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NURSES MIDWIVES' PERCEPTIONS ON COVID 19 PANDEMIC PROTOCOL IMPLEMENTATION IN THE MANAGEMENT OF PATIENTS IN MATERNITY UNITS OF SELECTED HEALTH FACILITIES IN IBADAN, NIGERIA.

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ABSTRACT:

Nurses and midwives on the front line often feel the brunt of the emergency response hence ensuring their safety, is important. Maternity care providers ought to continue their core business in caring for and supporting women, newborns, and their families whilst also adapting to a rapidly changing health system environment. This study tends to assess the nurse midwives' perceptions of covid-19 pandemic protocol implementation in the management of patients in maternity units of selected health facilities in Ibadan, Nigeria. A hospital-based descriptive cross-sectional survey was used to elicit a response from 122 nurses/midwives in public hospitals using self-structured questionnaire with a reliability index of 0.78. Proportionate sample size allocation was used. Data collection was done within five weeks and analyzed using descriptive statistics. Result of this study indicated that the respondents' level of knowledge about covid -19 is very high. (96.5%), respondents' perceptions of the constructs on adherence to safety is highly positive. (100%), the perception of the provision of safe and effective maternity care to women is very high (81.3%), but perception on adherence of hospital management to the supply of PPE is low (27.6%) Further findings indicated that the protocol put in place to protect Nurses/ Midwives include use of personal protective equipment, 93(76.2%), wash hands with soap and water thoroughly for at least 20 seconds in the health facility 103(84.4%) , wearing of face mask/covering 108(88.5%), going to the toilet before start working and drinking of water before using PPE to avoid dehydration 102 (83.6%), Use hand sanitizer particularly as a backup for where there is an unreliable water source 118 (96.7%)and avoid touching the eyes, nose and mouth 108 (88.5%). Lastly, all perceived factors listed are positive, these include Fear of Nosocomial Infection 100(82.0%), lack of available infection control and prevention services 108(88.5%) of fear of stigmatization101(82.8%), Adverse health outcomes resulting from accessibility barriers 95 (77.9%), the attitude of healthcare providers/ nature of hospital atmosphere during the pandemic 85(69.7%), misconception/misinformation on COVID-19 diseases

96(78.7%), Information on facility management 84 (68.9%), long waiting hours 84 (68.9%), lack of available trained personnel 80(65.6%) and Cost of drugs and treatment 88(72.1%). In conclusion, there is a need for the government and hospital management board to improve on the provision of (PPE) for Nurse-Midwives to successfully implement the Covid-19 protocols in the management of clients in all maternity units in the face of the disease pandemic.

Keywords: Perception, Covid-19, Pandemic, Protocol, Management, PPE.

Background of the study

Covid-19 an emerging infectious, and a deadly pandemic disease caught the world unaware and off guard. It is considered most contagious when the patient is symptomatic, but SARS-CoV-2 has been transmitted by asymptomatic individuals.

Globally, 551,226,298 cases of the disease were confirmed with 6,345,595 deaths. In Africa region, the total confirmed case of Covid-19 was 8,682, 798 with 172,725 deaths while in Nigeria and Oyo State the confirmed cases are 257, 637 and 10,232 and death recorded was 3,144 and 202 respectively. NCDC confirmed Oyo state's first case of COVID-19 on 23 March 2020. Local transmission was subsequently reported and by 23 April 2020 first mortality case was recorded.

Oyo State Ministry of Health developed disease outbreak response measures in coordination with medical, nursing, and other allied health staff. The two goals of these measures were to facilitate the care of patients with known or suspected COVID-19 who needed care and to reduce the risk of viral transmission to healthcare workers and other patients. Health workers play a critical role, not

only in the clinical management of patients but also in ensuring that adequate infection and prevention control (IPC) measures are implemented in health care facilities.

To prepare for a pandemic, hospitals need a strategy to manage their space, staff, and supplies so that optimum care is provided to patients. Infection prevention measures like using personal protective equipment and hand hygiene are of utmost importance and are the recommended line of defense against Coronavirus disease-19 (Covid-19) as noted by Awoke Keleb et al (2021). This recommended line of defense or protocol could be achieved by infection control adherence or compliance by the hospital policies to reduce or prevent exposure to hazards as patients without screening for the virus may also be carriers of the Covid-19 infection.

Infection control compliance protocol are facilitated in the general population as stated by Sim, Moey & Tan 2014 are perceived susceptibility, perceived severity of being afflicted and perceived benefits compliance as well as accurate knowledge about the disease and the recommended behaviours. Many barriers to infection control as identified by Brooks et al 2021 are availability, perceived difficulty and effectiveness, inconvenience, discomfort and a negative impact on patients' care.

However, Nurses are expected to adhere to organizational strategies for identifying harms and risks through assessing the patient, planning for care, monitoring and surveillance activities and communicating with other healthcare providers. (Vaismoradi et al 2020).

