COVID-19 vaccine hesitancy among healthcare workers in Nigeria: A systematic review protocol

Worgu GO[1], Somiari A[1], Osi CU[1], Onyeaghala C[2], Ogbonna VI[1], Joshi S[3], Inimgba T[1], Agiri (Jr) UA[4], Abaate TJ[1], Maduka O[1], Buowari DY[5]

[1]*Department of Community Medicine, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria*
[2]*Department of Internal Medicine, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria.*
[3]*Community Medicine, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Wardha, India,*
[4]*Department of Family Medicine, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria.*
[5]*Department of Accident and Emergency, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria.*

Abstract

Background: The COVID-19 pandemic has led to a significant change in society. Healthcare workers are at risk of contracting the novel virus while at work as it becomes a hospital-acquired infection, starting from the first wave of the pandemic. Healthcare workers can acquire and transmit the virus from the medical workplace to their households. Hence they must receive the COVID-19 vaccine. However, some healthcare workers have refused to get inoculated with the COVID-19 vaccine, exhibiting vaccine hesitancy. There are several reasons healthcare workers knowledgeable about vaccines refuse to receive them—this protocol is for a systematic review of hesitation towards the COVID-19 vaccine among healthcare workers in Nigeria.

Aim and Objectives: To investigate vaccine hesitancy among healthcare workers in Nigeria.

Methods and Analysis: This protocol followed the preferred reporting items for systematic review and meta-analysis (PRISMA-P) 2015 guideline and is registered with PROSPERO. The registration number is CRD42022365489. We will conduct an electronic search for pertinent papers in several databases, including Medline, Embase, Cochrane Central Library, Scopus, web of Science Citation Index, and African Index Medicus. The search period will be between March 7, 2021 to March 27, 2023, for published articles on healthcare professionals' hesitation to receive the COVID-19 vaccine.

Three independent reviewers will select the articles based on strict eligibility criteria, and a fourth reviewer will address any disagreement.

We will use the New Castle Ottawa scale to assess the risk of bias in the included studies and perform quantitative and qualitative synthesis. The former is for sufficiently similar studies, using Review Manager Version 5.3. While the latter will be conducted where variabilities exist among the studies.

Conclusion: Even though healthcare workers have more knowledge about the COVID-19 pandemic and the COVID-19 vaccine compared to the members of the public, some of them exhibit hesitancy towards the COVID-19 vaccine.

Corresponding Author: Dr. Dabota Yvonne Buowari

Department of Accident and Emergency,
University of Port Harcourt Teaching Hospital,
Port Harcourt, Nigeria.
E-mail: dabotabuowari@yahoo.com, Phone: +2348037324401

Introduction

Coronavirus disease-2019 (COVID-19) is caused by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2), a single-stranded positive-sense RNA virus.[1,2] The ongoing COVID-19 outbreak was declared a global pandemic by the

World Health Organization (WHO) on March 11, 2020, and it has posed a significant threat to global public health.[3,4] Infection with the SARS-CoV-2 has affected approximately 607 million people as of September 15, 2022, with 6 million deaths globally.[5,6]

The first case of COVID-19 in Nigeria was imported into the country by an Italian citizen on February 27, 2020. Since then, several cases have been confirmed in different Nigerian states, including the Federal Capital Territory, Abuja. Healthcare workers are at risk of contracting the infection at work and transmitting it to their households. Several measures have been taken to contain the novel virus.

As the global pandemic caused by COVID-19 worsens worldwide, vaccination, one of the most successful public health initiatives in contemporary times, has become increasingly important.[7,8] Vaccines help protect the general public from the spread of infection and thus have health, social, and economic importance, particularly in reducing disease transmission, outbreaks, epidemics, and pandemics.[9]

The pandemic led to the development of a vaccine to combat the infection.[10] This occurred in less than a year, and in December 2020, the first dose of the COVID-19 vaccine was administered.[11] Healthcare workers and people older than 65 should be prioritized for vaccination as many countries are currently experiencing a resurgence of COVID-19.[8,12] The expedited speed at which the vaccine against SARS-CoV-2 was produced led to doubts if it is efficacious and safe to be administered to human beings.[10,13,14] This gave concerns leading to hesitancy towards accepting the COVID-19 vaccine.[13] Vaccine hesitancy is defined by the WHO as the 'reluctance or refusal to vaccinate despite the availability of vaccine'.[15] Vaccine hesitancy leads to the threat of reversing the advancement in preventing illness that vaccines can prevent.

The WHO identified vaccine hesitancy as a threat to global health. The COVID-19 vaccine has been proven to be safe and effective though some people will have an adverse effect towards it; there is hesitancy concerning it.[13,16] Surveys done in various countries revealed that hesitancy towards the COVID-19 vaccine occurs among healthcare workers.[15] Worldwide, healthcare professionals received the COVID-19 vaccine before other populations because they were endangered during the pandemic.[17] The authors plan to conduct a systematic review and meta-analysis of Nigeria's COVID-19 vaccine hesitancy among healthcare workers.

Rational for the Study
Globally, humanity is confronted with illnesses that can be prevented by vaccines by diverse infections that lead to epidemics and pandemics.[15] The COVID-19 vaccine is threatened by vaccine hesitancy. The acceptability of the COVID-19 vaccine by the populace largely depends on acceptance by healthcare professionals because healthcare professionals can influence the public to accept immunization. After all, it is assumed that they have much knowledge about them.[18,19] Vaccine hesitancy of healthcare workers towards COVID-19 must be investigated as it helps protect the general population. Hence it is a critical issue. There are hospital-based studies conducted on the COVID-19 vaccine hesitancy among healthcare workers in Nigeria but no systematic review on the subject. Hence it is necessary to perform a systematic review of the existing data in order to guide public health actions.

