Original Article

Mental health, contamination prevention and risk perception of health professionals in the state of São Paulo during the COVID-19 pandemic

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ABSTRACT

Objective: to assess mental health, the adoption of contamination prevention and the risk perception of hospital workers in São Paulo state, during the COVID-19 pandemic. **Methods**: cross-sectional study including health workers from 15 state hospitals who responded to an online questionnaire. For the assessment of mental health, the General Health Questionnaire (QSG-12) was applied. QSG-12 generated a scale ranging from 0 to 12 (worst situation). Scores above the median values were considered indicative of psychological distress. A multivariate logistic regression identified factors associated with psychological distress. **Results**: The study included 627 workers, mostly female, aged 40-59 years, white; 45% of the sample scored above the median of GHQ-12, which was 6.3. A greater chance of psychological distress was identified among women; physicians; those who responded that the hospital did not provide good quality Individual Protection Equipment; those who felt they had little control over becoming infected; those who were afraid of not surviving the disease; those whose families were afraid of becoming infected through them. **Conclusion**: distress distress in this sample was expressive, and it is possible to act on some associated factors to minimize the problem.

KEYWORDS: COVID-19; mental health, health personnel.

RESUMO

Objetivo: avaliar a saúde mental, a adoção de medidas de prevenção de contágio e a percepção de risco de profissionais de saúde que atuavam em hospitais no estado de São Paulo, durante a pandemia de COVID-19, no período de 20 de julho a 25 de agosto de 2020. **Métodos:** estudo transversal com amostra de profissionais de 15 hospitais do estado que responderam a um formulário on-line. Para a avaliação da saúde mental, foi aplicado o Questionário de Saúde Geral (QSG-12), que gerou uma escala, variando de 0 a 12 (pior situação). Os resultados acima da mediana foram considerados indicativos de sofrimento psíquico. Utilizou-se modelo de regressão logística multivariada para a identificação de fatores associados ao sofrimento psíquico. **Resultados:** Participaram do estudo 627 profissionais, a maioria do sexo feminino, entre 40-59 anos, de cor branca; 45% estavam acima da mediana do QSG-12, que foi 6,3. Identificou-se maior chance de sofrimento psíquico entre mulheres; médicos; aqueles que responderam que o hospital não fornecia Equipamentos de Proteção Individual (EPIs) de boa qualidade; os que sentiam ter pouco controle sobre se infectar; os que tinham medo de não sobreviver à doença; aqueles cujas famílias tinham medo de se infectar através deles. **Conclusão:** O percentual de sofrimento psíquico na amostra foi expressivo, sendo possível atuar sobre alguns fatores associados para minimizar o problema.

PALAVRAS-CHAVE: COVID-19, Saúde mental, Profissional de Saúde.

INTRODUCTION

The SARS-CoV-2 pandemic, with the first cases reported in Wuhan, China, in late December 2019, spread rapidly to other countries and, on 30 January 2020, was declared a Public Health Emergency of International Importance by the Health Organization (WHO).[1]

By March 2022, Brazil had accumulated 29,809,769 confirmed cases of COVID-19 and 658,855 deaths,[2] placing it as one of the countries with the worst pandemic scenario. In the same period, the state of São Paulo registered 5,221,236 reported cases and 167,046 deaths from COVID-19, corresponding to approximately ¼ of the country's deaths.

Healthcare professionals are one of the main groups vulnerable to the risk of contamination by COVID-19 because they are directly exposed to infected patients and therefore have contact with high viral loads.[3]

Recent evidence suggests that isolation measures used to contain epidemics generate restrictions on social interaction and impose changes in population routines, leading to increased negative psychological outcomes. In Brazil, a national survey conducted during the COVID-19 crisis identified high prevalences of depression (61.3%), anxiety (44.2%) and stress (50.8%).[4]

However, despite the known data in the general population, studies on the mental health situation and causal factors in specific groups, such as health professionals, are still scarce during the pandemic caused by the new coronavirus.[5]

Regarding the mental health of these professionals, factors such as high workload, stress, pressure from the large number of severe cases, few hours of sleep, inadequate infrastructure, unavailability of personal protective equipment (PPE) in sufficient quantity, the risk of being infected and of transmitting to family members and other people may have contributed to increased anxiety in these periods.[5-7]

In this context, it is important to conduct studies that evaluate the mental health of professionals in this group in order to support the development of strategies that aim to promote quality of life and mental health during the COVID-19 pandemic.[5,8,9] The present study aims to evaluate the mental health, the adoption of contamination prevention measures and the risk perception of health professionals who worked in hospitals in the state of São Paulo during the COVID-19 pandemic.

METHODS

The data were obtained from the study entitled "Avaliação longitudinal da prevenção de contágio, percepção de risco e saúde mental dos profissionais de saúde do estado de São Paulo durante a pandemia de COVID-19", carried out with the objective of evaluating the mental health, the adoption of measures to prevent infection, and the risk perception of health professionals (doctors, nurses, technicians and nursing assistants) working in hospitals that were part of the care network dedicated to the confrontation of COVID-19 of the Brazilian Unified Health System (SUS) in São Paulo, during the first wave of the pandemic. The study aimed to provide information for the state management of the SUS in order to support the adoption of protective measures aimed at health professionals. Data collection took place between July 20 and August 25, 2020. It should be emphasised that, in this article, the data was analysed at a single point in time, configuring it as a transversal approach study.

