Original Research Article

COVID-19 PSYCHOLOGICAL TRAUMA AND ITS ASSOCIATED FACTORS AMONG NURSES IN SOUTHWEST NIGERIA

Abstract

Background

COVID-19's sudden uprising and proliferation causes fear and psychological distress in the general public. Its pandemic nature is associated with psychological distress and symptoms of mental illness. Hence, it becomes imperative to pay attention to the mental health of nurses who are caring for patients during the outbreak.

Methodology

A cross-sectional study among 161 nurses in southwest Nigeria. Online questionnaires were sent to nurses through social media applications. In addition to socio-demographic and work-related variables, psychological trauma was measured using Kessler-10 psychological distress scale. Descriptive statistics, Chi square test, and binary logistic regression were used in the analysis. All analysis were done using Stata MP 16.

Results

COVID-19 related psychological trauma was 27.4% among nurses. Majority of the respondents were females (82.6 %), Christians (85.7%), and urban residents (88.2%).About 85.7% of the nurses were Yoruba by tribe. About a half of the nurses (48.4%) had less than 10 years work experience. Muslims (AOR: 4.17, CI: 1.27- 13.76) were 4.17 times more likely to have COVID-19 related psychological trauma compared to Christians. Also, nurses who had no contact with COVID-19 patients (AOR: 0.09, CI: 0.02- 0.49) were less likely to have COVID-19 related psychological trauma.

Conclusion

COVID-19-related psychological trauma was notably high among the nurses, and associated risk factors were religion and contact with COVID-19 patient. Nurses should be given

adequate attention in terms of programmes or training that is capable of improving their competence in handling COVID-19 patient and boost their psychological health during the pandemic.

Introduction

The novel corona virus outbreak started in China towards the end of 2019 in Wuhan city of central Hubei province from where it spreads. Since then the world has been ravaged by the disease due to its highly contagious nature. The infection spread across the globe rapidly in a matter of weeks, causing the World Health Organization (WHO) to declare it a public health emergency of international concern by the end of January, 2020 (21). Other coronaviruses such as Severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) have been characterized by inefficient transmission in general community settings, but also by amplification events in health care settings occasionally results in large nosocomial outbreaks (1,7)

The spread of the infection coupled with its lethality is higher than previous epidemics due to increase international travels (25). As a result, around 5 million people have been tested positive to the virus worldwide with almost 100,000 cases reported across Africa as at 22nd of May, 2020. Current figures also show that the virus has now caused more death with an estimated figure of about 350,000 deaths recorded globally (**7**).

The detection and spread of an emerging respiratory pathogen are accompanied by uncertainty over the key epidemiological, clinical and virological characteristics of the novel pathogen and particularly its ability to spread in the human population (28). Normally, the outbreak of a pandemic generates problems not only for the patients but also for the health care providers across the different aspects of health domain. Being a new disease that is wrecking so much havoc globally, COVID-19's sudden uprising and proliferation causes fear and psychological distress in the general public (21). Its pandemic nature is associated with psychological distress and symptoms of mental illness (4). Hence, it becomes imperative to pay attention to the mental health of healthcare providers who are caring for patients during the outbreak.

According to Lai et al. (2020), frontline health care providers who are directly involved in the care of COVID-19 infected patients are vulnerable to psychological distress and other mental health symptoms. This assertion corroborates previously documented findings on similar outbreak such as Severe Acute Respiratory Syndrome (SARS) and **H1N1** epidemics where frontline health professionals were found to be mentally stressed (25). This psychological trauma has been attributed to continuous rise in the number of confirmed and suspected cases, excess workload, increased risk of exposure to the virus, absence of definite medications, the need for personal protection, lack of adequate support, and fear of exporting the virus home and spreading it among families and loved ones (6, 10, 13, 25). The sudden reversal of role from healthcare provider to a patient may also lead to frustration, helplessness, adjustment issues, stigma and fear of discrimination (20).

Many healthcare providers are generally strained mentally, with nurses particularly being mentally traumatized in the on-going COVID-19 pandemic (15). Despite being the crisis management personnel, nurses are not themselves immune to the psychological consequences due to COVID-19. Nurses play a critical role, not only in the clinical management of patients, but also in ensuring adequate infection prevention and control measures are implemented in healthcare facilities.

