BARRIERS TO INFECTION PREVENTION AND CONTROL PRACTICE AGAINST COVID-19: A SURVEY OF HEALTHCARE WORKERS IN NIGERIA

Authors:
AKINTAYO Niyi David[1], ONISILE Deborah Foluke[2], OKAFOR Anita C[1], OKE Kayode I[3]

Author Affiliations:
[1.] Department of Physiotherapy, Faculty of Basic Medical Sciences, Redeemer's University, Osun State, Nigeria.
[2.] Department of Nursing Science, Faculty of Basic Medical Sciences, Redeemer's University, Osun State, Nigeria.
[3.] Department of Physiotherapy, Faculty of Basic Medical Sciences, University of Benin, Benin City, Edo State, Nigeria.

Corresponding Author:
AKINTAYO Niyi David,
Department of Physiotherapy,
Faculty of Basic Medical Sciences,
Redeemer's University,
Osun State, Nigeria.
akintayon@run.edu.ng / physioniyi@gmail.com
+234 8166702375
ORCID iD: https://orcid.org/0000-0003-0946-6571

ABSTRACT

Background/aim of the study
Following the COVID-19 pandemic which was declared a public health emergency all over the world, healthcare workers in Nigeria are still faced with many types of barriers to infection prevention and control practices. The study assessed the barriers to compliance with Infection Prevention and Control (IPC) practices among Healthcare Workers (HCWs) in Nigeria during the early phase of COVID-19.

Methods
A cross-sectional descriptive design using a non-probability purposive sampling technique was used to select seventy-eight (78) HCWs working in different healthcare facilities in Nigeria involving medical and allied health professionals such as nurses/midwives, physiotherapists, radiographers, pharmacists, orthotist, prosthetist, orthopaedic technologists, and public health professionals.

Results
The findings of the study revealed 78 HCWs participated in this study comprising 44(56.4%) medical doctors, 4(4.1%) Nurses, 17(21.8%) Physiotherapists, 5(6.4%) Laboratory scientists, and 8(10.4%) others. Thirty-nine (50.0%) of the participants found overcrowding/understaffing as one of the major barriers to IPC, 37(47.4%) indicated less commitment of HCWs to the IPC policies and 35(44.9%) indicated lack of water as the major barrier to IPC practice. Limitation of personal protective equipment such as face masks was seen as a barrier to compliance in 17(21.8%) of participants and the unavailability of alcohol-based hand rubs was seen as a barrier by 33(42.3%) of participants.

Conclusion
Several factors were identified as constituting varying degrees and levels of barriers to IPC practices following COVID-19 in Nigeria. There is a need for the government, policymakers, the leadership of private healthcare facilities, and Healthcare workers to establish an innovative, effective, and efficient system to address barriers to IPC practices which will help to reduce the risk and spread of COVID-19 in healthcare settings.

Keywords: *COVID-19. Infection Prevention and Control, Barriers, Healthcare Workers, Nigeria*

INTRODUCTION

In January 2020, the World Health Organization (WHO) declared the novel coronavirus also named SARS-CoV-2 a Public Health Emergency of International Concern globally[1]. The virus was first isolated in December 2019 in Wuhan China and causes human illness and diseases[2]. Coronavirus disease (COVID-19) spreads from human to human through an infected droplet and it can also be transmitted through faecal-oral and direct contact[3, 4]. Worldwide, the advent of covid-19 has brought negative consequences to the population's health, education, economy, and other areas of life[5]. In addition, among the general population, Healthcare workers (HCWs) are more vulnerable to the risk of SARS-CoV-2 and also its onward transmission among fellow HCWs and patients[6]. The health of the HCWs is germane to the delivery of quality healthcare during covid-19[7,8]. Covid-19 brought about overwhelming use healthcare facilities in both developed and developing worlds, and Nigeria was not exempted; with the attending implication of physical and psychological stress, difficulties in triage decisions, and even the pain that comes with losing patients[9,10,11]. The workplace has been revealed to be a pivotal place in the spread of Covid-19 infection among HCWs and patients which necessitated the introduction of Infection prevention and control guidelines to combat SARS-CoV-2 by reducing its risk and preventing its spread[12].