Twenty-five hospitals were randomly selected among the 76 hospitals in the state of São Paulo with the interest characteristics, distributed in three strata: capital city (9 hospitals), metropolitan region of São Paulo except for the city of São Paulo (5 hospitals), and nonmetropolitan region (11 hospitals). In the 15 hospitals that agreed to participate in the survey, an online questionnaire was sent to all professionals who were working with the care of COVID-19 patients, configuring the sample as convenience. The survey team sent the form link by email and text messaging app, based on the list of 4900 professionals and their contacts provided by the hospital leaders. In three hospital units, the professionals received the questionnaire directly from the Management, in a total of 2100. Therefore, a total of 7000 professionals working in hospitals in São Paulo were invited.

The questionnaire contained the following information about the characterization of the professionals: profession, gender, age, race/color, education, marital status, religion (if any, which, importance), cohabitation; and about the work circumstances: care to COVID-19 patients, working hours, work breaks.

For knowing the opinion of professionals on measures to prevent contagion and their risk perception, statements were presented for which the answers could be: disagree; strongly disagree; neither agree nor disagree; agree and strongly agree. In this study, the first three statements were grouped in the "disagree" category and the last two in the "agree" category. The statements were:

– Contagion prevention measures: I have received sufficient training on contagion protection measures at work; I have received sufficient guidance on how to use Personal Protective Equipment (PPE) and how to dispose of it; I have good access to running water, sink, soap, disinfectants/gel alcohol for hands; the disinfectant supply is easily available for employees to decontaminate all surfaces; the hospital provides an adequate amount of PPE for all staff members; the hospital provides good

quality PPE for all staff members; the use of PPE and other protective measures at work are important to prevent me from becoming contaminated.

– Risk perception: I believe my job does put me at great risk; I feel very stressed at work; I am afraid of getting sick with COVID-19; I feel I have little control over whether I will get infected or not; I think I would hardly survive if I had COVID-19; I think about resigning because of the COVID-19 pandemic; I am afraid of transmitting coronavirus to other people; my family and friends are worried about getting infected through me; people avoid my family because of my work; because I want to help patients with COVID-19, I am willing to accept the risks.

In order to evaluate the workers' mental health, the General Health Questionnaire (GHQ-12) was applied, a twelve-item instrument validated for the Brazilian population, used to evaluate psychological well-being in occupational studies[10] and in health services[11] to identify potential cases of non-extreme psychological suffering in the general non-clinical population.[12] The instrument has the advantage of being self-applicable and does not depend on subjective judgements for its interpretation.[12] It can be used with different cut-off points to consider patients positive for screening, depending on the context in which the instrument is applied.13 Based on the responses to the QSG-12, a scale was constructed, ranging from 0 (indicating the best situation) to 12 (indicating the worst situation). The results referring to the QSG-12 scale were grouped into two categories, each encompassing half of the professionals surveyed: those with higher and those with lower values on the scale. It was considered as psychic suffering the case of professionals who presented a value above the median.

The data were analysed by means of absolute and relative frequency distribution. The analysis of the factors associated with psychological distress was carried out by means of logistic regression, considering the variable "psychological distress" (yes/no) as the outcome. The exposure variables were those related to the characteristics of the professionals, work circumstances, contagion prevention measures and risk perception, besides the region of the state and type of hospital management.

The existence of an association between the exposure variables and the variable "psychological distress" was verified by means of the chi-square test. Those for which the test presented a p-value less than 0.20 were included in the multiple logistic regression analysis and those for which the p-value was less than 0.05 remained in the final model. The model adopted in the regression was the forward stepwise model and the software used was IBM-SPSS, version 23.0.[14] The anonymized database, as well as the commands used for the evaluation are available upon request.

The project was approved by the National Research Ethics Council, under CAEE 30920720.4.0000.5469.

RESULTS

A total of 627 health professionals participated in the study, distributed among the 15 randomly selected hospitals that agreed to participate. There was a balance between the number of hospitals located in the nonmetropolitan region and in the capital/metropolitan region and a predominance of professionals in university hospitals (49%). The majority were female (77%), aged 40-59 years (50%), white (75%), with higher education (70%), married or cohabiting (61%). As for religiosity, 87% declared they had religion, with a predominance of Catholics. Only 14% of the professionals lived alone, 21% lived with people over 60 years old and 29% with people with chronic diseases, considered risk groups for COVID-19 (Table 1).

Table 1. Distribution of the sample of health professionals according to sociodemographic characteristics, religiosity, cohabitation, work, hospital where they work. São Paulo, 2020.

