Research Article

Infection prevention and control life saving skills: practice among midwives in university of port harcourt teaching hospital rivers state

Abstract

The burden of increased maternal mortality is a global health concern. The burden is greater in developing countries such as Nigeria. This descriptive survey of midwives knowledge and utilization of infection prevention and control life saving skill in managing pregnant women was carried out in University of Port Harcourt Teaching Hospital, to determine the knowledge and utilization of nurse–midwives on the concept. A sample population of 83 respondents selected through convenience sampling technique had a self structured questionnaire was administered to them to collect data for the study. Three objectives, three research questions and one hypothesis guided the study. Data collected were analyzed using descriptive statistics of frequencies and percentages while chi square inferential statistics was used to test the research hypothesis at 0.05 level of significance. Results showed that majority of the respondents 41(49.4%) had good knowledge on the skill under study, but only 15(18.1%) always utilized it for managing pregnant women. As regards factors affecting the utilization of the concept, majority, 79(95.2%) linked it with poor staffing. Opinion on other factors affecting utilization of infection prevention and control live saving skill among midwives was also high: 74(89.2%) identified non–availability of relevant equipment and 66(79.5%) attributed it to emergency situations. Though, majority of nurse–midwives showed good knowledge of infection prevention and control skill, the utilization of the skill was not encouraging as it reflected non–compliance. The hypothesis testing showed that the calculated chi–square value is less than the critical chi–square value (x2 cal=11.7, x2 tab=12.592, df=6,p>0.05), based on this result we therefore accept the null hypothesis which states that there is no significant relationship between midwives' knowledge and utilization of infection prevention and control life saving skill in managing pregnant women. Based on the findings it was recommended among others, that formulation of operational policies and legislation making utilization of infection prevention and control skill mandatory for all health care professionals providing care for pregnant women be put in place.

Keywords: Infection prevention and control, Live saving, Midwives, Practice

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Introduction

Infection prevention and control is a major life saving skill strategy employed by professional midwives in addressing the issue of maternal mortality. Maternal mortality is the death of mothers caused by diseases or other conditions related to pregnancy and child–birth. Maternal mortality has continued to be a major public concern in Sub–Saharan Africa, especially in Nigeria. This is because of the continued loss of life of women during child birth in spite of efforts put in place by stakeholders to reduce its occurrence.

In Nigeria, figures on maternal mortality rate (MMR) are mostly institutional. They however, vary from one geographical zone to another and are worst in the rural areas as compared with the urban areas. By estimation, 585,000 women die every year from pregnancy related causes, a rate of 430 deaths per 100,000 life birth.[1] Nigeria has one of the highest maternal and infant mortality rates in the world; the infant mortality rate is estimated to about 96/1000 live births in the urban area.[2] Though constituting 1% of the world's population, Nigeria contributes 10% of the world maternal mortality; this is a major concern that necessitated the greater attention given to Maternal and Child Health (MCH) services.

Most of the factors associated with the occurrence of maternal deaths in the child bearing process are preventable with adequate and improved access to health care services provided by trained or skilled attendants who are knowledgeable in life saving skills and can competently apply them in the care of pregnant women. It is with this recognition that the ten modules on life saving skills were developed by American College of Nurse–Midwives (ACNM) in collaboration with Ghanian Government in 1989. The aim of the live saving skills was to ensure that major causes of maternal and neonatal mortality are reduced or eradicated.

