

The Psychological Impact of COVID-19 on Healthcare Professionals in FCT, Abuja, Nigeria

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Abstract

A Coronavirus (COVID-19) outbreak characterized by fever, dry cough, fatigue, and with occasional gastrointestinal symptoms was initially reported in Wuhan, China, highly infectious and a mortality rate around 10%–15%. In Nigeria and FCT, the disease was confirmed on the 27th of February and 20th of March 2020 respectively. The objectives were to determine the epidemiological characteristics and transmission of COVID-19, to assess the socio-medical responses to COVID-19 in FCT, to recommend the mitigation and intervention strategies to the states and Nigeria as a whole and even globally. The study design was retrospective, 385 individuals were randomised selected in the study areas. The responses were analysed using Statistical Package for Social Sciences (SPSS) version 20. Confirmed cases was 23,239, 72 deaths, and a cumulative incidence (CI) was 6.7/ 100, 000 and a Cumulative Fatality rate (CFR) of 0.30%. Testing for the disease and vaccine uptake in FCT was very low and the psychological impact of COVID-19 on health workers was significantly very high, levels of depression, anxiety, worried about having enough to eat next week and worried about household finances was their major concern. The result reveals that 77.4% were depressed, 31.9% were nervous, 54.3% were worried about what they will eat next week and 66% were worried about their household finances.

Keywords: COVID-19, Psychological Impact, HCWS, FCT.

Introduction

Background: An outbreak of a mysterious virus causing pneumonia occurred in late December 2019 and characterized by fever, dry cough, fatigue, and occasional gastrointestinal symptoms. It was epidemiologically associated with a seafood and animal market, the Huanan Seafood Wholesale Market, in Wuhan, Hubei, China [1]. The disease was deemed to be zoonotic in origin, from bat. This is the deadly third-generation virus in the Corona family preceded by Middle East Respiratory Syndrome

(MERS) in 2012 and severe acute respiratory syndrome (SARS) in 2003. After Rhinoviruses, Coronaviruses are ranked as the main cause of the commonplace cold without triggering any sickness [2]. In 1937, the primary coronavirus was in bats, rarely affecting humans and mostly circulating among animals like bats, camels, and cats. Later, they mutated to contaminate rats, cattle, pigs, mice, cats, dogs, horses, and turkeys [3].

However, because of mutation change, it had acquired the capacity to transfer from human to human through the air droplet after coughing and

sneezing from an infected person. The mortality rate caused by the virus was around 10%–15%. [4,5] Even if the transmission dynamics are not completely understood and significant knowledge gaps still need to be filled [6]: An individual can get infected through touching infected surfaces then touching the face, eyes, nose, and the mouth.[7] The virus causes less severe symptoms than Ebola but has a high competence of infection. The disease was officially named as Coronavirus Disease-2019 (COVID-19) by W.H.O on February 11, 2020. It was also named Severe Pneumonia with Novel Pathogens on January 15, 2019, by the Taiwan CDC, the Ministry of Health and is a notifiable communicable disease of the fifth category. COVID-19 is a potential zoonotic disease with a low to moderate (estimated 2%–5%) mortality rate. The WHO issued a public health emergency of international concern (PHEIC) alarm on January 30, 2020. By the beginning of March 2020, it was identified as a pandemic (WHO, 2019). Consequently, WHO highlighted the excessively high burden on healthcare professionals (HCPs) and called for intervention to address the immediate needs so as prevent serious impacts of this outbreak on both physical and mental health of these health care providers. The outbreak of COVID-19 has currently spread widely to more than 120 countries and territories [4,5]. The virus belongs to the family Coronaviridae, and subfamily of Coronavirinae and belong to the order Nidovirales, and the realm Riboviria [8]. Seven human coronaviruses (HCoV) are listed as follows: ARS, ERS, SARS-CoV-2, HCoV-229E, HCoV-OC43, HCoV-NL63, HCoV-HKU1 [9]. An unprotected hospital staff that was exposed to patients' droplets or through contact is prone to be infected and nosocomial infections ensue, and this stresses the importance of good infection prevention and control [10]. The spread is coming currently in waves, up to the fourth wave. Improved public safety response by early event identification, suspicious accidents monitoring, contact tracking and improved

airport security, public awareness and safety staff caution are some of the intervention techniques proposed against the spread to other territories [11]. Only familial clusters but also outbreaks in ocean liners, especially cruise ships were reported. As of 29th March 2021, the global spread of confirmed cases was 126,890,643 million and 2,778,619 deaths. In Nigeria, confirmed cases were 162,641 with 2,049 deaths as of 30th March 2021 [7].

