RGUHS
Journal of Nursing Sciences



ORIGINAL ARTICLE

# Perceived Barriers to the Effective Implementation of COVID-19 Safety Measures Among Healthcare Workers at University of Ilorin Teaching Hospital

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**Received date:** April 12, 2025; **Accepted date:** July 01, 2025; **Published date:** July 31, 2025



## Abstract

**Objective:** COVID-19 (Coronavirus Disease 2019) is a contagious disease caused by a new coronavirus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Since the onset of the COVID-19 pandemic, healthcare workers across various sectors have been striving to implement effective safety measures to prevent and control the further spread of the disease. The purpose of the study was to identify the perceived barriers to the effective implementation of COVID-19 safety measures among healthcare workers at the University of Ilorin Teaching Hospital.

**Methodology:** The study employed a descriptive design and utilized multistage sampling techniques to select a total of 167 respondents from a population of 325 healthcare workers. Data were collected using a self-structured questionnaire, with a reliability of 0.857. All 167 questionnaires were completed and returned within the stipulated time frame.

**Results:** The findings revealed that 55.1% of healthcare workers were not aware that consistent use of COVID-19 safety measures can reduce the mortality rate. Also, 58.7% agreed that poor safety culture among some healthcare workers hinders the effective implementation of these measures. Similarly, 58.68% believed that the lack of strict enforcement of WHO regulations hinders effective implementation of COVID-19 safety protocols among health workers. Furthermore, 74.8% believed that the use of personal protective equipment (PPE) would be effective in enhancing safety, while 83.2% expressed confidence in the overall effectiveness of PPE in implementing safety measures.

**Conclusion:** It is recommended that seminars and workshops be organized for nurses and other healthcare workers to enhance their knowledge on COVID-19 prevention, improve their attitudes and practices regarding safety measures, and better prepare them for future outbreaks.

**Keywords**: COVID-19, Health workers, Barriers, Implementation, Effective, Safety

## Introduction

Coronavirus is a potentially deadly virus that can cause severe illness in humans. A new Coronavirus was identified as the cause of a cluster of pneumonia cases in Wuhan, China's Hubei Province, at the end of 2019. It rapidly spread across China, escalating to an epidemic and a global pandemic. The World Health Organization officially named the disease COVID-19, which stands for Coronavirus Disease 2019, in February 2020.[1] The virus that causes COVID-19 is known as SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2).[2]

The World Health Organization and the US Centers for Disease Control and Prevention have released interim guidelines, although there are certain impediments to effective implementation of some of the emphasized preventative actions and policies among healthcare workers. Coronaviruses are positive-stranded RNA viruses that are enclosed.[3] The coronavirus that causes COVID-19 is a betacoronavirus, belonging to the same subgenus as the severe acute respiratory syndrome (SARS) virus (as well as other bat coronaviruses), but in a different view, according to full-genome sequencing and phylogenic analysis. Healthcare workers had uncovered a variant of the virus. SARS-CoV-2, included in a large sequence database, was identified with a D614G (glycine for aspartic acid) substitution that became the dominant polymorphism globally over time.[4] In animal and in vitro studies, viruses bearing the G614 polymorphism demonstrated higher levels of infectious virus in the respiratory tract, enhanced binding to ACE-2, and increased replication and transmissibility compared with the D614 polymorphism.[5] The G614 variant does not appear to be associated with a higher risk of hospitalization or impact anti-spike antibody binding. It is now present in most circulating SARS-CoV-2 lineages.

The Delta lineage was first identified in India in December 2020 and had since been the most prevalent variant worldwide, until the emergence of the Omicron variant. The Delta variant is highly transmissible, more so than Alpha, which was more transmissible than previously circulating SARS-CoV-2 lineages. In South Africa, it was associated with an increase in regional infections, and was promptly identified in multiple other countries, where it was similarly associated with sharp increase in reported infections. As of late December 2021, the Omicron variant accounted for the majority of new infections in the United States.[6]

Accordingly, the shortage of personal protective equipment (PPE), poor quality instrument, scarce diagnostic kits, turnover of staffing,[7] inadequate training, poor adherence, poor practice of infection prevention (IP) measures, rumors and social stigma, poor compliance to physical distancing, and fears about unpaid sick leave were perceived barriers to effective implementation of COVID-19 safety measures among healthcare workers.[8]