Variable themes	Variables	Categories	n*	%
Characteristics Sociodemographic	Gender	Male	140	23.3
		Female	461	76.7
	Age group	20-39	252	45.0
		40-59	281	50.2
		60+	27	4.8
	Race/colour	White	450	75.3
		Black/brown	137	22.9
		Yellow	11	1.8
	Education level	High School	183	30.4
		Undergraduate	419	69.6
	Marital status	Married or cohabiting	365	60.8
		Separated, divorced, widowed	87	14.5
		Single	148	24.7
Religion	Has religion	Yes	521	87.0
		No	78	13.0
	What religion	Catholic	256	42.7
		Evangelical/protestant	153	25.5
		Spiritist	86	14.4
		Umbanda/candomblé	16	2.7
		Others	10	1.7
		No religion/atheist	78	13.0
	Importance of religiosity/spirituality	Important	552	91.7
		No preference	32	5.3
		Not important	18	3.0

Cohabitation	Lives alone	No	520	86.4
		Yes	82	13.6
	Lives with child	No	368	61.5
		Yes	230	38.5
	Lives with a teenager	No	410	68.2
		Yes	191	31.8
	Lives with someone over 60	No	470	78.6
		Yes	128	21.4
	Living with someone who is physically dependent	No	563	93.7
		Yes	38	6.3
	Living with a chronically ill person	No	425	70.6
		Yes	177	29.4
Characteristics of work	Profession	Assistant nursing team:	36	6.0
		Nurse	132	21.9
		Doctor	216	35.9
		Nursing technician	218	36.2
	Works in COVID environment	No	85	14.1
		Yes	516	85.9
	Working Hours	Full time	352	59.0
		Partial	174	29.1
		12h duty/re-rotation	64	10.7
		Others	7	1.2
	Worked hours	Longest # of hours	173	28.9
		Lowest # of hours	53	8.8
		Same # of hours	373	62.3
	Breaks at work	Longest number of hours	44	7.3
		Lowest # of hours	266	44.3
		Same # of hours	291	48.4
Characteristics hospital	State region	Nonmetropolitan	279	49.6
		Capital	227	40.4
		Metropolitan Region of São Paulo	56	10.0
	Management Mode	Social Health Organization	141	25.1
		State owned	148	26.3
		University	273	48.6

*The observations referring to the alternatives “don’t know” and “did not answer” were excluded.

There was a predominance of nursing technicians (36%) and physicians (36%), followed by nurses (22%); 86% declared they directly attended patients with COVID-19 and 59% worked full time. The pandemic caused an increase in workload for 29% and a decrease in work breaks for 44% of professionals (Table 1).

Regarding the measures to prevent infection, 99% of the professionals agreed with the importance of using PPE, 82% had access to information on its proper use and 78% were trained for this use. Access to products for hand hygiene was reported by 95% and for surfaces, by 84% of the professionals. PPEs were available in adequate quantity (77%) and were of good quality (73%), according to the perception of the professionals (Table 2).

Table 2. Distribution of the health professionals sample according to access to contagion prevention measures and perception of risk of contamination by coronavirus. São Paulo, 2020.

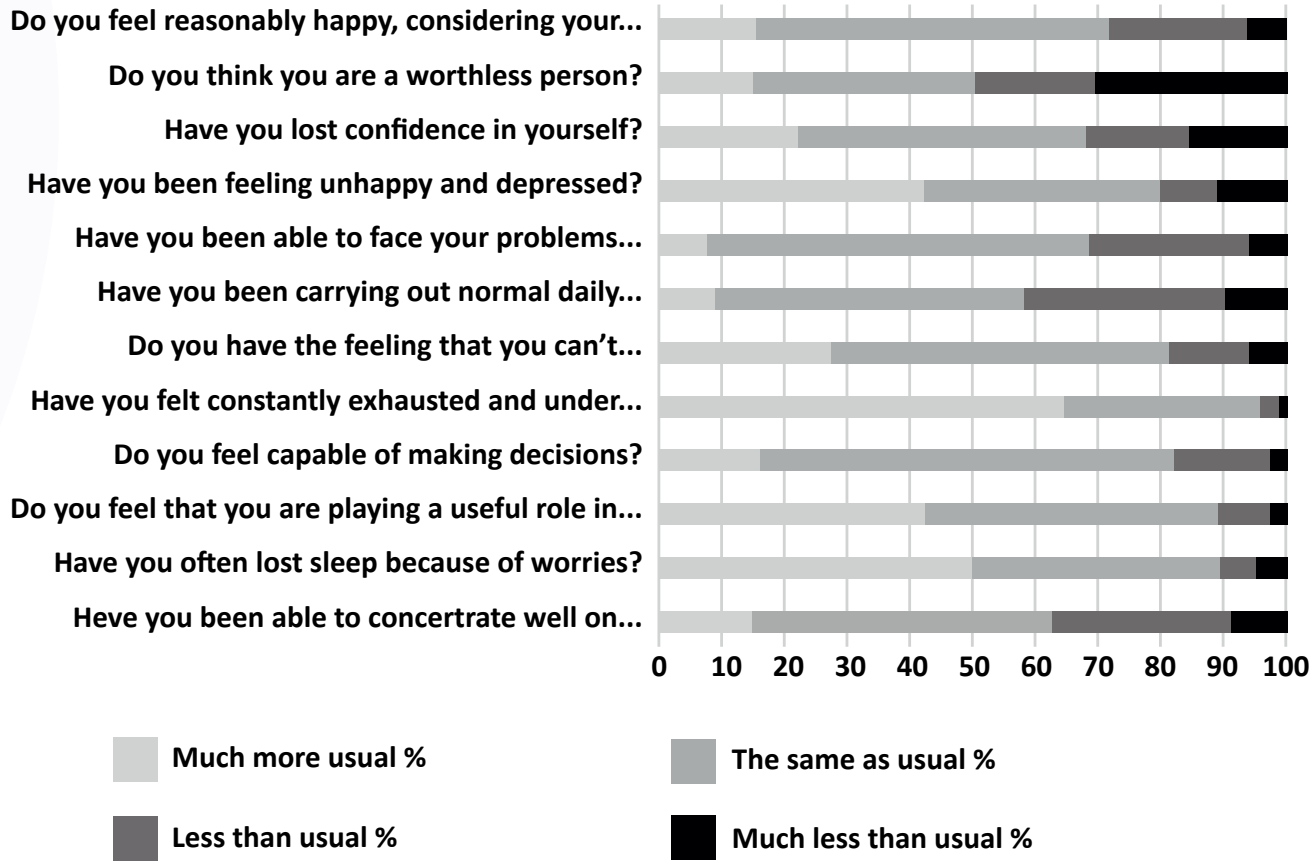
Prevention measures	I agree		I disagree	
I have received sufficient training on protective measures against contagion at work	472	78.5	129	21.5
I have received sufficient guidance on how to use PPE and how to dispose of it	495	82.5	105	17.5
I have good access to running water, sink, soap, hand sanitizers/gel alcohol	568	94.7	32	5.3
Sanitizer is easily available so that staff can decontaminate all surfaces	506	84.3	94	15.7
The hospital provides adequate PPE for all staff members, including support staff	460	76.7	140	23.3
The hospital provides good quality PPE for all staff members, including support staff	436	72.7	164	27.3
The use of PPE and other protective measures at work are important so that I do not get contaminated	593	98.8	7	1.2
Risk perception	**I agree**		**I disagree**	
I believe my work puts me at great risk	529	87.9	73	12.1
I feel very stressed at work	373	62.3	226	37.7
I am afraid of getting sick with COVID-19	434	72.6	164	27.4
I feel I have little control over whether I will be infected or not	314	52.2	287	47.8
I think I would hardly survive if I had COVID-19	68	11.3	533	88.7
I think about resigning because of the COVID-19 pandemic	53	8.8	549	91.2
I am afraid of transmitting coronavirus to other people	530	88	72	12
My family and friends are worried about getting infected through me	388	64.6	213	35.4
People avoid my family because of my work	229	38.2	371	61.8
Because I want to help patients with COVID-19, I am willing to accept the risks	383	63.9	216	36.1