Around 40% of HCW infections worldwide are caused by work exposure[13]. HCWs in Nigeria were faced with challenges of diverse nature during the early phase of covid-19 pandemic[14]. IPC practices during HCWs' interaction with patients are crucial to preventing and also reducing its covid-19 spread[12]. In the work of Ilesanmi et al.,[6] on the increased Covid-19 infection among HCWs, it was observed that several factors contributed to the

spread of SARS-CoV-2 among HCWS and patients such as inadequate management support for healthcare facilities, lack of Personal Protective Equipment (PPE) provision, and lastly an inadequate understanding of IPC measures for Covid-19. Similarly, Mohamad et al.[12] in a study conducted on IPC practice among HCWs in Malaysia, reported that compliance status differed among professions, work categories, and years of practice. It was also reported that ensuring adequate training among HCWs is pivotal to reducing the risk and preventing the spread of covid-19 infection.

Since the early stages of the pandemic, the available prevention recommendations for preventing COVID-19 transmission have stayed unchanged[15]. The IPC practice guidelines include physical and social distancing, hand hygiene, use of medical masks. good indoor ventilation and the usage of PPE were generally promoted as means to combat the spread of covid-19 infection during the pandemic[15,16]. Despite the presence of guidelines, HCWs are still not immune to SARS-CoV-2[12].
The aim of this study was to explore the barriers to compliance with IPC practices among HCWs in Nigeria during covid-19.

MATERIALS AND METHODS

This study adopted a cross-sectional descriptive design using a non-probability purposive sampling technique to select seventy-eight (78) healthcare workers which includes medical doctors, nurses and midwives, physiotherapists, radiologists, laboratory scientists, and others.

Study tool and data collection

Data were collected through an online survey Google form. The link was shared through a snowball method via various WhatsApp groups to which Healthcare workers belong to. The questionnaire "IPC practices following covid-19 and barriers to compliance with the IPC practices among Healthcare workers" by Jamie[17] was adapted and used. Section 1 collected participants' socio-demographic data and their practice of handwashing before and during the period of COVID-19 as well as the availability of guidelines or protocols for caring for patients with COVID-19. Section 2 described the barriers experienced by the HCWs in their compliance with IPC practices such as Hand hygiene, face mask use, and physical and social distancing.

Section 2 consists of 15 questions informing on if there is lack of water, if sinks are inconveniently located/there is lack of sinks, if there's lack of soap and water, if the HCWs are too busy/there is insufficient time, if there is understaffing/overcrowding, if there is lack of knowledge about guidelines/protocols, if there is no place to wash hands, if hand washing agents cause irritation and dryness, if there is low risk of acquiring infection from patients, forgetfulness from HCWs and if HCWs are less committed to the policies. Other questions on barriers to IPC practices are if the patient need takes priority, always wearing gloves and unavailability of alcohol-based hand rubs. Respondent's consent was also taken to participate in the survey. The study was done completely confidential and voluntary. The responses of study participants were treated confidentially and anonymously.

Data analysis

Data were downloaded from the Google Form data collection platform, via Microsoft Excel and summarized using frequency counts and percentages.

RESULTS

A total of seventy-eight healthcare workers from different disciplines in different healthcare centres were recruited into the study. The majority of the respondents 47 (60.3%) were women, and the majority (85.9%) of the respondents were between the ages of 25 and 34. A total of fifty-three respondents (69.2%) had between one to five years of practice and a total of 17 (21.8%) had between six to ten years of practice. Most of the respondents work in government and private hospitals with an equal percentage of 37 (47.4%) respondents while 4 (5.1%) of respondents work for non-governmental organizations (NGOs). Most of the respondents 44 (56.4%) were medical doctors, 17 (21.8%) were physiotherapists, and 4 (5.1%) were nurses. Majority of the respondents (46.2%) worked in the Federal Capital Territory. All the respondents indicated they practice hand washing during the period of covid-19 while 65 (83.3%) respondents surveyed said that hand washing is a component of the organizational culture before the advent of covid-19. During the period of covid-19, a total of 61 (78.2%) of respondents indicated the presence of a covid-19 guideline or protocol. See Table 1

Barriers to compliance with Infection, prevention and control practices following covid-19 among healthcare workers.

Thirty-five (44.9%) respondents indicated that lack of water hindered them from practicing hand hygiene. Twenty-three (29.5%) respondents showed that the location of sinks, as well as the lack of sinks, hindered the practice of hand hygiene. Twenty-nine (37.2%) respondents indicated a lack of soap and water as barriers to practicing hand hygiene. Fifty-three (67.9%) respondents indicated that they don't allow being too busy or having insufficient time to hinder them from practicing hand hygiene. Half of the respondents indicated either understaffing or overcrowding hindered them from practicing hand hygiene. Thirty-three (42.3%) indicated the unavailability of alcohol-based hand rubs as a barrier to practicing hand hygiene.

