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Original Research Article

The psychological impact of COVID-19 disease on nurses in two tertiary healthcare centers in Akwa Ibom State, Nigeria

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ABSTRACT

Background: The onset of COVID-19 disease pandemic worldwide has been associated with a high level of psychological distress. Health workers are amongst the high-risk groups for contracting COVID-19 and may be particularly vulnerable to a variety of mental health problems. This study was conducted to determine the psychological impact of the pandemic on mental well-being of Nigerian nurses who are among the frontline health workers in the fight against the disease.
Methods: This was a cross-sectional study conducted on a sample of nurses in two tertiary healthcare setting. A simple random sample of 111 nurses completed the general healthcare questionnaire (GHQ 12).
Results: The mean age of respondents was 36.86±8.2 years, consisting of 38.7% males and 61.3% females. The prevalence of psychological distress was 64.9%. Females had significantly higher psychological distress than males (p=0.003). Also, respondents performing duties in COVID-19 ICU hosting institution had significantly higher distress score than those from non COVID-19 hosting centre (p=0.02). Psychological distress was also significantly higher for respondents with a history of exposure to suspected (p=0.001) or confirmed cases (p<0.001). Formal infection prevention training was a protective factor for the development of psychological stress (p=0.002).
Conclusions: A large proportion of nursing staffs have a high level of psychological distress during the ongoing COVID-19 pandemic. Mental health interventions may be required to mitigate mental health risks in these health workers.

Keywords: COVID-19 disease, Nigeria, Nurses, Psychological distress

INTRODUCTION

Corona virus disease (COVID-19) is a novel viral disease which originated in Wuhan city as an epidemic in November 2019 and has rapidly spread around the world resulting in a worldwide pandemic which has exerted enormous public health emergency.[1] Recent studies have reported that COVID-19 disease is caused by acute respiratory syndrome corona virus (SARS-CoV-2) which is transmitted from human to human through respiratory droplet and close contact.[2,3] Nations around the world have adopted various public health preventive measures, according to World Health Organization (WHO) guidelines, to limit the spread of the virus.[4,5]

Contact tracing and quarantine for exposed persons have been vigorously implemented in many countries worldwide to limit the spread of the disease. Losses of freedom, loneliness, inadequate information, fear of the disease etc. are some factors associated with quarantine. Containment measures towards limiting the spread of COVID-19 disease including quarantine, states and country lockdown, travel restrictions, social distances, use of facemask among others, have resulted in varying

degrees of psychological distress among persons in the medical populations and the general population. Several studies have reported association between persons in quarantine, psychological distress and increased vulnerability to sadness, anxiety and other symptoms of psychological distress.[6-8]Recent studies have reported that hospital workers experienced both physical and psychological distress in response to participating in the treatment of patients with serious infectious public health event.[9-11] Previous study among hospital workers had suggested that hospital workers particularly doctor and nurse were more susceptible to psychological distress/disorders after participating in the treatment of SARS patients.[12]

Nurses constitute the largest group of healthcare professionals and are one of those in the frontline of healthcare delivery services to patients, often in close physical proximity and are at high risk of exposure to diseases. There seem to be differences in psychological distress expressed by nurses during pandemic based on individual characteristics of age, sex, and educational status.[13-16] Therefore, the objective of this study was to determine the psychological impact of the covid-19 pandemic on mental well-being of nurses in two tertiary health facility in Akwa-Ibom state, Nigeria.

METHODS

Location of the study

This study was conducted at two tertiary healthcare facilities in Akwa Ibom, a state in the South-South region of Nigeria. The participating centres were the University Teaching Hospital, a 500 bedded tertiary referral hospital of Uyo with a COVID-19 isolation centre, and the state psychiatric hospital. Ethical approval was obtained from the Hospital Ethics Committee and the Medical Advisory Panel on Research in both participating centres. The study duration was 4 weeks (May 1-31, 2020).

Study population

The study participants were nurses working in the selected institutions and includes those working directly and indirectly with covid-19 positive patients.

Study design

This was a cross-sectional descriptive study designed to achieve the above set objective. Simple random sampling technique was used in recruiting participants into the study. A total of 111 nursing staffs were selected from both centres. The subjects were informed about the purpose of the study, were assured of confidentiality, and included in the study after obtaining their written informed consent.

Data collection

Structured socio-demographic questionnaire

A socio-demographic questionnaire designed by the authors was used to obtain information. Measures evaluated includes socio-demographic details (age of the participants and family members, gender, educational status, marital status, religion, monthly family income, place of residence, history of contact with covid-19 cases.

