Prevalence of neuropsychiatric symptoms in brazilian health professionals during COVID-19 pandemic

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Abstract

Introduction: The coronavirus outbreak 2019 (COVID-19) has overloaded healthcare professionals with a significant amount of stress. Objectives: The aim of this study is to analyze demographic and sentiments in healthcare providers associated with the exposure to patients with COVID-19. Method: A cross-sectional study was conducted with data remotely obtained in the period between March 20, to September 20 through a project created in March 2020 named TELEPAN Saúde UFMG, which redirects healthcare workers to volunteer psychologists, psychiatrists and other professionals. Summary of the main complaint, profession, workplace, preferred time for contact and preference media for contact were obtained from each patient. Sentiments were grouped into categories. Then, an exploratory and descriptive analysis were conducted. Results: The median age of patients was 36 years of age (21 to 64). Most professionals were women (85.45%) and came from primary care, emergency services, or secondary level of care (hospitals). Primary care professionals had a higher median of age, while those working on emergency establishments had the lowest. Suicidal thoughts or emergent needs were present in 7.27% of cases. Minas Gerais (southeast region) had the highest number of patients. A significant proportion of providers suffered from symptoms of anxiety and exhaustion (11.82%), followed by sadness with anxiety. Insomnia affected 17 professionals (15.45%), and fear of being infected, 8 patients (7.27%). Conclusions: Middle-aged female healthcare professionals, mainly from primary care establishments in Brazil, were the most affected workers by anxiety, exhaustion and insomnia during COVID-19 outbreak.
Keywords: COVID19; Coronavirus; Mental Health; Telemedicine

Resumen

Prevalencia de síntomas neuropsiquiátricos en profesionales de la salud brasileños durante pandemias de COVID-19.
Introducción: El brote de coronavirus 2019 (COVID-19) ha sobrecargado a los profesionales de la salud con una cantidad significativa de estrés. Objetivos: El objetivo de este estudio es analizar la demografía y los sentimientos de los proveedores de atención médica asociados con la exposición de pacientes con COVID-19. Método: se realizó un estudio transversal con datos obtenidos de forma remota en el período comprendido entre el 20 de marzo y el 20 de septiembre a través de un proyecto creado en marzo de 2020 denominado TELEPAN Saúde UFMG, que reorienta a los trabajadores de la salud a psicólogos, psiquiatras y otros profesionales voluntarios. Se obtuvo de cada paciente un resumen de la queja principal, profesión, lugar de trabajo, tiempo preferido para el contacto y medio preferido para el contacto. Los sentimientos se agruparon en categorías. Después, se realizó un análisis exploratorio y descriptivo. Resultados: La mediana de edad de los pacientes fue de 36 años (21 a 64). La mayoría de los profesionales eran mujeres (85,45%) y procedían de atención primaria, urgencias o nivel secundario de atención (hospitales). Los profesionales de atención primaria tenían una mediana de edad más alta, mientras que los que trabajaban en los establecimientos de emergencia tenían la más baja. Los pensamientos suicidas o las necesidades emergentes estuvieron presentes en el 7,27% de los casos. Minas Gerais (región sureste) tuvo el mayor número de pacientes. Una proporción significativa de proveedores sufrió síntomas de ansiedad y agotamiento (11,82%), seguidos de tristeza con ansiedad. El insomnio afectó a 17 profesionales (15,45%) y el miedo a infectarse, a 8 pacientes (7,27%). Conclusiones: Las profesionales de la salud de mediana edad, principalmente de los establecimientos de atención primaria en Brasil, fueron las trabajadoras más afectadas por la ansiedad, el agotamiento y el insomnio durante el brote de COVID-19.
Palabras clave: COVID19; Coronavirus; Salud mental; Telemedicina