For comprehension of viral pathogenicity, determining the number of particles that trigger infection is crucial. A low infectious dose could mean the organism is highly transmissible from person- to-person and via touching contaminated surfaces. The main method for defining the infective viral dose is through studies utilizing dilution of virus studies for cytopathogenic effect (CPE) in 50% of inoculated culture cells (known as tissue culture infectious dose, or TCID50), or by counting plaque-forming units each plaque in a layer of host cells indicating colonization by a single virus particle (PFU) (12). TCID50 is the viral dose that induces either pathological changes or cell death in 50% of inoculated tissue cultures. The infectious doses for SARS-COV1 are slightly higher than a hundred but that of 2019-nCoV is not clear.

As the outbreak has become pandemic, the frontline workers who were the HCPs become overwhelmed and psychologically distressed and began to propagate, and quickly expanded and are directly or indirectly involved in the consulting, diagnosing, treating, and caring for patients with COVID-19, and are therefore at high risk of contracting the infection [13]. FCT and Nigeria as whole faced specific challenges for preparing for the pandemic: in a context of bad governance and an alarming situation, patient facing HCWs in FCT, in Nigeria, AFRICA and even globally were in danger of developing psychological distress. The incremental trend of confirmed and suspected cases, overwhelming remaining tasks at hand, inadequate personal protective equipment (PPE), broad media inclusion with daily announcement

of whole global figures of infection rate, absence of explicit medication and feelings of being ineffectual may all add to the psychological burden. In a developing country like Nigeria and FCT, Low health sector budget, unemployment, low literacy rate and failure to deliver impartial health services at all sectors add cumulatively to the misery especially during this pandemic. Weak Health system and corrupt political and economic fragility, high inflation rate, severe insecurity, kidnaping and banditry, resulted in inadequate preparation in the protection of HCPs and decreasing motivation and support among HCPs [14, 15]. Among the factors reported to contribute to the mental health burden of these healthcare workers are the overwhelming spread of the life-threatening disease, the virulence of the Virus, the gradual increase in numbers of newly diagnosed and suspected cases, the surge in mortality rates, the fear of becoming infected and transmitting the infection to their loved ones, the increase in patient getting infected increase the workload, the potential lack of personal protective equipment (PPE), the depletion of certain drugs, the lack of a specific treatment, and feelings of being inadequately supported [16] all were contributing factors to the psychological impact. Accordingly, it has been reported that during previous viral outbreaks, HCPs endured a high degree of both physical [17] and mental stress during and even years after the end of epidemics [18]. The current pandemic has had several psychiatric consequences among healthcare practitioners who treat patients with confirmed or suspected COVID-19 infection.[19] Clearly, HCPs should be regarded as a high-risk population because of their higher anxiety, depression, and worries compared with the general population [20]. This occupational health stress in HCPs is a very great hazard, for it may adversely affect the quality of healthcare (QoC) provided to patients.

In a various study done in many different countries, revealed that the prevalence of mental health complications associated with COVID-19 pandemic [21] is enormous. The magnitude

documented is the psychological burden among healthcare workers and the risk and protective factors have been identified. [22,23] For instance, an Italian cross-sectional survey-based study with a retrospective assessment showed that the COVID-19 outbreak led to life changes in Italian healthcare workers in terms of increase in negative mood, worry, loneliness, fatigue, restlessness, and decrease in happiness [24].

Addressing the needs of frontline HCPs during the COVID-19 pandemic is an important priority.[25] Accordingly, the aims of our study were to screen HCP for their mental health by looking into depression, anxiety, Worries, Economic effect of covid-19 among HCWs and means of livelihood for the families. Findings from this work will help to maintain a sustainable, effective, and efficient healthcare response to the outbreak while safeguarding the wellbeing of HCPs in FCT-Abuja and our country as a whole and else the rest of the HCPs globally.

Materials and Methods

Study Design

The methodology of this study is a retrospective study with a sample size of 385 healthcare workers participated in both Tertiary and secondary Health facilities.