According to Luo *et al.*, insufficient scientific data on SARS-CoV-2, working in high-risk departments, longer duty hours, suboptimal hand hygiene, inadequate knowledge of COVID-19, and deviations from the recommended PPE donning and doffing protocols, increased the risk of acquiring the infection.[9] According to Selam *et al.*, as the COVID-19 epidemic spread across the world, professional supervision, guidance, monitoring mechanisms, and routine daily environmental disinfection were largely absent.[10]

Even if resources are scarce, infection prevention should remain the primary focus during a pandemic.[11] Barriers to the effective implementation of COVID-19 safety measures among healthcare workers can be alleviated by the rational use and successful reuse of some equipment. This includes improving the logistics, use of personal protective equipment (PPE), implementing hand sanitizer usage protocols, enforcing written social distancing guidelines, and providing structured donning and doffing training with practical simulation. These measures aim to enhance the effective implementation of COVID-19 safety protocols among healthcare workers and the public. Globally, various non-pharmaceutical interventions have been implemented to reduce the transmission.[12]

In addition to personal preventive measures (e.g., masks, hand hygiene, respiratory etiquette, and environmental disinfection), transmission reduction strategies include social/physical distancing orders, stay-at-home orders, school, venue, and nonessential business closures, bans on public gatherings, travel restrictions with exit and/or entry screening, aggressive case identification and isolation (separating individuals with infection from others), and contact tracing and quarantine (separating individuals who have been exposed from others).[11]

The effective implementation of these safety measures varies widely by country and over time, depending on regional rates of infection. Therefore, this study aimed to assess the perceived barriers to the effective implementation of COVID-19 safety measures among

healthcare workers at the University of Ilorin Teaching Hospital.

### Aim of the study

1. To assess the level of awareness of healthcare workers on perceived barriers to effective implementation of COVID-19 safety measures.
2. To identify the perceived barriers that hinder the effective implementation of COVID-19 safety measures among healthcare workers.

### Hypothesis

**$H0_1$**:There is no significant relationship between awareness of healthcare workers and perceived barriers to effective implementation of COVID-19 safety measures.

## Materials & Methods

### Study Setting

The research was conducted at the University of Ilorin Teaching Hospital, Kwara State, between Tuesday 29th August and Friday 31st October, 2022. The hospital was established on May 23, 1980, and is located in the Ilorin East local government area along Oke-Ose Express Road.

### Study Design

The study was a quantitative, descriptive, cross-sectional study conducted over a period of two months.

### Sample Size and Sampling Technique

The study included all healthcare workers at the University of Ilorin Teaching Hospital, employing multistage sampling technique to select a sample of 167 (considering the attrition) from 325 health workers using Taro Yamane formula. The researcher collected data from 167 health workers, using questionnaires as the primary instrument.

### Data Collection Tools

The research study utilized a self-structured questionnaire titled 'Perceived Barriers to the Effective Implementation of COVID-19 Safety Measures (PBEIC19SM)', as the primary instrument for data collection with a reliability score of 0.857 based on a pilot study conducted on 10% of sample size, using the Cronbach's Alpha test in a setting with characteristics similar to the research environment. This questionnaire aimed to elucidate the perceived barriers to the effective implementation of COVID-19 safety measures among healthcare workers at the University of Ilorin Teaching Hospital.

### Data Analysis and Management

Data analysis for the study was conducted using SPSS 20. Windows. Initially, the data were analyzed using descriptive statistics such as frequency distribution tables, percentages, pie charts, and bar charts. Additionally, the Chi-square statistical method was employed to further analyze the relationships and associations within the data. These methods were utilized to effectively present the findings of the study on perceived barriers to the implementation of COVID-19 safety measures among healthcare workers at the University of Ilorin Teaching Hospital.

### Ethics

The researcher submitted an introductory letter to the Ethical Review Committee of the University of Ilorin Teaching Hospital, seeking approval to conduct the study. Ethical clearance was granted with reference number UITH/CAT/189/VOL.21B/351. Written informed consent was obtained from each participant prior to their involvement in the research program. This ethical process ensured that the study on perceived barriers to the implementation of COVID-19 safety measures among healthcare workers adhered to established guidelines and protected the rights and welfare of the participants.

