



Knowledge and Practice of Standard Precautions Among Health Care Workers Amidst COVID-19 in Public Secondary Health Facilities in Makurdi Metropolis, Nigeria

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Abstract: This study assessed the knowledge and practice of standard precautions among health care workers amidst COVID-19 in public secondary health facilities in Makurdi Metropolis, Benue State of Nigeria. Cross-sectional research design was used for the study. The sample for the study was one hundred and seventy-two (172) health workers in Makurdi metropolis who were selected using simple random and purposive sampling procedures respectively. The self-structured questionnaire was used to collect data. The chi square statistic was used to test the hypotheses at 0.05 level of significance. The analyses were conducted using the statistical package for social sciences (SPSS v21). The result of the study showed that, health workers in Makurdi Metropolis have good knowledge of infection control ($\chi^2 = 78.372$, $df = 3$, $P < 0.05$), injection safety ($\chi^2 = 16.233$, $df = 3$, $P < 0.05$), hand hygiene ($\chi^2 = 125.070$, $df = 3$, $P < 0.05$), personal protective equipment ($\chi^2 = 87.116$, $df = 3$, $P < 0.05$) and used of safety boxes ($\chi^2 = 87.767$, $df = 3$, $P < 0.05$) but the practice of infection control ($\chi^2 = 1.674$, $df = 3$, $P > 0.05$), injection safety ($\chi^2 = 2.651$, $df = 3$, $P > 0.05$), hand hygiene ($\chi^2 = 4.000$, $df = 3$, $P > 0.05$), personal protective equipment ($\chi^2 = 3.674$, $df = 3$, $P > 0.05$) and used of safety boxes ($\chi^2 = 5.628$, $df = 3$, $P > 0.05$) was poor. It was recommended among others that, there should be regular educational programmes such as workshops and seminars on infection control for all health care workers especially in primary health care centers who are involved in the care of patients at various levels. There should be frequent and consistent on the job training and critical supervision of health workers on proper usage of available injection equipment by those who are knowledgeable in this area and provision of stocks of other injection equipment like needle and syringe to avoid reusing the available ones.

Keywords: Safety Precaution, Health Workers, COVID-19

1. Introduction

The health of the populace is continuously threatened by a number of factors. Among the current threat is the pandemic of the “new normal” known as the Coronavirus disease 2019 (COVID-19). The first case of the novel strain of the diseases was reported in Wuhan, Hubei province in

China on November 17, 2019 according to the South Morning China Post [1] and since then, there has been a world-wide geometric increase in the number of cases leading to many death rates across the globe. COVID-19 is an infectious disease that causes respiratory illness with symptoms of cough, fever, and in more severe cases, difficulty in breathing [2].

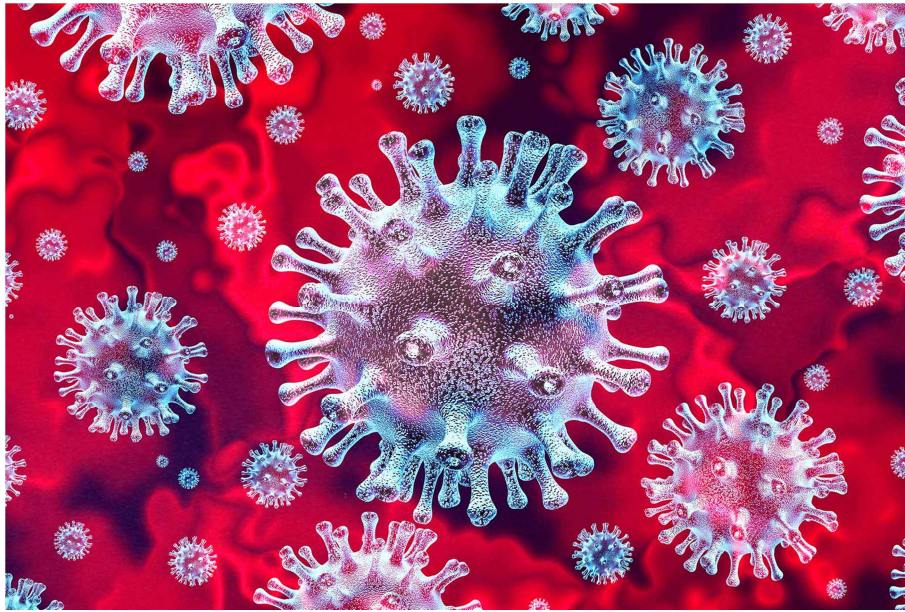


Figure 1. Image of Corona virus disease (COVID-19) (Source: webmd.com).