*The observations referring to the alternatives “don’t know” and “did not answer” were excluded.

Regarding risk perception, 88% of the professionals considered that their work put them at high risk of getting sick from COVID-19, most were afraid of getting sick (73%), transmitting the disease to family members (88%) and 65% stated that family members were afraid of becoming infected through them. Just over half (52%) felt they had little control over becoming infected and 11% were afraid they would not survive the disease. It is noteworthy that less than 10% of the professionals stated their intention to resign from their jobs, despite the perception of exposure to the risk of contracting and spreading the disease (Table 2).

Figure 1 shows the professionals' responses to the questions on mental health. It is striking that half of the professionals responded that they had frequently lost sleep because of worry, about 65% responded that they had constantly felt exhausted and under pressure and 40% had felt unhappy or depressed more than usual. The mean score of the QSG-12 was 6.3 (SD = 2.82) and the median was 6. Interviewees with a QSG greater than or equal to 7 were considered likely to be experiencing psychological suffering at the time of the survey, which represents 45% of the sample.

Figure 1. Distribution of responses of health professionals to the QSG-12, São Paulo, 2020.



The final logistic regression model, adjusted for age, showed a higher chance of psychological distress among female health professionals; doctors, nurses and nursing assistants when compared to nursing technicians; those who responded that the hospital did not provide good quality PPE for all staff; those who felt they had little control over becoming infected; those who were afraid of not surviving the disease; and those whose families/friends were concerned about becoming infected through them. The variables "the hospital provides PPE in sufficient quantity" and "religion" were also included in the multivariate analysis because they presented $p < 0.20$, but did not show a statistically significant association with the outcome, and were removed from the final model (Table 3).

Table 3. Logistic regression of factors associated to psychological distress (SP) according to the QSG-12 in a sample of health professionals. São Paulo, 2020.

Variables	Categories	% at risk	Adjusted OR	IC (95%)
Age			0.98	0.96 - 1
Gender	Male	37.1	1	
	Female	47.3	1.8	1,12-2,90
Profession	Nursing technician	33.5	1	
	Nursing assistant	47.2	2.48	1,05-5,86
	Nurse	53	2.8	1,69-4,65
	Doctor	50.9	3.94	2,43-6,39
The hospital provides good quality PPE	I agree	37.8	1	
for all team members	I disagree	62.8	2.23	1,46-3,41
I feel I have little control over if	I disagree	32.4	1	
I will be infected or not	I agree	56.1	2.27	1.55-3.34
I think that hardly	I disagree	42.6	1	
would survive if I had COVID-19	I agree	63.2	2.01	1.10-3.65
My family and friends are worried	I disagree	30	1	
to get infected through me	I agree	53.1	2.22	1.49-3.31

DISCUSSION

It was identified that approximately half of the health professionals obtained scores on the QSG-12 scale indicating the possibility of being experiencing psychic distress during the COVID-19 pandemic, between July 20 and August 25, 2020. Significant associations were observed in relation to female health professionals and in the categories “physician”, “nurse” and “nursing assistant”. Associations were also observed, for cases of psychological distress, with negative responses to one of the prevention measures (failure to provide good quality PPE for the whole team) and with unfavourable perceptions of risk (having no control over being infected, not surviving if you had COVID-19 and family and friends worried about becoming infected through the professional).