In line with Occupational Safety and Health Administration, training staff to use PPE competently is essential. In an observational study, 90% of staff did not use the correct doffing sequence or technique or use the appropriate PPE (Giao et al 2020). According to a survey conducted by Abdel et al (2020), 11 of 74 (14.9%) physicians did not have prior training in the use of PPE. Deressa et al (2021) state that emphasis must be placed on the doffing technique and staff must be reminded not to

touch their eyes, face, or mucous membranes as these may lead to self-contamination. Transmission within healthcare facilities to healthcare workers has been documented. According to Sikakulya et al (2021), 3.8% of healthcare workers had contacted the COVID-19, causing five deaths in China. Protective practices as identified by Houghton et al 2020 are influenced by understanding of guidelines, support received from managers, communication about guidelines, sufficient resources, perceived values of following guidance, comfort of PPE, perceived impact of PPE on patients and workplace culture.

Since there is no difference in the clinical presentation of pregnant women with SARS-CoV-2 and non-pregnant women with Covid-19 pneumonia, then, how could nurses-midwives cope with the situation during the Covid-19 pandemic? It is therefore imperative to investigate nurses/ midwives' perceptions toward covid-19 pandemic protocol implementation in the management of patients in maternity units of selected health facilities in Ibadan, Nigeria.

METHODOLOGY

Study Design: A descriptive cross-sectional study was utilized to assess and describe the nurse-midwives perception of covid-19 pandemic protocol implementation in the management of patients in maternity units of the selected hospitals in Ibadan.

Study setting Area: The study was carried out in four selected hospitals within Ibadan, Oyo State. These include Adeoyo Maternity Hospital, located in Ibadan North, Ring Road State Hospital is a Specialist Hospital located in Ibadan Southwest Local Government, Jericho Specialist/ General Hospital is in Ibadan Northwest, and the General Hospital, Moor Plantation is in Ido local government of Ibadan, Oyo State. All these hospitals have facilities to take care of women during pregnancy, labour, and puerperium.

Study population: The study population for this study is nurse-midwives in selected hospitals in Ibadan. The total number of nurse-

midwives in the selected hospital is 341 out of which 178 are working in specific maternity areas of labour, post-natal prenatal wards, and antenatal clinics.

Sample size determination: The minimum sample size used for the study was obtained from the sample size formula by Taro Yamane's formula for a descriptive study with a population of less than 400.

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{178}{1 + 178(0.05)^2}$$

$$n = 178/1.445$$

$$n = 123.183$$

$$n = 123$$

An additional 10% of the desired sample size will be added to increase precision and also to compensate for those who may not respond.

Therefore, final sample size = 123 + 12 = 135.

Sampling Technique: A simple random sampling technique was used to select 135 respondents.

Inclusion criteria: Nurses who gave their consent and had been working in the hospital's maternity units for at least 3 months were included to ensure that the nurse-midwife is familiar with the dynamics of the day-to-day activities of the ward.

Exclusion criteria: Nurse-midwife that refused to give consent and those who were on leave during the period of data collection were excluded.

The instrument for data collection: The instrument for the collection of data was a questionnaire with a total of 44 questions. The questions were in different sections as stated below:

Section A is on Socio-demographic data consisting of 6 questions.

Section B is on Nurses'/midwives' knowledge of the mode of transmission of the COVID-19 pandemic, and it has 4 questions

Section C: Nurses'/midwives' perceptions of adherence to safety protocols. It has 8 questions

Section D: Perceived factors influencing protocol implementation during COVID 19 with 10 questions

Section E: Protocol put in place to protect Nurses/midwives has 6 questions

Section F: Level of provision of safe and effective maternity care to women has 10 questions.

The instrument has a reliability index of 0.78 which was achieved through a test-retest method by analyzing 14 responses from non-participants in the study from another Oyo state government hospital in Ibadan.

Method of Data Collection: The respondents were met and the purpose of the study was explained to them. Informed consent was sought from the respondents. The instrument was administered to them while they were on duty and the same was retrieved immediately after the instruments were filled. Data collection was done within five weeks.

Method of Data Analysis: Data collected from the respondents were cleaned and Statistical Package for Social Sciences version 22 was used for the data analysis. Descriptive statistics of frequencies and percentages were used to answer the research questions raised in the study and the results were presented in tables.

Ethical Considerations: Ethical approval was obtained from the ethical review Committee of the Oyo State Ministry of Health dated 24th September 2020 with reference No AD13/479/4176^b. Data collected was treated with utmost confidentiality by not indicating the respondents' units in the maternity sections of the hospitals. Informed consent was obtained from the participants and they are free to opt-out of the study if they could not continue. The principles of justice, non-maleficence, and beneficence were used for the study.

RESULTS

A total of 135 questionnaires were distributed with a response rate of 91.04%, equivalent to 122 questionnaires. The findings of this study were based on the variables of the study and the responses of the participants were analyzed using descriptive statistics.