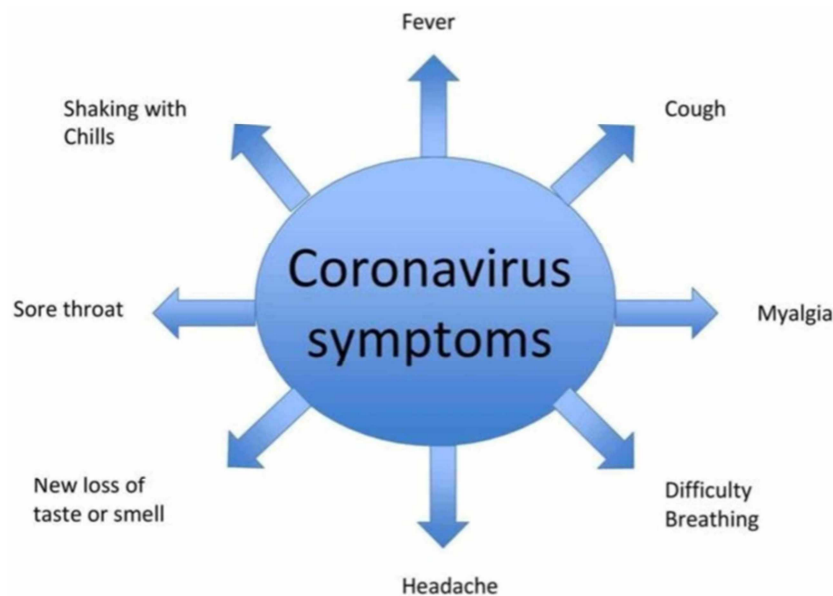


Figure 2. (Schematic representation of the condensed symptoms of COVID-19) (Source, Cureu.com).

The World Health Organisation [2] stated that, the disease spreads principally through contact when an infected person either coughs or sneezes openly, when a person touches a surface or object and then touches the eyes, nose, or mouth.

The FMOH [3] stated that, Nigeria announced her first case (index case) of COVID-19 on 27th February 2020 to have come from an Italian doing a business with Ogun State. Since then, the country has continued to record increasing number of cases. The situation and unabated increase in the number of infected Nigerians has made all activities in Nigeria to a standstill by the stay at home orders from the federal to state governments.

It is generally known that health-care workers (HCWs) help to treat patients. However, if they lack the knowledge of safety

precaution, they may either contact certain ailments in the process of treating their patients or transfer diseases to their patients by omission or commission. Health Care Workers (HCWs) are prone to infection of blood borne pathogens whenever they come in contact with infected body parts, blood and body fluids in the course of carrying out their duty. On the other hand, while providing services, health care workers move from one patient to another and could therefore serve as a crucial vehicle for the transfer of infectious agents from one patient to the other and sometimes to the environment. It was in the bid to prevent hospital-acquired infections that the United States' Centers for Disease Control (CDC) introduced Standard precautions (SP) to protect HCWs from biological hazards. These precautions are designed to protect the patients, visitors and health workers from nosocomial infections. Hence,

when SP are consistently adhered to as prescribed, safety in the healthcare delivery industry is largely ensured. This is however dependent on the knowledge and practice of these standard precautions in the health centers by the health workers. Data suggest that, there is good knowledge of health workers on safety precautions in many parts of Nigeria such as Sokoto [4], Lagos [5], North West, Nigeria [6-8], Enugu [9], Makurdi [10] as well as other countries such as Saudi Arabia [11, 12] and Debre Markos Referral Hospital [13]. However, these findings indicated that, the knowledge did not translate into full practice by majority of the health workers. This is therefore worrisome at this time of the COVID-19 pandemic. It is against this background that the present study investigated the knowledge and practice of standard precautions among health care workers in Makurdi metropolis in this era of COVID-19 which is presumed to be transmitted by touch.

2. Methods

A cross-sectional research design was adopted for this study. The participants for this study were one hundred and seventy-two (172) health workers in Makurdi metropolis who were selected six (6) secondary health institutions in

Makurdi which include: General Hospital North bank, Bishop Murray Medical Center, Madona Hospital, Immaculate Conception Hospital, NAF Base Hospital and Family Practice Hospital; all in Makurdi. Data was collected with the aid of a self-structured questionnaire titled "Assessment of Knowledge and Practice of Standard Precaution among Health Workers Questionnaire" (AKPSPHWQ). The questionnaire comprised three sections "A-C". Section "A" contained the demographic characteristics of the respondents. Section "B" sought information on the knowledge of standard precautions of health workers whereas, section "C" sought information on practice of standard precautions of health workers.