The time of data collection for the present study covered a period of accelerated advance in the number of cases and deaths, especially in the nonmetropolitan region with gradual improvement of the pandemic control indicators and hospital capacity only at the end of the receipt of responses, in the second half of 2020. Therefore, we consider that the pandemic scenario of the study was of an initial period, of quite seriousness and a worrying situation regarding the preparation of health professionals to act in the front line of COVID-19.

The challenges presented for health workers in facing the global pandemic caused by SARS-Cov-2 were immense and, in fact, analyzing the literature of the first four months of 2020, knowing the number of professionals affected by the disease and safety at work, as well as the mental health of professionals were the most frequent topics in the investigations in relation to the contingent that worked in the care of patients with COVID-19.[15-22]

By 14 April 2020, according to each country, the number of infected health workers ranged from 1,716 to 17,306, and global data recorded up to 605 deaths among these workers.[15]

At the national level, from the appearance of the disease until the end of May 2020, there were 5,732 confirmed cases and 134 deaths of nursing professionals, and only the southeast region presented half of these occurrences[23] (Duprat and Melo, 2020).

In the state of São Paulo, the data on professionals assigned to the units of the São Paulo State Department of Health indicated that, as of 23 June 2020, 10,718 absences due to COVID-19 had been reported, 3,460 were being treated and 40 had died.[24]

A literature review on the safety of health professionals in the pandemic shows that the use of PPE is one of the essential measures to avoid contamination by the coronavirus during care of

patients suspected or confirmed of the disease and that the use of quality PPE can increase the sense of safety of those working in hospitals.[22]

At the national level, between September and October 2020, an online survey with a non-probability sample identified that less than half of the public health professionals (doctors, nursing professionals, community workers, among others) had received some type of training to work on the frontline of COVID-19.*25* Furthermore, the same study, in March 2021, indicated that less than half of the professionals responded that they had received PPE on a continuous basis during the period.[26] Considering these results, which identified a lack of PPE and training to perform on the frontline of COVID-19, one can imagine the immense challenges for these workers in our country.[27]

However, contrary to these investigations,[25-27] our study drew attention to the fact that the vast majority of professionals responded favourably to all aspects of preventive measures questioned. On the other hand, in line with other research,[20,28] those who responded that the hospital did not provide good quality PPE for all staff showed a greater chance of psychological distress.

Despite the relatively favourable environment regarding individual protection for frontline staff in the treatment of COVID-19, the large and continuous flow of suspected and confirmed cases of the disease has contributed to enormous pressure and feelings of high risk of infection for the health workers themselves and their families. In this regard, this study pointed out a preponderance of unfavourable expressions in relation to risk perception.

This aspect is noteworthy and unanimous in all studies on emerging pandemic situations: addressing the mental health of workers related to a strong perception of great risk of becoming ill because of work and fear of getting sick or transmitting the disease to family members,[3,16,20,21,26,28-31] as well as reduced control over becoming infected.[30] These studies corroborate the results of the present study, which indicated a greater chance of psychological distress among professionals who responded that they felt they had little control over becoming infected, among those who were afraid of not surviving the disease, and among those whose families/friends were concerned about becoming infected through them.

These findings confirm that, in a pandemic context, the perception of high risk of infection and inadequate protection to avoid contamination can affect the mental health of professionals who perform their activities in direct contact with patients diagnosed with the disease.[3] One more aggravating factor can be added to this exacerbated perception of risk and insufficient PPE, at least in the initial moment of the pandemic: the condition of ignorance of both the forms of contamination and the real risks of the virus and the severity of the consequences of the disease.

In this study, based on the QSG-12, the proportion of professionals considered likely to be experiencing psychological distress at the time of the survey was comparable to investigations undertaken, notably, in China, which identified moderate to severe stress, depression and anxiety in 59%, 12.7% to 50.4% and 20.1% to 44.6% of health professionals, respectively.[18]

Similarly, about half of the health workers who voluntarily requested a COVID-19 testing centre in the city of Rio de Janeiro presented some degree of depression, anxiety and stress.[32]

Investigations in pandemic situations prior to COVID-19 showed an estimated rate of psychiatric morbidity in health workers three times higher than that of the general population[33] and twice as high as in patients admitted for general health screening.[34] The high rate of illness among health workers is related to the daily environment of exposure to biological, physical and psychological factors,[35] which can intensify in pandemic contexts.

However, it is worth noting other results of our study, such as the low percentage of professionals who stated their intention to resign from their work and the considerable number who responded that they were willing to accept risks for wanting to help patients with COVID-19. These findings show auspicious aspects of the professionals, indicating commitment and professionalism that can configure the positive properties of the personality and behaviors of the subjects reported by Seligman, in 2004, cited by Maia and Guimarães Neto,[36] when dealing with the resilience of health professionals facing COVID-19. A review article on the topic showed a negative correlation between resilience and stress/anxiety and the influence of organisational resilience for the safety of professionals and patients, as well as reduced adaptability in inexperienced and young professionals. Conceptually, resilience is not purely an individual characteristic or trait, but has a procedural character that, under certain conditions and experiences at work, may or may not favour the development of this peculiarity.[36]

Furthermore, the results of our study showed that among female health professionals, as well as among professionals in the categories “doctor”, “nurse” and “ assistant nurse”, there is an increased chance of the onset of psychological distress, which coincides with other findings.[19,20,37,38]

