# Assessment Of Willingness And Acceptability Of Covid-19 Vaccine Among Medical Students In Southwest Nigeria

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*Abstract:*

*Background/objective: The World Health Organization Strategic Advisory Group of Experts on Immunization described vaccine hesitancy as the delay in acceptance or refusal of vaccination despite the availability of vaccination services which has been considered a significant threat to global health. This study aimed to assess the level of willingness and acceptability toward obtaining the covid-19 vaccine among Nigerian Medical students.*

*Method: The study was a cross-sectional study conducted among medical students of LAUTECH Ogbomoso. The study instrument was adapted from a previous similar study in Southwest and data obtained were computed confidentially. Frequency tables were created, and the t-test was used to determine the relationship between respondents' socio-demographic characteristics, as well as their attitude and acceptability of the COVID-19 vaccine*

*Result: Two hundred and ten subjects participated in the study. 63.8% were willing to obtain the vaccine however only 46.7% had at least one vaccination history and 66.7% are willing to recommend the vaccine to others while the good and poor levels of acceptability were 57.1% and 42.9% respectively. Of the vaccinated subjects, the majority (83.7%) reported various side effects.*

*Conclusion: Despite the knowledge and level of awareness of medical students about covid-19, respondents scored only fairly above average which showed a good level of acceptability, and also, an appreciable number showed good willingness for vaccine recommendation to others. However, the major associated factor for the unwilling respondents was more psychological reasons.*

*Keywords: covid-19, covid-19 vaccine, vaccine acceptability, vaccination willingness.*

## I.    INTRODUCTION

The sequencing of the SARS-CoV-2 genome has brought about the rapid development of the COVID-19 vaccine by several leading vaccine producing companies across different countries; BioNTech/Pfizer, Moderna, Janssen, AstraZeneca vaccines and several others. And their Emergency Use Authorization (EUA) was granted by the World Health Organization (WHO)(Cavaleri et al., 2021; Shrotri et al., 2021).

In Nigeria, the National Agency for Food and Drug Administration and Control (NAFDAC) of Nigeria approved the use of the AstraZeneca® (ChAdOx1 nCoV-19) vaccine for immediate use(*NAFDAC Approves ASTRAZENECA/OXFORD COVID-19 (COVISHIELD) VACCINE – NAFDAC*, n.d.), and presently several others. Following this, several batches of the vaccine has arrived the country via the COVID-19 Vaccines Global Access Facility (COVAX), in partnerships with the Coalition for Epidemic Preparedness Innovations (CEPI), Gavi the Vaccine Alliance, the United Nations Children's Fund (UNICEF), the World Bank, and the WHO (Kimble et al., 2021).

Nigeria's National Primary Health Care Development Agency (NPHCDA) has since commenced stagewise vaccination with priority groups, starting with frontline healthcare workers. The agency has also deployed a self-registration portal online to roll out a country-wide vaccination program.

Since vaccination coverage is a defining factor for successful herds immunity, there is a need to explore the determinants of COVID-19 vaccine uptake that could guide effective vaccination strategies.

Despite the wide availability of the COVID-19 vaccine, there are huge limitations on vaccination acceptability5, (Mellet & Pepper, 2021). The willingness to obtain the vaccine met some resistance probably due to misleading information on the COVID-19 vaccine widely spread across the space on social media, resulting in confusion, hesitations, and indifferences (Mohammed et al., 2022).

The WHO Strategic Advisory Group of Experts on Immunization (SAGE) has described vaccine hesitancy as "the delay in acceptance or refusal of vaccination despite the availability of vaccination services" (Wagner et al., 2019). Which has been considered a significant threat to global health. The acceptance of the COVID-19 vaccine in a critical group like young adults, including students of tertiary institutions and the healthcare profession has been reported from different regions across the globe (Almalki et al., 2021; Sallam et al., 2021). The students' participation in COVID-19 response varies across countries and is primarily for educational purposes.