Study Population

All participants aged 18 years and above that were HCPs participated, provided their written consent on the questionnaire before responding to the questions. Those who agreed were directed to the questionnaire, and those who declined automatically exited the survey. The inclusion criteria included all health care workers but the exclusion of the administrative staff. Respondents were recruited irrespective of gender, cultural background, or origin.

The questionnaire was a hand-delivering, self-administered questionnaire that is to be filled out by the respondent and collected later. The questionnaire has different sections: Assessment of Covid-19 like symptoms, Covid-

19 Testing, Assessing preventive measures (social distancing, Wearing mask, Hand washing) Vaccine Acceptance, basic demographic information such as age (years), gender (male or female), occupation, accommodation, psychological history, type of hospital (Secondary Care Centre and Tertiary Care Hospital), Assessing Covid-19 psychological impact on Health Care Providers (HCPs) and use of phone and sources of information.

Sample Size Determination

Minimum sample size is determined by using the Cochran formula, which is as shown below, and this Cochran's formula allows the calculation of an ideal sample size given a desired level of precision, a desired confidence level, and the estimated proportion of the attribute present in the population.:

Where: e is the desired level of precision (i.e., the margin of error),

p is the (estimated) proportion of the population which has the attribute in Question,

q is $1 - p$.

The z -value is found in a Z table which is 1.96.
 P Value = 0.5.

95% confidence, and at least 5% — plus or minus — Precision. A 95 %.

Confidence level gives us Z values of 1.96, per the normal tables, so we get $(1.96)^2 \times 0.5 \times (1-p)/0.052$.

$(3.8416) \times 0.5 \times (1 - 0.5) / (0.0025)$.

$(3.8416 \times 0.5 \times 0.5) / 0.025$.

$= (3.8416 \times 0.25) / 0.025 = 385$.

So, a random sample of 385 participants been the target population and will be enough to give the confidence levels needed. 385 questionnaires were administered to the respondents in the study area of FCT, Abuja. However, the sample size used for the survey was 385 to consider any incomplete and non-response data.

Sampling Technique

The two secondary and one tertiary health

care institution in the state were purposively selected: FCT University Teaching Hospital Gwagwalada and Maitama and Wuse District Hospital Using simple random sampling techniques,

Data Collection and Analysis

Data was collected using a structured, self-administered questionnaire from October 14 to December 15, 2021. A questionnaire of University of MARYLAND, USA survey to provide a set of the comparative effect of the impact of the novel pandemic was adapted. All participants were aged 18 years and above and they provided their written consent on the questionnaire before responding to the questions. Those who agreed were directed to the questionnaire, and those who declined automatically exited the survey. The questionnaire was a hand-delivered, self-administered questionnaire that was filled in by the respondent and collected later. The questionnaire extracts basic demographic information and vaccine acceptance. Individual identification information was not collected, because the survey was completely anonymous. After administering the questionnaire and the response obtained from the respondents was kept under secure server. All responses were gathered and were treated with all confidentiality. The level of significance is 5%. A pilot study was carried out among 31 health care providers of Gwarimpa General Hospital, FCT, Abuja where participants was also randomly selected for clarity, acceptability, and readability. Finding from the field data collection after analysing agreed with the result from the field pilot study conducted at Gwarimpa General Hospital in all the thematic area covered.

Psychological Impact Questions

The psychological question investigated were Depression, Anxiety/Nervous that nothing could calm them down, worried that they or someone in their immediate family may become seriously ill or Worried on having what to eat next week

and how worried they are about their household finances in the next coming week(s).

Statistical Analysis

All data were analysed with SPSS statistical software, version 20.0. The psychological symptoms of depression, anxiety/nervous that nothing could calm them down, worried that they or someone in their immediate family may become seriously ill or Worried on having what to eat next week and how worried are they about their household finances in the next coming/subsequent week(s) were assessed. Univariate analysis was used to evaluate

Results

candidate predictors of mental health disorders. The significance level was set at $p \leq 0.05$, 95% confidence interval.

Ethics Statement

This study was approved by the FCTA Health Research Ethics Committee (FHREC /2021/01/100/24-08-21). Individual written / informed consent was also obtained from the respondents before the questionnaire was to be answered. All information sought was handled with utmost confidentiality and in accordance with the Declaration of Helsinki.