Studies have shown that nursing staff are more likely to be at risk of developing mental health problems compare to other health care providers (10, 13, 27). In a recent Chinese study among health personnel exposed to COVID-19, (13) found that a significant number of respondents had symptoms of psychological distress. The study also reported that being a nurse, woman, or a frontline worker predisposes to high level of mental distress in their study population. Furthermore, studies showed that nurses' exposure and contact with patients with emerging contagious infection put the nurses at risk of being lonely, fearful, anxious, fatigue and experiencing sleep difficulty (23).

Having close contact with patients suffering from highly contagious infection of COVID-19 magnitude can predispose nurses to short-term and long-term mental health problems (15). In a country like Nigeria with weak health infrastructure, handling COVID-19 is a source of concern among healthcare personnel especially those at the frontline like nurses. This fear and major health concerns are expected to increase daily in a period of epidemic (21). According to the Nigeria Centre for Disease Control (NCDC), Nigeria has recorded over 215,313 confirmed cases of COVID-19 as at 10th of December, 2021. This includes almost

4662 active cases and over 2981 deaths (16).Out of the 36 states in Nigeria, the six southwest states are in the middle of the pandemic with a total number of 102,371 (47.5%) confirmed cases, Lagos state recorded the highest number of confirmed cases (78752) in Nigeria, while Oyo state recorded a total of 8,830, Ogun state recorded 5382, Ondo recorded 4591, Osun state recorded 3034, and Ekiti state 1783 (21). A study in Nigeria have explored psychological distress among health workers and revealed a prevalence of 47% in the entire population (2), but there is paucity of information on the pattern of psychological distress among nurses in the southwest states of Nigeria. Own to the fact that the pandemic is hitting the Southwest Nigerian so hard (16) and that nurses are key frontliners in health care delivery during COVID-19 (9), it is necessary to explore the pattern of psychological distress among nurses who are practicing in southwest states of Nigeria. Hence, this study was designed to investigate COVID-19 related psychological trauma and mental wellbeing of nurses in South West Nigeria. The specific objectives are to determine the prevalence of COVID-19 related psychological trauma among the nurses and to describe the factors associated with COVID-19 psychological trauma among the nurses.

Methodology

Study Design

An online cross-sectional survey to assess psychological trauma and mental wellbeing of nurses during the pandemic of COVID-19 in Southwest Nigeria. Due to the infeasibility of carrying out a hospital based study during the lockdown and restriction of unnecessary visit to health facilities, an online data collection tool (kobo toolbox) was used for the data collection which was disseminated to nurses by the research team via social media applications. Restrictions were programmed in the app to prevent those who are not nurses practicing in the any of the six southwest states from filling the online forms.

Study population and settings

The study population includes nurses who render services at any of the health facilities located in the south-west region in Nigeria. The region consists of six states and is majorly a Yoruba speaking area, although there are different dialects across each state. According to Nigeria Health Facility Registry (HFR), about 7,286 (4,044 public and 3282 private) health facilities are cited in the region.

Sampling and Sample

Participants for this study were reached by sending an online questionnaire through the social media, the sample size for this study will estimated by using the formula $n = \frac{Z_{(1-\alpha/2)}{}^2 \, P \, (1-P)}{d^2}$

Where Z at 5% level of significant is 1.96 with estimated margin error of 5%. Proportion (P)= 10% and q=90%(Benfante et al., 2020).

$$n = \frac{Z_{(1-\alpha/2)}{}^2 \, P \, (1-P)}{d^2}$$

z= 1.96

p=0.1

q=0.9

d=0.05

The calculated sample size was 138, and after adjusting for 15%non-response rate, we estimated a sample size of 159. Hence a total sample of 161 was collected for this study.

Inclusion criteria

Nurses who are providing healthcare services in any of the health facilities in the six (6) states of southwest Nigeria.

Exclusion criteria

The data collection database was designed to prevent participants who are not nurses practicing in the any of the six southwest states from filling the online forms.

