

JOURNAL OF SOCIAL THEORY AND RESEARCH



(JOSTAR)

ISSN: 2705-3105

Vol. 3 No. 1 June 2023

Department of Sociology and Anthropology
Faculty of Social Sciences
University of Benin
Benin City, Nigeria

Published by:
The Department of Sociology & Anthropology
Faculty of Social Sciences
University of Benin
Benin City, Nigeria.
jostar4.uniben@gmail.com, emmanuel.obarisiagbon@uniben.edu

© 2023 Journal of Social Theory and Research (JOSTAR)

ISSN 2705-3105

Published June 2023 (Vol. 3 No. 1)

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JOURNAL OF SOCIAL THEORY AND RESEARCH (JOSTAR)

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POST-COVID-19 PANDEMIC AND VACCINE ACCEPTANCE IN BENIN CITY, EDO STATE, NIGERIA

Veta, Oghenechoja Dennis

Department of Social Work,

University of Ilorin, Ilorin, Nigeria

E-mail: veta.od@unilorin.edu.ng, choja4den@gmail.com

&

Oghenechoja, Ethel Emuesiri

Department of Mass Communication,

Benson Idahosa University,

Benin City, Edo State

Abstract

Post-COVID-19 pandemic and vaccine acceptance in Benin City, Edo State, Nigeria was investigated in this study, utilising a cross-sectional survey design. An other-administered questionnaire was adopted, and a multistage sampling method was used to select the respondents. Most of the respondents believed in the outbreak of COVID-19, and less than half of the respondents did not believe in the existence of COVID-19 in the study area. Those who did not believe indicated that COVID-19 cannot survive in our climate, we do not consume half-cooked foods, it is a scam, it does not infect poor people, God/supreme being is always in control, and that our blood is stronger than COVID-19. A majority of the participants who believed in the outbreak of COVID-19 did not receive any of the vaccines. Some received AstraZeneca/Oxford, others received Moderna vaccine, and a few did not know the vaccines received. An overwhelming majority assessed the acceptance of COVID-19 vaccines as not very high. The findings showed, among others, that there is a need for the provision of adequate information and the employment of more professionals. The study proffers, among others, that the social work profession should be strictly practiced by only professionals in Nigeria to reduce misinformation about any pandemic and encourage a very high rate of vaccine uptake, and acceptance. Thereby removing all barriers to accessibility of the vaccines by citizens.

Keywords: COVID-19, Vaccine acceptance, Vaccination, Benin City, Pandemic

Introduction

In December 2019, Wuhan City in China registered several cases of an unknown disease characterised by pneumonia, dry cough, fatigue, and fever, it was later discovered that a novel coronavirus (2019-nCoV) was the causative agent of the disease, which was subsequently named COVID-19 (WHO, 2020a). Since its emergence, COVID-19 has spread around the globe, leading the World Health

Organisation to classify it as a pandemic (Chen & Li, 2020). COVID-19 predominantly infects the airways, and the disease can range from asymptomatic and mild respiratory infections to severe acute respiratory distress syndrome, with the latter resulting in organ failure in some individuals and eventually leading to death (Adhikari, et al., 2020; Guan, et al., 2020; Huang, et al., 2020). According to Jewell (2020), COVID-19 is spread from human to human through human droplets. Common symptoms of COVID-19 include shortness of breath, cough, and fever, while less common symptoms include repeated shaking with chills, sore throat, headache, muscle aches and pains, and loss of taste and smell, while severe symptoms include persistent pain or pressure in the chest, trouble breathing, and loss of speech or movement.

Africa is not left out of the increase in infections and deaths caused by COVID-19 (Rahman & Shaban, 2020). In Africa, where the first case was reported in February 2020 in Egypt, there have been 2.8 million cases and over 68 000 deaths as of 6 January 2021 in Africa (Africa CDC, 2020). According to NCDC (2020a), the index case of COVID-19 in Nigeria was confirmed on the 27th of February 2020, it was a case of an Italian national who was working in Nigeria and returned from Milan, Italy to Lagos, Nigeria on the 25th of February, 2020. It later spread to some cities namely: Lagos, Ogun, and FCT. The continual spread of the pandemic led to a partial lockdown of activities in cities in the first instance and later, a total lockdown of the whole country in March 2020 (Ozigi & Umar, 2021).