Regarding the covid-19 guideline or protocol, 59 (75.6%) respondents indicated that a lack of knowledge about the guidelines did not hinder them from practicing hand hygiene. Hand washing agents could sometimes cause irritation and dryness but 47 (60.2%) of respondents showed that it did not hinder them from carrying out hand hygiene.

Sometimes healthcare workers could prioritize patient health over their own personal safety but 52 (66.7%) respondents showed that hand hygiene took priority over patient's needs. Also, 24 (30.7%) respondents indicated they always wore gloves following the advent of covid-19. Furthermore, 14 (17.9%) respondents indicated that because of the low risk of acquiring infection from patients, they did not practice hand hygiene; 19 (24.4%) respondents attributed not practicing hand hygiene to forgetfulness; 9 (11.5%) respondents indicated that unavailability of places to wash their hands hindered the practice of hand hygiene; 17 (21.8%) respondents indicated the absence of a medical mask hinders them from examining or making contact with patients; 37 (47.4%) respondents attributed barriers to IPC practices to less commitment of healthcare workers to

government/hospital policies. See Table 2

Table 1: Socio-demographic characteristics of the respondents

	Variable	Frequency	Percent
Gender	Male	31	39.7
	Female	47	60.3
	< 25	3	3.8
	25 – 34	67	85.9
Age (years)	35 – 44	7	9.0
	45 +	1	1.3
	< 1	3	3.8
Years of practice	1 – 5	54	69.2
	6 – 10	17	21.8
	>10	4	5.1
	Medical Doctors	44	56.4%
	Nurses/midwives	4	4.1%
Profession	Physiotherapists	17	21.8%
	Laboratory scientists	5	6.4%
	Radiographers	1	1.3%
	Orthotist	2	2.6%
	Pharmacist	2	2.6%
	Ortho technologist	1	1.3%
	Public Health	1	1.3%
	Prosthetist	1	1.3%
Area of Practice	Private Hospital	37	47.4
	Government Hospital	37	47.4
	Non-Governmental	4	5.1
Do you practice hand washing during covid-19	Yes	78	100
	No	0	0
Do you have a guideline or Protocol for caring for patient with covid-19	Yes	61	78.2
	No	17	21.8
Do you practice hand Washing in your facility before the advent of covid-19	Yes	65	83.3
	No	13	16.7

Table 2: Barriers to compliance with Infection Prevention and Control practices (Hand hygiene, Face mask use, and Physical/social distancing) following the Covid-19 outbreak among Health Care Workers in Nigeria

	Frequency	Percent
1. Lack of water	35	44.9
2. Sinks are inconveniently located/lack of sinks	23	29.5
3. Lack of soap and water	29	37.2
4. Too busy/insufficient time	25	32.1
5. Understaffing/overcrowding	39	50.0
6. Unavailability of alcohol-based hand rubs	33	42.3
7. Lack of knowledge about guidelines/ protocols	18	24.4
8. Hand washing agents cause irritation and dryness	31	41.7
9. Patient needs take priority	26	33.3
10. Always wearing gloves	24	30.7
11. Low risk of acquiring infection from patients	14	17.9
12. Forgetfulness	19	24.4
13. No place to wash hands	9	11.5
14. Not wearing mask while examine or contact with the patient	17	21.8
15. Less commitment of health care workers to the policies	37	47.4

DISCUSSION

Infection Prevention and Control (IPC) practice is a key element in preventing the spread of COVID-19 and HCWs have been proven to be an important conduit for the transmission of SARS-CoV-2. This study assessed the barriers to IPC practices among Nigerian during the early phase of the COVID-19 pandemic. Hand hygiene is one of the important protocols recommended by WHO to combat the spread of COVID-19 infection among HCWs and between HCWs and patients. This study revealed that some HCWs were not practicing hand washing in their workplace before the advent of the COVID-19 pandemic but, the practice changed during COVID-19 when all HCWs are now adherents of handwashing. This may be due to the pandemic nature of COVID-19 which naturally required strict adherence. The WHO recommended "Five Moments of hand hygiene" which was crucial in combatting the spread of COVID-19[18]. Nigeria Centre for Disease Control (NCDC) recommended good hand hygiene as part of the efforts to halt the spread of COVID-19, especially at the point of care which refers to where three elements come together: the patient, the healthcare worker, and the care or treatment involving contact with the patient or their surrounding[19].

