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COVID-19 Vaccine: Examining Nurses Attitude and Willingness to accept the inoculation in North Western Nigeria

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Abstract

Background: Healthcare providers are the first line of information in pandemics and the last line of support during infections spread.

Objective: The study was conducted to examine Nurses Attitude and Willingness to accept COVID-19 vaccine in Northern Nigeria.

Methods: Cross-sectional design and systematic sampling technique were used for the study where 300 pretested structured questionnaires were distributed to nurses attending Nursing and Midwifery Council of Nigeria's Mandatory Continuing Professional Development Programme in Kano, Jigawa, Kaduna and Katsina states of Northwestern Nigeria. 89.3% of the questionnaires were successfully retrieved and analysed using frequency tables and spearman's correlation coefficient.

Result: The result revealed that majority (67.3%) had a positive attitude towards vaccines in general but 89.6% of the respondents were not willing to receive the COVID-19 vaccine. Spearman's correlation analysis revealed a significant positive correlation between Knowledge of COVID-19 ($\rho = 0.402$, $p < 0.01$), having long term medical condition ($\rho = 0.492$, $p < 0.01$), highest educational qualification ($\rho = 0.291$, $p < 0.01$), female gender ($\rho = 0.160$, $p > 0.01$) and willingness to receive COVID-19 vaccine among the respondents. Significant positive correlation was also observed between age ($\rho = 0.186$, $p < 0.01$) and refusing a recommended vaccine in the past. Significant negative correlations were observed between refusing a recommended vaccine in the past ($\rho = -0.661$, $p < 0.05$) and willingness to receive COVID-19 vaccine, knowledge of COVID-19 ($\rho = -0.132$, $p < 0.01$), refusing a recommended vaccine in the past ($\rho = -0.132$, $p < 0.01$) and years of working experience.

Conclusion: It was recommended that awareness campaigns needs to be instituted targeting the eradication of COVID-19 vaccine hesitancy among all healthcare providers.

Keywords: Attitude; COVID-19 Vaccine; Willingness; Nurses

INTRODUCTION

From December 2019 to date, the world experienced the outbreak of the highly contagious Coronavirus disease (COVID-19) and the respiratory tract disease has now spread to almost every country, leading to high morbidity and mortality (Dong et al., 2020; Guo et al., 2020). As of 12th July, 2021, a total of 186,805,758 cases were confirmed and 4,031,720 mortalities were recorded from the disease across the world (British Broadcasting Corporation, 2021). Although the true extent of the disease in many African countries is not known coupled with the low testing rates, the region reported close to 6,000,000 confirmed cases and more than 150,000 deaths from COVID-19 disease as of 12th July, 2021 (British Broadcasting Corporation, 2021; Chitungo et al., 2020). According to Nigeria Center for Disease Control and Prevention (NCDC, 2020), the index case of COVID-19 in Nigeria was recorded on the 27th of February 2020 and as of 11th July, 2021, a total of 168,552 cases were confirmed and 2,124 mortalities were recorded in the Country.

Despite the relatively lower cases reported in Sub-Saharan Africa compared to that of other regions of the world (Chitungo et al., 2020; Dzinamarira et al., 2020), the COVID-19 pandemic met an African health system that was not prepared to tackle an additional burden (Elhadi et al., 2020; Mhango et al., 2020). The health system was characterized with scarcity of medical supplies, inadequate basic health infrastructures, inadequate or delay in engagement of relevant stakeholders, lack of cooperation from its populace and concerns about cultural and moral appropriateness (Njidda et al., 2018). This placed Africa at a greater risk of spread of the disease. In an attempt to curtail the spread and impact of the outbreak, many African countries implemented some infectious disease response approaches. Some of the measures include imposing restriction of movement, physical distancing, use of face mask, hand washing/hygiene, community sensitization, contact tracing, laboratory diagnosis, isolation and quarantine of suspected cases, community mobilization and case management (Dzobo et al., 2020; Nigeria Centre for Disease Control, 2017). However, as a result of the weak health system, these strategies resulted to poor medical outcome and economic challenges (Magamela et al., 2021; Mhango et al., 2020; Pierre et al., 2020).