Table 1. Socio Demographic Characteristics of the respondents (N=385)

Socio Demographic Characteristics	n (%)
Age Group	
18-24 years	73 (19)
25-34 years	116 (30.1)
35-44 years	51 (13.3)
45-54 years	92 (23.9)
55-64 years	35 (9.1)
Missing	18 (4.7)
Gender	
Male	132 (34.3)
Female	234 (63.8)
Missing	19 (4.9)
Area where you are staying	
City	139 (36.1)
Town	196 (50.9)
Village or rural area	31 (8.1)
Missing	19 (4.9)
In the last 7 days, did you do any work for pay, or do any kind of business, farming, or other activity to earn money, even if only for one hour	
Yes	215 (55.9)
No	156 (40.5)
Missing	14 (3.6)
Before February 2020, were you working for pay, or doing any kind of business, farming, or other activity to earn money?	
Yes	271 (70.4)
No	100 (26.0)
Missing	14 (3.6)
What is the main activity of the business or organization in which you	

work?	
Agriculture	28 (7.3)
Buying and selling	10 (2.6)
Construction	6 (1.6)
Education	6 (1.6)
Health	297 (77.1)
Personal Service	1 (0.3)
Professional / scientific / technical activities	1 (0.3)
Transportation	1 (0.3)
Other	11 (2.3)
Missing	24 (6.2)
How many people slept in the place where you stayed last night (including yourself)?	
1-3 people	184 (47.8)
4-7 people	90 (23.4)
8-10 people	9 (2.3)
More than 10 people	27 (7)
Missing	49 (12.7)
In the place where you are staying, how many rooms are used for sleeping?	
1 room	71 (18.4)
2 rooms	104 (27)
3 rooms	136 (35.3)
4 rooms	36 (9.4)
5 or more rooms	18 (4.7)
Missing	20 (4.2)

Source: Author, 2021

Table 1 present the socio-demographic characteristics of health workers sampled in both tertiary and secondary health facilities in FCT. The results showed that 116 (30.1%) of the health workers were between the age of 25 and 34 years while 35 (9.1%) were in the age bracket of 55 to 64 years. In addition, 234 (63.8%) of the surveyed health workers were female while 132 were males (36.2 %). Also, not less than half (50.9%) of the health workers reported to be staying in FCT Metropolis (town) while 139 (36.1%) reported to be staying in the (outskirts of Abuja) city clusters of FCT. Moreover, 335 (87%) were staying in urban area of FCT while 31(8.1%) were in the rural area).

Similarly, more than half (55.9%) of the health workers reported to be working for pay in the last 7 days, did you do any work for pay, or do any kind of business, farming, or other

activity to earn money for at least one hour. Furthermore, the result showed that 271 (70.4%) of the health workers surveyed were working for pay, or doing any kind of business, farming, or other activity to earn money before February 2020.

The result showed that 297 (77.1%) respondents reported that they currently work with health- related organization or business while 28 (7.3%) respondents currently working in agricultural related organization. In addition, the result revealed that 287 (74.6%) respondents reported that they were working in health-related activities before February 2020 whereas 25 (6.5%) were working with agriculture related organizations before February 2020.

Also, 184 (47.8%) of the respondents reported that between 1 to 3 people slept in the place where they stayed last night; 90 (23.4%) of the

respondents reported that between 4 to 7 people slept in the place where they stayed last night meanwhile 27 (7%) of the respondents reported that more than 10 people slept in the place where they stayed last night. In summary about 50.4% of FCT residents sleep in overcrowded rooms, which will favor the spread of COVID.

19. Moreover, 136 (35.3%) of the respondents reported that three (3) rooms were used for sleeping where they are staying; 104 (27%) respondents reported that 2 rooms were used for sleeping where they are staying while 71 (18.4%) of the respondents reported that a room was used for sleeping where they are staying. (If 18.4% HCP were having only one room for sleeping in FCT the capital of Nigeria then what is happening in other states? This means social

distancing will not be practicable, if 18.4% HCP were having only one room for sleeping in FCT the capital of Nigeria then what is happening in other states? This means social distancing will not be practicable.

Psychological Effects of COVID-19

Findings from the study revealed that more than half (63.9%) of the health workers were nervous that nothing could calm them down any time. Also, 13.5% of the health workers were nervous that nothing could calm them down a little of the time. Moreover, the study showed that 8.8% of the health workers were some of the times nervous that nothing could calm them down (Figure 1). The level of nervousness among HCWs was 31.9%.