Infection prevention and control is one of the components of the modules developed; and midwives who are vested with the role of maternal and child care are expected to have the required knowledge and competency in the utilization of this life saving skill strategy. One of the ways of preventing infection is compliance with standard precautionary measures and as such provide quality health care service to ensure safety of the client.[3] The centre for Disease control and prevention also said that the importance of compliance with the standard precautionary measures is to prevent the transmission of nosocomial infection and increase the rate of patient's recovery.[4]

University of Port Harcourt Teaching Hospital is a tertiary institution that provides health care services to the teaming population of health care consumers in Rivers State and serves as a referral hospital to other nearby States. The nurse–midwives attend to vast majority of pregnant mothers from both urban and rural areas of

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the State. They are expected to contribute greatly to the reduction of both maternal and infant morbidity and mortality in Nigeria and specifically in the State. By implication, they are expected to be knowledgeable in the live saving skill strategies and competently utilize them in the provision of quality Maternal and Child Health (MCH) services among others. Unfortunately, in same instances, it has been observed that specific live saving skills measures such as hand washing, use of gloves and protective clothing, when handling body fluids are forgotten when administering care to pregnant women especially during deliveries; and sharp objects are handled with less caution.

These measures are essential in initiating the infection prevention and control live saving skill measures. It is on this premise that the researchers decided to:

I. Determine the midwives' knowledge level on infection prevention and control live saving skills for managing pregnant women.

II. Ascertain the utilization of infection prevention and control live saving skill strategy in care of pregnant women.

III. Identify factors affecting utilization of infection prevention and control live saving skill in managing pregnant women.

Literature review

The concept of infection prevention and control is well recognized as an effective strategy against complications affecting health of individuals, pregnant women inclusive. It is therefore utilized by nurse–midwives and other health professionals to ensure that lives of people of all ages are not endangered. Many studies have affirmed the fact that majority of midwives have good knowledge of infection prevention and control measures; but rarely utilize them in client–patient care. One of such studies is by Ofili,[5] reported that majority of nurses have good knowledge of infection prevention methods but rarely utilize the measures when providing care to pregnant women. Martin[6] also reported that majority of midwives in Maryland State Hospital had good knowledge on infection prevention and control measures.[6]

Vaz[7] in a cross sectional survey to assess knowledge, awareness and compliance to infection control measures among midwives at University Hospital of West Indies in Jamaica found that two–thirds (64%) of the respondents were knowledgeable of infection control measures.[7] Christian[8] in a study at Teaching Hospital of Quebec, Canada reported that 60% of midwives were knowledgeable of infection control measures but only 25% of the measures were utilized in providing care for pregnant women.[8]

Kolude[9] in a study at University College Hospital, Ibadan in Nigeria had reported that majority of midwives were highly knowledgeable of infection control measures but showed poor compliance with their utilization in the provision of care.[9] It is expected that knowledge of infection prevention and control would influence its utilization. However, many studies have revealed the contrary.

Adenicia[10] in a study on infection control measures among midwives focused on the practice of recapping and disposal of used needles, use of barrier equipment, hand washing and screening of transfused blood.[10] Of the 433 respondents selected for the study, about a third always recapped used needles; less than two–thirds (63.8%) always used personal protected equipment, and more than half (56.5%) never were goggles/protective clothing during deliveries and at surgeries. A high percentage (94.6%) of midwives observed hand washing after handling patients. Compliance with non–recapping

of used needles was prevalent in the health facilities studied; and this was highest among trained nurses and worst with doctors. Gant (200) in a study affirmed the fact that majority of midwives underutilized certain infection preventive measures. Non–compliance with infection control guidelines places both pregnant women and the health care providers at significant health risks. Certain factors have been identified as influencing the non– utilization of infection prevention and control life saving skills by midwives. They include emergency situations, non–availability of relevant devices, "being too busy", lack of nursing personnel, lack of adequate understanding and knowledge, patients' discomfort among others.

Etfstahiou[11] identified emergency situations as major obstacle militating against the compliance with infection prevention and control measures.[11] The reason given is that in some emergency conditions, in an attempt to save life, the midwife may not have the time to start putting on protective gadget or to observe the infection preventive guidelines. Olapede[12] highlights the issue of non–availability of relevant devices as one of the most important factors militating against utilization of infection control measures in developing countries like Nigeria.[12] Georgios[13] identified "being too busy" and lack of nursing personnel as two similar factors that are perceived as obstacles to following infection prevention and control measures by midwives.[13] In the face of many responsibilities to be fulfilled, the midwives are tempted to avoid use of specific infection control guidelines, even when it is anticipated that they may be exposed to micro–organisms.