Data for this study was presented in tables and analysed using frequencies and simple percentages for bio-data of the respondents. Chi-square statistics was used to test the hypotheses at 0.05 level of significance. All the analyses were conducted using the Statistical Package for Social Sciences (SPSS v21).

3. Results

The results of the study are presented below.

Table 1. Demographic Characteristics of the Participants.

Gender	Frequency	Percentage (%)
Male	52	30.2
Female	120	69.8
Total	172	100.0
Age Range	Frequency	Percentage (%)
21-30 years	19	11.0
31-40 years	57	33.1
41-50 years	63	36.6
51 years and above	33	19.2
Total	172	100.0

Table 1 indicated that 30.2% of the participants were males whereas, 69.8% were females. Table 1 further indicated that, in terms of age range, 11% were between 21-30 years, 33.1% were between 31-40 years, 36.6% were between 41-50 years and 19.2% were 51 years and above respectively.

Table 2. Chi Square Analysis of Knowledge of Safety Precautions among Health Workers.

Sn	Variable	$\chi^2_{\text{cal.}}$	P	Remarks
1	Knowledge of infection Control	78.372	0.001	Significant
2	Knowledge of injection safety	16.233	0.001	Significant
3	Knowledge of hand hygiene	125.070	0.001	Significant
4	Knowledge of personal protective equipment	87.116	0.001	Significant
5	Knowledge of use of safety boxes	87.767	0.001	Significant

Table 2 indicated that, there is a significant knowledge of health workers in relation to infection control ($\chi^2=78.372$, $df=3$, $P<0.05$), injection safety ($\chi^2=16.233$, $df=3$, $P<0.05$), hand hygiene ($\chi^2=125.070$, $df=3$, $P<0.05$), personal protective equipment ($\chi^2=87.677$, $df=3$, $P<0.05$) and use of safety boxes ($\chi^2=87.767$, $df=3$, $P<0.05$).

Table 3. Chi Square Analysis of Practice of Safety Precautions among Health Workers.

Sn	Variable	$\chi^2_{\text{cal.}}$	P	Remarks
1	Knowledge of infection Control	1.674	0.643	Not significant
2	Knowledge of injection safety	2.651	0.449	Not significant
3	Knowledge of hand hygiene	4.00	0.261	Not significant
4	Knowledge of personal protective equipment	3.674	0.299	Not significant
5	Knowledge of use of safety boxes	5.628	0.131	Not significant

Table 3 indicated that, there is no significant practice safety practice among health workers in relation to infection control ($\chi^2=1.674$, $df=3$, $P>0.05$), injection safety ($\chi^2=2.651$, $df=3$, $P>0.05$), hand hygiene ($\chi^2=4.00$, $df=3$, $P>0.05$), personal protective equipment ($\chi^2=3.674$, $df=3$, $P>0.05$) and use of safety boxes ($\chi^2=5.628$, $df=3$, $P<0.05$).

4. Discussion of the Findings

This study investigated the knowledge and practice of standard precaution among health workers in Makurdi Metropolis. The result of the study indicated that, health workers in Makurdi metropolis have good knowledge of infection control but the practice was poor. This finding was in agreement with previous findings as reported by different investigators. Adegboye, Zakari, Ahmed, Olufemi [14] evaluated the practice of infection control among health care workers in the intensive care unit (ICU) of a tertiary hospital in Nigeria and concluded that knowledge and awareness of infection control among the health care workers in ICU was good but the practice was poor. In the same vein, Melaku [13] examined the knowledge and practice of healthcare workers on infection prevention and its associated factors among health professionals working at Debre Markos Referral Hospital and the result of the study indicated that more than two thirds (84.7%) of healthcare workers were found to be knowledgeable but only 86 (57.3%) of respondents demonstrated a good practice on infection prevention. Arinze-Onyia, Ndibuagu and Ozor [9] documented similar results when assessed nurses' knowledge and use of standard precautions (SP) in a tertiary health institution in Enugu, southeast Nigeria and reported that almost 98% have heard of SP, 77.2% could define it while about 80% knew the indications and could identify most components of SP.

