

Profile of nursing professionals and factors associated with Covid-19 illness

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Abstract

Objective: to identify the profile of nursing professionals and the factors associated with covid-19 illness.

Method: Quantitative research conducted with 209 nursing professionals from a large hospital, between September and November 2020, through an electronic questionnaire. Descriptive analysis of the data was performed in the Stata version 13 program. To investigate differences between proportions ($p < 0.05$) contingency tables with chi-square were used. **Results:** Among the professionals who get sick from COVID-19, the majority were female (86.44%), over 40 years of age (57.63%), married or in a stable union (55.93%), with religion (91.53%), nursing technicians and assistants (69.49%), with training time equal to or greater than 11 years (76.27%), working time at the institution of up to six years (81.36%), without another employment relationship (59.32%). Participants reported changes in sleep (59.32%), appetite (67.80%), leisure time (96.61%), physical activity pattern (94.92%), mood (81.36%), presence of anxiety (81.36%). Anxiety predominated among professionals of technical and higher level (p -value = 0.01) and illness due to COVID-19 was associated with the category of nursing technicians/assistants (p -value = 0.05). **Conclusion:** a greater vulnerability to COVID-19 illness was identified among professionals who provide direct care to patients affected by COVID-19.

Descriptors: Coronavirus infections; Illness; Patient care; Nursing; University hospital.

Introduction

In 2020, the pandemic of the new coronavirus came to the fore. Called Severe Acute Respiratory Syndrome (SARS-CoV-2), it was discovered in Wuhan, Hubei Province, China, during the pneumonia epidemic in January 2020.¹ Because it is a virus with high infecting power, with a high rate of contamination and dissemination, it was declared by the World Health Organization (WHO) a pandemic state.² Since the first case of patient confirmed by COVID-19 in Brazil on February 24, 2020, in the state of São Paulo, the country has undergone several changes, especially in the health field. Interventional actions of public health began to be implemented, such as quarantine, distancing and social isolation, in addition to the use of personal protective equipment, to control and contain the spread of the new coronavirus.³ In view of the progressive growth in the

number of infected people, a massive search for health services began, causing an overload in these services, and consequently in professionals.⁴ In the context experienced, workers who are on the front line in the fight against COVID-19, especially the nursing team, developed a crucial role in care, from welcoming to the continuation of direct and indirect care of patients suspected and/or affected by the new coronavirus.

Faced with this situation, still permeated by false news; scarcity, inadequacy and lack of personal protective equipment (PPE); insecurity and fear of the unknown, nursing faced several mishaps for the practice of care to patients with COVID-19. Old problems such as inadequate physical structures and lack of hospital insum for the provision of safe care, EPI deficit and work overload became known. Such issues have been described as capable of triggering psychoemotional suffering⁵ in the face of pressures, the loss of friends, colleagues and family members to COVID-19, in addition to the threat to one's own life. This directly impacts self-care, and may develop changes such as depression, anxiety and sleep-associated disorders.⁶⁻⁸

Before the pandemic situation, its impacts on health services and nursing workers, it is necessary to discover new coping strategies and actions of public policies directed to frontline workers and progressive care to patients affected by COVID-19. Moreover, measures such as the dissemination of reliable information about the disease, permanent education and psychosocial rehabilitation,⁹ can contribute to minimize the pandemic effects on the mental health of the nursing team. Thus, investigating the profile, as well as the factors associated with the illness by COVID-19 by these professionals, may support more assertive strategies. The aim of this study is to identify the profile of nursing professionals and the factors associated with COVID-19 illness.

Method

Quantitative research, conducted in a teaching hospital (TH), located in the city of Salvador, Bahia, Brazil. The hospital institution is accredited by the Ministries of Health and Education as a teaching hospital, being a reference in medium and high complexity and has 289 active beds. TH was not designated as a reference hospital for the treatment of patients with COVID-19, however, since the beginning of the pandemic, diagnosed people with coronaviruses hospitalized in several care units directing them to an internal unit, intended for the care of symptomatic respiratory patients.

The study included 209 individuals from the nursing teams of the institution. Data collection occurred between September and November 2020 through an electronic questionnaire, which was sent to the e-mail of all nursing professionals who work in the TH. An invitation letter was sent by e-mail to the participants of the research; the Informed Consent Form (ICF) and the link to access the questionnaire. The participant only had access to the questionnaire after the expression of consent to participate in the research. The data collection instrument was generated through the Google Forms platform, which is free of charge and allows the submission of forms, the receipt of responses and the extraction of the data for analysis.

The study variables were classified as: sociodemographic and work (gender, age, religion, marital status, professional category, time of training, time of work in he, employment relationship, work shift and existence of double employment); education and professional safety (resources used to obtain information on

coronavirus and COVID-19, knowledge about institutional protocols on patient care with COVID-19, participation in training offered by the institution on care for patients with COVID-19, feeling of security in relation to the care of patients with COVID-19) and psychosocial (change in sleep, appetite, recreation, alteration in the pattern of physical activity, change in mood and presentations of anxiety during the pandemic).