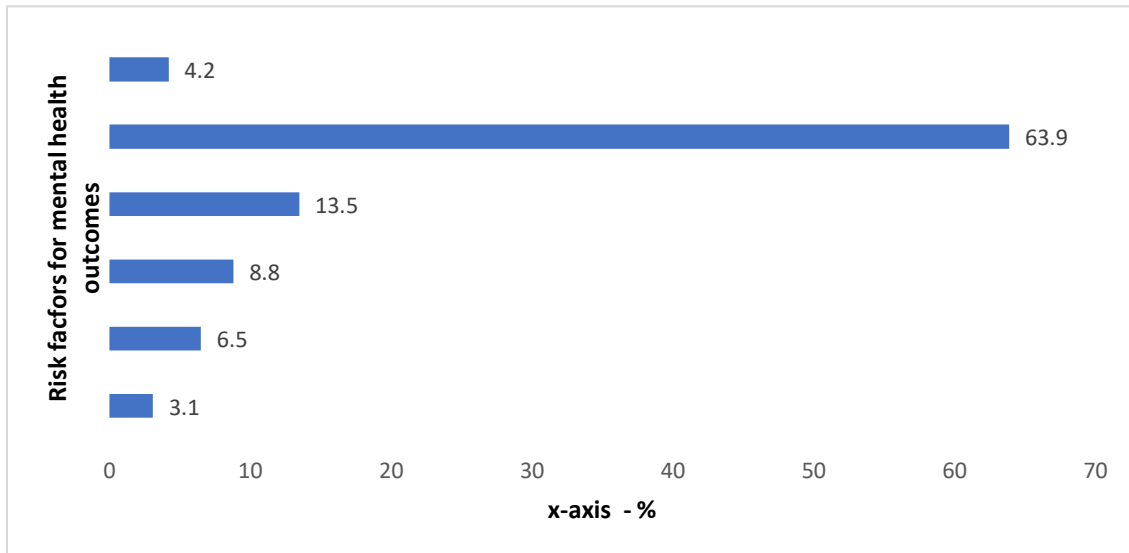


Figure1. Distribution of How Often Respondents Feel So Nervous that Nothing Could Calm Them Down

Furthermore, from this study about half (44.9%) of health workers were not too worried that nothing could cheer them up. Also, 19.5% of health workers were very worried that nothing could cheer them up. In addition, 18.4% of the

health workers reported not to be worried at all that nothing could cheer them up. In summary 82.8% of HCP feel so depressed that nothing could cheer them up.

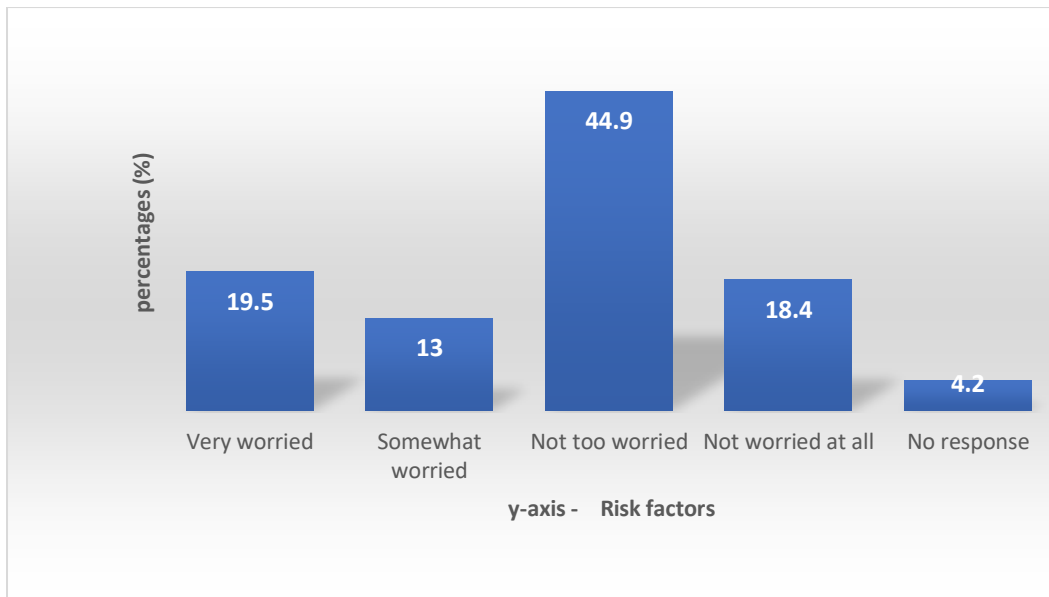


Figure 2. Distribution of How Often Respondents Felt So Depressed that Nothing Could Cheer Them Up