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Authors contributions

Olayinka Ajao conceived the research idea for this research work and planned the research excercise, Abayomi Olarinmoye helped with the data collection strategies and manuscript

writing and manuscript draft review, Olanrewaju Eniade helped with the research analysis and writing of the manuscript, Olufemi Ogungbesan was involved with results interpretation, Yusuff Olasunkanmi helped with the writing of the methodology section, Olawale Gbadebo wrote the paper with input from all authors, Tongdiyen L. Jasper, contributed to the design and implementation of this work, Boluwatife Osundina helped with the design of questionnaire , review of manuscript draft and data collection .

Instrumentation

Outcome variable psychological trauma was measured with the 10-item Kessler Psychological distress scale (K-10). Each item of the questionnaire was scored from one (none of the time) to five (at all time) yielding a minimum score of 10 and maximum of 50. Scores between10-19 was categorized as "Likely to be well" while 20-50 was classified as having psychological trauma. The instrument was reported to possess adequate internal consistency (26) and has been used in previous Nigerian studies where it was also said to demonstrate satisfactory Cronbach's alpha value (12, 17). The respondents were also asked if they had received training on COVID-19 and if they have had personal contact with or cared for a COVID-19 patient. The questionnaire also includes demographic variables such as age, gender, religion, rank, specialty, monthly income, marital status, family type among others.

Statistical Analysis

Data collected from June 2020 to December 2020 was exported from the online data collection tools (Kobo toolbox) into Stata MP 16 for cleaning and recoding. Prevalence of COVID-19 psychological trauma was determined using frequencies and percentages. Association between the outcome variable and covariates such as socio-demographic characteristics and information on health facility were examined using a Chi square test for the categorized covariates. Variables that turned out to be significant at 10% in the bivariate analysis were included in the univariate logistic regression to obtain the unadjusted estimate of effect for each explanatory variable and multivariable logistic regression to investigate the factors influencing psychological trauma among the nurses.

Results

Table 1.0: A table showing the socio-demographic characteristics of respondents

Table 1 showed that the majority of the respondents were females (82.6 %), and were Christians (85.7%). Close to one-third (31.1%) were junior nurses and 88.2% resides in an urban area. Most (85.7%) of the nurses speaks Yorubas language, and 85.1% work in urban-located health facilities. Majority (82.6%) had no personal contact with COVID-19 patients but many of them (62.1%) have received training on COVID-19 management. About a half of the nurses (48.4%) had less than 10 years work experience.

Concerning psychological trauma, figure 1 reveals that only 27.4% of the nurses experienced mild/moderate/severe psychological trauma due to COVID-19.

Table 1: A table showing the socio-demographic characteristics of respondents (n=161)

Variables	Frequency	Percent (%)
Gender		
Female	133	82.6
Male	28	17.4
Religion		
Christianity	138	85.7
Islam	23	14.3
Present rank/level		
NOII	50	31.1
NOI	26	16.1
SNO	26	16.1
PNO	14	8.7
ACNO	17	10.6
CNO	28	17.4
Area of residence		
Rural	19	11.8
Urban	142	88.2
Ethnicity		
Yoruba	138	85.7
Others	23	14.3
Location of health facility		
Rural	24	14.9

