for the dimension of low professional achievement, we can highlight individuals with 1 to 5 years and 10 years of work or more and nursing technicians.

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