## Results

As shown in Table 1, 72 respondents (43.1%) were male, while 95 (56.9%) were female. Regarding age distribution, 52 respondents (31.1%) were between 21-30 years, 108 (64.7%) were between 31-40 years, 5 (3%) were between 41-50 years, and 1 respondent each (0.6%) fell within the 51-60 and 61-70 age range. In terms of ethnicity, 108 respondents (64.7%) were Yoruba, 47 (28.1%) were Igbo, 11 (6.6%) were Hausa, 1 respondent (0.6%) belonged to another ethnic group. Regarding educational qualification, 8 respondents (4.8%) held a Diploma, 148 (88.6%) had a Bachelor's degree, 9 (5.4%) held a Master's degree, and 2 (1.2%) had a Doctorate. In terms of professional designation, 42 respondents (25.1%) were doctors, 77 (46.1%) were nurses, 25 (15%) were pharmacists, and 23 (13.8%) were laboratory scientists.

The data in Table 2 indicates that 75 respondents (44.91%) were aware that consistent use of COVID-19 safety measures can reduce mortality rate, while 92 (55.09%) were not aware. Additionally, 63 respondents (37.72%) had undergone special training on COVID-19

**Table 1:** Demographic data of the respondents

| **Gender** | **Frequency** | **Percent** |
|---|---|---|
| Male | 72 | 43.1 |
| Female | 95 | 56.9 |
| **Age (Years)** | **Frequency** | **Percent** |
| 21-30 | 52 | 31.1 |
| 31-40 | 108 | 64.7 |
| 41-50 | 5 | 3.0 |
| 51-60 | 1 | .6 |
| 61-70 | 1 | .6 |
| **Ethnicity** | **Frequency** | **Percent** |
| Yoruba | 108 | 64.7 |
| Igbo | 47 | 28.1 |
| Hausa | 11 | 6.6 |
| Others | 1 | .6 |
| **Highest level of education** | **Frequency** | **Percent** |
| Diploma | 8 | 4.8 |
| Degree | 148 | 88.6 |
| Master degree | 9 | 5.4 |
| Doctorate degree | 2 | 1.2 |
| **Professional field of training** | **Frequency** | **Percent** |
| Doctor | 42 | 25.1 |
| Nurse | 77 | 46.1 |
| Pharmacist | 25 | 15.0 |
| Laboratory scientist | 23 | 13.8 |

safety measures, whereas 104 (62.28%) had not. About 68 respondents (40.72%) believed that an insufficient supply of personal protective equipment is a barrier to implementing COVID-19 safety measures, while 56 (33.53%) did not share the same belief. Additionally, 46 respondents (27.54%) reported that they always explain the perceived barriers and COVID-19 safety measures to those around them, whereas 121 respondents (72.46%) indicated that they do not.

Figure 1 shows that 80 respondents (47.9%) were aware of barriers to the implementation of COVID-19 safety measures, while 87 (52.1%) indicated that they were not aware.

**Table 2:** Level of awareness of healthcare workers on perceived barriers to effective implementation of COVID-19 safety measures COVID-19 safety measures

| **Question** | **Yes [%]** | **No [%]** | **Not sure [%]** | **Total [%]** |
|---|---|---|---|---|
| Are you aware that consistent use of COVID-19 safety measures can reduce mortality rate? | 75 [44.91] | 92 [55.09] | —— | 167 [100] |
| Did you undergo any special training on COVID-19 safety measures? | 63 [37.72] | 104 [62.28] | —— | 167 [100] |
| Is insufficient supply of personal protective equipment a a barrier to COVID-19 safety measures? | 68 [40.72] | 56 [33.53] | 43 [25.75] | 167 [100] |
| Do you always explain the perceived barriers and COVID-19 safety measures to everyone around you? | 46 [27.54] | 121 [72.46] | —— | 167 [100] |

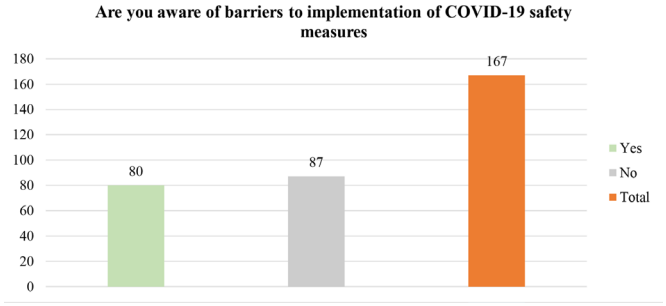


**Figure 1:** Awareness of barriers to the implementation of COVID-19 safety measures

Inferentially, the responses presented in Table 2 and Figure 1 suggest a below average level of awareness regarding the perceived barriers to effective implementation of COVID-19 safety measures among healthcare workers. This could be attributed to a lack of training on COVID-19 safety protocols.