Urban	137	85.1
Had personal contact with COVID-19 patients		
No	133	82.6
Yes	28	17.4
Received training on COVID-19		
No	61	37.9
Yes	100	62.1
Years of experience		
<10 years	76	48.4
10 – 19 years	50	31.8
>=20 years	31	19.7
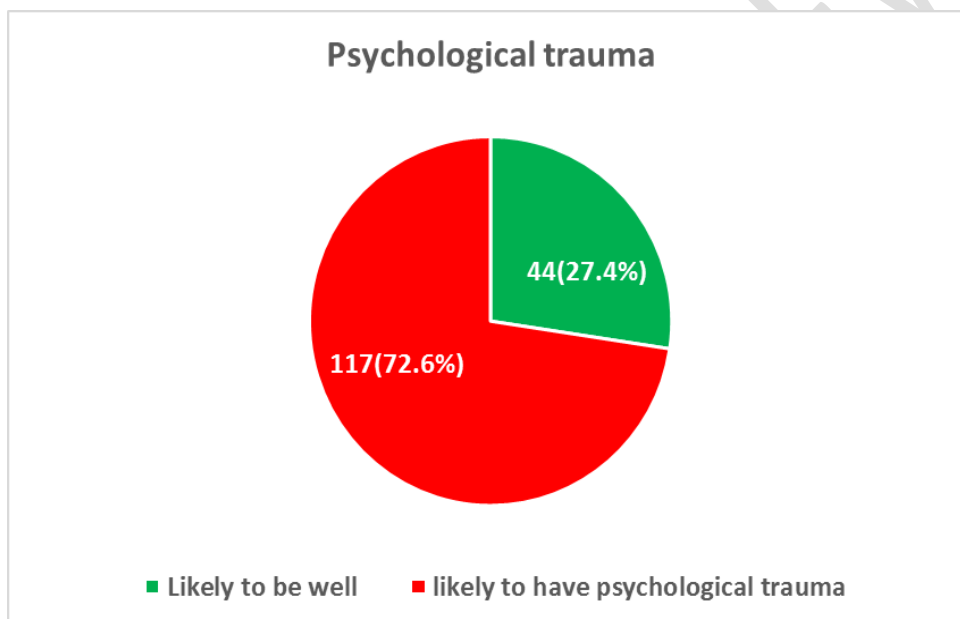
Fig 1: Prevalence of psychological trauma

Factors associated with COVID-19 psychological trauma among the nurses

As presented in Table 2, the factors associated with COVID-19 psychological trauma among the nurses were shown in table 2. Religion was significantly associated with psychological trauma (p=0.026), rank of the nurses, and their area of residence were also observed to be significantly associated with psychological trauma at p=0.05 and p=0.027 respectively.

Furthermore, having contact with COVID-19 patients was associated with COVID-19 psychological trauma (p=0.001).

Table 2: Factors associated with COVID-19-related Psychological Trauma

	Psychological Trauma		Test statistics	p-value
	Absent	**Present**		
Gender				
Female	97(75.2)	32(24.8)	2.43	0.119
Male	17(60.7)	11(39.3)		
Religion				
Christianity	103(75.7)	33(24.3)	4.99	**0.026**
Islam	11(52.4)	10(47.6)		
Present rank/level				
NOII	32(65.3)	17(34.7)	11.09	**0.050**
NOI	21(84.0)	4(16.0)		
SNO	20(76.9)	6(23.1)		
PNO	6(42.9)	8(57.1)		
ACNO	13(81.3)	3(18.8)		
CNO	22(81.5)	5(18.5)		
Area of residence				
Rural	17(94.4)	1(5.6)	4.87	**0.027**
Urban	97(69.8)	42(30.2)		
Ethnicity				
Yoruba	101(74.3)	35(25.7)	1.40	0.237
Others	13(61.9)	8(38.1)		
Location of health facility				
Rural	20(87.0)	3(13.0)	2.79	0.095
Urban	94(70.1)	40(29.9)		
Had personal contact with COVID-19 patients				
Yes	12(46.2)	14(53.8)	10.97	**0.001**

No	102(77.9)	29(22.1)		
Received training on COVID-19				
Yes	68(70.1)	29(29.9)	0.80	0.370
No	46(76.7)	14(23.3)		
Years of experience				
<10years	53(69.7)	23(30.3)	0.97	0.615
10 - 19years	35(72.9)	13(27.1)		
>=20	23(79.3)	6(20.7)		

Predictors of COVID-19 related Psychological Trauma among nurses

The predictors of COVID-19 related psychological trauma among the nurses were shown in Table 3. The study showed that Muslims (AOR: 4.17, CI: 1.27- 13.76) were 4.17 times more likely to have COVID-19 related psychological trauma compared to Christians. Also, nurses who have had no contact with COVID-19 patients (AOR: 0.09, CI: 0.02- 0.49) were less likely to have COVID-19 related psychological trauma.