In an attempt to overcome these challenges and provide a definitive control measure, vaccination was considered as a key approach to disease eradication and elimination, control of mortality, morbidity and complications which provided a unique opportunity to leveraged on to reduce the burden of the disease and all people to regain their "normal" lives (Dzinamarira et al., 2021; Elhadi & Msherghi, 2021). However, many African Countries may be disadvantaged as they face a possible delay in vaccinating their people as a result of inadequate vaccine supply and resources, lack of trust by the public and an already strained health care system (Elhadi et al., 2020).

To achieve herd immunity against the virus, it is desired that 82% of the populace take up the vaccine (Sanche et al., 2020). "The reluctance or refusal to vaccinate despite vaccine availability" has been identified as a major threat to achieving herd immunity and it cuts across all countries of the world (World Health Organization, 2019). A study carried out in the UK and Ireland revealed vaccine hesitancy as evident in 31% and 35% of their populations respectively (Murphy et al., 2021).

Acceptance and approval of COVID-19 vaccine by health personnel is critical as they are key stakeholders responsible for creating awareness and facilitating vaccine acceptance within the populace (Robinson, Wilson, Eleki, & Wonodi, 2021). A study in Europe has revealed between 16 and 43% of healthcare professionals refused to recommend the vaccine to patients (Collange et al., 2019). Findings from study conducted to investigate health workers' knowledge, acceptance and hesitancy regarding COVID-19 vaccine showed that close to half of participants (45.74%) had no confidence in the COVID-19 vaccine and about two fifth (39.68%) rejected it. The study further reported that concerns of effectiveness, side effects, fear of the unknown, and safety are the major factors leading to hesitancy (Robinson et al., 2021). Result of another study conducted to look at vaccine acceptance among Nigerian medical doctors showed that only 38.8% were willing to take the vaccine and 26.5% would not take it. A different study further reported that age, male gender, perceived contagiousness of the virus, and perceived threat to life are factors associated with vaccine acceptance while safety

concerns were the major factors hindering accepting the vaccine (Nri-Ezedia et al., 2021).

Identifying possible factors that may militate the acceptance of vaccines among healthcare workers is therefore of utmost importance, if herd immunity is desired (Wong et al., 2021). With Nurses being the “largest occupational group in health globally, the nursing workforce has been consistently identified as central to achieving the vision of the Global Strategy” (WHO, 2017). This study was therefore conducted to assess the Nurses attitudes and willingness to accept Covid-19 vaccines in Northern Nigeria. This is with a view of uncovering approaches of attaining high vaccination uptake by the people in the region.

Problem Statement

Healthcare providers are the first line of information in pandemics and the last line of support during infections spread. This is so because they have the evidence relating to the causes, spread and complications of most infections. In this regard, they are to provide accurate and necessary information that will help curtail and reduce spread of infection such as COVID 19. However, most healthcare providers that we came across relied on the unproven statements regarding the disease such as increased chances of brain hemorrhage, development of emboli and similar unproven facts. Despite the absence of verifiable evidence to support the fearful claims and the continuous emphasis by the WHO that the benefits of the vaccine far outweigh its risk, health workers especially nurses showed palpable signs of reluctance to be vaccinated. This skepticism was visible in some vaccination centers where some nurses connive with vaccinators and waste vaccines while documenting that it has been used and vaccination clearance given. As such it became imperative for this study to evidently examine nurses’ attitude and perception towards COVID vaccination within the study setting. This is expected to provide insight into the reasons their actions which might also translate to healthcare decisions affecting their clients.

METHODS

Cross-sectional research design was used for the study where all the nurses working across the various healthcare facilities in North-western

Nigeria were targeted for the study. A total of two hundred and sixty-eight (268) participants completed questionnaires were returned from a sample of three hundred (300) selected using systematic sampling technique. The study was conducted between March and May, 2021 when Nigeria began the COVID-19 vaccination campaign with frontline healthcare professionals as the targets of priority. The participants were recruited from the healthcare facilities in Kano, Jigawa, Katsina and Kaduna States of Northwestern Nigeria at the venues of Nursing and Midwifery Council of Nigeria’s Mandatory Continuing Professional Development Programmes across the states.

