Prestige Journal of Counselling Psychology, Vol. 6, No. 2, September 2023 ISSN: 2651-5687 (Print)
A publication of the Association for the Promotion of Innovation in Education (APIE) ISSN: 2651-5709 (Online)

COVID-19 Induced Anxiety and Stress as Correlates of Mental Disposition among Frontline Health Workers in Calabar Metropolis, Cross River State, Nigeria

[1]**Stephen Ushie Akpa**
ushiesteven@yahoo.com
https://orcid.org/0000-0002-7414-0351

[1]**Christiana Ukpata Ofie**
xtydelight@gmail.com

[1]**Felicia Agbor-Obun Dan, Ph.D**
drmrsfeliciadan@gmail.com
https://orcid.org/0000-002-8091-8377

[1]**Martina Ayibeya Apie, Ph.D**
martinaapie@gmail.com

[1]**Joseph Odey Ogabor, Ph.D**
ogaborjosephodey@yahoo.com

[1]**Peter Owogoga Aduma**
adumapeter31@gmail.com
[1]*Department of Human Kinetics and Health Education*
Faculty of Vocational and Science Education
University of Calabar, Calabar

Aminu Shantali Shuaibu, Ph.D
Ashantali91@gmail.com
Department of Human Kinetics and Health education
Shehu Shagari University of Education, Sokoto

Abstract
This study examined COVID-19-induced anxiety and stress as correlates of mental disposition among frontline health workers in Calabar Metropolis, Cross River State, Nigeria. The study adopted correlational research design, and was guided by two null hypotheses. Literature was reviewed based on the variables of the study. Stratified random sampling technique was adopted in selecting the health facilities, while purposive sampling technique was adopted in selecting the two hundred and one respondents used for the study. Three instruments were used in the study. The instruments were validated by three psychometric experts from the Department of Educational Foundations, and Department of Educational Management in the University of Calabar. The Pearson Product Moment Correlation statistical tool was used to test the hypotheses of the study. The result obtained from analysis revealed that there was a significant relationship between COVID-19-induced anxiety and stress on the mental disposition of frontline health workers in Calabar Metropolis of Cross River State, Nigeria. Based on these findings, it was recommended that the Ministry of Health should ensure that frontline health workers are adequately sensitized on the best approaches to manage emergencies in order to reduce the level of anxiety and stress among them.
Keywords: covid-19, mental, frontline, health, workers

Introduction

Coronavirus disease 2019 (COVID-19) is a highly contagious and deadly disease caused by a variant of the severe acute respiratory syndrome (SARS) virus, known as the SARS-CoV-2. The virus was first discovered in 2019 in Hubei province, Wuhan, China (Sun et al., 2023). Since its first discovery, the virus rapidly spread across the world causing an unprecedented worldwide health crisis which led to the infection and death of millions of people. People infected with COVID-19 suffer from severe respiratory symptoms characterized by difficulty in breathing. This is because the virus affects the nasal airways, leading to the inflammation of the bronchioles in the lungs which causes the individual to lose the ability to absorb oxygen, leading to shortness of breath and consequently death (Rossato et al., 2020). The COVID-19 disease was declared a global pandemic by the World Health Organization in March 2020 due to the rapid spread of the virus. Hence, various practices such as the use of face/nose masks, physical and social distancing, adoption of core hygiene protocols like regular hand washing and the use of sanitizers, total and partial lockdowns were implemented in order to mitigate the spread of the virus.

However, while the rest of the world hid behind the four falls of their homes as a result of the lockdown measures imposed to mitigate the spread of the virus, healthcare workers were at the forefront of the public health crisis zealously fighting against the spread of the virus by attending to infected patients and understudying the novel virus. Sun et al. (2023) categorized health care workers in the fight against the pandemic into four groups in their study. These include frontline healthcare staff, frontline non-healthcare staff, non-frontline healthcare staff and non-frontline non-healthcare staff. According to the authors, frontline healthcare staff were the COVID-19 face-to-face treatment doctors and COVID-19 patient face-to-face nurses. While non-frontline healthcare personnel were medical personnel in the diagnostic laboratory department who had no direct contact with COVID-19 patients. Due to the context of this study, frontline health workers were conceptualized as all medical professionals who were directly involved in the fight against the COVID-19 pandemic. Although community health workers have no specialized medical training, they operate as links between physicians, nursing staff and remote or vulnerable groups (Olaniran et al., 2017).

