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*Coronavirus Pandemic*

# Practices and perception of healthcare workers towards infection control measures during the COVID-19 pandemic: a cross-sectional online survey from Nigeria

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## Abstract

Introduction: This study investigated the practices and perceptions of Health care workers (HCWs) in Nigeria towards infection control practices during the COVID-19 pandemic.

Methodology: This cross-sectional study was conducted among HCWs in Nigeria healthcare facilities using a 25-item validated online questionnaire. The hyperlink of the questionnaire was shared with the various professional associations/societies and hospitals in June 2020.

Results: A total of 426 HCWs completed the questionnaire with pharmacists (28.8%), nurses/midwives (22.7%) and medical doctors (20.1%) being the highest respondents. Less than 50% of the HCWs had previous training on COVID-19 and how to use personal protective equipment (PPE). Only one in five HCWs had access to adequate PPE during the COVID-19 pandemic. Overall, the HCWs had good infection control practices with better practices observed among those who attended training on COVID-19 infection and those trained on how to use PPE. Lack of funds to purchase PPEs (55.3%), lack of access to PPE (52.5%) and lack of training on how to use PPE (44.0%) were the most common barriers to adherence to infection control guidelines.

Conclusions: HCWs in Nigeria have limited access to adequate PPE and lack adequate support from health authorities. Attendance of training on the use of PPE and COVID-19 infection were associated with access to adequate PPE and better infection control practices. Training of HCWs, provision of adequate PPE, and support are recommended to improve compliance with infection control guidelines.

**Key words:** Healthcare workers; COVID-19; perception; practices; personal protective equipment; Nigeria.

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## Introduction

The outbreak of viral pneumonia, which began in the Chinese city of Wuhan in December 2019, has become a pandemic. This infection is caused by a virus, Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2), and is known as coronavirus infection 2019 (COVID-19). As of 25th July 2020, over 15.5 million cases of COVID-19 infection have been reported worldwide with more than 635 thousand deaths [1]. Available data suggest that COVID-19 is transmitted through close contact with infected patients and through droplets from respiratory secretions [2]. Healthcare workers (HCWs) who provide care for COVID-19 patients are particularly vulnerable to infection. Frontline HCWs have an 11.6 times higher risk of contracting SARS-CoV-2 compared to the general population [3]. Reports in China show that 2,055 HCWs have been infected with SARS-CoV-2 and 22 have died by the end of February 2020 [4]. In Spain, the incidence of COVID-19 infection among HCWs is 11.1% with transmission among HCWs contributing to the overall cases [5]. In Nigeria, more than 100 HCWs have been infected with COVID-19 [6]. COVID-19 infection among HCWs has huge implications including reduced health workforce and increased workload for uninfected HCWs, and risk of transmission among HCWs, patients, and their families [5].

COVID-19 infection among HCWs is attributed to delay in the implementation of safety measures, shortage of personal protective equipment (PPE), lack of training on how to use PPE, and exposure to infected COVID-19 patients [7]. The World Health Organization recommends the implementation of safety precautions including the use of PPE, hand hygiene, and social distancing among HCWs to reduce the risk of nosocomial COVID-19 transmission [8]. However, compliance with safety measures among HCWs is inadequate. In Latin America, HCWs have limited access to PPE during the COVID-19 pandemic [9]. HCWs with inadequate PPE have a 31% high risk of infection compared to those with adequate safety apparatus [3]. This highlights the importance of awareness regarding safety measures and the availability of PPE to reduce the risk of COVID-19 transmission among HCWs. The use of PPE and training on infection control measures are associated with a reduced risk of COVID-19 infection [10]. Nosocomial infections are common in Nigerian healthcare facilities [11,12] and some of these infections are caused by multidrug-resistant pathogens [13]. The high rate of nosocomial infections in Nigeria before the COVID-19 pandemic has been attributed to the lack of a national infection control policy and poor infection control and prevention practices among HCWs [11]. These factors predispose HCWs and even patients to the risk of nosocomial infection. COVID-19 infection has been reported among HCWs in Nigeria and there is a lack of data describing compliance with infection control measures during the COVID-19 pandemic among HCWs. The aim of this study is to describe the practices and perceptions of HCWs in Nigeria regarding infection control measures during the COVID-19 pandemic.