The data were organized in the Microsoft Excel 2013 program, later transported to the Stata program version 13, which was used for data processing. Descriptive analysis was performed through frequency distribution with a view to the characterization of the subjects. For bivariate analysis, in order to investigate differentials between proportions ($p < 0.05$), contingency tables with chisquare (X^2) were used.

The research respected the ethical principles contained in Resolution n. 466/2012 Resolution n. 510/2016 of the National Health Council, having been approved by the Ethics Committee of the TH through CAAE number: 36841720.0.0000.0049.

Results

The prevalence of COVID-19 illness among study participants was 28.23%. Among the people who became ill, the majority were female (86.44%), over 40 years old (57.63%), married or in a stable union (55.93%), with some religion (91.53%), belonging to the category of nursing technicians or assistants (69.49%), training time equal to or greater than 11 years (76.27%), working time in the institution of up to six years (81.36%), CLT-type work bond (Consolidation of Labor Laws, *Consolidação das Leis Trabalhistas*, in Portuguese) (83.05%) and without another work relationship (59.32%). Among the sociodemographic and work variables, the professional category of nursing technicians/assistants (p -value = 0.05) was associated with statistical significance with the illness by COVID-19 (Table 1).

Table 1- Association between illness due to COVID-19 and sociodemographic and work variables of nursing professionals. Salvador, Bahia, Brazil, 2022. (n=209).

VARIABLES	COVID-19 Diagnosis		p-value
	YES n=59 (%)	NO n=150 (%)	
Sex			
Woman	51 (86.44)	126 (84.00)	0.65
Man	8 (13.56)	24 (16.00)	
AGE			
Up to 40	25 (42.37)	69 (46.00)	0.63
Over 41 years	34 (57.63)	81 (54.00)	
Religion			
Yes	54 (91.53)	124 (82.67)	0.10
No	5 (8.47)	26 (17.33)	
Marital status			
Married/stable union	33 (55.93)	85 (56.67)	0.92

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Others	26 (44.07)	65 (43.33)	
Professional category			
Nurses	18 (30.51)	68 (45.33)	0.05
Nursing Tec./Assist.	41 (69.49)	82 (54.67)	
Time since graduation			
Up to 10 years	14 (23.73)	44 (29.33)	0.41
11 years or more	45 (76.27)	106 (70.67)	
Time working at the hospital			
Up to 06 years	48 (81.36)	118 (78.67)	0.66
07 years or more	11(18.64)	32 (21.33)	
Work shift			
Day	35 (59.32)	99 (66.00)	0.36
Night or mixed	24 (40.68)	51 (34.00)	
Bond			
CLT	49 (83.05)	120 (80.00)	0.61
Enacted	10 (16.95)	30 (20.00)	
Double labor bond			
Yes	24 (40.68)	60 (40.00)	0.92
No	35 (59.32)	90 (60.00)	

Almost 50% of the professionals diagnosed with COVID-19 sought information about the disease and the causative virus in the institution's internal computer network (intranet). Among the professionals who became ill, 94.92% reported knowing the institutional protocols on the care of patients with COVID-19; 69.49% participated in specific training; and 71.19% reported not feeling safe most of the time they provided care to patients with COVID-19. In addition, most of the professionals who became ill by COVID-19 reported changes in sleep (59.32%), appetite (67.80%), leisure (96.61%), physical activity pattern (94.92%), mood (81.36%) and anxiety (81.36%). It is noteworthy that the presence of anxiety was associated with statistical significance with illness by COVID-19 among the nursing professionals surveyed (p-value = 0.01) (Tables 2 and 3).

Table 2- Association between illness by COVID-19 and variables related to continuing education. Salvador, Bahia, Brazil, 2021. (n=209)

VARIABLES	COVID-19 Diagnosis		p-value
	YES n=59 (%)	NO n=150 (%)	
Most frequently used resource for information about coronavirus and COVID-19			
Hospital's intranet	29 (49.15)	78 (52.00)	0.71
Others	30 (50.85)	72 (48.00)	
Knowledge of the institution's protocols for patient care with COVID-19			
Yes	56 (94.92)	133 (88.67)	0.16
No	3 (5.08)	17 (11.33)	
Participation in training offered by the institution on patient care with COVID-19			
Yes	41 (69.49)	103 (68.67)	0.90
No	18 (30.51)	47 (31.33)	
Feeling of security most of the time you provided care to patients with COVID-19			
Yes	17 (28.81)	47 (31.33)	0.72
No	42 (71.19)	103 (68.67)	

Table 3- Association between illness by COVID-19 and psychosocial variables of nursing professionals. Salvador, Bahia, Brazil, 2021. (n=209)