According to Hanefeld et al. (2018), healthcare workers (HCWs) play a vital role in a society's immediate response to community health crises such as pandemic outbreak; and as first responders, they are often the most vulnerable to such health risks. The emergence of the COVID-19 disease placed extreme demands on healthcare workers who were faced with genuine threats to their own physical safety and that of their families (Billings et al., 2021). Moreover, as an emerging and highly contagious disease which was not yet fully understood, with no vaccine or specific antiviral treatment available, COVID-19 also added to the mental strain of healthcare workers who suffered an extreme work overload to provide medical care for the increasing number of patients and were at a very high risk of being infected (Li & Luo, 2020). Shreffler et al. (2020) opined that healthcare workers were at the centre of the COVID-19 pandemic, attending to patients with COVID-19; reducing the spread of the virus by formulating suitable immediate strategies and long-term solutions. Frontline health workers were in direct contact with infected persons and as such had higher health risks contaminating the virus in addition to other health concerns such as psychological distress, mental stress and occupational burnout, fatigue as well as stigma

(Atnafie et al., 2021; Li & Luo, 2020). The experience of emotional exhaustion among frontline health workers can lead to medical errors, lack of empathy in treating patients, low productivity, and higher turnover rates, as well as affect their mental disposition (Penwell-Waines et al., 2018). Many healthcare workers were infected and died with COVID-19, and many of them were quarantined to prevent the continuous spread of the virus (Nagesh & Chakraborty, 2020).

During the course of the pandemic, various studies were carried out on the intersection between COVID-19-induced anxiety and stress on frontline healthcare providers because of the critical and invaluable role they played in the fight against the virus spread. A study by Sun et al. (2023) on the psychological changes of medical personnel in hospitals who experienced special COVID-19 situations revealed that there was a statistically significant difference in anxiety and depression levels between health workers and none health workers with that of health workers being higher. The study by Ogolodom et al. (2020) on the knowledge, attitudes and fears of healthcare workers towards the corona virus disease (COVID-19) pandemic in South-South, Nigeria reported that majority of the respondents (61%) perceived themselves at risk of being infected by the virus; agreed strongly that they are prone to having the infection as well as strongly disagreed that hospital infection control policy was adequate. Also, a significant portion of the respondents strongly agreed that their willingness to go to work was affected by COVID-19 pandemic. Furthermore, evidence from the study indicated that a majority of healthcare workers persisted that work place safety was inadequate. Such responses elicited from the preceding study pointed to underlying psychological distress as well as the mental disposition experienced by healthcare workers during the pandemic.

Liang et al. (2020) compared healthcare workers in COVID-19 associated departments to other healthcare workers. It was found that a significant portion of healthcare workers experienced clinically depressive symptoms, but no significant differences between frontline healthcare workers and non-frontline healthcare workers. In a study that examined depression, anxiety, insomnia, and distress among healthcare workers, Lai et al. (2020) disclosed that healthcare workers experienced high incidence of depression, anxiety and insomnia with women, nurses, and frontline workers having higher negative health outcomes. The study also found that female healthcare workers were at a greater risk of psychological stress. Chew et al. (2020) measured stress and anxiety among healthcare workers in Singapore and India. The results showed that 5.3% of the respondents were faced with moderate to very severe depression while 8.7% had moderate to extremely severe depression. The review of literature revealed consistent reports on stress, anxiety, and depressive symptoms among healthcare workers as a result of COVID-19. This shows that mental health of frontline health workers was greatly challenged as a result of the pandemic.