Less commitment of HCWs to IPC practices has been identified in several studies as a critical barrier to IPC following COVID-19[20,21,22]. This is also in tandem with the result of our study where close to half of the respondents identified less commitment to IPC practices as a vital hindrance to preventing the spread of COVID-19. This identified barrier might be a result of misconceptions about COVID-19 and, as a result, responsible for their less-than-satisfactory behaviour and attitude.

Shortage of water and hand-cleaning solutions were part of the major factors identified in the literature as reasons why HCWs fail in their practice of IPC[22]. This is also similar to our study where close to half of the respondents identified lack of water, lack of soap and water, unavailability of alcohol-based hand rubs, and no place to wash hands as major barriers to IPC practice.

The reason can be that some of the Healthcare facilities in Nigeria have poor water supply and for those that have water supply, it is grossly inadequate to cater to the HCWs and the patients within the facilities. Adequate provision of water, soap, and hand cleaning solutions (alcohol rub or hand sanitizer) in the health facility is pivotal in IPC.

From our study, understaffing and overcrowding were identified as the main barriers to IPC practices among Nigerian HCWs. In a study done by Lowe et al.,[23] across eight conflict-affected countries (Lebanon, Central African Republic, South Sudan, Yemen, Nigeria, Mali, Afghanistan, and the Democratic Republic of the Congo), it was observed that shortages of HCWs were a vital hindrance to IPC practice in the identified countries. Conflict always leads to movement within and between a region and this doesn't exempt HCWs thereby leading to the reduction in the number of available HCWs in healthcare facilities. Several studies revealed overcrowding as a perceived barrier to IPC practice among HCWs[24,25,26]. The COVID-19 pandemic made healthcare facilities overcrowded because of the large number of patients suffering from symptoms associated with COVID-19. This made already overstretched healthcare facilities and HCWs find themselves in situations where IPC practices became difficult to carry out effectively and efficiently.

Lack of knowledge, inadequate training of staff, and shortage of trained staff have been identified as important barriers to IPC practice[22,23,27].

This is in tandem with the outcome of our study where some of the respondents identified a lack of knowledge about COVID-19 guidelines/protocols as a barrier to their IPC practice. Educating HCWs on every aspect of COVID-19 will go a long way to preventing the spread of COVID-19 among the HCWs and also between HCWS and patients. In the work of Mersha et al.,[22], negligence and ignorance were identified as one of the major contributing barriers to effective IPC practice. This is similar to findings in our study where negligence and ignorance were seen to play a pivotal role where some of the respondents failed to wear a face mask while in contact with the patient, and some also saw their perceived low risk of acquiring infection from patients as a point not to practice IPC and nonchalant attitude of forgetfulness was another barrier identified.

Work overload has been shown to be an important barrier to IPC practice among HCWs[28]. The findings in our study identified being too busy or insufficient time as a hindrance in IPC practice. This can be explained by the fact that HCWs became the major focal point during COVID-19 with everyone that felt unwell from any form of ailment visiting the hospital even from sickness they could ordinarily attend to at home. This led to an increased workload among the HCWs.

The main limitation of this work is the lack of presentation of all Healthcare workers in Nigeria which affected the generalization of our results. Further studies can be done focussing on each state in Nigeria is recommended. In summary, we found that at the early phase of the COVID-19 pandemic, HCWs in Nigeria were able to identify certain types of barriers to their IPC practices and the pandemic provided an opportunity to strengthen important aspects of IPC practices especially hand hygiene and HCWs' attitudinal commitment to policies that have been previously overlooked.

CONCLUSION

This study showed an overview of barriers to compliance with IPC practices in Nigeria among healthcare workers following COVID-19. Healthcare workers in Nigeria are still faced with many types of barriers in IPC practices which cut across government and private healthcare facilities. Understaffing/overcrowding, lack of water and soap, and less commitment of healthcare workers to the IPC policies were topmost among the barriers. For effective implementation of IPC practice in healthcare facilities, the barriers should be given prompt and adequate attention both at the level of the policymakers, the leadership, and also among the healthcare workers

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