Resumo

Prevalêcia de sintomas neuropsiquiátricos em profissionais de saúde brasileiros durante a Pandemia de COVID19.
Introdução: O surto de coronavírus 2019 (COVID-19) sobrecarregou os profissionais de saúde com uma quantidade significativa de estresse. Objetivos: O objetivo deste estudo é analisar dados demográficos e sentimentos em profissionais de saúde associados à exposição a pacientes com COVID-19. Métodos: Foi realizado um estudo transversal com dados obtidos remotamente no período de 20 de março a 20 de setembro por meio de um projeto criado em março de 2020 denominado TELEPAN Saúde UFMG, que redireciona profissionais de saúde para psicólogos voluntários, psiquiatras e outros profissionais. Resumo da reclamação principal, profissão, local de trabalho, horário preferencial para contato e meios de preferência para contato foram obtidos de cada paciente. Os sentimentos foram agrupados em categorias. Em seguida, foi realizada uma análise exploratória e descritiva. Resultados: A mediana da idade dos pacientes foi de 36 anos (21 a 64). A maioria dos profissionais era do sexo feminino (85,45%), procedente da atenção básica, pronto-socorro ou nível secundário (hospitais). Os profissionais da atenção básica apresentaram maior mediana de idade, enquanto os que atuam em pronto-socorro, a menor. Pensamentos suicidas ou necessidades emergentes estiveram presentes em 7,27% dos casos. Minas Gerais (região Sudeste) apresentou o maior número de pacientes. Uma proporção significativa de provedores sofreu de sintomas de ansiedade e exaustão (11,82%), seguidos de tristeza com ansiedade. A insônia atingiu 17 profissionais (15,45%) e o medo de ser infectado, 8 pacientes (7,27%). Conclusões: Profissionais de saúde de meia-idade, principalmente de estabelecimentos de atenção primária no Brasil, foram as trabalhadoras mais afetadas por ansiedade, exaustão e insônia durante o surto de COVID-19.
Palavras-chave: Coronavirus; saúde Mental; Telemedicina.

INTRODUCTION

On December 31, 2019, a cluster of cases of pneumonia of unknown cause in Wuhan, China, was reported by the Wuhan Municipal Health Commission.[1] Nine days later, The Word Health Organization (WHO) reported that the outbreak was probably caused by a novel coronavirus, named SARS-CoV-2.[2] On January 12 2020, the genetic sequence of SARS-CoV-2 was shared.[3] The rapid potential of spread of the virus and the severity of the disease in some cases resembled the emergence of other coronaviruses, including SARS in 2002 and MERS in 2012.[1] Therefore, on January 30 2020 WHO declared the global COVID-19 outbreak a public health emergency of international concern.[2] In Brazil, the first case was identified on February 26th, according to the Ministry of Health.

Six months after the first case, there were a total of 4.745.464 confirmed cases[4].

The sharp increase in numbers of confirmed and suspected cases of COVID-19 in Brazil led to an overload of the health system and to critical adaptations in order to attend the increased demand. Professional changed their routine, including longer work shifts, shortage of Personal Protective Equipment (PPE) and isolation of their family and social network.[6,7] The overwhelming workload, the feelings of being inadequately supported and the absence in some locals of even low cost drugs to treat patients may have worsened psychological pressure on these health care workers.[3] Anxiety, fear of being infected, depression, insomnia, stress and rage are more prevalent in Health care workers directly involved in the diagnosis, treatment or care of patients with COVID-19.[3,7,8]

Services of psychological assistance, counseling, psychiatric intervention and nutritional support by telephone and internet have been widely implemented in several countries in response to the COVID-19 pandemic. The goal of those services is to promote education and provide assistance to the population while avoiding the collapse of local health-care centers. Considering the increasing demand for mental support among health care professionals and the evidence supporting the use of telemedicine,[9] a project using this tool was created aiming to support health care workers, developed by the Federal University of Minas Gerais, Brazil. TelePan Saúde gathers professional volunteers willing to offer mental assistance to healthcare workers directly involved with COVID-19 cases. Up to date, the project has received the support of about 934 volunteers, most of them psychologists, psychiatrists and nutritionists.

Considering the lack of studies evaluating the negative impact of mental health of Brazilian professionals working in a pandemic of COVID-19, it is appropriate to share our experience with the scientific community, highlighting the positive impacts of this remote healthcare service.

The aim of this study is to present the epidemiological profile of health professionals assisted through the TelePAN Saúde project from March to September, a period in which more than 150 health professionals from different regions of the country were assisted through the TelePAN Saúde project. This article also aims to share the knowledge and experience acquired using telemedicine, highlighting the main challenges and improvements associated with this technology in the pandemic context.

METHOD

The TelePAN Saúde project at the Universidade Federal de Minas Gerais (UFMG) Medical School is a remote medical network created in March 2020 that provides mental assistance to healthcare workers during COVID-19 pandemic. Interested people send requests for assistance, via Google forms, and medical students, guided by one professor from the psychiatry department from our institution, direct patients to health professionals who have volunteered for distance care. These include psychiatrists, psychologists, nutritionists and occupational physicians. The decision for who to refer is made after discussing the case among students and between students and teachers.

A cross-sectional study was conducted with data remotely obtained in the period between March 20 and September 20, using the STROBE checklist to guide the reporting of results. For the individual to receive care through TelePAN Saúde UFMG, he must work in place with cases of COVID-19 or coordinate health services.