However, the role of medical students, in COVID-19 response programs is evolving rapidly due to the shortage of healthcare professionals in many countries (Gallagher & Schleyer, 2020; Tempski et al., 2021). The health literacy of medical students could be influenced by several socioeconomic factors, level of study, and history of chronic disease (Riad et al., 2021). Thus, the present study aimed to evaluate the factors associated with willingness to be vaccinated with the COVID-19 vaccine among medical students of LAUTECH Ogbomoso, Nigeria.

## II. METHODOLOGY

### STUDY AREA

The study was carried out among the medical students of the Ladoke Akintola University of Technology, Ogbomoso Oyo State Nigeria. The institution is owned by Oyo state with over twenty-five thousand undergraduates and about five hundred medical students in both pre-clinical and clinical years. It welcomes and admits prospectus medical students from all angles of the Country with her College of Health Sciences located in Ogbomoso. It also has her Teaching Hospitals located in Ogbomoso where her main University campus is located on Latitude $8^o$ $08'$ $00"$ East and Longitude of $4^o$ $16'$ $00"$ North of the Equator, within the savannah region and a gateway to the Northern part of Nigeria from the West. About 57 kilometers South West of Ilorin (the Capital of Kwara State) 53Kilometres North – East of Oyo, 58 Kilometers North – West of Osogbo (Capital of Osun State), and 104 Kilometres North – East of Ibadan (Capital of Oyo State). (*Fact Sheet*, n.d.)

### STUDY SIZE AND POPULATION

The study was done among medical students between 100-600 levels of the Ladoke Akintola University of Technology Ogbomoso. The total number of students in session during the data collection was four hundred and seventy-five, which was proposed for the study.

## III. STUDY DESIGN

The study adopted a cross-sectional descriptive design

### STUDY INSTRUMENT AND PROCEDURE

The data for the study were collected using an adapted validated questionnaire from a similar study.(Ilori et al., 2021) The instrument used consists of three sections. The first section of the questionnaire was on sociodemographic characteristics of respondents, the next section contained the willingness to get vaccinated and the next section was attitudinal questions. Respondents' attitudes were graded by assigning scores to the Likert scale responses. The questions on the respondents' willingness to accept the vaccine and the readiness to recommend it to others were scored 1 for a 'yes' answer and 0 for a 'no' answer. Vaccine acceptability was determined by adding the scores for willingness to be vaccinated and readiness to recommend the vaccine to patients. The mean was calculated after adding up all the scores. Respondents with scores lower than the mean were considered to have poor acceptability, while those with scores higher than the mean were considered to have good acceptability.

The study targeted all medical students of LAUTECH using a self-administered questionnaire. The distribution of questionnaires was allotted according to the total number of students at each level. Each class representative was trained as an assistant for the study. Lecture hours were targeted during which the majority of the students were available to participate in the study.

Questionnaires were contained on the first-page consent form which was duly signed by all recruited subjects. All returned questionnaires were collated and computed.

## DATA ANALYSIS

A total of 210 responses were collected and data was analyzed using SPSS version 22, after sorting. Frequency tables were created, and the Chi-square test was used to determine the relationship between respondents' socio-demographic characteristics and their attitude and acceptability of the COVID-19 vaccine.

## CONFIDENTIALITY

Data obtained were treated with the utmost confidentiality

## IV. RESULTS

A total number of two hundred and twenty-one respondents were surveyed with the highest age ranging between 20-25yrs (66.7%). There a was male to a female preponderance of 51.2% and 48.8% respectively. Yoruba tribe account for 190 (90.5%) while Hausa recorded just 2 (1.0%) of the studied population. 172 (81.9) of the respondents were Christians. The 400 and 600 level students showed the highest response rate, 62 (29.5%) each while 100 and 500levels showed the least response rate of 1(0.5%) and 8 (3.8%) respectively. Table I