There are various ways to avoid the infection and further spread of Covid-19. These include constant washing of hands with soap and running water, frequent use of hand sanitizers, avoiding touching of eyes, nose, and mouth with unwashed hands, avoiding close contact, covering of mouth and nose with cloth or face cover when around others, cleaning and disinfecting frequently touched surfaces daily, sneezing inside elbow, and vaccination (Nigerian Center for Disease Control and Prevention [NCDC], 2020b). Other measures are the closure of schools, businesses, and social services (Abiodun et al., 2020; Amin, Lambert, & Magit, 2020; Arndt, et al., 2020; Mbunge, 2020; Spaull & van der Berg, 2020).

Since the emergence of COVID-19 in China in late 2019 (Zhu, et al., 2019), it has infected over 83 million people and caused over 1.8 million deaths worldwide as of 5 January 2021 (World Health Organization [WHO], 2021). COVID-19 being a highly contagious pathogen affected almost every aspect of human activities, such as education, traveling, business, transportation, sports, and healthcare services (Fontanarosa, & Bauchner, 2020), and it has claimed more than 775,000 lives as of August 19, 2020 (WHO, 2020b). Medical personnel such as nurses, and doctors are also in danger of infection if preventive measures are not strictly adhered to while attending to infected COVID-19 patients (NCDC, 2020c).

Literature Review

An Overview of COVID-19 and COVID-19 Vaccination

According to Guarner (2020), the term COVID-19 was coined by the World Health Organisation (WHO) on February 11th, 2020, as an acronym for the Corona Virus Disease 19, a respiratory syndrome caused by the new coronavirus SARS-CoV-2, which was first discovered in Wuhan, China, in December 2019. In humans, coronaviruses were first discovered in the '60s of the previous century (Korsman, et al., 2012). The coronaviruses are all from animals such as bats, civet cats, and camels. Two recent epidemic diseases caused by coronaviruses have been SARS (Severe Acute Respiratory Syndrome) in 2003 and MERS (Middle East Respiratory Syndrome) in 2012. COVID-19 is a zoonotic disease that spreads among animals then it is transmitted from animals to humans, and from human to human (Zhou, et al., 2020).

The virus that causes COVID-19 is known as the Novel Coronavirus or SARS-CoV2 (KFF's COVID-19 online Glossary, 2020). In spite of the control measures practiced, the virus continued to spread until vaccines were produced and became the most reliable and cost-effective public health interventions ever implemented that are saving millions of lives each year (Ehret, 2003). Following the deciphering of the genome sequence of SARS-CoV-2 in early 2020 (Wu, 2020), and the declaration of the pandemic by WHO in March 2020 (Cucinotta, & Vanelli, 2020), scientists and pharmaceutical companies are racing against time in efforts to develop vaccines (Zimmer, Corum & Wee, 2020). As of December 22, 2020, at least 85 vaccines are in preclinical development in animals and 63 are in clinical development in humans, of which 43 were in phase I, 18 in phase II, and 6 in phase III, out of these, 6 were approved for early or limited use, 2 were approved for full use, Pfizer-BioNTech's (BNT162b2) and Moderna (mRNA-1273) mRNA vaccines were approved for emergency use in the US (Zimmer, et al., 2020).

Perception of COVID-19 Vaccination Uptake, and Acceptance

A UK-based study showed that higher vaccination intentions were linked to the belief that the COVID-19 disease would last a lot longer, while lower vaccination intentions were linked to the belief that the dangers of COVID-19 had been inflated by the media (Williams, et al., 2020).