## Methodology

*Study design and setting*

This is an online cross-sectional study conducted among HCWs in primary, secondary, and tertiary healthcare facilities in Nigeria using a validated and pre-tested online questionnaire in June 2020. This online survey was conducted among HCWs in the thirty-six states in Nigeria and the Federal Capital Territory, Abuja. Nigeria is a West African nation with an estimated population of two hundred million people and is divided into six geopolitical zones including North-West, North-East, North-Central, South-East, South-West, and South-South zones.

*Inclusion and exclusion criteria*

The study population included active HCWs in both public and private healthcare facilities in Nigeria. All professional groups of HCWs as well as the supporting staff who provided consent to participate in the study were included. Retired HCWs, those on leave during the COVID-19 pandemic as well as those who decline to participate in the study were excluded.

*Sample size calculation*

A minimum sample size was calculated using Raosoft sample size calculator with the following assumptions: 95% confidence interval, 5% margin of error and 50% response distribution, and an estimated population of 500,000 HCWs. A minimum sample of 384 HCWs was required for this study. A convenient sampling technique (snowball sampling) was used to recruit participants in this study.

*Questionnaire design*

The survey instrument used in this study was developed in the English language by a clinical pharmacist with expertise in infectious diseases (ID) based on the previously published literature [9,14] and World Health Organization documents [8,15]. The questionnaire was validated by a team of HCWs. The questionnaire was revised based on the comments and suggestions of the validators. The final questionnaire consists of 23 items and three sections: section A has 7 items that collected demographic information, while sections B and C have 12 and 4 items that assessed practices and perceptions towards infection control during the COVID-19 pandemic, respectively. The questionnaire was pre-tested among 30 HCWs before data collection. Responses in the practice section were transformed into scores using the following criteria: 5 points for always and 1 point for never. The total score obtainable in the practice section was 45 points and respondents who scored 31 points and above were classified as having good infection control practice. Adequate access to PPE was defined as access to disposable gloves, disposable face masks, and disposable gowns.

*Data collection*

The data were collected among HCWs working in both public and private hospitals in Nigeria using Google Forms. The hyperlink of the online questionnaire was sent to the HCWs through WhatsApp. The investigators targeted the WhatsApp groups of different professional associations/societies including the Pharmaceutical Society of Nigeria (PSN),

Nigerian Association of Resident Doctors of Nigeria (NARD), Nigerian Medical Association (NMA) Association of Medical Laboratory Scientists of Nigeria, the National Association of Nigeria Nurses and Midwives in Nigeria. The hyperlink of the questionnaire was also shared with professional colleagues for dissemination through the WhatsApp groups of several hospitals in Nigeria. Participation in the study was voluntary and no financial incentive was given to participants. The data were collected in June 2020. Reminders were sent to non-respondents on the second and fourth week of the study. A cover letter was attached to the online questionnaire which described the objective of the study and provided ethical information to the respondents. The respondents were informed that the submission of responses would be considered as consent to participate in the survey. Ethical approval was obtained from the Health Research Ethics Committee of the Niger State Ministry of Health (reference no.: STA/495/Vol/149). Universities in Nigeria were closed during the period due to the COVID-19 lockdown.

**Table 1.** Demographic characteristics of the healthcare workers who participated in the survey.

| Variable | N (%) |
|---|---|
| **Age** | |
| 18- 24 | 33 (7.7) |
| 25 – 35 | 219 (51.3) |
| 36 – 45 | 119 (27.9) |
| 46 – 55 | 42 (9.8) |
| > 55 | 10 (2.3) |
| **Gender** | |
| Male | 258 (60.4) |
| Female | 161 (37.7) |
| **Highest educational qualification** | |
| SSCE | 8 (1.9) |
| Diploma/NCE | 71 (16.6) |
| Bachelor's degree | 228 (53.4) |
| Postgraduate degree | 103 (24.1) |
| **Profession** | |
| Medical doctor | 86 (20.1) |
| Nurse/midwife | 97 (22.7) |
| Pharmacist | 123 (28.8) |
| Laboratory scientist | 43 (10.1) |
| Radiographer | 28 (6.6) |
| Physiotherapist | 3 (0.7) |
| Support staff | 20 (4.7) |
| Others | 19 (4.4) |
| **Type of facility** | |
| Primary care | 32 (7.5) |
| Secondary care | 127 (29.7) |
| Tertiary care | 259 (60.7) |
| **Unit of operation** | |
| Outpatient | 60 (14.1) |
| Emergency | 31 (7.3) |
| Medical | 39 (9.1) |
| Laboratory | 50 (11.7) |
| Pharmacy | 110 (25.8) |
| Surgical | 23 (5.4) |
| OBG | 27 (6.3) |
| Radiology | 20 (4.7) |
| Pediatric | 13 (3.0) |
| Intensive care | 6 (1.4) |
| Orthopedic and trauma | 4 (0.9) |
| Others | 19 (4.4) |
| **Type of hospital** | |
| Public | 377 (88.3) |
| Private | 15 (3.5) |
| Both | 21 (4.9) |
| Others | 3 (0.7) |