Leodoro[14] in a study affirmed that lack of adequate understanding and knowledge pose obstacles to proper use of protective barriers; in terms of patients' discomfort pregnant women may experience distress, anxiety, or even sorrow when a midwife offers care putting on a mask, gown or gloves.[14] They feel that the use of protective equipment by midwives connote that their health care status is not good or getting worse.[13]

Regardless of the challenges, midwives should ensure that efforts are made to comply with infection prevention and control guidelines in order to guide against health risks especially for the pregnant women.

Materials and methods

Design

A descriptive survey was used for the study of eighty three (83) midwives selected from the target population of 320 trained nurse–midwives working in University of Port Harcourt Teaching Hospital during the period of study.

Setting

The study setting was University of Port Harcourt Teaching Hospital (UPTH) located in Alakahia, Obio/Akpor Local Government Area of Rivers State, Nigeria. The hospital is a tertiary institution established in 1980. The institution is bounded on the east by Alakahia, on the West by Emohua, on the North by Rumualogu and on the South by Aluu. The hospital provides health care services to people in Obio/Akpor LGA, neighbouring towns and other states in Nigeria. it is engaged in training of nursing and medical students, students of other health care discipline and conduct of research studies.

Sample selection

The selection of the eighty three (83) midwives studied was through convenience sampling technique. All the accessible population who willingly accepted to complete the distributed questionnaire was used

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for the study. The sample cut across sexes, ages, rank and years of experience.

Data collection

A self structured questionnaire consisting of 25 items eliciting responses on socio–demographic characteristics (1–4), knowledge of infection prevention and control (5–12); utilization of infection prevention and control measures (13–18) and factors influencing utilization of infection prevention and control measures (19–25) was used to collect data from respondents on three alternate days. The instrument before use, was validated by experts who consisted on midwifery tutors/lecturers and practicing midwives. The reliability of the instrument was ascertained through a test–retest method at an interval of two weeks. The data collected were analyzed using the Pearson Moment Correlation Coefficient formula and a value of 0.90 was obtained. Permission to carry out the study was granted by the Research Ethics Committee of the institution and ethical consideration based on Belmot's principles of research ethics.

Data analysis

Data collected from questionnaire were coded in a spread sheet. The analysis of data from socio demographic characteristics and research questions was done using descriptive statistics of frequency distribution and percentages; while inferential statistics of chi–square was used to test the hypothesis at $P=0.05$ level of significance. For items on knowledge, the total score was 48. Any score of 1–16 reflected poor knowledge, 17–32 reflected fair knowledge and 33–48 reflect good knowledge. For utilization of infection prevention and control measures, the total score was 7, a score of 0 reflected "never utilized, a score of 1–3 reflected sometimes utilized, 4–6 often utilized and 7 reflects always utilized. All the 83 questionnaires were administered by the researchers to the respondents. The duly completed questionnaires were retrieved on–the–spot on two alternate clinic days; and 100% return rate was recorded.

The socio demographic characteristic is as shown in Table 1. The distribution in terms of gender is male 5(6%) and female 78(94%). The gender difference is based on the fact that nursing is predominantly a feminine profession. The distribution by age shows that 14(16.9%) are between 20–29, 31(37.3%) between 30–39, 25(30.1%) between 40–49 and 13(15.7%) 50+. The ranking of respondents was 20(24.1%), 18(21.7%), 10(12%), 14(16.9%), 11(13.3%), 10(12%) for Nursing Officer I, Nursing Officers II, Senior Nursing Officers, Principal Nursing Officers, Assistant Chief Nursing Officer and Chief Nursing Officer in sequential order. By years of clinical experience, those with less than one year were 3(3.61%), 1–10years were 46(55.4%), 11–20years were 22(26.5%), and 21–30years were 12(14.6%) (Table 2).