The psychological distress of the respondents was measured using the 12-item general health questionnaire (GHQ-12). GHQ-12 has been widely used by researchers in various cultures as a screening tool to determine whether an individual is at risk of developing a psychiatric disorder. It has been found to be reliable and well-validated. It consists of 12 items, each one assessing the severity of a mental distress over the past few weeks. Each item is accompanied by four responses, typically being 'not at all', 'no more than usual', 'rather more than usual' and 'much more than usual'. Each item was scored using a 4-point Likert-type scale (from 0 to 3) to generate a total score ranging from 0 to 36. The positive items were scored from 0 to 3 and the negative ones from 3 to 0. The mean score was used to determine cases. Higher scores represent higher psychological distress.[17,18]

COVID-19 exposure

Exposure to COVID-19 was assessed by several nominal questions requiring yes/no answer. They were asked whether they had been exposed to suspected or confirmed COVID-19 patients during work or whether they had been working in a clinical unit or team designated to diagnosis and treatment of COVID-19 patients.

Participants were asked to indicate sources of distress from a check list of sources of distress during the COVID-19 pandemic.

Data analysis

Descriptive statistics such as frequencies, median, mean and standard deviation were computed for socio-demographic and clinical characteristics of the participants and other variables as appropriate. Inferential statistics such as t-test was used to determine the relationship between outcome and independent variables. Significance was computed at $p<0.05$

The statistical package for the social sciences 20 (SPSS Inc., Chicago, IL, USA) program was used for statistical analysis.

RESULTS

A total of one hundred and eleven nurses with completed questionnaires were included in the study analysis. The mean age of participants was 36.86±8.20 years. The age

distribution of the participants indicated that 67.6% were in the range of 20 to 40 years, and 32.4% were in 41 to 60 years age bracket. More than half were females (61.3%). The majority of the participants, 68.5% were married. 9.0% of participants had utilized mental health service and 10.8% had a positive family history of mental illness. Approximately 58% of the respondents performed their nursing duties in a tertiary healthcare facility accommodating COVID-19 isolation centre (Table 1).

Table 1: Socio-demographic characteristics of respondents.

Variables	Participants N (%)
Mean age	36.86±8.2
Age in years	
20-40	75 (67.6)
41-60	36 (32.4)
Sex	
Male	43 (38.7)
Female	68 (61.3)
Marital status	
Single	35 (31.5)
Married	76 (68.5)
Place of residence	
Urban	80 (72.1)
Rural	21 (18.9)
Use of mental health services	
Yes	10 (9.0)
No	101 (91.0)
Family history of mental illness	
Yes	12 (10.8)
No	99 (89.2)
Mean GHQ-12 score	17.08±6.04
Psychological distress	
Yes	72 (64.9)
No	39 (35.1)

*GHQ: General Health Questionnaire

Respondents' level of psychological distress

The descriptive analysis showed that the mean GHQ score for the sample was 17.08±6.10. Using the mean score as cut-off point, the study revealed that 35.1% of the respondents scored 16 and below on the GHQ-12, while 64.9% others score 17 and above indicating that a higher proportion of the respondents were psychologically distressed.

Psychological distress, demographics and related factors

The influence of socio-demographic characteristics on the psychological state of respondents during the COVID-19 pandemic healthcare services was varied. Having a family member with mental illness did not cause significant increase in the likelihood of respondents developing psychological distress during this pandemic.

Table 2: Participants' characteristics and average GHQ-12 score.

Characteristics	Mean±SD	Statistics	P value
Age (in years)			
≤40	16.88±6.01	t=-0.18	0.85
>40	17.25.67±6.3		
Gender			
Male	14.06±5.6	t=-3.32	0.002
Female	19.95±5.2		
Service in COVID-19 isolation centre			
Yes	18.50±6.28	t=-2.15	0.004
No	14.46±4.9		
History of exposure to suspected Covis-19 cases			
Yes	22.06±4.5	t=-4.95	0.001
No	18.28±3.9		
History of exposure to confirmed cases			
Yes	20.58±5.6	t=-6.86	0 .001
No	11.80±2.86		
COVID-19 infection prevention training			
Yes	15.92±6.40	t=3.23	0.002
No	19.82±4.01		
Years in service (Experience)			
≤10 years	18.83±4.7	t=-2.15	0.18
>10 years	16.24±6.6		
Underlying chronic medical condition			
Yes	16.53±5.8	t=2.48	0.04
No	20.60±6.8		
Having family member with mental illness			
Yes	17.50±6.03	t=0.17	0.86
No	17.06±6.07		

Table 3: Sources of psychological distress among respondents.