Table 1 reveals that out of 122 respondents 45 (36.9%) are between 34 and 44 years, 41 (33.6%) of them are between 45 and 55 years, 55-65year are 12 (9.8%) and 24 (19.7) are between 23 and 33 years. This implies that the majority of the respondents are between 34 and 44 years. Also, out of 122 respondents, 116 (95.1%) are females while 6 (4.9%) are males. This implies that the majority of the respondents are females. Out of 122 respondents, 110 (90%) are married, 11 (9.0%) are single while 1(0.8%) has divorced/separated. This implies that most of the respondents are married, Out of 122 respondents, 97 (79.5%) are Christians, while 25 (20.5%) are Muslims. This implies that most of the respondents are Christians. The table also reveals that 44.3% are RN with post-basic,

41.8% with bachelor's degree, 6.6% are RM, and 4.1% are Masters' Holders while 1.6% are RN with Ph.D. This study shows that most of the respondents are RN with post basics nursing qualifications. As regards years of practice, of the 122 respondents, 31 (25.4 %) have worked for between 1 and 10 years, 51 (41.8 %), have worked for 11 and 20 years, have worked for 21 and 30 years (21.3%) while 14 (11.5%) have worked for more than 31years. The result of the sociodemographic characteristics of respondents reveals that majority are 34 - 44years and 45-54years, females and married. Further findings showed that majority of respondents had RN+post Basic and BNSc Nursing as highest qualifications with 11-20years of experience.

Table 1: Sociodemographic characteristics of Respondents

AGE	Frequency (N=122)	Percentage (%)
23-33years	24	19.7
34 -44years	45	36.9
45-54years	41	33.6
55 and above	12	9.8
GENDER		
Male	6	4.9
Female	116	95.1
Marital status		
Single	11	9.0
Married	110	90.2
Separated	1	0.8
Religion		
Christianity	97	79.5
Islam	25	20.5
Highest Qualification		
RN	2	1.6
RN+post Basic	54	44.3
RM	8	6.6
Bachelor of Nursing Science degree	51	41.8
Masters	5	4.1
PhD	2	1.6
Years of Practices		
1-10years	31	25.4
11-20years	51	41.8
21-30years	26	21.3
31-40years	14	11.5

Table 2 reveals that all the 122 (100%) respondents agreed that the COVID-19 virus can be transmitted among people through droplets and contact and 121(99.2%) agreed that it can be contacted through hospital transmission and also agreed that COVID-19 infection can be prevented. This implies that most of the

respondent agreed that COVID-19 can be transmitted through droplet, contact, and hospital transmission, and COVID -19 infection can also be prevented. This study concludes that the respondents' level of knowledge about covid -19 is very high (96.5%).

Table 2: Nurses / Midwives’ Knowledge of mode of transmission of COVID 19 Pandemic

Variables	N=122	
Can the COVID-19 virus be transmitted:	Yes	No
Among people through droplets	122(100%)	0(0%)
Through contact	122(100%)	0(0%)
Can COVID-19 be contacted through hospital transmission	121(99.2%)	1(0.8%)
Can COVID-19 infection be prevented	121(99.2%)	1(0.8%)
	96.5%	

In table 3, all the 122 (100%) of respondents agreed that regular washing of hands with soap and water. 122 (100%) of respondents agreed that coughing into the curved elbow is correct. 122 (100%) of respondents agreed that sneezing on tissue paper and discarding is in

order. 122 (100%) of respondents agreed that physical distancing is also correct. Findings of this study conclude that respondents' perceptions of the constructs on adherence to safety is highly positive. (100%)

Table 3: Nurses / Midwives’ Perception of Adherence to Safety Protocol N=122

Variables:	N=122	
I adhere to safety protocol by: -	Yes	No
Regular washing of hands with soap and water	122(100%)	0(0%)
Coughing into the curved elbow	122(100%)	0(0%)
Sneezing on tissue paper and discarding	122(100%)	0(0%)
Physical distancing	122(100%)	0(0%)
Have your temperature checked for fever	122(100%)	0(0%)
Staying at home while not on duty	122(100%)	0(0%)
Not touching your face with unclean hands	122(100%)	0(0%)
Using a face mask properly and when necessary	122(100%)	0(0%)
	100%	

Table 4 reveals the Hospital Management's adherence to the supply of PPE. Based on the respondents' the PPE always supplied were surgical masks 52(42.6%); gloves 47(38.5 %); fabric masks 40(32.8%); N95/PPR masks 27(22.1%); gowns 21(17.2%); and goggle 15(12.3%). The management board rarely provide fabric masks 58 (47.5%); gloves 55(45.1%); 53(43.4%); gowns 51(41.8%);

goggle 36 (29.5%); and N95/PPR 32(26.2%). However, the hospital management board never supplied goggle 71(58.2%); N95/PPR 63(51.6%); gowns 50(41.0%); Fabrics marks24(19.7%); gloves 20(16.4%). This study indicates that perception on adherence of hospital management to the supply of PPE is low (27.6%).