Table 1 Socio demographic characteristics of respondents (n=83)

Variable	Description	Frequency	Percentage %
Sex	Male	5	6.0
	Female	78	94.0
Age in years	20–29	14	16.9
	30–39	31	37.3
	40–49	25	30.1
	50 and above	13	15.7
Rank	Nursing Officer II	20	24.1
	Nursing Officer I	18	21.7
	Snr. Nursing Officer	10	12.0
	Principal Nursing Officer	14	16.9
	Asst. Chief Nursing Officer	11	13.3
	Chief Nursing Officer	10	12.0
Years of Clinical Experience	Less than 1year	3	3.61
	1–10years	46	55.4
	11–20years	22	26.5
	21–30years	12	14.6
Total		**83**	**100**

Table 2 Midwives' knowledge of infection prevention and control skill (n=83)

Variable	Frequency	Percentage %
Good knowledge	41	49.4
Fair knowledge	27	32.5
Poor knowledge	15	18.1
Total	83	100%

Table 3 Midwives knowledge and utilization of infection prevention and control skills (n=83)

S/No	Items	SA	A	D	SD	Total
1	Infection prevention and control measures are means of protecting clients and care givers from diseases	3(100%)	0(0%)	0(0%)	0(%)	83
2.	Careful handling of body fluids and hand washing are important infection prevention measures	63 (75.90%)	20 (24.1%)	0%	0%	83
3.	Apart from general hygienic practices and vaccination, the use of protective clothing when caring for clients is an infection control procedure.	28 (33.73%)	46 (55.42%)	7 (8.43%)	2 (2.41%)	83
4.	Is dating people with specific communicable diseases, is not necessarily an infection control measures	0(%)	0(0%)	0(0%)	83(100%)	83

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Table Continued...

S/No	Items	SA	A	D	SD	Total
5.	Respiratory hygiene and counting manners are not an infection prevention and control measures	2 (2.41%)	10 (12.05%)	12 (14.46%)	59 (71.08%)	83
6.	Proper cleansing and disinfection of used article is an effective infection control measure	64 (77.17%)	19 22.89%)	(0%)	(0%)	83
7.	Proper handling of sharps is an effective control infection control measure	56 (67.47%)	19 (22.89%)	8 (96.4%)	0–(0%)	83
8.	Disinfection is not a measure of infection control	– (0%)	– (0%)	– (0%)	83 (100%)	

Utilization of infection prevention and control skill by midwives (n=83)

Findings from study revealed that of the 83 respondents, 30(36.1%) never utilized the infection prevention and control skill; but 53 (63.9%) did utilize it. However, the degree of compliance to its usage remains a major issue of concern. Of the 53(63.9%) who claimed utilizing the skill, 21(25.3%) utilized it rarely and 17(20.5%) utilized it sometimes. Only 15(28.30%) utilized it always despite the good knowledge recorded by 47.4% of the respondents. The issue of non–compliance to infection prevention and control reflects a global spread (Table 4).

Result from this study shows that 66(79.5%) of respondents attributed non–compliance to emergency situations, where the focus is more on saving life first, rather than delaying life saving actions by putting on protective gadgets or observing other infection prevention and control measures; 74(89.2%) attributed non–compliance to non–availability of relevant equipment while majority 79(95.2%) attributed it to poor staffing (less hands)(Table 5).

Table 4 Factors influencing midwives utilization of infection prevention and control skills (n=83)

Variable	Frequency	Percentage %
Emergency situation	66	79.5
Non availability of relevant equipment	74	89.2
Poor staffing	79	
"too busy" schedule	53	95.2

Table 5 Relationship between midwives knowledge and utilization of infection prevention and control skill (n=83)

Utilization	Poor	Fair	Good	Total
Never	5	10	15	40
Rarely	3	7	11	21
Sometimes	4	3	10	17
Always	3	2	5	15
Total	15	27	41	83

Critical x^2 = 12.592, cal $\&^2$ = 11.7, df = 6 P = 0.171

The Table 5 above showed that the calculated chi–square value is less than the critical chi–square value (x^2cal=11.7, x^2 tab=12.592, df=6, p>0.05). Based on this result we therefore accept the null hypothesis which states that there is no significant relationship between midwives' knowledge and utilization of infection prevention and control life saving skill in managing pregnant women.