Overcoming the COVID-19 pandemic was partially dependent on the effectiveness of healthcare systems as well as the wellbeing of frontline health workers. However, seemingly little studies have been conducted to evaluate the relationship between COVID-19-induced anxiety and stress among frontline health workers in Calabar, thus, the importance of this study. This study sought to investigate COVID-19-induced anxiety and stress as correlates of mental disposition among frontline health workers in Calabar Metropolis of Cross River State, Nigeria. The study was of great social significance because

it aroused the need and interest for the society to pay attention to the possibility of psychological distress among healthcare workers during an epidemic or pandemic, such as COVID-19 in order to develop a supportive management system to address such issues among healthcare providers.

Hypotheses

Two null hypotheses were formulated to guide the study.

Ho1: There is no significant relationship between COVID-19-induced anxiety and the mental disposition of frontline health workers in Calabar metropolis.

Ho2: There is no significant relationship between COVID-19-induced stress and the mental disposition of frontline health workers in Calabar metropolis.

Methodology

The correlational research design was adopted for the study. The population of the study comprised of all frontline health workers who were in the COVID-19 response team in Calabar Metropolis, Cross River State, Nigeria. Statistics from the Cross River State Ministry of Health revealed that COVID-19 Response Team comprised of five hundred and sixteen (516) frontline health workers in Calabar Metropolis.

The sampling technique used to select the sampled health facilities was the stratified random technique in order to ensure that health facilities from the two local government areas of the study area were appropriately covered. For each local government area, the names of health facilities were written on pieces of paper and folded into ball-like shapes which were placed in a container. Four paper balls were blindly selected from each container and the health facilities whose names appeared on the picked pieces of paper were selected for the study. To select the respondents used for the study, the purposive sampling technique was used to select frontline health workers in the selected health facilities. Only respondents who were directly involved in COVID-19 Response were selected for the study. Two hundred and one (201) frontline health workers, representing 39.3% of the study's population, were used.

Three different questionnaires were used in the study. The first questionnaire was an adapted version of the Hamilton Anxiety Rating (Maier et al., 1988) used to measure anxiety; it was modified to measure COVID-19-induced anxiety of frontline health workers. The second questionnaire, used to test COVID-19-induced stress among frontline health workers, was adapted from Akah et al. (2022); while the third instrument used in the study was a structured questionnaire used to get responses on the mental disposition of COVID-19 frontline health workers. In all, the questionnaires comprised of 15 items (5 items for each variable) with four- point Likert scale ranging from Strongly Agree (SA) to Strongly Disagree (SD). All items in the questionnaires were positively skewed, which were vetted and deemed appropriate for the study by two psychometric specialists and experts in Tests and Measurements from the Department of Educational Foundations and one from the Department of Educational Management, both in the University of Calabar. The instruments were subjected to the Cronbach Alpha reliability test with reliability coefficients ranging from 0.76 to 0.82.

The questionnaires were administered and retrieved through the direct delivery method. Before administering the questionnaires, respondents were briefed on the need for the study and were assured that their responses would be treated with utmost secrecy. The generated data were analyzed using the Pearson Product Moment Correlation statistical tool.

Presentation of results

Ho1: There is no significant relationship between COVID-19-induced anxiety and the mental disposition of frontline health workers in Calabar metropolis.

The independent variable in this hypothesis was COVID-19-induced anxiety while the dependent variable was the mental disposition of frontline health workers in Calabar Metropolis. The Pearson Product Moment Correlation statistical tool was used for data analysis. The result of this analysis is presented in table 1.

Table 1: Pearson Product Moment Correlation Analysis of the relationship between COVID-19-induced anxiety and mental disposition of frontline health workers in Calabar Metropolis, Cross River State (N = 201)

Variables	$\sum x$ $\sum y$	$\sum x^2$ $\sum y^2$	$\sum xy$	**Cal-r**
COVID-19-induced anxiety	2742	3187	4378	0.413*
Mental Disposition of frontline health workers	3733	5684		

*Significant at 0.05; df = 199; critical r-value = 0.138

The result of analysis presented in table 1 showed that the calculated r-value of 0.413 is higher than the critical r-value of 0.138 at 0.05 level of significance with 199 degree of freedom. This implied that the null hypothesis was rejected. As a result, there is a significant relationship between COVID-19-induced anxiety and the mental disposition of frontline health workers in Calabar metropolis.