Thus, it was observed that the high prevalences of psychological distress among health professionals in direct contact with infected patients can be explained by the great impact of a life-threatening bio-disaster for these particular professionals. However, there are variations that can be modulated depending on whether institutions emphasise more or less some health protection factors, aiming at workers’ well-being.[35]

We also highlight that this sample was collected by convenience, through voluntary answers to the questionnaire, and the motivations for participating in the study are not known. Either those who

were in psychic distress and sensitive to the topic responded more or, on the contrary, those who were not in such a mental state and were more available and exempt to respond. For these reasons, it cannot be assumed that there was a single meaning to the answers given; just as the results exposed here cannot be generalised to all the workers of the public hospital services in the state of São Paulo. However, they may contribute to the implementation of psychological support measures for this group in the face of a long-lasting epidemic. It is worth noting that the promotion of the mental health of health professionals can be done with the provision of everything from individual psychotherapy to an insertion of integrative and complementary practices in the workplace, which are known to play an important role in both body and mind.[39]

In this sense, the individualised results of the application of the QSG-12 were sent to the professionals considered to be potentially suffering from psychological distress, with the indication of seeking specialised care. Individualised reports were also sent to all hospitals involved in the research with recommendations. Furthermore, the results were presented in meetings promoted by the Coordenadoria de Recursos Humanos (Coordination of Human Resources) from Secretary of State for Health of São Paulo, favouring the formulation of actions and strategies aimed at the mental health of health professionals.

It should be noted that in a less alarming epidemiological context of COVID-19 and of quite favourable vaccination coverage as the current one, the results could be different from those reported. However, in circumstances where the global flows of pandemics have been relatively constant, learning from previous waves is essential to leverage mental health benefits, particularly for health professionals, and to provide for coping with this type of situation.

REFERENCES

1. World Health Organization. WHO statement on the second meeting of the international health-regulations (2005) emergency committee regarding the outbreak of novel coronavirus (2019-ncov). [internet]. [cited on: Mar. 26, 2022]. Available: https://www.who.int/news/item/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov).

2. Johns Hopkins University of Medicine. Coronavirus Resource Center [internet]. [cited on: Mar. 26, 2022]. Available: https://coronavirus.jhu.edu/region/brazil.

3. Teixeira CFS, Soares CM, Souza EA, Lisboa ES, Pinto ICM, Andrade LR, Espiridião MA. A saúde dos profissionais de saúde no enfrentamento da pandemia de Covid-19. Cienc Saude Colet [internet]. 2020; 25 (9): 3465-3474 [access on: Jun. 10, 2022]. Available: https://doi.org/10.1590/1413-81232020259.19562020

4. Campos JADB, Martins BG, Campos LA, Marôco J, Saadiq RA, Ruano R. Early psychological impact of the COVID-19 pandemic in Brazil: a national survey. J Clin Med. 2020;9(9):2976. [cited on: Mar. 26, 2022]. Available: https://doi.org/10.3390/jcm9092976

5. Silva DFO, Cobucci RN, Soares-Rachetti VP, Lima SCVC, Andrade FB. Prevalência de ansiedade em profissionais da saúde em tempos de COVID-19: revisão sistemática com metanálise. Ciênc Saude Colet [internet]. 2021; 26(2): 693-710 [Access on: Mar. 26, 2022]. Available: https://doi.org/10.1590/1413-81232021262.38732020

6. Ornell F, Halpern SC, Kessler FHP, Narvaez JCM. The impact of the COVID-19 pandemic on the mental health of healthcare professionals. Cad Saude Publica [internet]. 2020; 36(4):e00063520 [cited on: Mar. 26, 2022]. Available: https://doi.org/10.1590/0102-311X00063520

7. Greenberg N. Mental health of health-care workers in the COVID-19 era. Nat Rev Nephrol [internet]. 2020; 16:425-426. [cited on: Mar. 26, 2022]. Available: https://www.nature.com/articles/s41581-020-0314-5

8. Schwartz J, King CC, Yen MY. Protecting healthcare workers during the coronavirus disease 2019 (COVID-19) outbreak: lessons from Taiwan's severe acute respiratory syndrome response. Clin Infect Dis [internet]. 2020; 71(15):858-860. [cited on: Mar. 26, 2022]. Available: https://doi.org/10.1093/cid/ciaa255

9. Huang J, Liu F, Teng Z, Chen J, Zhao J, Wang X, Wu R. Care for the psychological status of frontline medical staff fighting against COVID-19. Clin Infect Dis [internet.] 2020; 71(12):3268-3269. [cited on: Mar. 26, 2022]. Available: https://doi.org/10.1093/cid/ciaa385

10. Borges LO; Argolo JCT. Adaptação e validação de uma escala de bem-estar psicológico para uso em estudos ocupacionais. Aval Psicol [internet] 2002; 1(1):17-27. [Access on: Jan. 10, 2021]. Available: http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1677-04712002000100003

11. Fortes S, Villano LAB, Lopes CS. Nosological profile and prevalence of common mental disorders of patients seen at the Family Health Program (FHP) units in Petrópolis, Rio de Janeiro. Rev Bras Psiquiatr [internet]. 2008; 30(1):32-37 [cited on: Mar. 26, 2022]. Available: https://doi.org/10.1590/S1516-44462006005000066