Moreover, the study found that 40.8% of health workers surveyed were not worried at all about having enough to eat one week after the survey. In the same manner, 26.2% of health workers were not too worried about having enough to eat a week after the survey. On the

contrary, 18.4% of health workers were very worried about having enough to eat a week after the survey (Figure3). In summary 54.3% of health care workers were worried about what they will eat in the next week.

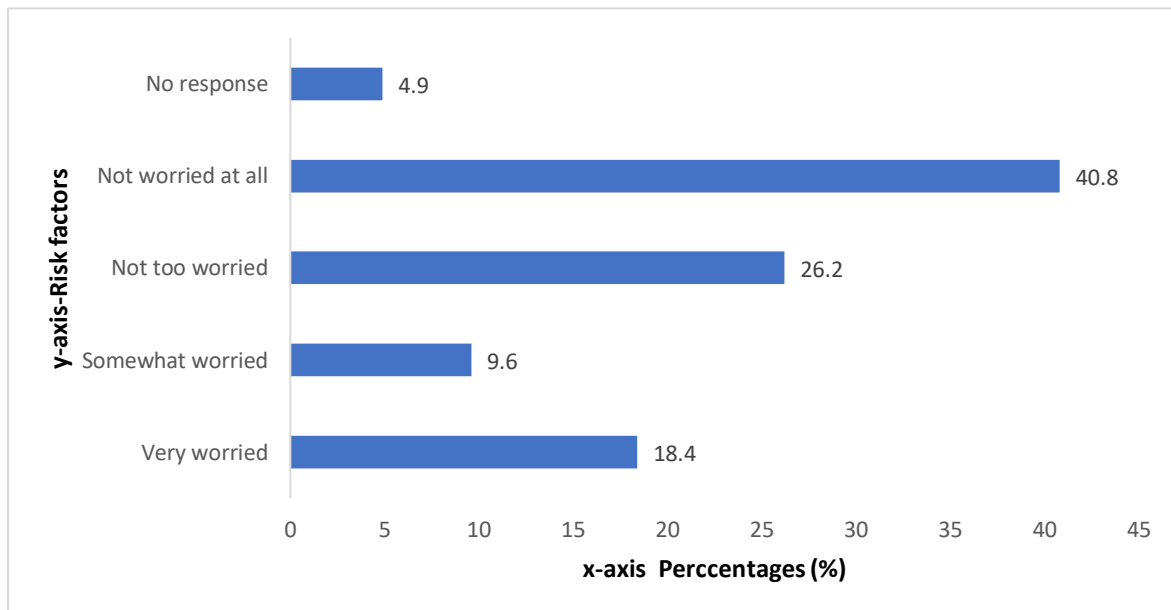


Figure 3. Distribution of How Worried Respondents Were About Having Enough to Eat Next Week

In this study less than half (30.7%) of the health workers were not too worried about their household finance while 29.6% reported not being worried at all about the household finances.

In addition, the study revealed that 21.6% of the health workers were very worried about the household finances (Figure 4). The level of worried about household finance 66%.