According to El-Elmat, et al. (2021), the public acceptability of COVID-19 vaccines was fairly low in Jordan, and those who took the seasonal influenza vaccine were more likely to accept COVID-19 vaccines. Similarly, participants who believed that vaccines are generally safe and those who were willing to pay for vaccines, once available, were more likely to accept the COVID-19 vaccines. However, those above 35 years old and employed participants were less likely to accept the COVID-19 vaccines. Moreover, participants who believed that there was a conspiracy behind COVID-19 and those who do not trust any source of information on COVID-19 vaccines were less likely to have acceptance towards them (El-Elmat, et al., 2021). There may have been an acceptable control of the spread of Covid-19 worldwide

through vaccination, but the major obstacle facing the achievement of such a goal is believed to be vaccine hesitancy and skepticism among the population worldwide (Neumann-Böhme, et al., 2020).

Other studies conducted in Sub-Saharan Africa reported that residents were noncompliant with proposed health and safety measures recommended by the WHO and respective country health departments, and this was due to ignorance and misinformation (Akalu, et al., 2020).

In a study carried out in Bangladesh, 61.16% of the respondents were willing to accept/take the COVID-19 vaccine. The study further established that among the accepted group, only 35.14% showed the willingness to take the COVID-19 vaccine immediately, while 64.86% would delay the vaccination until they confirmed the vaccine's efficacy and safety or COVID-19 becomes deadlier (Mahmud, et al., 2021). The regression results showed age, gender, location (urban/rural), level of education, income, perceived risk of being infected with COVID-19 in the future, perceived severity of infection, having previous vaccination experience after age 18, having higher knowledge about COVID-19 and vaccination were significantly associated with the acceptance of COVID-19 vaccines (Mahmud, et al., 2021). Another study conducted in Nigeria showed that the vaccine acceptance rate ranged from 20.0% to 58.2% among adults across the six geopolitical zones of the country. Non-acceptance of the vaccine was found to be a result of propaganda, adverse effect concerns, and conspiracy theories (Olu-Abiodun, Abiodun & Okafor, 2022).

However, the factors affecting COVID-19 vaccine uptakes might vary substantially by territory, culture, and socio-economic conditions. Studies have been conducted on the knowledge and awareness of COVID-19 symptoms, noncompliance with the health safety measures against the virus, the risk factors, and uptake of vaccines (Akalu, Ayelign, & Molla, 2021; Alahmadi & Al Thagfan, 2021; Kebede, et al., 2021; Mohammed, et al., 2021; Ruba, Baraa., Abdallah, & Mustafa, 2021). This study investigates the post-COVID-19 pandemic and vaccine acceptance in Benin City, Edo State, Nigeria.

The objectives of this study were: (i) to determine the level of awareness of the COVID-19 pandemic in Benin City, (ii) to find out the views held concerning the COVID-19 vaccines in Benin City, (iii) to determine the level of acceptance of the COVID-19 vaccines in Benin City, and (iv) suggest ways to improve on the acceptance of the vaccines in the study area.

Theoretical Framework

This study is anchored on the health belief model (HBM) and perception theory. The health belief model emerged in the 1950s, during a time in history when a modest number of preventive health services were available as one of the most widely applied theories of health behaviour (Glanz & Bishop, 2010). The HBM posits that six constructs predict health behaviour namely: an individual's perceived threat to sickness or disease (perceived susceptibility), the belief of consequence (perceived severity), potential positive benefits of action (perceived benefits), perceived barriers to action, exposure to factors that prompt action (cues to action), and confidence in the

ability to succeed (self-efficacy), (Becker, 1974; Champion & Skinner, 2008). This model will assist this study to ascertain the reasons for the acceptance, hesitance, or rejection of COVID-19 vaccination in Benin City. This is because the HBM Key elements focus on individual beliefs about health conditions, which predict individual health-related behaviours.