Table 4: Perceived Adherence of Hospital Management to the supply of PPE. N=122

	Always	Rarely	Never
Surgical masks	52(42.6%)	53 (43.4%)	17 (13.9%)
N95/PPR masks	27 (22.1%)	32 (26.2%)	63 (51.6%)
Gowns	21 (17.2%)	51(41.8%)	50 (41.0%)
Gloves	47(38.5%)	55(45.1%)	20(16.4%)
Goggle	15(12.3%)	36 (29.5%)	71 (58.2%)
Fabrics masks	40(32.8%)	58(47.5%)	24 (19.7%)
	27.6%	38.9%	33.5%

Table 5 reveals that the protocol put in place to protect Nurses/ Midwives include use of personal protective equipment, 93(76.2%), wash hands with soap and water thoroughly for at least 20 seconds in the health facility 103(84.4%) , wearing of face mask/covering 108(88.5%), going to the toilet before start

working and drinking of water before using PPE to avoid dehydration 102 (83.6%), Use hand sanitizer particularly as a backup for where there is an unreliable water source 118 (96.7%)and avoid touching the eyes, nose and mouth 108 (88.5%).

Table 5: Protocol put in place to protect Nurses/ Midwives

	Yes	No
Use of personal protective equipment	93 (76.2%)	29 (23.8%)
Washing of hands with soap and water thoroughly for at least 20 seconds in the health facility	103 (84.4%)	19 (15.6%)
Wearing of face mask/covering	108(88.5%)	14 (11.5%)
Going to the toilet before start working and drinking of water before using PPE to avoid dehydration	102 (83.6%)	20 (16.4%)
Use hand sanitizer particularly as a backup for where there is an unreliable water source	118 (96.7%)	4 (3.3%)
avoid touching the eyes, nose and mouth	108 (88.5%)	14 (11.5%)

Table 6 reveals that out of 122 respondents, 121(99.2%) agreed that all staff and patients need to have access to hand washing facilities and to be encouraged to do so as they enter the maternity units, while 1(0.8%) disagreed. Of the respondents 120(98.4%) agreed that regular hand hygiene practices before and after examining each patient while 2(1.6%)disagreed, 119(97.5%) of them agree that advising all people (patients and staff) to cough into a tissue or elbow and to wash hands after coughing and sneezing will prevent COVID- 19, and that surface used by patients and staff need to be sprayed with a cleaning product (i.e 5% sodium hypochlorite (bleach) and wipe down with a proper towel or clean cloth in between patients, followed by hand washing but 3(2.5%)of the respondents disagreed. Also,115(94.3%) of them believed that lack of PPE within health facilities may expose nurses/midwives to the risk of the disease while 7(5.7%) disagreed, 93 (76.2%) of them agreed that midwives need to maintain social distancing of 2 arm's length for as much as possible during any clinical encounter while 29 (23.8%) disagreed. Eighty-seven 87 of the respondents (71.3%) believed that physical examination and patient contact needs to be

continued as usual for women without suspected/ confirmed COVID-19 if hand washing is performed before and after while 35(28.3%) disagreed. 85 (69%.) of the respondents agreed that a surgical mask, plastic apron, eye protection, and gloves need to be worn during the second and third stages of labour in addition to hand washing, while 37(30.3%) disagreed. Out of 122 respondents, 71(58.2%) agreed with the use of PPE for all patient contact while 51(41.8%) disagreed. This implies that the majority of the respondents agreed that all staff and patients need to have access to hand washing facilities, regular hand hygiene practices, advising all people (patients and staff) to cough into a tissue or elbow, the surface used by patients and staff need to be sprayed with a cleaning product (i.e.5% sodium hypochlorite (bleach), hand washing, provision of PPE within health facilities, midwives need to maintain social distancing during any clinical encounters are ways to provide safe and effective maternity care to women. This study indicated that the perception of the provision of safe and effective maternity care to women is very high (81.3%).

Table 6: Perception of the provision of safe and effective maternity care to women