The collected data included the name, age, address, telephone, summary of the demand, profession, workplace, preferred time for contact, preference media for contact (WhatsApp, email or call). The patient's outcome, defined as referral, has the following categories: Psychiatry, Psychology, Both, Information, Yoga, Occupational Medicine. Professionals from other areas not related to the care of patients with COVID-19 but who had complaints related to the disease were excluded from the analysis. Workers who attend an environment where there are cases of COVID-19, but who do not deal directly with the patient, such as cleaning, reception, security, were included but classified as "Others". The number of individuals per region in brazil was corrected by dividing the total for that region by the local population, in order to reduce the influence of regional demographic differences. The emergencies were considered as cases in which the individual mentioned suicidal ideas, with or without a concrete plan, or when the patient stopped working due to mental suffering. There was no sample calculation, and the final number of individuals was decided based on the recent decrease in demand, which motivated the exploratory data analysis.

There are potential sources of bias in this study. Information about the TELEPAN Saúde UFMG was more spread in Minas Gerais, a state in Brazil where our institution is localized. Workers fill only the chief complaint in the application form, which could be different from the real need informed to the volunteer professionals. Of note, interested people may not feel comfortable exposing personal information, reducing the precision of the available data of this study.

The TelePAN Saúde UFMG platform was built entirely via Google Sheets, with most of the procedures automated. The results were analyzed using Google Collaboratory as an editor for Python programming language. An exploratory and descriptive analysis of the data was performed. Due to the limited number of observations, the authors chose not to perform statistical tests. Geographic analysis was performed using the Tableau software (version 2020.3.1, CA).

RESULTS

A total of 110 patients were selected for the final analysis. At the end of the period, 154 observations were collect-

ed, however only 110 were considered due to missing values of categorical variables, which could not be engineered. Table 1 shows demographic characteristics and contact preferences about professionals assisted by TelePAN Saúde UFMG. There was a disproportion of genders, as 94 (85.45%) women seek help, versus 16 (14.55%) men. The median age of patients was 36 years, ranging from 21 to 64 years. Of note, most professionals preferred WhatsApp to contact the volunteers (81.82%). There were 8 emergencies (7.27%). In one of them, a patient mentioned inability to work due to intense anxiety attacks, despite ongoing pharmacological treatment. In the others, there were reports of excessive fear and suicidal ideas.

Table 1. Patient Characteristics (N = 110)

	Absolute number	%
Median age (min - max)	36 (21 - 64)	
Sex		
Male	16	14.55%
Female	94	85.45%
Preferred media		
WhatsApp	90	81.82%
E-mail	9	8.18%
Skype	6	5.45%
Call	5	4.55%
Zoom	1	0.91%
Others	1	0.91%
Emergencies		
No	104	94.55%
Yes	8	7.27%
Preferred day for contact		
Monday	32	29.09%
Tuesday	19	17.27%
Wednesday	15	13.64%
Thursday	15	13.64%
Friday	12	10.91%
Saturday	13	11.82%
Sunday	6	5.45%

Table 2 shows the number of cases by each state in

Brazil, corrected by the local population. Minas Gerais, the state where the project was conceived, presented the highest relative number of demands. São Paulo and Paraná, when considered together with Minas Gerais, constitute the demand of the Southeast region, which had the largest number of patients.

Table 2. Corrected demand by state population (per 10.000.000)

State	
Minas Gerais	32.15
Acre	13.63
Alagoas	12.82
Paraíba	5.31
Rio de Janeiro	5.00
Bahia	4.99
Sergipe	4.84
Mato Grosso do Sul	4.08
Mato Grosso	3.29
Maranhão	3.04
São Paulo	2.91
Amazonas	2.87
Pará	2.64
Ceará	2.37
Pernambuco	2.27
Paraná	0.96

In an attempt to understand the profile of the demands, a sentiment analysis was conducted on the main complaint of each patient, based on diagnostic criteria available in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) (Table 3). Most complaints are related to anxiety symptoms and exhaustion at work (13 individuals, 11.82%). Then, mixed symptoms of anxiety and sadness were more frequent (10 individuals, 9.09%). 24 patients (21.81%) were already undergoing psychological or psychiatric follow-up. Within this subgroup, there is also a predominance of anxious symptoms and exhaustion. Insomnia was a relatively common complaint among professionals who sought TelePAN Saúde UFMG, being reported by 17 patients (15.45%). Fear of being infected with SARS-CoV-2 was present in 8 complaints (7.27%).

