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Full Length Research Paper

Care of postpartum women following complicated labour and delivery at the University Teaching Hospital, Lusaka, Zambia: Self- reported practices by midwives

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Although childbirth is considered to be a normal physiological process, complications leading to postpartum maternal mortality and morbidity may arise in 20% of the cases; it can affect the mother, foetus or both and may be long or short term. The aim of the study was to assess practices of midwives on the care of postpartum women who experienced complicated labour and delivery from time of admission to the postnatal wards until their discharge. A descriptive cross sectional survey was conducted at the University Teaching Hospital – Women and Newborn in Lusaka. 51 midwives working in postnatal wards participated in the study. Data were collected using a self administered questionnaire with a 4 point likert scale and some closed and open ended questionnaires. SPSS version 20 statistical package was used to analyze data, expressed as descriptive summary measures. Majority of the midwives (78.9%) reported that the care they provided to postpartum women who had complicated labour and delivery was not comprehensive and satisfactory due to shortage of staff and high workload, inadequate materials and equipment to use and midwives' lack of motivation and bad attitude. Midwives scored themselves high in observing and assessing the postpartum women while they rated themselves low in performing for the women self-care activities. There is need to improve the care rendered to the postpartum women with complicated labour and delivery in order to promote good health and to prevent postpartum complications.

Key words: Postpartum mothers/women, postnatal care, complicated labour and delivery, self- reported practices, midwives, hospital care.

INTRODUCTION

Although childbirth is considered to be a normal physiological process, complications may arise in 20% of the cases (Hoque and Klein, 2011; Dippenaar and Da Serra, 2013). Complicated labour and delivery is any process of labour and delivery affected by any

conditions or disorders that adversely affect women and their foetal health (Hoque and Klein, 2011). The postpartum period is particularly important for women, as during this period they may develop serious, life-threatening complications. There is evidence that a large

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proportion of maternal and neonatal deaths occur during the postpartum period, with postpartum haemorrhage being an important cause; therefore, comprehensive postnatal care of postpartum mothers (PPM) is very essential as failure to do so may result in short or long term postpartum maternal morbidities and mortalities. Although the postnatal period is the most critical period, it is also the most neglected phase for providing quality care for mothers and babies because essential postnatal care and attention to their overall wellbeing may not be available or accessible by the mothers (MOH, 2011; Saleem et al., 2014).

It is estimated that 340 000 maternal deaths occur worldwide each year in low-income countries and 61% of these maternal deaths occur during the first six weeks after birth, and nearly half of those deaths take place during the first week after delivery (Lohela, 2012; WHO, 2013; Saleem et al., 2014). In the Sub-Saharan Africa including Zambia, many women do not have access to health care during early postnatal period putting them at high risk of illness and death (Warren, 2015; Ngozi et al., 2016).

The Zambia's safe motherhood guidelines recommend that women receive at least four postnatal checkups, the first within six hours of delivery, the second on the second day following delivery, the third on the sixth day following delivery, and the last within six weeks after delivery (MoH, 2011).

According to the Zambia Demographic Health Survey (2013-2014) (ZDHS), only 63% of women received postnatal care within the critical first two days following delivery broken down as: Forty-eight percent of women received postnatal care within four hours of delivery, 14% received care within 4-23 hours, and 2% were seen 1-2 days following delivery. Twenty-eight percent of women did not receive a postnatal checkup within the recommended time (CSO, 2014). In Lusaka Province, 17% of postpartum mothers did not receive postnatal care within the first critical 2 days after delivery. The ZDHS also indicates that 70% of postpartum women are cared for by either nurses or midwives. This is contrary to the antenatal care attendance which is at 96% and mothers received care from skilled health personnel (CSO, 2014). This makes postnatal care still to be a problem in terms of accessibility.