Findings show that 76 respondents (45.5%) disagreed, 4 (2.4%) were undecided, and 87 (52.1%) agreed that a lack of administrative commitment and support at institution level hinders the effective implementation of COVID-19 safety measures among healthcare workers (Table 3). It has been observed that 65 respondents (38.9%) disagreed, 4 (2.4%) were undecided, and 98 (58.7%) agreed that lack of resources for implementing public health and social measures pose a barrier to effective implementation of COVID-19 safety measures. Also, 75 respondents (44.9) disagreed, 4 (2.4%) were undecided, and 88 (52.7) agreed that lack of proper communication between health advisors and public can be a hindrance. When enquired if public stigmatization can be a barrier, 22 respondents (13.2%) disagreed, 40 (23.95%) were undecided, and 105 respondents (62.9%) agreed .

**Table 3:** Perceived barriers to the effective implementation of COVID-19 safety measures among healthcare workers

| Items | Disagree [%] | Undecided [%] | Agree [%] | Total [%] |
|---|---|---|---|---|
| Do you believe that lack of administrative commitment and support at health care institution level hinders the effective implementation of COVID-19 safety measures among health care workers? | 76 [45.5] | 4 [2.40] | 87 [52.1%] | 167 [100] |
| Do you believe that lack of resources for implementing public health and social measures hinders the effective implementation of COVID-19 safety measures among healthcare workers | 65 [38.9] | 4 [2.40] | 98 [58.7] | 167 [100] |
| Do you believe that lack of proper communication between health advisors and public hinders the effective implementation of COVID-19 safety measures among health care workers? | 75 [44.9] | 4 [2.40] | 88 [52.7] | 167 [100] |
| Do you believe that public stigmatization hinders the effective implementation of COVID-19 safety measures among health care workers? | 22 [13.2] | 40 [23.95] | 105 [62.9] | 167 [100] |

Figure 2 illustrates that 36 respondents (21.6%) strongly disagreed, 32 (19.2%) disagreed, 4 (2.4%) were undecided, 52 (31.1%) agreed, and 43 (25.7%) strongly agreed that lack of safety commitment among healthcare workers hinders the effective implementation of COVID-19 safety measures.

Inferentially, these responses suggest that all the identified barriers discussed above could hinder the effective implementation of COVID-19 safety measures among healthcare workers.

**Hypothesis Testing**

$H0_1$: There is no significant relationship between healthcare workers' awareness and the perceived barriers to the effective implementation of COVID-19 safety measures.

Table 4 represents the relationship between healthcare workers' awareness of the effectiveness of consistent use of COVID-19 safety measures in reducing mortality and their belief that a lack of safety commitment among healthcare workers hinders the effective implementation of these measures.

Since Chi-square test yielded a value of X=86.367a and *P*=.000, which is less than 0.05, we reject the null hypothesis. This indicates that there is a significant relationship between healthcare workers' awareness (Are you aware that consistent use of COVID-19 safety measures will reduce mortality rate) and the perceived barriers to effective implementation of COVID-19 safety measures (Do you believe that lack of safety commitment of healthcare workers hinder the effective implementation of COVID-19 safety measures among health care workers?). Therefore, alternative hypothesis is accepted.