On the other hand, perception theory explains how the mind explores or looks for answers to the questions of what is experienced, the nature of perceptual consciousness, and how one can fit an account of perceptual experience into a broader account of the nature of the mind and the world (Noë & Thompson, 2002). Hwang, Wang, & Pomplun (2011) assert that the perception of objects in the visual world is influenced by features such as shape and color as well as the meaning and semantic relations among them. Perceived benefits of the COVID-19 vaccines, barriers to utilisation, and their efficacy could influence decisions on acceptance or rejection of the vaccines. This theory is relevant to this study as it will assist in understanding how the COVID-19 vaccines are perceived, and as it affects acceptance or rejection in Benin City.

Methods and Materials

Research Design

The study adopted a cross-sectional survey design. This method enabled the researcher to utilise a questionnaire to elicit data from a relatively large number of respondents. Survey research is "the collection of information from a sample of individuals through their responses to questions" (Check & Schutt, 2012, p. 160). The population for this study comprised males and females within the age range of 18 years and above. These are adults who could provide useful information for this exercise. According to the World Population Review (2023), the population of Benin City is 1,841,084 million.

The sample size for the study was 322 which is based on Krejcie and Morgan's (1970) sample size determination table. A multistage sampling method was employed to select the respondents. The 16 existing wards in Benin City were adopted as clusters. Then, two wards, Adesuwa I and Uselu were chosen by using a simple random sampling technique by balloting. The 384 respondents were randomly chosen from the two wards (Adesuwa 1 and Uselu). The data analysis was based on 300 questionnaires, that were correctly filled and returned. SPSS was employed, and results are presented with the aid of descriptive statistics, such as frequency distribution tables and simple percentages.

Results

The sociodemographic characteristics of interest to this study are sex and educational qualification as shown in the table below:

Table 1: Socio-demographic characteristics of respondents (n = 300)

Sex	Frequency	Percentage
Male	164	54.7
Female	136	45.3
Age (in Years)		
18 – 27	60	20
28 – 37	89	29.7
38 – 47	96	32
48+	55	18.3
Educational Qualification		
No formal education	36	12
FLSC	53	17.7
WASC/SSCE	92	30.6
ND/NCE	44	14.7
HND/B.Sc.	50	16.7
Post-graduate	25	8.3

Table 1 shows that 54.7 of the respondents were males, while 45.3 percent were females. This shows that more males were involved in the study than females. Table 1 also indicates that 20 percent, 29.7 percent, and 32 percent of the respondents were within the age range of 18 – 27 years, 28 – 37 years, and 38 – 47 years respectively, while 18.3 percent were within 48 years and above. The majority of the respondents were those within the age range of 38 – 47 years.

Table 1 shows that 17.7 percent, 30.6 percent, and 14.7 percent of the respondents had a First Leaving Certificate (FSLC), West African School Certificate/Senior School Certificate (WASC/SSCE), and National Diploma (ND)/National Certificate of Education (NCE) respectively, 16.7 percent got a Higher National Diploma (HND)/Bachelor of Science (B.Sc.), while 8.3 percent got Post Graduate degrees.

Table 2: Beliefs in the outbreak of COVID-19 in Benin City (n=300)

Response	Frequency	Percentage
Yes	116	38.7
No	184	61.3

Table 2 indicates that 38.7 percent of the respondents did not believe in the outbreak of COVID-19 in Benin City, while 61.3 percent of the respondents did not believe in the outbreak of COVID-19 in Benin City. This further shows that a higher percentage of the respondents did not believe in the outbreak of COVID-19 in the study area.

Table 3: Reasons for not believing in the outbreak of COVID-19 in Benin City (n=184)

Reasons	Frequency	Percentage
COVID-19 cannot survive in our climate	66	35.9
We do not consume half-cooked foods	31	16.9
COVID-19 is a scam	28	15.2
COVID-19 does not infect poor people	23	12.5
God/Supreme being is always in control	19	10.3
Our blood is stronger than COVID-19	17	9.2

Table 3 shows that 35.9 percent did not believe in the outbreak of COVID-19 in Benin City due to its inability to survive the climate, 16.9 indicated we do not consume half-cooked foods, and 15.2 percent said it is a scam. Also, Table 3 shows that 12.5 percent of the respondents said that their reason for not believing in the outbreak of COVID-19 in Benin City was that it does not infect poor people, while 10.3 percent and 9.2 percent indicated God/supreme being is always in control, and our blood is stronger than COVID-19 respectively.