SSCE: senior school certificate examination, NCE: Nigeria certificate in education, OBG: obstetrics and gynecology

*Data analysis*

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 23. All categorical variables including respondents' characteristics, practices, and perceptions towards infection control were expressed as frequencies and percentages. The relationship between respondents' demographic characteristics and infection control practices and perceptions was tested using Pearson Chi-Square Test or Fisher's Exact Test (when appropriate). A $p$ value less than 0.05 was considered to be statistical significance.

## Results

*Demographic characteristics of the HCWs*

A total of 426 HCWs from twenty-three states and the Federal Capital Territory, Abuja completed the questionnaire, and this corresponds to two-thirds of the states in Nigeria. All the six geo-political zones in Nigeria were represented. Of the 426 respondents, 25 – 35 age group was the highest (51.3%) followed by 36 – 45 (27.9%) age group. About two-thirds of the respondents were males and worked in tertiary healthcare facilities. Pharmacists (28.8%), nurses/midwives (22.7%), and medical doctors (20.1%) were the highest respondents. Table 1 summarizes the demographic characteristics of the HCWs who participated in the study.

*Infection control training and access to safety equipment among HCWs during the COVID-19 pandemic*

Table 2 shows that less than 50% of the HCWs had attended training pertaining to COVID-19 infection and how to use PPE. The majority of the respondents had access to alcohol-based hand sanitizer (95.1%), disposable gloves (84.8%), and disposable mask (76.6%) but less than one-quarter had access to a disposable gown. Overall, approximately one in five

HCWs had access to adequate PPE (disposable gloves, gown, and mask).

*Infection control practices among HCWs during the COVID-19 pandemic*

Approximately two-thirds of the HCWs sanitize their hands and workstations before starting work always/most times. A similar percentage wash their hands after removing PPE, bathe or shower after work, and change to clean clothes. About one in five HCWs rarely/never sanitize their personal belongings before and after work or wear appropriate PPE during work (Table 3).

*Motivations and barriers to adherence to infection control guidelines*

Table 4 illustrates that lack of funds to purchase PPE (55.3%) lack of access to PPE (52.5%) and the lack of training on how to use PPE (44.0%) were the major barriers that hinder HCWs from adhering to infection control guidelines during the COVID-19 pandemic. Other barriers include discomfort associated with the use of PPE (21.8%) and patients feeling stigmatized when HCWs wear PPE (18.3%). More than two-thirds of the HCWs feel motivated to protect themselves and their families (97.7%), colleagues (74.9%), and patients (73.1%) from the COVID-19 infection (Table 4). Approximately one-third of the HCWs strongly agreed/agreed that their hospital has made adequate provisions to ensure the safety of HCWs during the COVID-19 pandemic, however, a similar percentage

**Table 2.** Infection control training and access to personal protective equipment among the respondents.

| Variable | N (%) |
|---|---|
| Attended training on COVID-19 infection | 182 (42.6) |
| Attended training on how to wear/remove PPE | 199 (46.6) |
| **Access to PPE** | |
| Alcohol based hand sanitizer | 406 (95.1) |
| Disposable gloves | 362 (84.8) |
| Disposable gown | 85 (19.9) |
| Disposable mask | 327 (76.6) |
| Facial protective shield | 93 (21.8) |
| Access to adequate PPE | 84 (19.7) |

PPE: personal and protective equipment; COVID-19: coronavirus disease 2019.