	Yes	No
Do you think advising all people (patients and staff) to cough into a tissue or elbow and to wash hands after coughing and sneezing will prevent Covid- 19	119(97.5%)	3 (2.5%)
Do you think midwives need to maintain social distancing of 2 arm's length for as much as possible during any clinical encounter	93 (76.2%)	29(23.8%)
Do you believe that physical examination and patients contact needs to be continued as usual for women without suspected/ confirmed COVID - 19 if hand washing is performed before and after	87 (71.3%)	35(28.7%)
Do you believe that surfaces used by patients and staff need to be sprayed with a cleaning product (i.e.5% sodium hypochlorite (bleach) and wipe down with a proper towel or clean cloth in between patients, followed by hand washing	119 (97.5%)	3 (2.5%)
Do you think that all staff and patients need to have access to hand washing facilities and be encouraged to do as they enter the maternity unit?	121(99.2%)	1(0.8%)
Do you have a supply of clean water (even from a bucket if running water is available), in every location or room where staff work and in waiting areas for patients?	111(91.0%)	11(9.0%)
Do you have a surgical mask, plastic apron, eye protection, and gloves that need to be worn during the second and third stages of labour, in addition to hand-to-handwashing?	85(69.7%)	37(30.3%)
Do you follow regular hand hygiene practices before and after examining each patient?	120(98.4%)	2(1.6%)
Do you use PPE for all Patient contact?	71(58.2%)	51(41.8)
Do you believe the lack of PPE within health facilities may expose nurses/midwives to risk?	115(94.3%)	7(5.7%)
Do you think the staff has to commence compulsory annual leave due to COVID – 19 (e.g due to unit/service closure, exposure of staff due to non-availability of PPE)?	39 (32.0%)	83 (68.0%)
Do you think the non -provision of PPE for clients during the covid19 pandemic has any impact on patients' utilization of medical services?	110(90.2%)	12(9.8%)
	81.3%	18.7%

Table 7 reveals that all perceived factors listed are positive. These include Fear of Nosocomial Infection 100(82.0%), lack of available infection control and prevention services 108(88.5%) of fear of stigmatization 101(82.8%), Adverse health outcomes resulting from accessibility barriers 95 (77.9%), the attitude of healthcare providers/ nature of hospital atmosphere during the pandemic 85 (69.7%), misconception/misinformation on COVID-19 diseases 96(78.7%), Information on facility management 84 (68.9%), long waiting hours 84 (68.9%), lack of available trained personnel

80(65.6%) and Cost of drugs and treatment 88 (72.1%). This study implies that perceived factors considered by the majority of the respondents as influencing protocol are fear of Nosocomial Infection, lack of available infection control and prevention services, fear of stigmatization, The attitude of healthcare providers/ nature of hospital atmosphere during the pandemic, Misconception / Misinformation on COVID-19 disease and care, information on facility management, long waiting hours, lack of available trained personnel and cost of drugs and treatment

7: Perceived factors influencing Protocol implementation during COVID-19. (N=122)

Factors	Yes	No
Fear of Nosocomial Infection	100(82.0%) *	22(18.0%)
Lack of available infection control and prevention services	108(88.5%) *	14(11.5%)
Fear of Stigmatization	101 (82.8%) *	21 (17.2%)
Adverse health outcomes resulting from accessibility barriers	95 (77.9%) *	27(22.1%)
The attitude of healthcare providers/ nature of hospital atmosphere during the pandemic	85(69.7%) *	37(30.3%)
Misconception / Misinformation on COVID-19 disease and care	96(78.7%) *	26(21.3%)
Information on facility management	84 (68.9%) *	38 (31.1%)
Long waiting hours	84 (68.9%) *	38 (31.1%)
Lack of available trained personnel	80(65.6%) *	42(34.4%)
Cost of drugs and treatment	88 (72.1%) *	34 (27.9%)

Significant *

DISCUSSIONS:

This study assesses nurses/ midwives' perceptions toward covid-19 pandemic protocol implementation in the management of patients in maternity units of selected health facilities in Ibadan, Nigeria. The result of the sociodemographic characteristics of respondents indicated that majority are 34 -44years and 45-54years, females and married. Further findings showed that majority of respondents had RN+post Basic and BNSc Nursing as highest qualifications with 11-20years of experience.

This study showed that the respondents' level of knowledge about covid -19 is very high. The writers perceived that the high knowledge level is likely due to the involvement of many of the respondents in COVID-19 campaigns on either

prevention or treatment of the infected people. This concurs with the finding of Abdel Wahed et al, (2020) where their respondents knowledge level was excellent (99%) regarding the transmission modes of the disease in Iran. Similarly, a study in Ugandan reported about 70% of their respondents had a sufficient level on knowledge of Covid-19. On the contrary, the research conducted by Alqarni et al (2022) from the United Arab Emirates, recorded poor knowledge about the disease transmission and symptoms among nurses. The participants in this study had good knowledge, especially on the Covid-19 disease preventive measures.

Our results revealed that respondents' perceptions of the constructs on adherence to safety is highly positive. This finding is similar to the findings of Buerthey et al., 2020; Goda Elbqry,

2020; Jin & Yi, 2020; Saadeh et al., 2020; Saha et al., 2020; Sahar et al., 2020; Tadesse et al., 2020; and Zafar et al., 2020. This study is not in agreement with the study conducted by Olum et al., (2020) where about 17% of HCWs believed that wearing general medical masks was not protective against COVID-19.