Table 4: Types of COVID-19 vaccine received (n=116)

Response	Frequency	Percentage
AstraZeneca/Oxford	22	19
Moderna	19	16.4
Don't know	14	12
None for now	61	52.6

Table 4 shows that 19 percent of the respondents who believed in the COVID-19 outbreak in the study area received AstraZeneca/Oxford vaccine to prevent the infection, 16.4 percent received the Moderna vaccine, 12 percent did not know the type of COVID-19 vaccine they received, and a majority (52.6 %) were yet to receive any of the vaccines.

Table 5: Level of COVID-19 vaccines of acceptance in Benin City (n=116)

Response	Frequency	Percentage
Very high	13	11.2
High	19	16.4
Low	27	23.3
Very low	57	49.1

Table 5 shows that 11.2 percent of the respondents who believed in the COVID-19 pandemic assessed the level of COVID-19 vaccine acceptance in Benin City as very high, 16.4 percent said that the COVID-19 vaccine acceptance was high, while 23.3 percent and 49.1 percent rated it as low, and very low respectively.

Table 6: Suggestions that would make the acceptance of COVID-19 to be very high in Benin City (n=103)

Response	Yes	No
Adequate funding	13 (12.6%)	90 (87.4%)
Provision of adequate information	39 (37.9%)	64 (62.1%)
Employment of more professionals	10 (9.7%)	93 (90.3%)
Adoption of adequate accountability measures	15 (14.6%)	88 (85.4%)
Provision of more vaccines	26 (25.2%)	77 (74.8%)

Table 6 reveals that 13 respondents representing 12.6 percent of the respondent who rated the acceptance of the COVID-19 vaccines as not very high indicated that adequate funding would make the acceptance to be very high in Benin City, 37.9 percent suggested the provision of adequate information, and 9.7 percent said the employment of more professionals. Also, 14.6 percent said the adoption of adequate accountability measures would make the acceptance to be very high, while 25.2 percent suggested the provision of more vaccines.

Discussion

This research revealed that the majority of the respondents believed in the outbreak of COVID-19, and less than half of the respondents did not believe in the existence of COVID-19 in the study area. Those who did not believe indicated that COVID-19 cannot survive in our climate, we do not consume half-cooked foods, it is a scam, it does not infect poor people, God/supreme being is always in control, and our blood is stronger than COVID-19. This finding buttresses El-Elimat, et al. (2021) who revealed in their study that participants who believed that there was a conspiracy behind COVID-19 and those who do not trust any source of information on COVID-19 vaccines were less likely to have acceptance towards them. Lower vaccination intentions were linked to the belief that the dangers of COVID-19 had been inflated by the media (Williams, et al., 2020). In the same vein, Neumann-Bohne, et al. (2020) found out that in spite of an acceptable control of the spread of Covid-19 worldwide through vaccination, the major obstacle facing the achievement of such a goal is believed to be vaccine hesitancy and skepticism among the population worldwide. Non-acceptance of the vaccine was found to be a result of propaganda, adverse effect concerns, and conspiracy theories (Olu-Abiodun, Abiodun & Okafor, 2022).