**Table 4.** Barriers and motivations to adherence to infection control guidelines among the respondents.

| Variables | N (%) |
|---|---|
| **Barriers to adherence to infection control** | |
| Lack of funds to purchase PPE | 236 (55.3) |
| Lack of access to PPE (I have to purchase PPE for myself) | 224 (52.5) |
| Lack of training on how to use PPE | 188 (44.0) |
| Negative attitude of other healthcare workers toward safety measures | 113 (26.5) |
| PPE are uncomfortable to use | 93 (21.8) |
| Lack of easy access to hand washing facilities | 82 (19.2) |
| Patients feel stigmatized when healthcare workers use PPE | 78 (18.3) |
| Inconvenience due to additional hand-hygiene and wearing and removing PPE | 76 (17.8) |
| PPE are of poor quality | 45 (10.5) |
| **Motivations to adhere to infection control guidelines** | |
| To protect myself and my family from COVID-19 infection | 417 (97.7) |
| To protect my colleagues from COVID-19 infection | 320 (74.9) |
| To protect my patient from COVID-19 infection | 312 (73.1) |

PPE: personal and protective equipment; COVID-19: coronavirus disease 2019.

**Table 3.** Infection control practices among the respondents during the COVID-19 pandemic.

| Variable | Frequency (%) | | | | |
|---|---|---|---|---|---|
| | Always | Most times | Occasionally | Rarely | Never |
| Remove jewelry and watch when you arrive at work | 146 (34.2) | 67 (15.7) | 77 (18.0) | 57 (13.3) | 71 (16.6) |
| Wash your hands with alcohol-based sanitizer or with soap and water before you start work. | 251 (58.8) | 96 (22.5) | 53 (12.4) | 15 (3.5) | 9 (2.1) |
| Sanitize your work station/environment before you start work. | 172 (40.3) | 113 (26.5) | 63 (14.8) | 42 (9.8) | 35 (8.2) |
| Sanitize personal belongings including phone, badge (ID card) and glasses. | 105 (24.6) | 112 (26.2) | 105 (24.6) | 61 (14.3) | 40 (9.4) |
| Wear appropriate personal protective equipment during work. | 151 (35.4) | 108 (25.3) | 61 (14.3) | 46 (10.8) | 57 (13.3) |
| Sanitize personal belongings including phone, badge (ID card) and glasses before you leave work. | 111 (26.0) | 112 (26.2) | 88 (20.6) | 68 (15.9) | 46 (10.8) |
| Wash your hands after removing personal protective equipment. | 271 (63.5) | 83 (19.4) | 22 (5.2) | 15 (3.5) | 28 (6.6) |
| Shower (bath) at work or immediately when you get home | 195 (45.7) | 105 (24.6) | 70 (16.4) | 31 (7.3) | 23 (5.4) |
| Change into clean clothes before you leave work or when you get home. | 223 (52.2) | 92 (21.5) | 47 (11.0) | 31 (7.3) | 30 (7.0) |

ID card: identity card.

strongly disagreed/disagreed with the statement. About 45% of the HCWs disagreed/strongly disagreed with the statement that the local health authorities have made adequate provisions to ensure the safety of HCWs during the COVID-19 pandemic while 28.8% agreed/strongly agreed with the statement (data not shown).

*Factors associated with access to adequate PPE and good infection control practices among the HCWs*

Table 5 demonstrates that demographic factors including age, gender, qualification, and profession were not associated with access to adequate PPE among the HCWs. However, those who attended training on COVID-19 infection (33.5%) and those who were trained on how to use PPE (34.2%) were more likely to