| Variables | Frequency | Percentage (%) |
|---|---|---|
| **Age** | | |
| <20 Years | 50 | 22.8 |
| 20 – 25 | 140 | 66.7 |
| > 25 Years | 20 | 9.5 |
| **Sex** | | |
| Female | 107 | 51.0 |
| Male | 103 | 49.0 |
| **Tribe** | | |
| Hausa | 2 | 1.0 |
| Igbo | 7 | 3.3 |
| Others | 11 | 5.2 |
| Yoruba | 190 | 90.5 |
| **Religion** | | |
| Christianity | 172 | 81.9 |
| Islam | 37 | 17.6 |
| Others* | 1 | 0.48 |
| **Level** | | |
| 100 | 1 | 0.5 |
| 200 | 36 | 17.1 |
| 300 | 41 | 19.5 |
| 400 | 62 | 29.5 |
| 500 | 8 | 3.8 |
| 600 | 62 | 29.5 |

Others* - traditional religion

*Table I: Sociodemographic Characteristics of respondents*

Of the 210 respondents surveyed, 134 (63.8%) were willing to get vaccinated whereas the total number of vaccinated respondents stood at just 46%. This implies that only 98 individuals have been vaccinated, representing 73.1% of the 134 respondents showing a willingness to get the vaccine. Whereas 76 (36.2%) were unwilling. The major reasons for unwillingness reported were lack of inner peace 37(48.7%) and worries about side effects of the vaccine 24(31.6%). Also, 37 (37.8%) of the vaccinated subjects have taken their second doses while none of the vaccinated respondents have obtained the third dose. Table II

Furthermore, of the total subjects surveyed, 186 (86.7%) agreed that every individual should get vaccinated whereas 140 (66.7%) are willing to recommend the vaccine to others. Table II.

| Variables | Frequency | Percentage (%) |
|---|---|---|
| **Willing to get vaccinated** | | |
| Yes | 134 | 63.8 |
| No | 76 | 36.2 |
| **Vaccination History** | | |
| Yes | 98 | 46.7 |
| No | 112 | 53.3 |
| **Number of doses** | | |
| One dose | 61 | 62.2 |
| Two doses | 37 | 37.8 |
| Three doses | 0 | 0 |
| **Reason for Unwillingness** | | |
| Reduction in infection rate | 8 | 10.5 |
| Lack of inner peace | 37 | 48.7 |
| No need for the vaccine | 7 | 9.2 |
| Worried about side effects | 24 | 31.6 |
| Vaccine changes gene | 0 | 0 |
| COVID-19 is not real | 0 | 0 |
| Vaccines can kill faster than the infection | 0 | 0 |
| Vaccines can cause COVID-19 | 0 | 0 |
| **Vaccine beneficiaries** | | |
| People infected | 8 | 3.8 |
| People yet to be infected | 16 | 7.6 |
| Newly recovered people | 4 | 1.9 |
| Everyone | 182 | 86.7 |
| **Vaccine Recommendation** | | |
| Yes | 140 | 66.7 |
| No | 70 | 33.3 |

*Table II: Willingness to get vaccinated with the COVID-19 vaccine*

82 (83.7%) of the vaccinated subjects reported various side effects. Headache 40 (44%) was the majorly reported side effect. While fever and pain at the injection site account for 20.9% and 18.7% of the reported side effects respectively Table III.

| Variables | Frequency | Percentage (%) |
|---|---|---|
| Experienced side effects | | |
| Yes | 82 | 83.7 |
| No | 16 | 16.3 |
| **Side effects reported** | | |
| Pain at the injection site | 17 | 18.7 |
| Dizziness | 4 | 4.4 |
| Headache | 40 | 44.0 |
| Fever | 19 | 20.9 |
| Chills | 3 | 3.3 |
| Diarrhea | 1 | 1.1 |
| Muscle pain | 7 | 7.7 |
| Nausea | 0 | 0 |

*Table III: Side Effects of the Vaccine*

Vaccine acceptability was derived by adding the willingness score and readiness to recommend the vaccine and the mean was calculated. Of the total subjects surveyed, 120 (57.1%) had a good acceptability score and 90 (42.9%) accounted for poor vaccine acceptability. Table IV

| Variables | Frequency | Percentage (%) |
|---|---|---|
| **Vaccine Acceptability** | | |
| Good | 120 | 57.1 |
| Poor | 90 | 42.9 |