Upon receiving ethical clearance and permission for conduct of the study, informed consent was obtained from all the participants who were further informed of their rights to voluntary participation and to withdraw from the study at any point. Data was collected using a structured pretested questionnaire (Cronbach alpha = 0.87). The questionnaires were self-administered to the participants. Frequency Tables and Spearman’s correlation coefficient were used to analyse the data collected.

For the analysis of attitude towards vaccine, a scale carrying 9 items that asked participants to rate their degrees of agreement and disagreement towards 9 favorable behaviors regarding vaccine on a scale of 1 to 4 was used. Maximum obtainable score was 36 and 9 the minimum. A score of 75% and above was regarded as positive attitude while scores below that as negative attitude towards vaccine.

RESULT

(see table 1)

Table 1 shows, the mean age of the respondents was 37.6 years, 67.5% were females, about half (54.5%) were Hausa by ethnic extraction and 30.2% had Bachelor of Nursing Science (BNSc/BSc Nursing) degree as highest educational qualification while 36.3% had either Nigeria Registered Nurse or Midwife (RN/RM) as their highest qualifications. For their average monthly income, 32.5% earn more than N200, 000 Naira while 26.5% earn less than N100, 000 Naira. Majority (82.2%) had never refused a recommended vaccine in the past. The

mean years of working experience among the respondents was 14.2 years.

(see table 2)

On the general attitude toward vaccines, majority (67.3%) of the nurses had a positive attitude towards vaccine.

(see table 3)

As shown in Table 3, only 10.4% of the respondents were willing to receive the COVID-19 vaccine.

(see table 4)

Table 4 shows, Spearman's correlation analysis revealed a significant positive correlation between, Knowledge of COVID-19 ($\rho = 0.402, p < 0.01$), having long term medical condition ($\rho = 0.492, p < 0.01$), educational qualification ($\rho = 0.291, p < 0.01$), female gender ($\rho = 0.160, p < 0.01$) and willingness to receive COVID-19 vaccine among the respondents. Significant positive correlation was also observed between age ($\rho = 0.186, p < 0.01$) and refusing a recommended vaccine in the past. Negative correlations were observed between knowledge of COVID-19 ($\rho = -0.132, p < 0.01$), refusing a recommended vaccine in the past ($\rho = -0.132, p < 0.01$) and years of working experience. Significant negative correlations was observed between refusing a recommended vaccine in the past ($\rho = -0.661, p < 0.05$) and willingness to receive COVID-19 vaccine.

DISCUSSION

The current study result revealed that majority of the nurses had a positive attitude towards vaccine in general. This is might not be unconnected to their educational preparations as healthcare professionals and their active participation in provision of immunization services at various levels which will acquaint them with knowledge regarding the benefits and safety of immunization thereby informing their attitude. In addition, they are also saddled with the responsibility of creating awareness and facilitating acceptance of the vaccine within the general population. This is further buttressed by the fact that only 11.9% of the respondents indicated that they have rejected a

recommended vaccine in the past (Robinson et al., 2021).

Respondents in the current study reported that only few were willing to receive the COVID-19 vaccine. This is despite the fact that most of the nurses have positive attitude towards vaccine in general and very few have rejected a recommended vaccine in the past. It is evident majority were unwilling to receive the vaccine for protection against deadly corona virus due to uncertainty about the vaccine potency and safety which was reported by similar studies among other healthcare providers (Nri-Ezedia et al., 2021). However, with this level of willingness towards receiving the COVID-19 vaccine among nurses who are frontline healthcare professionals, saddled with the responsibility of administering the vaccine to those who need it and encouraging the general population through health education to take the vaccine, addressing vaccine hesitancy toward the COVID-19 vaccine becomes a more serious task. Adding to what was found in another study among Nigerian medical doctors where only 38.8% expressed willingness to receive the COVID-19 vaccine (Nri-Ezedia et al., 2021). This suggests that there is need for serious action in the Nigerian healthcare delivery system to convince the providers regarding the potency and safety of the COVID-19 or risk having an elongated outbreak in the country. The findings are similar to what studies in the general population across other parts of the world reported (Fakonti, Kyprianidou, Toumbis, & Giannakou, 2021). The situation requires urgent attention as studies have shown that, healthcare providers with negative attitude towards the COVID-19 Vaccine mostly refuse to recommend same vaccine to their patients (Verger et al., 2015). The findings revealed that refusing to accept a recommended vaccine in the past is associated with reduced chance of accepting the COVID-19 vaccine among the nurses. However, having higher level of knowledge regarding COVID-19, having a long term medical condition, higher educational qualification and female gender are positively correlated with willingness to receive the COVID-19 vaccine. The findings are not in congruence with those from another study among Nigerian doctors that identified age and male gender as predictors for COVID-19 vaccine acceptance (Nri-Ezedia et al., 2021). The study further revealed that refusing a