**Table 5.** Factors associated with access to adequate PPE and good infection control practices among the respondents.

| Variable | Factors associated with access to adequate PPE | | | Factors associated with good infection control practices | | |
|---|---|---|---|---|---|---|
| | Frequency | Percentage | *p* value | Frequency | Percentage | *p* value |
| **Age** | | | 0.060 | | | 0.867 |
| 18- 24 | 4 | 12.1 | | 20 | 60.6 | |
| 25 – 35 | 42 | 19.2 | | 149 | 68.0 | |
| 36 – 45 | 21 | 17.6 | | 78 | 66.7 | |
| 46 – 55 | 15 | 35.7 | | 30 | 71.4 | |
| > 55 | 1 | 10.0 | | 6 | 60.0 | |
| **Gender** | | | 0.166 | | | 0.069 |
| Male | 57 | 22.1 | | 164 | 63.8 | |
| Female | 26 | 16.1 | | 116 | 72.5 | |
| **Highest qualification** | | | 0.791 | | | **< 0.001** |
| SSCE | 1 | 12.5 | | 5 | 62.5 | |
| Diploma/NCE | 12 | 16.9 | | **63** | **88.7** | |
| Bachelor's degree | 45 | 19.7 | | 137 | 60.4 | |
| Postgraduate degree | 23 | 22.3 | | 70 | 68.6 | |
| **Profession** | | | 0.760[#] | | | **0.001** |
| Medical doctor | 18 | 20.9 | | 51 | 60.0 | |
| Nurse/midwife | 19 | 19.6 | | **78** | **80.4** | |
| Pharmacist | 22 | 17.9 | | 70 | 56.9 | |
| Laboratory scientist | 12 | 27.9 | | **35** | **81.4** | |
| Radiographer | 7 | 25.0 | | 16 | 59.3 | |
| Physiotherapist | 0 | 0.0 | | 1 | 33.3 | |
| Support staff | 2 | 10 | | 15 | 75.0 | |
| Others | 3 | 15.8 | | 15 | 78.9 | |
| **Level of facility** | | | 0.838 | | | **0.003** |
| Primary | 5 | 15.6 | | **30** | **93.8** | |
| Secondary | 25 | 19.7 | | 87 | 68.5 | |
| Tertiary | 52 | 20.1 | | 164 | 63.8 | |
| **Unit of operation** | | | 0.056 | | | **0.007** |
| Outpatient | 18 | 30.0 | | 45 | 75.0 | |
| Emergency | 8 | 25.8 | | 21 | 70.0 | |
| Inpatient | 14 | 12.5 | | 77 | 69.4 | |
| Laboratory | 13 | 26.0 | | 41 | **82.0** | |
| Pharmacy | 16 | 14.5 | | 59 | 53.6 | |
| Radiology | 3 | 15.0 | | 11 | 55.0 | |
| Others | 3 | 15.8 | | 13 | 68.4 | |
| **Type of hospital** | | | **0.010[#]** | | | 0.217 |
| Public | 68 | 18.0 | | 248 | 66.1 | |
| Private | **7** | **46.7** | | 13 | 86.7 | |
| Both | 3 | 14.3 | | 15 | 74.1 | |
| Others | 2 | 66.7 | | 3 | 100.0 | |
| **Training on COVID-19 infection** | | | **< 0.001[#]** | | | **0.023[#]** |
| Yes | **61** | **33.5** | | **134** | **73.6** | |
| No | 23 | 9.5 | | 150 | 62.5 | |
| I don't know | | | | 1 | 100.0 | |
| **Training on how to wear PPEs** | | | **< 0.001** | | | **< 0.001** |
| Yes | **68** | **34.2** | | **157** | **79.7** | |
| No | 16 | 7.1 | | 129 | 57.1 | |

SSCE: senior school certificate examination; NCE: Nigeria certificate in education; OBG: obstetrics and gynecology; PPE: personal and protective equipment; COVID-19: coronavirus disease 2019.

have access to adequate PPE. In contrast, both demographic and hospital characteristics were found to have an influence on good infection control practices among the HCWs. Laboratory scientists (81.4%) and nurse/mid-wives (80.4%), and the laboratory unit had significantly better infection control practices during the COVID-19 pandemic compared to other HCWs and units, respectively. HCWs who were trained on COVID-19 infection (73.6%) and those who were trained on how to use the PPE (79.7%) were more likely to have good infection control practices.