This study showed that, health workers in Makurdi metropolis have good knowledge of injection safety but the practice was poor. This was in line with Abubakar [6] who assessed the level of knowledge and practice of injection safety among healthcare workers in a secondary healthcare facility in north-western Nigeria and showed that 88.7% of the healthcare workers correctly described injection safety as defined by the WHO. However, only 18.7% had good knowledge of risks associated with unsafe injection and 40.0% with diseases that can potentially be transmitted. In addition, only 25.0% reported safe injection practices. Reuse of syringe was reported by 37.5% of the respondents and 88.7% recap used needles. Relatedly, Eyam, Eyam and Ofor [15] determined the level of awareness and adherence to the indices of safe injection practices in the study area and revealed that a total of 89.9% of the health workers had good level of awareness of injection safety with the laboratory technicians having 100% knowledge. However, in their study, a total of 59.5% of the health workers had good practice of injection safety with the laboratory technician having the least with 30%. $X^2 = 30$, $p = 0.00$. Ijachi, Audu and Araoye [10] assessed the knowledge, attitude and practice of injection safety among the healthcare professionals

of Benue State University Teaching Hospital and the respondents had good (70.2%) knowledge, positive (87.2%) attitude and appropriate (79.8%) practice scores respectively, but there were some misconceptions about the diseases transmissible by unsafe injection. The commonest unsafe injection practice among the respondents was recap of needles (19.1%).

The findings of the study indicated that, health workers in Makurdi metropolis have good knowledge of hand washing but the practice was poor. This result was in agreement with previous investigators. For instance, Ango, Awosan, Adamu, Salawu, Sani and Ibrahim [4] determined the knowledge, attitude and practice of hand hygiene among healthcare providers in semi-urban communities of Sokoto State, Nigeria and found that one hundred and thirty two (91.7%) of the 144 respondents had good knowledge of hand hygiene; but about a third of respondents (31.9%) had the misconception that hand washing should be done before touching patients' files. Ekwere and Okafor [5] assessed knowledge, attitude and hand hygiene practices among healthcare providers (HCPs) in Lagos University Teaching Hospital (LUTH), Lagos, South-West Nigeria and found that eighty-three percent had good knowledge; 97.6% had good attitude and 69.9% had good hand washing practices. Gwarzo [7] assessed the practice of hand washing among healthcare workers in a tertiary hospital in North West, Nigeria. All participants practiced hand washing at work but only 127 (73.4%) washed their hands correctly. The practice of hand washing as reported by Ekwere and Okafor [5] and Gwarzo [7] was however at variance with the present study. The variance could be that, the respondents were from the tertiary health care centres and may be exposed to more trainings on safety precautions than the respondents of the present study who were from secondary health care centres.

Furthermore, the study indicated that, health workers in Makurdi metropolis have good knowledge of PPE but the usage was poor. This was in concordance with Abukhelaif [11] who assessed personal protective equipment knowledge and practices among nurses working at AlBaha King Fahad Hospital, Saudi Arabia and concluded that, nurses had excellent knowledge with and appropriate use of PPE as vital in safeguarding HCWs and spread of infection.

Finally, the findings of the study showed that, health workers in Makurdi metropolis have good knowledge of the use of safety boxes but the usage was poor. This finding was in agreement with Uchechukwu [16] who ascertain the knowledge, attitude and practice of hospital waste management among health workers in Enugu and concluded that most of the respondents knew what health care waste management means (HCWM), but very few practiced appropriate health care waste managements.

5. Conclusions

The role of health workers in addressing the COVID-19 pandemic cannot be overemphasized. This study therefore

assessed the knowledge and practice of health workers in relation to safety practice amidst COVID-19. The study concluded that, health workers in Makurdi have good knowledge of infection control, injection safety, hand hygiene, personal protective equipment and use of safety boxes. However, their practice of the safety precautions was poor. This implies that, the knowledge of the health care workers on safety precaution did not translate into good practice.

6. Recommendations

Based on the conclusions drawn, it was therefore recommended that:

- 1) There should be regular educational programmes such as workshops and seminars on infection control for all health care workers especially in primary health care centers who are involved in the care of patients at various levels.
- 2) There should be frequent and consistent on the job training and critical supervision of health workers on proper usage of available injection equipment by those who are knowledgeable in this area and provision of stocks of other injection equipment like needle and syringe to avoid reusing the available ones.
- 3) Regular practice of hand washing requires supplies like soap, water, dry and clean towel, etc. depending on the type of procedure to be performed at all times. Therefore, the hospital and other concerned bodies should fulfill those necessary facilities to improve practice of hand washing.
- 4) Health workers should be encouraged not to take their health for granted by always wearing their gloves, gowns and mask to avoid direct contacts with the patients which will potentially put their health at risk.
- 5) In addition to the provision of safety boxes at strategic places by the management of the health centres, policies, legislations and guidelines on the use of safety boxes should be put in place and awareness created on these documents for the workers.

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