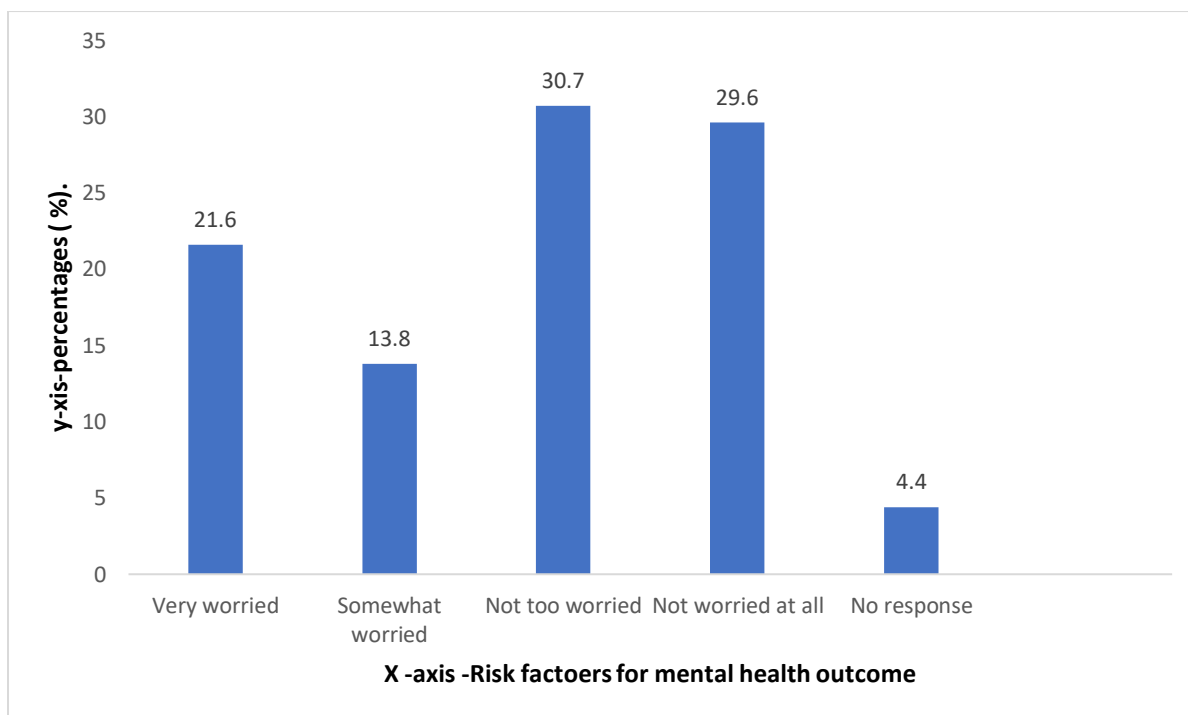


Figure 4. Distribution of How Worried Respondents Were about Household Finances

Discussion

This study examined the presence of depression, anxiety that nothing could calm them down, worried that they or someone in their immediate family may become seriously ill or Worried on having what to eat next week and how worried they were about their household finances in the next coming/subsequent week(s) among health workers in FCT, Abuja during the COVID- 19 pandemic. During the previous years, FCT faced few pandemics of HIV of 1981, Ebola virus in 2014-16, epidemics of Lassa fever, meningitis in 2017, yellow fever, and cholera.

cholera epidemic of 2021 in FCT, had morbidity of 698 infected case and the mortality was 60 [26] and measles without a significant impact on its healthcare system. The 2012 West Nile virus epidemics [27] and the 2013 MERS-COVID outbreaks [28] are two examples, but neither of them was like COVID-19 pandemic in terms of magnitude of the virulence and consequences, it caused on the country's aspects of healthcare, economy, the education and households [29]. A meta-analysis of the Tunisian study earlier research showed that on average,

two out of every five HCPs endured negative psychological outcomes during the COVID-19 pandemic, for example, anxiety, depression, insomnia, and other worrisome outcomes [30]. In another meta- analysis which was undertaken on a global scale combined studies of influenza and coronavirus epidemics, showed a substantial proportion of psychological symptoms among HCPs [31]. Thus, HCPs have been challenged psychologically during the outbreak globally.

The current pandemic emerged in FCT, Abuja, and Nigeria as a country while facing Weak Health system, corrupt governance and economic crisis, political instability, high inflation rate, severe insecurity, kidnaping and banditry, all resulted to instability in the families. In Tunisia the pandemic emerged at a time when the Country was grappling with an economic crisis, in addition to the political instability [32]. In fact, Tunisia faced an unprecedented crisis due to continuous political turmoil and the unfolding economic and financial meltdown, which was exacerbated by the COVID-19 pandemic. FCT and with the whole of Nigerian HCP and the government as Tunisian HCPs and their government however, found themselves

unprepared psychologically and logistically to face pandemic [33]. More especially at its first onset just like the FCT HCP who even went on series of strike because of non- payment of salaries, salary irregularities and shortfalls since the migration of intergraded Personnel and payroll information System (IPPS), non-payment of covid-19 allowances, rural allowances and non- remittance of 3rd party deduction and non-payment of hazard allowances and inadequate supply of PPE and lack of moral support either from the government and from the community [34].