## Discussion

HCWs who provide healthcare services during the COVID-19 pandemic have a high risk of contracting the infection [3]. This study evaluated the perspectives of HCWs in Nigerian healthcare facilities regarding infection control during the COVID-19 pandemic. The study included responses from all six zones in Nigeria and from 23 states and the FCT out of 36 states in the country. The study found that more than 50% of HCWs were neither trained on the COVID-19 infection nor trained on how to use PPE. In addition, only one in five HCWs had access to adequate PPE. This is consistent with the result of a previous study in Latin America [9]. The current study revealed that HCWs trained on COVID-19 and those trained on how to use PPE were more likely to have access to adequate PPE. This could be explained by the high motivation among the HCWs to adhere to infection control measures in order to protect themselves and their families, colleagues, and patients from the COVID-19 infection. The high motivation to adhere to infection control measures reflects the perception of the risk of infection among HCWs, similar to studies conducted in China and Portugal [16,17]. The lack of training regarding the transmission of COVID-19 and its safety measures coupled with the limited access to PPE make Nigerian HCWs vulnerable to infection. Available evidence suggests that these factors are major barriers to adherence to infection control measures among HCWs [18] and the lack of adequate PPE among HCWs increases the risk of COVID-19 infection by 31% [3]. These observations highlight the importance of strengthening infection control measures through the provision of adequate PPE and training of HCWs on COVID-19 infection and how to use PPE. Adherence to infection control recommendations including the use of PPE, and hand and environmental hygiene are effective measures to reduce the risk of COVID-19 transmission in healthcare settings [17,19].

Overall, the HCWs in this study have good infection control practices during the COVID-19 pandemic and this was consistent with the results of studies conducted in Pakistan and China [17,18]. Training on COVID-19 and training on how to use PPEs were associated with better infection control practices among the participants. Again, this indicates the importance of training HCWs in order to promote compliance with infection control measures. The lack of training on COVID-19 and the lack of access to reliable sources of information make HCWs vulnerable to misinformation during the pandemic and this has influenced their practices [18]. Laboratory scientists and nurses/midwives and those who work in the laboratory unit were found to have better infection control practices compared to other HCWs and other units, respectively. Laboratory scientists and nurses/midwives need to exercise extreme precautions to avoid infection due to their direct contact with patients and patient's body fluids, and this could explain the better infection control practices in these groups compared to other HCWs. It is important to note that medical doctors also have direct contact with patients and patients' body fluids but reported lower infection control practices. There is no clear reason to explain this observation, however, it could be attributed to fatigue and lack of access to PPE [20]. Further studies are needed to explain the low infection control practice among physicians.

HCWs in primary healthcare facilities have better infection control practices than in secondary and tertiary facilities. HCWs in primary facilities receive similar training as those in secondary and tertiary care facilities but have less workload compared to other facilities, and this could influence compliance with infection control measures in primary care settings. It is important to note that the low response rate among HCWs in primary care facilities could also influence the results of the current study. Additional studies are required to validate our results. HCWs with lower educational qualifications had better infection control practices than those with higher qualifications and this could be attributed to the similar reasons as described for better practices among primary healthcare facilities workers. The importance of adherence to infection control measures during the COVID-19 pandemic cannot be over-emphasized. HCWs in our study identified the lack of access to PPE (HCWs have to purchase PPE for themselves), the lack of funds to purchase PPE, and the lack of training on how to use PPE as the most common barriers to adherence to infection control measures. These barriers indicate that

there is inadequate support for the HCWs from the hospital management and local health authorities, similar to the finding in Latin America [9]. To strengthen this view, more than one-third of the HCWs perceived that healthcare facilities and local health authorities did not make adequate provisions for the safety of HCWs during the COVID-19 pandemic. Therefore, health authorities should do more to support HCWs through training and provision of adequate PPE to improve compliance with infection control measures.

The current study has several limitations. Firstly, there is sampling bias due to the use of a convenient sampling method, so the results may not be generalizable. However, responses were received from twenty-four out of the thirty-six states in Nigeria, and all six zones in the country were represented in the study. Secondly, the study is liable to social desirability bias which may influence the self-reported responses provided by the HCWs involved in the study. Thirdly, a cross-sectional study design was used and this is not the most reliable design to establish a relationship between variables. However, the current study gives some insights into the practices and perceptions of HCWs regarding infection control during the COVID-19 pandemic in Nigeria. Future studies should encapsulate the limitations highlighted in the current study and investigate the relationship between compliance with infection control guidelines and the risk of infection in Nigeria.

## Conclusions

HCWs in Nigeria have good infection control practices during the COVID-19 pandemic. There is limited access to adequate PPE and a perceived lack of support from authorities among the HCWs. Training on COVID-19 infection and training on how to use PPE influenced access to adequate PPE, and good infection control practices. The lack of access to PPE, lack of training, and lack of funds were barriers to adherence to infection control measures. Training of HCWs and support from authorities are recommended to improve compliance with infection control measures.

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