Perceived causes of stress	No. %
Fear of contacting COVID-19 disease	96 (86.5)
Lack of personal protection equipment	78 (70.3)
Lack of large scale diagnostic COVID-19 testing	75 (67.6)
Financial constraints	42 (37.8)
Exposure to negative news content	33 (29.7)
Excessive workload	15 (13.5)
Fear of bringing infection home to family members	66 (59.5)
Lack of infection prevention training	69 (62.2)
Lockdown and movement restriction	45 (40.5)
Perceived poor organizational/ governmental support	19 (17.1)

The female respondents were significantly more likely to develop psychological distress than the male respondents. (t=-3.32, p=0.002). Also, the respondents performing their duties at the facility hosting COVID-19 isolation centre were significantly more likely to have psychological distress compared to those rendering health

services in a non COVID-19 isolation centre (t=2.15, p=0.04). Having an underlying medical condition (p=0.004), not having a formal training for COVID-19 infection prevention and exposure to suspected or confirmed cases of COVID-19, were significantly associated with the development of psychological distress (p=0.001 and p<0.001) respectively. Years of service (experience) and family history of mental illness were not significant factors associated with the development of psychological distress (Table 2).

Regarding the causes of psychological distress, the four most commonly endorsed causes of psychological distress were fear of contracting COVID-19 disease (86.5%), lack of personal protection equipment (70.3%) and lack of large scale diagnostic testing for COVID-19 disease (67.6%) (Table 3).

DISCUSSION

COVID-19 disease pandemic has been described as an important public health issue by the World Health Organization because of the number of persons and their families affected by the illness and have highlighted the need for adoption of strict infection control and prevention measures to break the transmission of the disease.[4]

Healthcare professionals particularly the nurses are at increased risk of exposure to the illness due to proximity and working closely to manage those infected with COVID-19, and are at a greater risk to develop psychological distress and other stress-related problems than the general population.[19]

In this study, the prevalence of psychological distress was 64.9%. This high prevalence of psychological distress among these health workers is in agreement with previous studies which have reported high psychological distress among frontline health workers during emergency services delivery.[20,21] A cross-sectional study by Xiao et al on 180 medical staff, reported a high levels of psychological distress among medical staff in China who were treating patients with COVID-19 infection.[20,21]

The psychological distress among the nurses was observed to be high in spite of the fact that only a small proportion of them have had exposure to suspected or confirmed COVID-19 cases in this study. It was also observed that the psychological distress associated with working in a centre hosting a COVID-19 isolation centre was significantly higher than those working in a non COVID-19 isolation centre. The factors noted in this study that may underlie such a high psychological distress among the nursing staffs and frontline workers during this pandemic may include the continuous spread of COVID-19 disease, risk of getting infected and transmitting it to family members and friends, shortage of personal protective equipment, lack of large scale diagnostic testing for COVID-19 and exposure to negative news content about COVID-19.[2,23]

Similar findings were reported among health workers during the SARS pandemic during which high levels of psychological distress were reported among health workers.[24]

Recent research reports indicate that the proportion of health workers being infected with COVID-19 continues to increase, ranging from 15 to 20% of the infected population of several countries including Italy, China, United States, Spain, France and Pakistan. [25,26]

In this study, the lack of large scale diagnostic testing for COVID-19 disease and lack of personal protection equipment as indicated by majority of respondents may portend a worrisome situation and constitute an enormous vulnerability for this category of health workers. This finding is consistent with recent research reports from many countries around the world. [27,28]

The fear of contracting COVID-19 disease during this ongoing pandemic remains the single most important underlying factor causing a high level of psychological distress among all categories of health workers. Hence, there is an urgent need to provide adequate psychological support to our frontline medical workers. Governmental and institutional authorities must limit the risk of COVID-19 exposure to health workers by urgently addressing lapses and inadequate infection prevention and control measures, in order to improve the mental wellbeing of all categories of healthcare workers.

This study has some limitations. First, the cross-sectional nature of the study with a single period of data collection does not allow for undue generalization of findings. Also, the mental health status of participants was measured using self-report questionnaires. This might lead to an overestimation of mental health worries by participants.[18]

CONCLUSION

A significantly high proportion of nursing staffs have a high level of psychological distress during the ongoing COVID-19 pandemic. Therefore, periodic mental health interventions may be required to mitigate mental health risks in these health workers.

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