This study noted that perception on adherence of hospital management to the supply of PPE is low (27.6%) These findings are contrary to Pandey and Saxena (2022) who stated that the government's role should be very decisive in reducing the spread of Covid-19, by developing a systematic Covid19 control protocol which the management board did not provide. These PPEs must be provided given a likely splash of fluids, and uncontrolled sneezing by the women being attended to by the nurse/midwife. The usage of inappropriate masks should be of concern to the authority if the health of the nurses/midwives would not be compromised.

Our study indicated that the perception of the provision of safe and effective maternity care to women is very high (81.3%). This finding does not corroborate a study conducted in Lagos state by Leung et al, (2022) that participants noted a decline in maternity care utilization due to fear of contracting the disease. The decline in maternity uptake may also be due to the non-provision of PPE for clients in the hospital and the financial crisis that most people experienced during the pandemic to purchase PPE.

Our study noted that the protocol put in place to protect Nurses/ Midwives include use of personal protective equipment, wash hands with soap and water thoroughly for at least 20 seconds in the health facility, wearing of face mask/covering, going to the toilet before start working and drinking of water before using PPE to avoid dehydration, Use hand sanitizer particularly as a backup for where there is an unreliable water source and avoid touching the eyes, nose and mouth. This study does not concur with Jing et al (2020), who reported a lack of guidance on the protocols for caring for infected patients and protecting themselves. This study is also contrary to the findings of Caleb 2021 which reveals that lower

compliance with hand hygiene practice owing to the inconvenient location of the device and due to difficult hand rub or sink placement, no hand rub in the dispenser, or no soap at the sink, being distracted by medical emergencies, a low view of the importance of hand hygiene in preventing infections, and a low safety culture with no safety feedback. This study is not in line with the study of Khalid et al.; 2016, who reported that having to use PPE was 'stressful'. Many studies such as Punia, Nair, & Shetty (2014), and Jing, Ying, Kaihu, et al (2020) found that the discomfort of PPE was a barrier to compliance.

This study implies that perceived factors considered by the majority of the respondents as influencing protocol are fear of Nosocomial Infection, lack of available infection control and prevention services, fear of stigmatization, The attitude of healthcare providers/ nature of hospital atmosphere during the pandemic, Misconception / Misinformation on COVID-19 disease and care, information on facility management, long waiting hours, lack of available trained personnel and cost of drugs and treatment

Recommendation based on the findings of the study:

Based on the findings of this study, it is therefore recommended that the hospital management should provide PPE for the clients and the nurse/midwife in the maternity units to increase maternity care uptake.

Conclusion: Coordinated strategy is of utmost importance to curtail the pandemic, while fragmented activities in different areas may complicate the situation. The global shortage of appropriate PPE, such as surgical masks, N95 respirators, gowns, and goggles for front-line healthcare workers as well as the surging numbers of coronavirus infections and new cases being reported has overwhelmed even the highly resourced healthcare systems. Therefore, the protective measures have to be continuous as the world has to live with the disease despite the availability of newly

developed vaccines which are still controversial.

References

Abdel-Wahed, W.Y., Hefzy, E.M., Ahmed, M.I. et al. (2020): Assessment of Knowledge,

Attitudes, and Perception of Health Care Workers Regarding COVID-19: A cross-sectional Study from Egypt. *J Community Health* 45, 1242–1251. <https://doi.org/10.1007/s10900-020-00882-0>

Alqarni, A. M., Bajahzer, M., Asseri, M., et al. (2022) Awareness, Knowledge, and Perceptions of COVID-19 Precautions among Employees of Al-Imam Abdulrahman Al Faisal Hospital in Riyadh, KSA. *Cureus* 14(6): e25918. doi:10.7759/cureus.25918

Asemahagn, M.A. (2020): Factors determining the knowledge and prevention practice of healthcare workers toward COVID-19 in Amhara Region, Ethiopia: A cross-sectional survey. *Tropical Medicine and Health* 48:72 DOI: 10.1186/s41182-020-00254-3

Awoke K; Anyechew A; Mistir L; Tadesse S; Gete B & Metadel A. (2021): Prevention Practice of COVID-19 Using Personal Protective Equipment and Hand Hygiene Among Healthcare Workers in Public Hospitals of South Wollo Zone, Ethiopia. *Frontiers in Public Health*, December 2, 2021. Doi.10.3389/fpubh.2021.782705.

Buertey, A., Sadick, F., Ayamba, A., Nuhu, S., Abdul-, A., & Imoro, M. A. (2020). Knowledge, Attitudes, and Practices of Nurses in the Tamale Metropolis towards Coronavirus Prevention. 2(6)

Bhagavathula, A. S., Wafa Ali Aldhaleei, W. A., Rahmani, J., et al. (2020). Knowledge and perceptions of COVID-19 among healthcare workers: Cross-sectional study. *MIR Public Health Surveillance*, 6 (2) , e 1 9 1 6 0 .

<https://doi.org/10.2196/19160>.