recommended vaccine in the past corresponds with having lower levels of knowledge regarding COVID-19. This shows that, those who refused vaccine in the past are also reluctant about seeking information regarding threats posed by diseases including emerging infectious diseases like COVID-19.

CONCLUSION

Despite the Nurses positive attitude toward vaccine in general, majority were unwilling to accept the COVID-19 vaccine. This could be related to the concerns over its safety and potency. Thus, it is likely to have more covid-19 infection among Nurses as they are more frequently in contact with patients daily. The mistrust toward the COVID 19 vaccines is considered to be the main challenge in achieving the required vaccination coverage for population immunity. The mistrust toward the COVID 19 vaccines is considered to be the main challenge in achieving the required vaccination coverage for population immunity. The mistrust toward the COVID 19 vaccines is considered to be the main challenge in achieving the required vaccination coverage for population immunity. The mistrust people have about COVID-19 vaccine might hinder vaccination coverage and subsequent development of herd immunity. If healthcare providers are hesitant about taking the vaccine, they are more likely not to recommend the vaccine to their patients.

It is important for healthcare providers to be at the forefront of all health promotion activities such as vaccination. However, some nurse identified in this study do not subscribe to COVID vaccination and also dispel the intention of those who are willing to from doing so. As such it is important to view healthcare professionals/providers as first as humans too, who have fears, anxieties and likely victims of disinformation especially in areas where information is mostly relied upon on social media content. They should have information provided to them from trusted and reliable sources. This will empower them to take necessary health informed actions for themselves and also encourage others to do so.

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Table 1: Sociodemographic Data (n = 268)

| Variable | F | % |
|---|----------|----------|
| Age | | |
| 65+ | 2 | 0.7 |
| 50 – 64 | 58 | 21.6 |
| 30 – 49 | 168 | 62.8 |
| 18 – 29 | 40 | 14.9 |
| Mean Age = 37.6 years | | |
| Gender | | |
| Male | 87 | 32.5 |
| Female | 181 | 67.5 |
| Ethnicity | | |
| Hausa | 146 | 54.5 |
| Yoruba | 29 | 10.8 |
| Igbo | 23 | 8.6 |
| Kanuri | 9 | 3.4 |
| Others | 61 | 22.7 |
| Highest Educational Qualification | | |
| Postgraduate Degree | 58 | 21.6 |
| BNSc/BSc/B.Ed | 81 | 30.2 |
| RN/RM | 97 | 36.3 |
| Post Basic Nursing Specialty | 32 | 11.9 |
| Average Monthly Income | | |
| <100,000 | 71 | 26.5 |
| N100,000 – N150,000 | 72 | 26.8 |
| N150,000 – N200,000 | 38 | 14.2 |
| >N200,000 | 87 | 32.5 |
| Refusing a recommended vaccine in the past | | |
| I have never refused to be vaccinated | 221 | 87.4 |
| I have refused to be vaccinated in the past | 32 | 12.6 |
| Working Experience (Years) | | |
| <1 | 3 | 1.1 |
| 1 – 4 | 52 | 19.4 |
| 5 – 8 | 31 | 11.6 |
| 9 – 12 | 44 | 16.4 |
| 13 – 16 | 43 | 16.1 |
| 17 – 20 | 29 | 10.8 |
| >20 | 66 | 24.6 |
| Mean = 14.2 | | |