Ho2: There is no significant relationship between COVID-19-induced stress and the mental disposition of frontline health workers in Calabar metropolis.

The independent variable in this hypothesis was COVID-19-induced stress, while the dependent variable was mental disposition of frontline health workers. Pearson Product Moment Correlation statistical tool was used for data analysis. The result of this analysis is presented in table 2.

Table 2: Pearson Product Moment Correlation analysis of the relationship between COVID-19-induced stress and mental disposition of frontline health workers in Calabar Metropolis, Cross River State (N = 201)

Variables	$\sum x$ $\sum y$	$\sum x^2$ $\sum y^2$	$\sum xy$	**Cal-r**
COVID-19-induced Stress	2507	3264	4058	0.372*
Mental disposition of frontline health workers	3733	5684		

*Significant at 0.05; df = 199; critical r-value = 0.138

The result of analysis presented in table 2 showed that the calculated r-value of 0.372 is greater than the critical r-value of 0.138 at 0.05 level of significance with 199 degree of freedom. This implied that the null hypothesis which states that there is no significant relationship between COVID-19-induced stress and the mental disposition of frontline health workers in Calabar metropolis was rejected. As a result, there is a significant relationship between COVID-19-induced stress and mental disposition of frontline health workers in Calabar Metropolis, Cross River State.

Discussion of the findings

The finding obtained from analysis of data and testing of hypothesis one revealed that the null hypothesis was rejected. This implied that there is a significant relationship between COVID-19-induced anxiety and mental disposition of frontline health workers in Calabar Metropolis, Cross River State. The cause of this finding could be that the dreaded coronavirus poses a lot of uncertainty on its mode of transmission. This has created anxiety among frontline health workers on its potential danger and the consequences associated with the pandemic. This can account for the reason why some health workers have negative attitude towards coronavirus response initiatives of the government through the National Centre for Disease Control. The finding of this study agrees with that of Li and Luo (2020), Sun et al. (2023), and Chew et al. (2020) who established a relationship between mental strain and COVID-19 among frontline health workers.

The finding obtained from the second analysis of data and testing of the hypothesis revealed that the null hypothesis was rejected. This implied that there is a significant relationship between COVID-19-induced stress and mental disposition of frontline health workers in Calabar Metropolis, Cross River State. This finding could be as a result that enormous tasks associated with the outbreak of the pandemic which put much pressure on frontline health workers. This is because they have to attend to numerous emergency cases which tend to increase their usual workload and create stress. Stress often results in health workers developing negative attitude towards the coronavirus pandemic. This result aligned with the studies of Atnafie et al. (2021), Li and Luo (2020), Liang et al. (2020), Lai et al. (2020), and Chew et al. (2020) who all agreed that frontline healthcare workers during the COVID-19 pandemic were faced with enormous amount of stress as a result of too much workload.

Conclusion

The essence of this study was to investigate the relationship between COVID-19-induced anxiety and stress and mental disposition among frontline health workers in Calabar

Metropolis, Cross River State, Nigeria. The findings obtained from analysis of data and testing of hypotheses revealed that there was a significant relationship between anxiety and stress and mental disposition of frontline health workers in the study area. It can therefore be concluded that healthcare workers in Calabar metropolis were subjected to mental strain in the process of performing their job during the height of the COVID-19 pandemic, which in turn affected their disposition for service delivery.

Recommendations

Based on the findings obtained from analysis of data and testing of hypotheses in the study, the researchers recommended that:

i. The Ministry of Health should ensure that frontline health workers are adequately sensitized on the best approaches to manage emergencies in order to reduce the level of anxiety among health workers towards COVID-19.

ii. The Corona-virus response team should ensure that health workers are given breaks in order to enable them have some rest that would help reduce stress during COVID-19 intervention activities and other emergency situations.

iii. Frontline health workers should be encouraged to manage their mental health effectively in order to continue to avoid anxiety in the discharge of their duties towards COVID-19 response.