Table 3: Logistic Regression Showing Predictors of Psychological Trauma

	AOR	p-value	95%CI	
Variables			Lower	Upper
Gender				
Male (ref)			-	-
Female	0.35	0.063	0.12	1.06
Religion				
Christian (ref)				
Islam	4.17	0.019 **	1.27	13.76
Present rank/level				
1. NOII (ref)				
2. NOI	0.31	0.094	0.08	1.22
3. SNO	0.44	0.22	0.12	1.64
4. PNO	1.91	0.431	0.38	9.51
5. ACNO	0.38	0.275	0.06	2.18
6. CNO	0.70	0.574	0.2	2.47

Area of residence				
Urban (ref)				
Rural	0.13	0.136	0.01	1.88
Ethnicity				
Yoruba (ref)				
Others	1.41	0.575	0.43	4.66
Location of health facility				
Rural (ref)				
Urban	0.98	0.984	0.17	5.72
Had personal contact with COVID-19 patients				
Yes (ref)				
No	0.09	0.005**	0.02	0.49
Received training on COVID-19				
Yes (ref)				
No	3.91	0.119	0.7	21.76
** P-value significant at 5%				

Discussion

A total of 161 nurses participated in the study and as expected, majority of them were females which corroborates the common feature in nursing. Almost half of the nurses were junior nurses (NOII and NOI) with moderately more than three-quarter from Yoruba extraction and residing in an urban area. The preponderance urban nurses in this study was expected as health facilities were more in the urban areas in southwest Nigeria. It is also worthy of note that about one-fifth of the nurses have had personal contact with COVID-19 patients as of the time this study was conducted, although more than half reported to have received training on COVID-19.

The study found that slightly above a quarter of the nurses experience COVID-19 psychological trauma. This finding revealed a lower proportion of psychological trauma compared to the report of (3) and an Italian study among health workers which also reported 63.2% (14). Also, a study carried out among physicians in Egypt by (22) reported a higher figure of psychological distress (51.7%) in contrast to the present study. Our finding, however, is consistent with that of another study conducted among healthcare workers in the

northern region of the country where 23.4% experienced psychological distress (1). This finding may be due to the fact that the nurses in this setting were not overwhelmed with COVID-19 patients like their counterparts in other parts of the world who were faced with a higher prevalence and fatality from COVID-19 pandemic.

The present study revealed that religion was associated with psychological trauma among the respondents. Close to half of Muslim respondents experienced COVID-19 related psychological trauma compared to their Christian colleagues. This may be due to different approaches employed by the practitioners of the two dominant religions in addressing life events. A significant association was also observed to exist between the respondents rank and trauma due to COVID-19. More than half of the Principal Nursing Officers (PNO) who constitute the least of the nursing cadres experience psychological trauma. In addition about a third of Nursing Officer II also experienced the trauma. A likely reason for this is that low and middle cadre nurses usually have more direct day to day contact with patients compared with the high cadre nurses who are more engaged with managerial assignments. Our study also shows that residing in an urban area was significantly associated with psychological trauma. A possible explanation for this is that almost all the COVID-19 cases recorded in the study area reside in urban areas (16). We also found that slightly more than half of the nurses who have had contact with COVID-19 patients reported psychological trauma and this finding was significant. This is in line with the findings of Parek et al. (2020) (18) and Sehsah et al. (2021) (22) who also reported significant association between COVID-19 psychological trauma and exposure to positive patients by nurses and physicians respectively.

In the present study, religion and having contact with COVID-19 patients were found to be the significant predictors of psychological trauma among the respondents. Being a Muslim make the respondents' to be more than 4 times more likely to experience psychological trauma and respondents who have not managed a COVID-19 patient were 0.09 time less likely to suffer from psychological trauma.

Conclusion

This study revealed that COVID-19-related psychological trauma was notably high among the nurses. Identified risk factors were religion and contact with COVID-19 patient. We recommend that governments, ministry of health and other concerned authorities should give nurses adequate attention and strengthening in terms of programmes, training, and

motivations that is capable of improving their competence in handling COVID-19 patient and boost their psychological health during the pandemic.

Ethical Approval

Ethical approval for the study was obtained from the University of Osun State Health Research Ethical Committee (UNIOSUN HREC), Osogbo, Nigeria with the ethical number UNIOSUNHREC/2020/018.

Consent

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

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