Discussion

This study had revealed the level of knowledge and commitment of practicing midwives in the utilization of infection prevention and control in the management of pregnant women. Interestingly as reported by most researchers documented in this study;[5–8,15] who observed that, majority of practicing midwives have good knowledge of infection prevention and control life saving skill, however, their knowledge does not translate to its utilization. The issue on non–compliance to infection prevention and control measures is reportedly a global problem. Kolude[9] and Adenicia[10] had reported this observation among midwives in Abeokuta, in Ogun State, and Ibadan, Oyo State respectively, in Nigeria. The high rate of maternal mortality reported in Nigeria WHO[1] may therefore not be unconnected with non–compliance to infection prevention and control skill. The magnitude of maternal mortality world–wide calls for greater commitment and dedication from nurse–midwives who spend greater time in providing care to the pregnant women from conception through delivery and extending to the post partum period. They should take advantage of the good news that adequate and improved access to health care services provided by trained and skilled attendants who are knowledgeable in life saving skills and competent in their utilization of the skill are beneficial in the reduction of maternal mortality.

The underutilization or non–compliance to utilization of infection prevention control measures has been linked with some factors. Such factors include emergency situation, non availability of relevant equipment, "too busy" and poor staffing. These reports had been confirmed by findings from this study in agreement with that of others.[11–13] This calls for concerted effort on the government and non–governmental organizations to float and support education of more health personnel, nurse–midwives inclusive; as well as providing the needed infrastructure and equipment that will aid effective utilization of live saving skills.

The nurse–midwives on their part should make concerted effort to update their knowledge and skills through attendance of continuing education programmes and short–term courses. The issue on knowledge update is not limited to clinicians but educators who are saddled with the responsibility of training and mentoring prospective nurse–midwives. This becomes necessary with the findings that "knowledge obtained rarely translated into competency in the utilization of infection prevention and control skill in managing pregnant women".[13] With good knowledge of infection prevention and control measures effectively put in place there are high hopes that the high rate of maternal mortality will become a thing of the past or

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at most reduced. Hopefully, the findings of this study will provide a "food for thought" for Nurse Midwives Practicing in health care facilities especially in Nigeria. In addition it will motivate authorities "that be" to ensure that efforts are made to formulate policy that will cross check non–compliance to utilization of infection prevent and control skill management of patients especially in this era of reported life threatening communicable disease; an action that will hopefully stimulate compliance with prevention and control measures in health care facilities.

Recommendations

Based on the research findings, the following recommendations were made

a. Operational policies on utilization of infection prevention and control skill among other life saving skills in the elimination or reduction of maternal mortality, should be formulated.

b. There should be legislation, making the compliance to infection prevention and control measures mandatory of health care professionals that provide care for pregnant women.

c. Continuing education programme schedule should be put in place for both educators and clinicians involved in nursing and midwifery practice to regularly awaken the spirit of commitment to client/patient care.

d. Every Department of Nursing Services in all health facilities should establish an Audit Unit alongside the continuing education unit to monitor and regulate midwifery practice in order to safeguard the lives of pregnant women under their care.

Conclusion

The study has shown that most nurse midwives in University of Port Harcourt Teaching Hospital, Rivers State have good knowledge of infection prevention and control skill but the issue of non–compliance which has global spread remains a problem. Only a few 18.1% of the respondents always complied with the utilization of the concept in care of pregnant women. The adverse effect of poor utilization of infection prevention and control skill in midwifery practice is enormous in the light of increasing maternal morbidity and mortality rate. In order to ensure overall optimum well being of pregnant women in the facility and even around and within communities, intensive education program should be organized for nurse–midwives at regular intervals; and effective enforcement and monitoring strategies for the practice maintained.

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None.

Conflicts of interest

None.

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