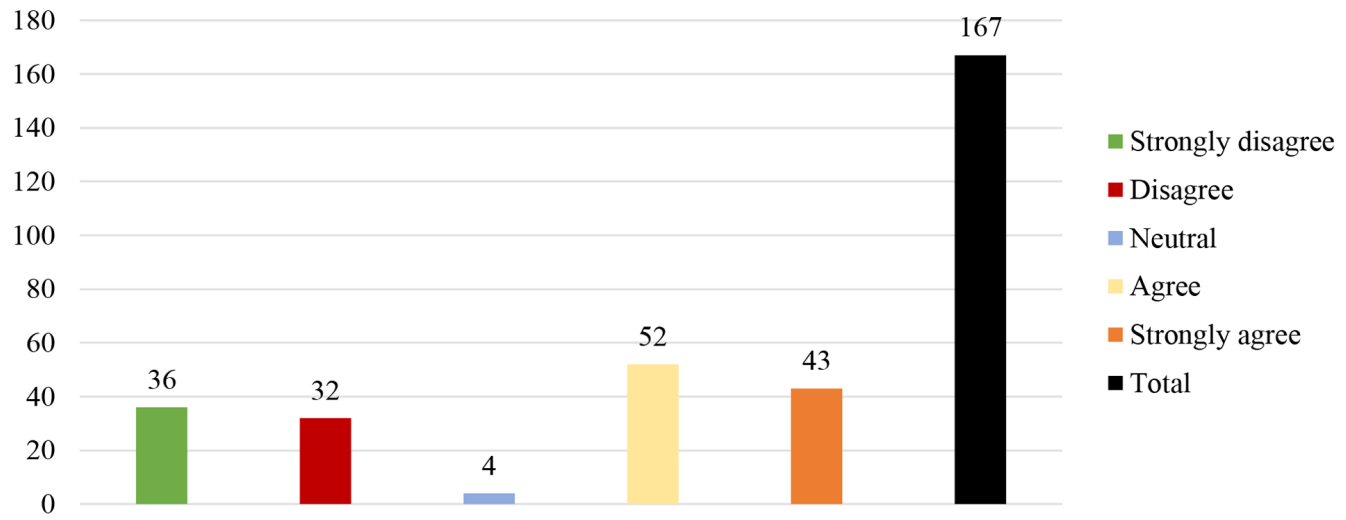


**Figure 2:** Perceptions of whether lack of safety commitment among healthcare workers hinder the effective implementation of COVID-19 safety measures

**Table 4**: Relationship between healthcare workers' awareness and the perceived barriers to the effective implementation of COVID-19 safety measures

| Cross tab | | Do you believe that lack of safety commitment of healthcare workers hinders the effective implementation of COVID-19 safety measures? | | | | | Total |
|---|---|---|---|---|---|---|---|
| | | Strongly disagree | Disagree | Undecided | Agree | Strongly agree | |
| Are you aware that consistent use of COVID-19 safety measures will reduce mortality rate | Yes | 0 | 2 | 1 | 41 | 31 | 75 |
| | No | 36 | 30 | 3 | 11 | 12 | 92 |
| Total | | 36 | 32 | 4 | 52 | 43 | 167 |

**Chi-Square Tests**

| | Value | Df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 86.367a | 4 | .000 |
| Likelihood Ratio | 105.735 | 4 | .000 |
| Linear-by-Linear Association | 75.122 | 1 | .000 |
| No of Valid Cases | 167 | | |
| a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 1.80. | | | |

*Decision rule: If $P>0.05$, accept the null hypothesis; if $P<0.05$, reject null hypothesis and accept the alternative hypothesis.

## Discussion

The findings of this study revealed that the majority of healthcare workers (55.1%) were not aware that consistent use of COVID-19 safety measures reduces the mortality rate. Most respondents (62.8%) had not undergone special training on COVID-19 safety measures. However, a significant proportion (72.5%) reported that they always explain perceived barriers and COVID-19 safety measures to those around them. These findings align with a study conducted by Negussie *et al*., which identified key barriers to the effective implementation of COVID-19 safety measures among healthcare workers, including a lack of clinician engagement, insufficient front-line worker training, poor supportive supervision, weak law enforcement, and limited continuous hospital-based awareness campaigns.[13] In addition, acceptability-related hurdles such as cultural and religious standards, as well as availability-related barriers such as the lack of personal protective equipment and shortage of competent healthcare professionals, posed significant challenges to the implementation of safety measures.

These findings are consistent with the study conducted by Negussie *et al*., which identified the main barriers to accessing COVID-19 safety measures as informational and financial in nature.[13] This aligns with the World Health Organization (WHO) recommendations, which highlight that the implementation of basic hygiene measures, such as hand washing (e.g. hand basins, sinks, or water pumps), may be physically inaccessible due to financial constraints.

## Conclusion

In conclusion, the majority of healthcare workers in this study were unaware that the consistent use of COVID-19 safety measures can significantly reduce the mortality rate. Several barriers hinder the effective practice of these safety measures.

- Some healthcare workers exhibit a poor safety culture, which impedes the consistent implementation of COVID-19 protocols.
- Communication between health advisors and the public is not always effective, leading to misunderstandings and non-compliance.
- Public stigmatization of healthcare workers further complicates adherence to safety protocols.

## Conflicts of Interest

Nil

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