*Table IV: Vaccine Acceptability among Respondents*

## V. DISCUSSION

The targeted population for the study was four hundred and seventy-five medical students across all levels currently in session, however, only two hundred and ten subjects participated in the study accounting for a 44.2% response rate. This poor response was due in part to some of the factors mitigating the smooth academic system in Nigeria such as the ongoing university staff strike across the country at the time of subject recruitment and data collection. The 400 and 600 level students showed the highest response rate being clinical students currently on hospital clinical rotation while 100 and 500levels showed the least response rate.

More than half of the total respondents were willing to get vaccinated. This positive readiness was in contrast with a report by Sallam et. Al (Sallam et al., 2021) who recorded a lower willingness of 34.9% among Jordan University students. More available information on the vaccines' significance, benefits and effectiveness has contributed to promoting the acceptance of COVID-19 vaccines (Alqudeimat et al., 2021) as the majority of respondents were as well willing to recommend the vaccine to others. However, significantly less than an average number of the respondents have been vaccinated for covid-19 which is similar to another report (Almalki et al., 2021) even though the majority of the respondents believe from our study that all individuals should get vaccinated whereas very few students thought that only infected people needed the vaccine.

The major reasons for unwillingness reported were psychological reasons closely followed by worries about the side effects of the vaccine. Concerns regarding the vaccine's safety and effectiveness, and fears regarding the potential side effects were the most critical determinants of vaccination refusal. (Alqudeimat et al., 2021; Qattan et al., 2021) A study found that participants who believed that the vaccines introduced health-related risks were less willing to accept vaccination. (Alqudeimat et al., 2021) A study from Saudi Arabia reported that the vaccine's efficacy and safety were among the important factors that contributed to vaccine unwillingness. (Almaghaslah et al., 2021) Although many people were worried about the possibility of unknown long-term side effects, however, the Center for Disease Control and Prevention (CDC) in the United States confirmed that long-term side effects from the covid-19 vaccine were unlikely. (*Safety of COVID-19 Vaccines / CDC*, n.d.)

Almost all vaccinated subjects in our study reported various side effects. Headache was the majorly reported side effect. While fever and pain at the injection site followed closely. COVID-19 vaccine's side effects have been widely documented by several researchers. In a study conducted in the United Kingdom, among Pfizer-BioNTech vaccine recipients, more than half of the participants reported one or more side effects, with fatigue and headache being the most common. (Menni et al., 2021) This is resonant with our findings but in contrast to the report by Ilori et. al, which found that pain at the injection site was the most common side effect experienced. (Ilori et al., 2021)

The vaccine acceptability score derived from our study was overall good (57.1%) in line with other studies. (Alqudeimat et al., 2021; Ilori et al., 2021; Qattan et al., 2021) Possible explanations for the acceptance of participants in our study to be vaccinated against COVID-19 are the ongoing awareness efforts and high confidence in the government and the healthcare system. But most important is the peculiarity of the group of the students recruited for the survey, being medical students who are thought to be vast in their knowledge of this subject.

Continuous public sensitization about the benefits of getting vaccinated against this infectious disease will go a long way toward convincing students and the general population in this category to reconsider accepting the vaccine. Our findings could be attributed to increased vaccine awareness. Despite the widespread misconceptions about vaccination, students' acceptance of the COVID-19 vaccine will go a long way toward informing patients, relatives, and fellow students on campus about the importance and benefits of getting vaccinated.

Although the associated factors or determinants from our survey require further exploring as well as unreported sociodemographic correlations of respondence limit our conclusion in these regards. Also, the data collected was limited due to reasons that were stated earlier in this discussion.

## VI. CONCLUSION

Despite the knowledge and level of awareness of medical students about covid-19 and the implication of the vaccine, respondents scored only fairly above average which showed a

good overall level of acceptability, and also, an appreciable number showed goodwill to get vaccinated and recommend it to others.

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