References

Akah, L. U., Owan, V. J., Aduma, P. O., Onyenweaku, E. O., Olofu, M. A., Alawa, D. A., Ikutal, A. & Usoro, A. A. (2022). Occupational stress and academic staff job performance in two Nigerian universities. *Journal of Curriculum and Teaching*, 11(5), 64-78. https://doi.org/10.5430/jct.v11n5p64

Atnafie, S. A., Anteneh, D. A., Yimenu, D. K. & Kifle, Z. D. (2021). Assessment of exposure risks to COVID-19 among frontline health care workers in Amhara Region, Ethiopia: A cross-sectional survey. *PLoS ONE*, 16(4), 1-14. e0251000. https://doi.org/10.1371/journal.pone.0251000

Billings, J., Ching, B. C., Gkofa, V., Greene, T. & Bloomfield, M. (2021). Experiences of frontline healthcare workers and their views about support during COVID-19 and previous pandemics: A systematic review and qualitative meta-synthesis. *BMC Health Services Research*, 21(923), 1-17. https://doi.org/10.1186/s12913-021-06917-z

Chew, N. W., Lee, G. K. & Tan, B. Y. (2020). A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain and Behavioral Immunology*, 88, 559-565.

Hanefeld, J., Mayhew, S., Legido-Quigley, H., Martineau, F., Karanikolos, M. & Blanchet, K. (2018). Towards an understanding of resilience: responding to health systems shocks. *Health Policy Plan*, 33(3), 355–367.

Lai, J., Ma, S. & Wang, Y. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Netw Open*, 3(3), e203976.

Li, Y. & Luo, B. (2020). Frontline health-care workers in combating the COVID-19: Respect and reflect. *Risk Management and Healthcare Policy*, 1119-1122 https://doi.org/10.2147/RMHP.S254639

Liang, Y., Chen, M. & Zheng, X. (2020). Screening for Chinese medical staff mental health by SDS and SAS during the outbreak of COVID-19. *Journal of Psychosom Research,* 133,110102.

Maier, W., Buller, R., Philipp, M. & Heuser, I. (1988). The Hamilton anxiety scale; reliability, validity and sensitivity to change in anxiety and depressive disorder. *Journal Affective Disorder*, 14(1), 61-68.

Nagesh, S. & Chakraborty, S. (2020). Saving the frontline health workforce amidst the COVID-19 crisis: Challenges and recommendations. *Journal of Global Health*, 10(1). https://doi.org/10.7189/jogh-10010345PMID:32373323

Ogolodom, M. P., Mbaba, A. N., Alazigha, N., Erondu, O. F., Egbe, N. O., Golden, I., Ugwuanyi, D. C., Achi, G. I. & Eke, C. M. (2020). Knowledge, attitudes and fears of healthcare workers towards the corona virus disease (COVID-19) pandemic in South-South, Nigeria. *Health Science Journal of Sport.*, 1(2), 1-10

Olaniran, A., Smith, H., Unkels, R., Bar-Zeev, S. & van den Broek, N. (2017). Who is a community health worker? – A systematic review of definitions. *Global Health Action*, 10(1), 1–14.

Penwell-Waines, L., Ward, W. & Kirkpatrick, H. (2018). Perspectives on healthcare provider well-being: looking back, moving forward. *Journal of Clinical and Psychological Medical Settings*, 25(3), 295-304.

Rossato, L., Negrão, F. J., & Simionatto, S. (2020). Could the COVID19 pandemic aggravate antimicrobial resistance? *American Journal of Infection Control*, 48(9), 1129–1130. https://doi.org/10.1016/j.ajic.2020.06.192

Shreffler, J., Petrey, J. & Huecker, M. (2020). The impact of COVID-19 on healthcare worker wellness: A scoping review. *Western Journal of Emergency Medicine*, 21(5), 1059-1066. https://doi.org/10.5811/westjem.2020.7.48684

Sun, H. Y., Yan, X. G. & Yoo, B. W. (2023). COVID-19: Psychological impact on healthcare workers well-being and mental health – A cross-sectional study on the psychological changes of medical personnel in hospitals who experienced special COVID-19 situations. *SAGE*, 60, 1-7. https://doi.org/10.1177/00469580231161435