Table 3. Symptoms classification (N = 110)

Sentiment analysis	Absolute count	Relative count
Anxiety with Burnout symptoms	13	11.82%
Mixed Anxiety and Sadness	10	9.09%
In treatment with anxiety	9	8.18%
In treatment with Burnout signs	7	6.36%
Mixed Anxiety and Insomnia	7	6.36%
Sadness and Insomnia	7	6.36%
Anxiety & Fear of infection	6	5.45%
Sadness with Burnout symptoms	5	4.55%
In treatment with Sadness	3	2.73%
In treatment with Insomnia	3	2.73%
Mixed Anxiety and Suicide	3	2.73%
Anxiety, want info	3	2.73%
In treatment, want info	2	1.82%
Sadness & Fear of infection	2	1.82%
Sadness & Suicide	1	0.91%

Of 110 patients, 29 (26.36%) were successfully discharged. All of them sent feedback showing satisfaction with the project. At the time of the analysis, 48 (43.64%) professionals were still receiving care. 31 (28.18%) patients lost follow-up because they did not respond to the volunteers.

Table 4. Status

|	Absolute count	%	Mean age
In progress	48	43.64%	34.85
Finished - Patient did not respond	31	28.18%	36.8
Successfully completed	29	26.36%	39
Waiting for the patient	2	1.82%	40.5

The figure 1 shows that Primary Care and Urgency/Emergency professionals were the ones who most sought the TelePAN Saúde UFMG. The "Others" include cleaning and cooking services, as well as security workers. Errors in filling the forms and missing values were labeled as "Ignored".

Figure 1. Professionals by health setting
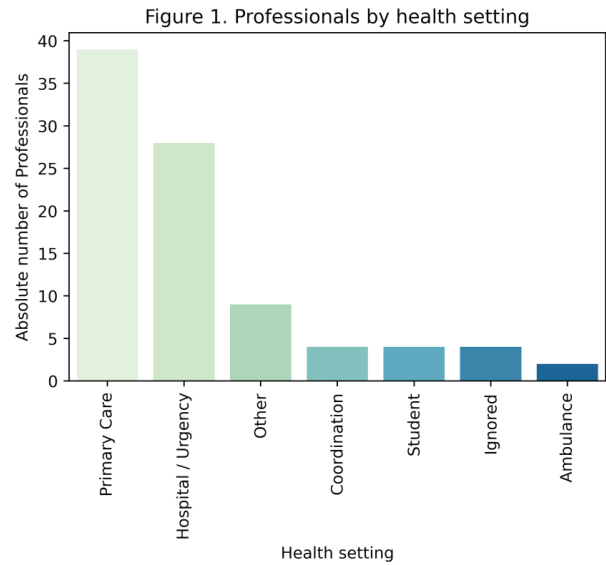
The Boxplot in Figure 2 represents the median of age of the professionals assisted in the project. There was heterogeneity in the age distribution between primary care professionals. Ambulance workers had a lower median age (30 years old). The median age of students was 35 years old, most of them with a master or doctorate degree.

Figure 2. Median age of workers by health setting
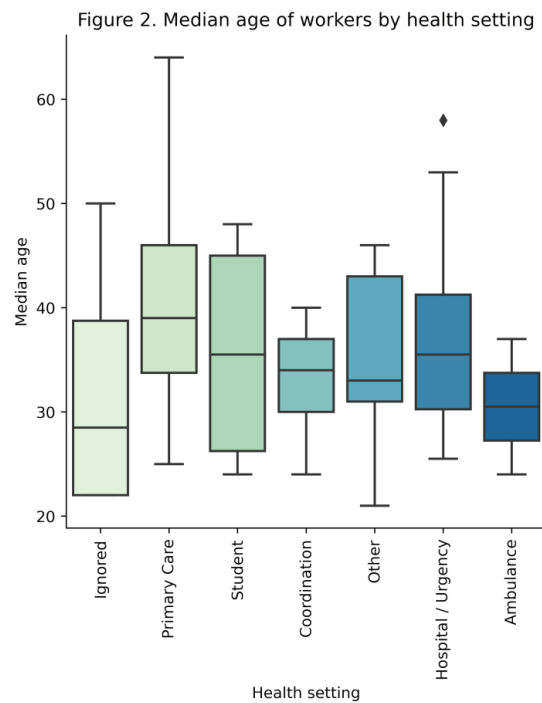
The figure 3 highlights the disproportion of genders independently of the field of expertise. A total of 54 nurses (49.09%) were assisted by TelePAN Saúde UFMG and were the most common health professionals assisted by the project, followed by 20 (18.18%) physicians.