Brooks, S. K., Greenberg, N., Wessely, S. et al (2021). Factors affecting healthcare workers' compliance with social and behavioural infection control measures during emerging infectious disease outbreaks: rapid evidence review *BMJ Open*; 11:e049857. DOI: 10.1136/BMJopen-2021-049857.

Deressa, W., Worku, A., Abebe, W., & Gizaw, M. (2021). Risk perceptions and preventive practices of COVID-19 among healthcare professionals in public hospitals in Addis Ababa, Ethiopia. *PLoS ONE*. 16:1–17. DOI: 10.1371/journal.pone.0242471

Eramus, V., Daha, T.J., Brug, H., Richardus, J.H., Behrendt, M.D., Vos, M.C., et al. (2010). A systematic review of studies on compliance with hand hygiene guidelines in-hospital care. *Infect Control HospEpidemiol.* 31:283–94. DOI: 10.1086/650451

Giao, H., Han, N. T. N., Van Khanh, T., et al. (2020). Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City. *Asian Pacific J Trop Med*, 13, 3–5. <https://doi.org/10.4103/1995-7645.280396>.

Goda-Elbqry, M. (2020). Nurses' Knowledge, Practice, Attitude and Psychological Stressors Regarding COVID-19 at Quarantine Hospital. *Port Said Scientific Journal of Nursing*, 7(3), 66–80. <https://doi.org/10.21608/pssjn.2020.46523.1053>

Hakim, S.A., Abouelezz, E.I., & Okda, E.M. (2016). Use of personal protective devices among health care workers in a teaching Hospital in Cairo, Egypt. *Egypt J Occup Med.* (2016) 40:287–300. DOI: 10.21608/ejom.2016.846

Highly infectious diseases are due to exposure to contaminated body fluids in healthcare staff (Review). *Cochrane Libr.* (2016) (4):1– 75. DOI: 10.1002/14651858.CD011621.

- Houghton, C., Meskelli, P., Delaney H, et al.
- Hsu, L.Y., Jin, J., & Ang, B.S.(2011) Hand hygiene and infection control survey pre- and periH1N1-2009 pandemic: knowledge and perceptions of final year medical students in Singapore. *Singapore Med J*; 52:486–90. <https://doi.org/10.1016/j.ajp.2020.102083>
- Jin, Z., & Yi, L. (2020). Knowledge, Attitude, and Practice of Nurses towards the Prevention and Control of COVID-19
- Jing, F; Ying, J; Kaihui, H; Xiao, C et al (2020): Barriers to using personal Protective equipment by Healthcare staff during the COVID-19 outbreak in China. *Medicine*: November 2020 volume 99 issue 48- p e 23310 doi:10.1097/MD.00000000000023310.
- Khalid, I., Khalid, T.J., Qabajah, M.R., Barnard, A.G. & Qushmaq, I.A. (2016): Healthcare Workers' Emotions, Perceived Stressors, and Coping Strategies during a MERS-CoV Outbreak. *Clin Med Res*; 14(1):7–14. Abstract/FREE Full-Text Google Scholar.
- Leung, C., Olufunlayo, T., Olateju, Z., MacArthur, C., & Taylor, B. (2022). Perceptions and Experiences of maternity care workers during Covid-19 Pandemic in Lagos State, Nigeria; a qualitative Study. *BMC Health Services Research* (2022) 22:606 <https://doi.org/10.1186/s12913-022-08009-y>.
- Modi PD, Nair G, Uppe A, et al. (2020). COVID-19 Awareness among Healthcare Students and Professionals in Mumbai Metropolitan Region: A Questionnaire-Based Survey. *Cureus* 12(4): e7514. DOI 10.7759/cureus.7514.
- Olum, R., Chekwech, G., Wekha, G., et al. (2020). Coronavirus disease-2019: Knowledge, attitude, and practices of healthcare workers at Makerere University Teaching Hospitals Uganda. *Frontiers in Public Health*, 8, 181. <https://doi.org/10.3389/fpubh.2020.00181>.
- Pandey A, Saxena NK. (2022). Effectiveness of Government Policies in Controlling COVID-19 in India. *Int J Heal Serv* 2022; 52:30-7. DOI: 10.1177/0020731420983749.
- Professionals in the context of Coronavirus Disease (COVID- 19). (2020). *Risk Manage Health Policy*. 13:3013–9. doi:10.2147/RMHP.S286217
- Punia, Sangini, Nair Sumar & Shetty Ranjitha (2014): Health Care Workers and Standard Precautions: Perceptions and determinants of Compliance in the Emergency and Trauma Triage of a Tertiary Care Hospital in South India. *International Scholarly Research Notices*. Hindawi Publishing Corporation. Volume 2014, Article ID 685072, 5 pages <http://dx.doi.org/10.1155/2014/685072>
- Roy, D., Tripathy, S., Kar, S.K., et al. (2020) Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic [published online ahead of print, 2020 Apr 8]. *Asian Journal of Psychiatry*, 51,102083.
- Saadeh, D., Sacre, H., Hallit, S., Farah, R., & Salameh, P. (2020). Knowledge, attitudes, and practices toward the coronavirus disease 2019 (COVID-19) among nurses in Lebanon. *Perspectives in Psychiatric Care*, May. <https://doi.org/10.1111/ppc.12676>
- Saha, A. K., Mitra, C. R., Khatun, R. A., & Reza, H. M. (2020). Nurses' Knowledge and Practices Regarding Prevention and Control of COVID-19 Infection in a Tertiary Level Hospital. *Bangladesh Journal of Infectious Diseases*, 7 (October), S27–S33. <https://doi.org/10.3329/bjid.v7i00.50159>
- Sahar, J., Kiik, S. M., Wiarsih, W., & Rachmawati, U. (2020). Coronavirus disease-19: Public health nurses' knowledge, attitude, practices, and perceived barriers in Indonesia. *Open Access Macedonian Journal of Medical Sciences*, 8(T1), 422–428.