Aim and Objectives of the Systematic Review
The systematic review will investigate vaccine hesitancy among healthcare workers in Nigeria. The primary objective of this review is to estimate the prevalence of COVID-19 hesitancy among healthcare workers. The secondary objective of the systematic review is to explore the factors that influence COVID-19 vaccine hesitancy among health professionals in Nigeria.

Method
This protocol followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA-P) 2015 guideline.[20] Registration of the protocol for this systematic review has been done on the International Prospective Register for Systematic Reviews (PROSPERO) with the registration number CRD42022365489.

Eligibility Criteria
Studies eligible for the review will be selected based

on the PICOS framework. P is the population or participant (Doctors and Nurses); I stands for the Intervention or exposure (COVID-19 vaccine); C for control or Comparator (nothing); O for the Outcome(proportion who received the vaccine); and S for study design.

Observational studies (Cohort, case-control, and cross-sectional studies) will be included. However, systematic reviews, randomized controlled trials, quasi-randomized controlled trials, case series, and studies conducted on other hospital staff will be excluded.

Sources of Article for the Review

The primary source of information for the review will be articles retrieved through multiple database searches, including Medline, Embase, Cochrane central library, Scopus, web of Science citation index, and African index medicus. Search for unpublished studies will also be carried out across Google Scholar, conference abstract, and the open grey. Key journals will also be searched, and specialized government websites, including the NCDC, ministries of health, AJOL, and hand searching of the reference list.

Search Terms and Search Strategy

Search terms were developed by the authors and cross-checked by a librarian. The search strategy will include keywords and Medical Subject Headings (MeSH). (Rejection OR hesitancy OR compliance OR attitude OR acceptance OR acceptability) AND (COVID-19 OR Coronavirus OR SARS-CoV-2) AND (vaccine* OR immun*) AND (healthcare workers [tiab] OR health personnel [tiab] OR physician OR nurse OR doctor OR residents OR students) AND (Nigeria). This first batch of 3.9 million doses of Astra Zeneca's COVID-19 vaccine arrived in the country on March 1 2021; therefore, we will search for all articles published from March 2, 2021, to March 27, 2023. Only articles published in English shall be included in the review.

Study Selection Process

Study selection will be made in three stages: Title, abstract, and full text. Three reviewers will independently review the studies that resulted from the search. They will review the title, abstract, and full text for final inclusion in the study; where there is disagreement, a fourth reviewer will be contacted. Differences will be resolved by discussion and consensus. A data extraction form will be created, and information on the following will be extracted: title and authors of the article, year of publication, study location, study design, population, sample size, the proportion of COVID-19 hesitancy, the prevalence of COVID-19 acceptance, reasons for rejecting the COVID-19 vaccine, outcomes, category of healthcare workers studied. Three independent reviewers will assess the risk of bias using the NEW Castle Ottawa checklist. Appraising primary studies for bias is an essential part of the systematic review process, as including studies with a High Risk of Bias may result in invalid conclusions.

Data Analysis

Qualitative and quantitative analysis will be conducted. A fixed-effect meta-analysis method will be performed if studies with sufficient similarities are found, with an I^2 statistic of less than 50%. Where variations exist in methodologies and analysis across the studies with an I^2 statistic greater than 50%, a random effect meta-analysis will be conducted. A narrative synthesis using vote counting or combining their P-values will be conducted as it is anticipated that most studies may not report accurate data. All statistical analysis will be conducted using the Review Manager Version 5.4. A subgroup analysis will be carried out on the two groups of healthcare workers being studied (Nurses and Doctors) to determine the variations in vaccine hesitancy.

Assessment of Meta-Bias

A funnel plot will be created to assess potential publication bias as the preliminary search showed studies greater than ten exist to inform the analysis.

Certainty of Evidence

The GRADE framework will assess the quality of evidence generated in the systematic review and meta-analysis. Observational studies are, by default, given a low score on the guideline but can be upgraded or further downgraded. It will be upgraded if the effect is so significant that it cannot be explained by chance alone, while indirectness

and imprecision will be among the reasons to downgrade.

Discussion

The COVID-19 pandemic has caused a lot of disruptions globally as several measures are being taken to control the novel virus. The COVID-19 pandemic has changed the world, although most parts are now returning to their pre-COVID state. Several measures have been taken to control the novel virus as the virus is still mutating. One of the strategies taken to prevent the unknown virus from reducing its incidence and prevalence is the invention of a vaccine. Nigeria is a low-resource country with inhabitants already hesitating to well-known researched vaccines. Hence when the COVID-19 vaccine was introduced, it became a challenge coupled with several religious and cultural beliefs and conspiracy theories concerning the pandemic itself. However, it is surprising that even healthcare workers who are expected to be knowledgeable about the COVID-19 pandemic and its vaccine also exhibit hesitancy. Healthcare workers are on the frontline fighting the pandemic and are involved in health promotion and campaigns educating the populace on steps to be safe. Healthcare workers are the ones administering the COVID-19 vaccines to members of the public; therefore, it is expected that they should be vaccinated.

Conclusion

Vaccine hesitancy exists in Nigeria, but it is worrisome when healthcare workers are involved. A systematic review of COVID-19 vaccine hesitancy among healthcare workers is necessary to investigate the actual burden of this problem, which is of public health concern and importance.

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