VARIABLES	COVID-19 Diagnosis		p-value
	YES n=59(%)	NO n=150(%)	
Sleep disorder			
Yes	35 (59.32)	101 (67.33)	0.27
No	24 (40.68)	49 (32.67)	
Eating disorder			
Yes	40 (67.80)	93 (62.00)	0.43
No	19 (32.20)	57 (38.00)	

Leisure disorder

Yes	57 (96.61)	147 (98.00)	0.62
No	2 (3.39)	3 (2.00)	

Impairments in physical activity pattern

Yes	56 (94.92)	136 (90.67)	0.31
No	3 (5.08)	14 (9.33)	

Mood disorder

Yes	48 (81.36)	127 (84.67)	0.55
No	11 (18.64)	23 (15.33)	

Presence of anxiety

Yes	48 (81.36)	140 (93.33)	0.01
No	11 (18.64)	10 (6.67)	

Discussion

The prevalence of illness identified in this study was 28.23%. This information is in line with world-wide data that point to a high rate of infection among nursing staff, the highest among all health workers.¹⁰ In Brazil, the reality was also alarming, since data from the Nursing Observatory of the Federal Nursing Council (COFEN) indicate that between July 2020 and December 2021, 59,380 cases of COVID-19 were computed among these workers.¹¹ In this study, it was identified that the majority of participants (86.44%) who became ill belong to females and predominantly over 41 years (57.63%). The data show that among the sociodemographic and work variables, the professional category of nursing technicians/assistants was associated with statistical significance with COVID-19 (p-value = 0.05).

When a historical and sociological contextualization is performed, women correspond to 70% of health workers and make up 85% of nursing teams in Brazil.¹² Nursing workers represent a predominance of females, thus confirming their higher rate of exposure and higher chances of infection. Nursing professionals over the age of 41 years were more likely to acquire COVID-19 in this study. In addition, official statistics also reinforce advancing age as a higher risk for infections and for the development of associated complications. Data obtained from the COFEN observatory confirm that the age group of 41-50 years is the second highest in case index among Brazilians (24,479) of COVID-19.¹¹

In Brazil, over 1.3 million nursing personnel (assistants, technicians and nurses) provide essential care in health units and do not have the back of care and finance to mitigate the effects of COVID-19 on themselves and their families.¹³ Nursing assistants and technicians are professionals at higher risk of acquiring COVID-19 due to the patient's closer proximity and for acting, predominantly on the front line.

Other factors contribute to the exposure of the professional to coronavirus, such as excessive workload, deficiency of basic materials for care, scarcity of EPIs and strenuous working hours. In this study, the double employment relationship and working hours were found as a positive factor, which were not determinant for the illness by SARS-CoV-2. According to several studies, nursing professionals who have several employment ties and with a longer working day are more exposed to coronavirus and are more likely to be infected.^{5,6}

Belonging to some religion was reported by 91.53% of the participants in the study. Faced with a new and threatening disease, these professionals seek spiritual refuge and even a sense of security in religion, as a foundation of faith for the psychoemotional coping of this new disease.¹⁴

The mental health of nursing professionals has been negatively affected because of the experience obtained in the face of the pandemic situation. The fear caused by the ignorance of the disease, associated with the dissemination of false news, brings with it some psychosocial factors that interfere in daily life.¹⁵ This means that the illness caused by COVID-19 triggers several problems, from the social to the psychological level as evidenced by the results. Sleep alteration was present in 59.32% of participants; appetite, in 67.80%; leisure, in 96.61%; in the physical activity pattern, in 94.92%; in mood, in 81.36%; and anxiety was reported by 81.36%. Anxiety obtained a statistical significance value (p -value = 0.01), confirming the high prevalence among all research participants.

In the literature, some psychological aspects have already been reported and witnessed by nursing professionals during other situations of serious diseases such as SARS, MERS and Ebola, resulting in increased burnout, stress and anxiety.¹⁶ Anxiety intertwined in the personal and professional routine of these professionals can lead to more severe psychological disorders. In addition, another important factor that has been observed among nursing professionals is the difficulty of perceiving possible psychological problems in themselves and their colleagues, thus hindering a possible diagnosis and treatment of the problem.

Study Limitations

Because of health measures and vaccination, there is a period of improvement in the pandemic. After the second and third wave, the reflexes on workers may already be different, reflecting the need for further deepening in the face of the health emergency in force.⁹ Despite this limitation, it is argued that the data reflect a historical epoch in Brazilian and global health with indelible repercussions on nursing workers and whose consequences are not yet fully known.

Contributions for Practice

This research may contribute to future analyses on the profile of illness of nursing workers and contribute to possible solutions to the nursing work process in situations of health emergency.

Conclusion

The results showed that nursing technicians/assistants were the most affected category, possibly because they were on the front line in the care of patients affected by COVID-19. The age group most affected by COVID-19 was the age group of 31 to 40 years, and among women. This is the predominant public in nursing, and most of them are active in the labor market. When analyzing the results, it was identified that the pandemic condition triggered psychosocial problems in the workers, such as leisure, eating disorders, sleep pattern and caused anxiety.

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