The study also found out that out of those who believed in the outbreak of COVID-19, some received AstraZeneca/Oxford, and others Moderna, vaccines, a few did not know the vaccines received, while a majority did not receive any of the vaccines. Similarly, a study conducted in Sub-Saharan Africa reported that residents were noncompliant with proposed health and safety measures recommended by the WHO and different country health departments, due to ignorance and misinformation (Akalu, et al., 2020). Another study carried out in Bangladesh, by Mahmud, et al. (2021) revealed that 61.16% of the respondents were willing to accept the COVID-19 vaccine. The study further noted that among the accepted group, only 35.14% showed

the willingness to take the COVID-19 vaccine immediately, while 64.86% would delay the vaccination until they confirmed the vaccine's efficacy and safety or when COVID-19 becomes deadlier (Mahmud, et al., 2021).

On the level of acceptance of the COVID-19 vaccine in the study area, it was found that a few of the respondents indicated that it was very high, while an overwhelming majority indicated that the acceptance of the COVID-19 vaccine was not very low. The findings suggest that there is a need for adequate funding, provision of adequate information, employment of more professionals, adoption of adequate accountability measures, and provision of more vaccines.

Implications for Medical Social Work Practitioners

There are some implications of these findings for medical social work practitioners. The study showed that the majority of the respondents believed in the outbreak of COVID-19, and less than half of the respondents did not believe in the existence of COVID-19 in the study area. Those who did not believe indicated that COVID-19 cannot survive in our climate, we do not consume half-cooked foods, it is a scam, it does not infect poor people, God/supreme being is always in control, and that our blood is stronger than COVID-19. A majority of the participants who believed in the outbreak of COVID-19 did not receive any of the vaccines. Some received AstraZeneca/Oxford, others received Moderna vaccines, and a few did not know the vaccines received. An overwhelming majority assessed the acceptance of COVID-19 vaccines as not very high. The findings suggest that there is a need for adequate funding, provision of adequate information, employment of more professionals, adoption of adequate accountability measures, and provision of more vaccines.

The findings of this study as brought to the fore, suggest that the social work profession be strictly practiced by professionals in Nigeria, and professional social workers employed in all health facilities. This would go a long way to reduce misinformation about any pandemic and encourage a very high rate of vaccine acceptance as adequate enlightenment would be given by professional medical social work practitioners. In addition, a holistic approach taking cognisance of social, economic, cultural, psychological, and cultural factors that would interfere with peoples' positive perception of vaccine acceptance, and uptake would be applied. Thereby removing all barriers to accessibility of the vaccines by citizens.

Conclusion

Post-COVID-19 pandemic and vaccine acceptance in Benin City, Edo State, Nigeria was investigated in this study, utilising a cross-sectional survey design. For the purpose of a high return rate, another-administered questionnaire was adopted to elicit information from the respondents who were selected, and reached by utilising multistage sampling method. The study showed that the majority of the respondents believed in the outbreak of COVID-19, and less than half of the respondents did not believe in the existence of COVID-19 in the study area. Those who did not believe indicated that COVID-19 cannot survive in our climate, we do not consume half-cooked foods, it is a scam, it does not infect poor people, God/supreme being is always

in control, and that our blood is stronger than COVID-19. A majority of the participants who believed in the outbreak of COVID-19 did not receive any of the vaccines. Some received AstraZeneca/Oxford, others received Moderna vaccines, and a few did not know the vaccines received. An overwhelming majority assessed the acceptance of COVID-19 vaccines as not very high. The findings suggest that there is a need for adequate funding, provision of adequate information, employment of more professionals, adoption of adequate accountability measures, and provision of more vaccines.

From the results of this study, it is recommended that the social work profession should be strictly practiced by only professionals in Nigeria. There is a need to employ professional social workers in all health facilities across the nation. This would go a long way to reduce misinformation about any pandemic and encourage a very high rate of vaccine acceptance, as adequate enlightenment would always be given by professional medical social workers. In addition, a holistic approach taking cognizance of social, economic, political, religious, psychological, and cultural factors that would interfere with peoples' positive perception of vaccine uptake, and acceptance would be applied, thereby, removing all barriers to accessibility of vaccines by citizens. There is a need for the Nigerian government to show total commitment to the attainment of a holistic health arrangement for the vaccination of all citizens against any pandemic situation.

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