12. Pasquali L, Gouveia VV, Andriola WB, Miranda FJ, Ramos ALM. Questionário de saúde geral de Goldberg (QSG): adaptação brasileira. Psic Teor Pesq [internet]. 1994; 10(3):421-437 [access on: Mar. 15, 2022]. Available: https://www.researchgate.net/publication/279191898_Questionario_de_Saude_Geral_de_Goldberg_QSG_Adaptacao_Brasileira

13. Portugal FB, Campos MR, Gonçalves DA, Mari JJ, Gask L, Bower P, et al. Psychiatric morbidity and quality of life of primary care attenders in two cities in Brazil. J Bras Psiquiatr [internet]. 2014;63(1):23-32 [access on: Mar. 22, 2022]. Available: https://doi.org/10.1590/0047-2085000000004

14. IBM Corp. Released 2015. IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp.

15. Sant'Ana G, Imoto AM, Amorim FF, Taminato M, Peccin MS, Santana LA, et al. Infecção e óbitos de profissionais da saúde por COVID-19: revisão sistemática. Acta Paul Enferm [internet]. 2020; 33:1-9. [access on: Jul. 20, 2022]. Available: https://doi.org/10.37689/acta-ape/2020AO0107

16. Tavares, V. (2020). Covid-19: a saúde dos que estão na linha de frente. Rio de Janeiro: Fiocruz [internet], Apr. 2020; [access on: Jul. 15, 2021]. Available: https://portal.fiocruz.br/noticia/Covid-19-saude-dos-que-estao-na-linha-de-frente

17. Wong J, Goh QY, Tan Z, Lie SA, Tay YC, Ng SY, Soh RC. Preparing for a COVID-19 pandemic: a review of operating room outbreak response measures in a large tertiary hospital in Singapore. Can J Anesth/J Can Anesth [internet] 2020 67:732–745. [Cited on: Mar. 10, 2022]. Available: https://doi.org/10.1007/s12630-020-01620-9

18. Prado AD, Peixoto BC, Silva AMB, Scalia LAM. A saúde mental dos profissionais de saúde frente à pandemia do COVID-19: uma revisão integrativa REAS/EJCH [internet] 2020. [access on: Jul. 15, 2021]| Vol.Esp.46 | e4128 |. [cerca de 9 p.]. Available: https://doi.org/10.25248/reas.e4128.2020

19. Oliveira WA, Oliveira-Cardoso EA, Silva JL, Santos MA. Impactos psicológicos e ocupacionais das sucessivas ondas recentes de pandemias em profissionais da saúde: revisão integrativa e lições aprendidas. Estud Psicol [internet] 2020; 37: e200066. [about 12 p.]. [access on: Mar. 26, 2022]. Available: https://doi.org/10.1590/1982-0275202037e200066

20. Bezerra G, Sena AS, Braga S, dos Santos ME, Correia LF, Clementino KM, Carneiro YV, Pinheiro W. O impacto da pandemia por Covid-19 na saúde mental dos profissionais da saúde: revisão integrativa. REAID [internet] 2020;93:e-20012: [about 20 p.]. [access on: Jul. 15, 2021]. Available: http://www.revistaenfermagematual.com.br/index.php/revista/article/view/758

21. The Lancet. COVID-19: protecting health-care workers. [editorial] Lancet [internet] 2020;395(10228):922. [cited on: Mar. 26, 2021]. Available: https://doi.org/10.1016/S0140-6736(20)30644-9

22. Ribeiro AP, Oliveira GL, Silva LS, Souza ER. Saúde e segurança de profissionais de saúde no atendimento a pacientes no contexto da pandemia de Covid-19: revisão de literatura. Rev Bras Saúde Ocup [internet] 2020; 45:e25 [about 12 p.]. [Acesso em 2 jul. 2022]. Available: https://doi.org/10.1590/2317-6369000013920

23. Duprat IP, Melo GC. Análise de casos e óbitos pela COVID-19 em profissionais de enfermagem no Brasil. Rev Bras Saude Ocup [internet]. 2020; 45:e30 [about 7 p.]. [access on: Jul. 2, 2022]. Available: https://doi.org/10.1590/2317-6369000018220

24. Aldrig A, Moura DG, Ribeiro E, Shimma E, Fortes LFC, Magalhães LDS, Piovesan RM, Elias R, Santos RRG, Coutinho RA, Silva ZS. Saúde mental para profissionais da saúde do estado de São Paulo no contexto da pandemia COVID-19. Bol Epidemiol Paulista [internet]. 2020;17(204):1-13 [access on: Jul. 2, 2022]. Available: https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1145585

25. Lotta G, Fernandez M, Corrêa MG, Magri G, Mello CAC, Beck AL. A pandemia de Covid-19 e os(as) profissionais de saúde pública no Brasil. Núcleo de Estudos da Burocracia (NEB FVG-EAESP). Fiocruz. Rede Covid-19 Humanidades. Technical note [internet]. 2020. [access on: Jul. 15, 2021]. Available: https://www.portalcoren-rs.gov.br/docs/enfermagem_sul.pdf