Figure 3. Distribution of sex between health professionals
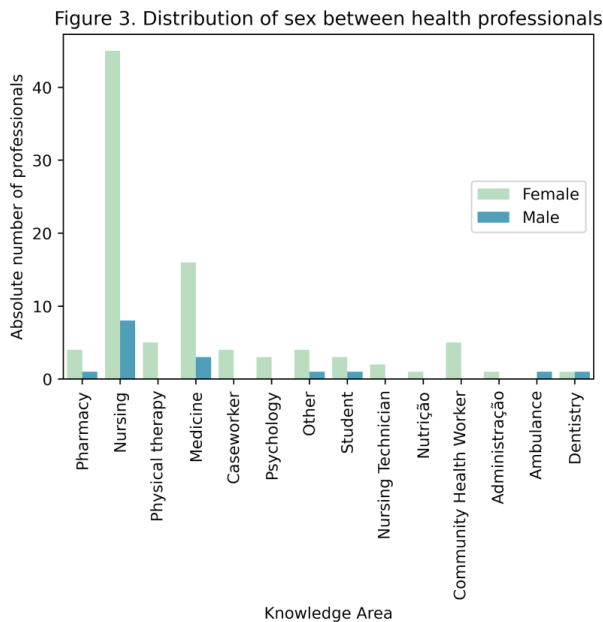
DISCUSSION

Knowledge of the social, demographic and complaints of health professionals during the COVID-19 pandemic is of great importance, especially given the possibility of new waves of cases. This study demonstrated that most of the demands were of middle-aged female professionals, most of whom work in primary care and in emergency services or hospitals. In addition, anxious symptoms, exhaustion, insomnia and sadness were the most common complaints among them.

Our findings are consistent with the available medical literature, despite the context characterized by a lack of controlled studies. Health care workers were compelled with an unknown situation that led to psychological distress. A cross-sectional online survey realized from February to March in China showed a high prevalence rates of severe insomnia, anxiety, depression, somatization and obsessive-compulsive symptoms medical health workers (nurses and doctors).[8] Zhang et al found that the psychological distress signs were higher among women and nurses, 85.45% and 49.09% respectively.[7] In another chinese cohort, approximately 70% of women and nurses had signs of psychological distress. Brazilian authors found symptoms of sadness and anxiety in pandemic twice as frequent in women than men.[10] Possible explanations for the highest incidence of mental suffering in this gender are an increase

in domestic violence during the pandemic period, increased demand for household chores without partner collaboration, disproportional salaries compared to men in some jobs.[10] Furthermore, women tend to be more concerned with their own health.[11] Men are consistently less likely to seek help for mental health problems than women at all ages.[12]

Anxiety, burnout, insomnia, worry and sadness symptoms were also frequently observed in health professionals in chinese studies.[7,13] A cross-sectional study conducted with professionals distributed around 34 hospitals found that the most common symptoms were depression, anxiety, insomnia and anguish, which is consistent with our findings. Stress and fear of contracting COVID or transmitting it to family members, as well as the psychological issue associated with social distancing, were remarkable.[14]

There was a higher demand from nurses. This may be associated with closer and frequent contact with patients inherent in their profession. Furthermore, they work for longer hours than usual and the majority of nurses are women.[7] These workers were considered a possible risk factor for mental suffering in the previous SARS outbreak, as demonstrated by works from other chinese authors.[7,15]

Minas Gerais is the brazilian state with the highest demand for our mental service (32.15 per 10,000,000 inhabitants). This may be explained by the fact that Minas Gerais is where the project was idealized. Nevertheless, the presence of relative furthest states, such as Acre and Alagoas, requires attention, as it indicates the fragility of their health care systems in comparison with other brazilian regions. The north and northeast regions have historically some challenges in their health system. A recent study from the University of Brasilia (UNB) also demonstrated lower accessibility in health care systems in these regions.[16]

The long-term impact in mental health care should be considered. A study about the 2003 SARS outbreak showed that SARS survivors had higher stress levels during the outbreak, and this persisted one year later.[15]

This study is relevant and adds to the literature, since it describes important aspects of the mental health in national professionals who are taking care of patients with COVID-19. Public health authorities must provide more objective support and follow-up for these professionals in order to meet these mental health demands. Remote health assistance an useful resource to attend to the psychic demand from frontline workers in this context of global crisis.[14]

The main limitations of this study include a selection bias due to the fact that most patients were from the state of Minas Gerais, Brazil. Moreover, data collection was performed using an online survey tool, what may exclude some professionals with technical difficulties with the website. This study did not use any specific screening assessment tool for psychiatric illnesses at the time of patient's admission and therefore any result regarding patient's complaint is based on subjective observation. Also, 28.18% of patients did not respond to our volunteer professionals.

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