- <https://doi.org/10.3889/oamjms.2020.5446>.
- Saqlain, M., Munir, M.M., Rehman, S.U., Gulzar, A., Naz, S., Ahmed, Z., et al. (2020) Knowledge, attitude, practice, and perceived barriers among healthcare workers regarding COVID-19: a cross-sectional survey from Pakistan. *J Hosp Infect.* (2020) 105:419–23. doi:10.1016/j.jhin.05.007
- Savoia, E., Argentini, G., Gori, D., Neri, E., Piltch-Loeb, R., & Fantini, P. (2020): Factors associated with access and use of PPE during COVID-19: a cross-sectional study of Italian physicians. *PLoS ONE.* 15:e239024. DOI: 10.1371/journal.pone.0239024
- Seo, H., Sohng, K., Chang, S.O., Chaung, S.K., Won, J.S., & Choi, M. (2019) Interventions to improve hand hygiene compliance in emergency departments: a systematic review. *J Hosp. Infect.* 102:394–406. DOI: 10.1016/j.jhin.2019.03.013
- Sikakulya, F.K., Ssebuufu, R., Mambo, S.B., Pius, T., Kabanyoro, A., Kamahoro, E., et al. (2021) Use of face masks to limit the spread of the COVID-19 among western Ugandans: Knowledge, attitude and practices. *PLoS ONE.* 16 : e 2 4 8 7 0 6 . doi:10.1371/journal.pone.0248706
- Tadesse, D. B., Gebrewahd, G. T., & Demoz, G. T. (2020). Knowledge, Attitude, Practice and Psychological response toward COVID-19 among Nurses during the COVID-19 outbreak in Northern Ethiopia, 2020. *Research Square*, 1–14. <https://doi.org/10.21203/rs.3.rs-26236/v1>.
- Tanne, J.H., Hayasaki, E., Zastrow, M., Pulla, P., Smith, P., & Rada, A.G. (2020): How doctors and healthcare systems are tackling coronavirus worldwide. *BMJ.*;368:m1090.
- Tekalegn, Y., Sahiledengle, B., Bekele, T., Tesemma, A., Aseffa, T., Tefera, Engida, Z, et al. Correct use of facemask among health care workers. *UNFPA (2020): COVID-19 Technical Brief for Maternity Services.* UNFPA; 2020 COVID19_Maternity_Services_TB_Package_UPDATE_2_14072020_SB_Z.pdf Available from: <https://www.unfpa.org/sites/default/files/resource-pdf/>
- Verbeek, J.H., Ijaz, S., Mischke, C., Ruotsalainen, J.H., Mäkelä, E., Neuvonen, K., et al.
- Personal protective equipment for preventing WHO: Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected, World Health Organization: Geneva (2020). Retrieved May 10, 2020 from <http://www.who.int>.
- WHO: Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19). 2020. Accessed 22 April 2020.
- WHO: COVID-19 Situation update for the WHO African Region. Washington, DC: WHO (2020)
- WHO. COVID-19 Related Mortality and Morbidity among Healthcare Providers. Washington DC; WHO (2021).
- WHO Report on Covid-19 accessed July 2022.
- Zafar, F., Afzal, M., Parveen, K., & Hussain, M. (2020). Knowledge, attitudes, and practices of SARS-COV-2 (COVID-19) among nurses in the public sector, Pakistan. *9(10)*, 8014–8024
- Zhong, B. L., Luo, W., Li, H. M., Zhang, Q. Q., Liu, X. G., Li, W. .T, et al. . (2020): Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *Int J Biol Sci.* 16 : 1 7 4 5 – 5 2 . DOI : 10.7150/ijbs.45221
- Zhou, M., Tang, F., Wang, Y., et al. (2020). Knowledge, attitude, and practice regarding COVID-19 among health care workers in Henan, China. *Journal of Hospital Infection.* <https://doi.org/10.1016/j.jhin.2020.04.012>.