Table 2: General Attitude towards Vaccines (n = 268)

| Attitude towards Vaccines | f | % |
|----------------------------------|----------|----------|
| Negative Attitude | 88 | 32.7 |
| Positive Attitude | 181 | 67.3 |

Table 3: Willingness to receive COVID-19 Vaccine (n = 268)

| Willingness to receive COVID-19 Vaccine | f | % |
|--|----------|----------|
| Not Willing | 241 | 89.6 |
| Willing | 28 | 10.4 |

Table 4: Correlates of willingness to Receive COVID-19 vaccine among Nurses in Northwest Nigeria

| | | Knowledge of COVID-19 | Being diagnosed as having COVID-19 | Refusing a recommended vaccine in the past | Attitude Towards Vaccines | Willingness to receive COVID- 19 Vaccine |
|--|-----------------|--------------------------|---------------------------------------|--|---------------------------------|--|
| Age | P | .052 | -.037 | .186** | -.101 | .069 |
| | Sig. (2-tailed) | .402 | .555 | .003 | .102 | .264 |
| | N | 262 | 264 | 251 | 265 | 265 |
| Female Gender | P | .019 | -.056 | -.125 | -.040 | .160** |
| | Sig. (2-tailed) | .760 | .371 | .051 | .515 | .010 |
| | N | 258 | 260 | 246 | 261 | 261 |
| Ethnicity | P | .011 | -.033 | -.111 | .013 | .037 |
| | Sig. (2-tailed) | .863 | .599 | .083 | .829 | .555 |
| | N | 256 | 258 | 246 | 259 | 259 |
| Highest Educational Qualification | P | .050 | .033 | .078 | .066 | .291** |
| | Sig. (2-tailed) | .428 | .602 | .227 | .295 | .142 |
| | N | 254 | 256 | 243 | 257 | 257 |
| Years of Experience | P | -.132* | .038 | -.132* | .066 | -.099 |
| | Sig. (2-tailed) | .033 | .539 | .038 | .290 | .109 |
| | N | 260 | 261 | 249 | 262 | 262 |
| Area of Residence | P | .182** | .037 | .016 | -.049 | -.010 |
| | Sig. (2-tailed) | .003 | .553 | .797 | .430 | .871 |
| | N | 261 | 263 | 250 | 264 | 264 |
| Having Long Term Medical Condition | P | .033 | .029 | -.061 | .093 | .492** |
| | Sig. (2-tailed) | .598 | .640 | .339 | .136 | .320 |
| | N | 258 | 260 | 247 | 261 | 261 |
| Having Long Term Mental Health Condition | P | -.108 | .047 | -.010 | .020 | .059 |
| | Sig. (2-tailed) | .082 | .445 | .879 | .751 | .343 |
| | N | 261 | 262 | 250 | 263 | 263 |
| Knowledge of COVID-19 | P | 1.000 | -.023 | .088 | .004 | .402** |
| | Sig. (2-tailed) | . | .709 | .165 | .945 | .122 |
| | N | 265 | 264 | 250 | 265 | 265 |
| Being diagnosed with COVID-19 | P | -.023 | 1.000 | -.097 | -.020 | -.014 |
| | Sig. (2-tailed) | .709 | 1. | .126 | .749 | .816 |
| | N | 264 | 267 | 253 | 267 | 267 |
| Refusing a recommended vaccine in the past | P | .088 | -.097 | 1.000 | -.239** | .651* |
| | Sig. (2-tailed) | .165 | .126 | . | .000 | .334 |
| | N | 250 | 253 | 253 | 253 | 253 |
| Attitude Towards Vaccines | P | .004 | -.020 | -.239** | 1.000 | .076 |
| | Sig. (2-tailed) | .945 | .749 | .000 | . | .217 |
| | N | 265 | 267 | 253 | 268 | 268 |
| Willingness to receive COVID-19 Vaccine | P | -.061 | -.014 | -.661* | .071 | 1.000 |
| | Sig. (2-tailed) | .322 | .816 | .334 | .217 | . |
| | N | 265 | 267 | 253 | 268 | 268 |

** . Correlation is significant at 0.01 (2-tailed).

* . Correlation is significant at 0.05 (2-tailed).