The FCT study showed that psychological depressive disorder was 77.4%, anxiety that nothing could calm them down was 31.9%, worried that they or someone in their immediate family may become seriously ill was 31.2% just as in the case of the study done in Bangladesh. [35, 36] Psychological stress faced by healthcare professionals during public health emergencies included constant worries about infecting children and parents of an individual, fear of death, anxiety about critical patients, and personal danger [37, 38].

From the previous study it was documented that healthcare professionals need social support from their family members, relatives, and neighbors. Being devoid of that, support can result in anxiety and depression for healthcare professionals. It was predicted that steady payment of salary, allowances, and incentives such as economic support, constant supervision, sufficient protective equipment, adequate workforce, and community support could motivate health workers to contribute more during pandemic situations. But unfortunately, FCT and Nigerian healthcare professionals are mostly deprived of these incentives. Some of the infected healthcare professionals mentioned that though the government announced some financial incentives, they did not receive any. Worried on having what to eat next week was 54.3% while worried about their household finances in the next coming/subsequent week(s) was 66%. Also, in another study done in Nigeria

showed health care providers were being stigmatised in a community for being working at the isolation centers and several report of eviction from their accommodations was obtained during the greatest hit of the outbreak [39,40,41]. Stigmatisation is observed in a study done in Singapore which revealed that fear, uncertainty, stigma with associated psychological distress was among some of the primary healthcare providers caused by SARS [42]. From this FCT, Abuja study majority of the respondents of 234 (63.8%) were female and overall participant's aged was 18–64 years, just as Lai et al reported majority of respondents in that study was females and aged 26–40 years. With regards to the reasons for the mental health conditions, we found that majority of the medical professionals were worried about infecting their family reported by 53 (58.2%) followed by contracting COVID-19 themselves 20 (22.0%), which is consistent with the previously published literature [43]. A greater reason for worry about family is that often due to the extended family living as one unit in Pakistan, this finding is common among the non- medical professionals who were worried about contracting COVID-19 themselves 16(37.2%), followed by lack of appropriate training reported by 15 (34.9%) participants. Reasons for this persistent fear and reluctance despite adequate measures are the mass causalities worldwide being broadcast by the media. The mass fear of COVID-19 “corona phobia” [44] is also due to the unpredictable course of the disease, rate of virulence, no definitive treatment, intolerance of uncertainty, perceived risk of acquiring the infection can generate negative psychological responses including maladaptive behaviors, emotional distress, and avoidance reaction among common people. The psychological impact could have been reduced if we define achievable roster and adequate suitable medical equipment, Governments must deliberately find a way to reduce the percentage of the patients' attendants to the healthcare setups amid a crisis. Health

professionals should have their mental health screened regularly and monitored and supported to protect them from nervous breakdowns. At the same time, it is essential to identify secondary psychosocial risk factors (such as living with minors and elderly family members) and be supported. All these measures become inevitable in a developing country like Nigeria where mass awareness regarding mental health for such disorder is regarded as stigma and a taboo seeking medical help publicly.

This study has a few limitations, given that it was conducted during the period of series medical crisis of strikes due to non-payment of salaries, allowances, inadequate/no PPE and no support for health care providers from both the government and the community, which could possibly explain the high severity of mental health issues among healthcare workers working in FCT.

Ethics Statement

This study was approved by the FCTA Health Research Ethics Committee (FHREC /2021/01/100/24-08-21). Individual written/informed consent was also obtained from the respondents before the questionnaire was to be answered. All information sought was handled with utmost confidentiality and in accordance

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with the Declaration of Helsinki.

Conclusion

The results of this study significantly highlighted psychological disorders such as depression, anxiety and stress among healthcare workers which is disturbing. Interventions are a must to salvage the psychological wellbeing of healthcare workers and reinforce the capacity of healthcare systems for future outbreaks. Health care workers with the whole population need capacity building and awareness of the outbreaks as well as measures such as telemedicine for monitoring and service delivery. Similarly, government and communal support are very important for increasing the competence of healthcare workers and will decrease the degree of mental disorders.

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Conflict of Interest

There is not any competing interests to disclose.

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