26. Lotta G, Fernandez M, Magri G, Mello CAC, Corrêa MG, Rocha MC Tamaki ER, Schall B, Pimenta DN. A pandemia de Covid-19 e os(as) profissionais de saúde pública no Brasil. Núcleo de Estudos da Burocracia (NEB FVG-EAESP). Fiocruz. Rede Covid-19 Humanidades. Technical note [internet]. 2021; [access on: Jul. 15, 2021]. Available: http://www.cpqrr.fiocruz.br/pg/menos-de-metade-dos-profissionais-de-saude-publica-no-pais-recebeu-treinamento-na-pandemia/

27. Vedovato TG, Andrade CB, Santos DL, Bitencourt SM, Almeida LP, Sampaio JFS. Trabalhadores(as) da saúde e a COVID-19: condições de trabalho à deriva? Rev Bras Saude Ocup [internet] 2021; 46:e1 [about 15 p.]. [access on: Feb. 15 2022]. Available: https://doi.org/10.1590/2317-6369000028520

28. Dai Y, Hul G, Xiong H, Qiu H, Yuan X. Psychological impact of the coronavirus disease 2019 (COVID-19) outbreak on healthcare workers in China. medRxiv preprint [internet] 2020; [about 22 p.]. [cited on: May 10, 2021]. Available: https://doi.org/10.1101/2020.03.03.20030874.

29. Chong MY, Wang WC, Hsieh WC, Lee CY, Chiu NM, YEH WC, Huang TL, Wen JK, Chen CL. Psychological impact of severe acute respiratory syndrome on health workers in a tertiary hospital. Br J Psychiatry [internet]. 2004; 185, 127-133. [cited on May 10, 202]. Available: https://doi.org/10.1192/bjp.185.2.127

30. Wu P, Fang Y, Guan Z, Fan B, Kong J, Yao Z, Liu X, Fuller CJ, Susser E, Lu J, Hoven CW. The Psychological Impact of the SARS Epidemic on Hospital Employees in China: Exposure, Risk Perception, and Altruistic Acceptance of Risk. Can J Psychiatry [internet] 2009; 54(5): 302–311. [cited on May 10, 2021]. Available: https://doi.org/10.1177/070674370905400504

31. Paiano M, Jaques AE, Nacamura PAB, Salci MA, Radovanovic CA, Carreira L. Saúde mental dos profissionais de saúde na China durante pandemia do novo coronavírus: revisão integrativa. Rev Bras Enferm [internet]. 2020;73(Suppl 2): e20200338 [about 9 p.]. [access on: Jul. 7, 2021]. Available: https://doi.org/10.1590/0034-7167-2020-0338

32. Silva-Costa A, Griep RH, Rotenberg L. Percepção de risco de adoecimento por COVID-19 e depressão, ansiedade e estresse entre trabalhadores de unidades de saúde. Cad Saúde Pública [internet] 2022; 38(3):e00198321 [about 13 p.]. [access on: Mar. 25, 2022]. Available: https://doi.org/10.1590/0102-311X00198321

33. Cheng TA, Williams P. The design and development of a screening questionnaire (CHQ) for use in community studies of mental disorders in Taiwan. Psychol Med [internet] 1986;16(2):415-22. [cited on Jul 15, 2022]. Available: https://doi.org/10.1017/s0033291700009247

34. Chong MY, Wilkinson G. Validation of 30 and 12-item versions of the Chinese Health Questionnaire (CHQ) in patients admitted for general health screening. Psychol Med [internet]. 1989;19(2):495-505. [cited on Jul. 15, 2022]. Available: https://doi.org/10.1017/s0033291700012526

35. Oliveira DM, Alencar NMBM, Costa JP, Fernandes MA, Gouveia MTO, Santos JDM. Afastamento do trabalho por transtornos mentais e comportamentais entre profissionais de enfermagem. Rev Cuid. 2019; 10(2): e631. http://dx.doi.org/10.15649/cuidarte.v10i2.631

36. Maia AOB, Guimarães Neto AC. Resiliência de profissionais de saúde frente à COVID-19. Rev SBPH [internet]. 2021; 24(1):147-161. [access on: Jul. 7, 2022]. Available: http://pepsic.bvsalud.org/pdf/rsbph/v24n1/14.pdf

37. Robles R, Rodríguez E, Vega-Ramirez H, Álvarez-Icaza D, Madrigal E, Durand S, et al. Mental health problems among healthcare workers involved with the COVID-19 outbreak. Braz J Psychiatry [internet]. 2020 [access on: Jul. 15,. 2021] xxx-xxx;00(00):000-000 [about 10 p.]. Available: http://dx.doi.org/10.1590/1516-4446-2020-1346

38. Dal'Bosco EB, Floriano LSM, Skupien SV, Arcarol G, Martins AR, Anselmo ACR. A saúde mental da enfermagem no enfrentamento da COVID-19 em um hospital universitário regional. Rev Bras Enferm [internet]. 2020;73(Suppl 2): e20200434 [about 7 p]. [Acesso em 15 jul. 2021]. Available: https://www.scielo.br/j/reben/a/ck98YrXKhsh6mhZ3RdB8ZVx/?format=pdf&lang=pt

39. Ghelman R, Abdala CVM, Schveitzer MC, Amado DM, Nunes G, Dell'Alba R, et al. Mapas de evidência da efetividade clínica das Práticas integrativas e complementares em saúde. In: Toma TS, Hirayama MS, Barreto JO, Boeira L, Amado DM, Rocha PRS. Práticas integrativas e complementares em saúde: evidências científicas e experiências de implementação. São Paulo: Instituto de Saúde, 2021; p. 145-164.

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