The University Teaching Hospital is the biggest referral hospital in Lusaka and the country as a whole with average total deliveries of 1,100 per month out of which more than 30% are complicated (UTH, 2017). Provision of quality care by skilled midwives to women who have complicated deliveries is very cardinal to prevent or reduce short and long term postpartum maternal morbidities and mortalities. The aim of this study was to assess the self reported practices of midwives in the postnatal wards at the UTH on the care of postpartum women who experienced complicated labour and delivery from time of admission to the postnatal wards until their discharge from the hospital. Improving health care

performance is an increasing challenge globally; high quality service provision and enhanced patient experience are common elements of health care policy in many countries (Bick et al., 2011). Many studies have concentrated on using clients or postpartum women to rate the care they receive from health care providers including midwives, and most often the rating has been very negative. This has often been without consideration of many factors at hand such as staffing levels, availability of materials and equipment among others (Bick et al., 2011; Morrow et al., 2013).

Furthermore, many studies have focused on the utilisation of postnatal care services and not necessarily on the care midwives deliver to the mothers as seen from the midwives' perspective. Midwives' views on the value and role of the postnatal care they provide have received little attention, despite being a core element of the midwifery role since time in memorial (Bick et al., 2011).

There is limited literature that has considered Midwives as respondents in the care they provide to postpartum women, yet nurses and midwives are in an ideal position to report on the quality of care they provide to the clients in the various health settings (McHugh and Stimpfel, 2012) as they are the *de facto* surveillance system overseeing the patient care experience. The conceptual basis for using nurses as reliable and valid informants about the quality of care in the hospital in which they work is well grounded in organizational sociology (Aiken et al., 2000).

Therefore, nurses and midwives are in a much better position to rate their own care given the background of their work environment and further advocate for change or improvement. It is inherent in any profession to desire to do better and if given an opportunity be able to give a true picture of the situation and give sound recommendations for improvement. This study therefore used nurse-midwives as respondents in the care they rendered to postpartum women with complications of labour and delivery and admitted in postnatal wards

MATERIALS AND METHODS

A quantitative descriptive cross sectional survey was conducted at the University Teaching Hospital Women and Newborn (UTH-WN) in Lusaka District. The UTH-WN is a national public 3rd level specialist referral Hospital for maternal, reproductive and newborn health as well as a centre for teaching and research. The hospital has a total bed capacity of 453 (UTH-WN 2018). The study population was Midwives working at the hospital in the postnatal wards.

The hospital was purposively selected as a study site because it is the biggest referral hospital in the district of Lusaka and usually attends to different cases of complicated deliveries. All the four postnatal wards in the hospital were also purposively included in the study to enhance the numbers of the midwives to participate. Consecutive sampling technique was used to select a total of 51 midwives to participate in the study in August 2017. All the midwives who were found working in the postnatal ward in the month of August were included in the population sample. Midwives

Table 1. Demographic characteristic of respondents.

N – 51	N	(%)
Gender		
Male	0	0
Female	51	100
Participants' age (years)		
Below 20	2	3.9
20 – 29	7	13.7
30 – 39	21	41.2
40 – 49	10	19.6
50 and above	11	21.6
Participants' level of professional education		
Certificate	15	29.4
Diploma	34	66.7
Degree	2	3.9
Designation of participants		
Nursing Officers/ Ward In Charge	3	3.9
Registered Nurse Midwives	34	66.7
Certified /Enrolled Midwives	14	27.5
Participants' number of years working on the ward		
Less than 1	29	56.9
1 - 5	18	35.3
6 – 10	3	5.9
More than 10	1	2.0

asked to be given enough time to complete the questionnaire as they could not do it immediately because of the busy ward schedules. The author, through the ward in charges and the nursing officers, distributed the questionnaires to the midwives who were found on duty in August 2017. This was done in order to maximize the numbers of participation by midwives. There was a 100% response rate as all the questionnaires were completed by the midwives and brought back to the nursing sister. The author collected the completed questionnaires from the office of the nursing sister.

Data were collected using a self administered questionnaire, which contained a 4 point Likert scale questions (Always – 3. Sometimes – 2, Rarely – 1 and Never - 0) and also some closed and open-ended questions to assess midwives' practices of caring for postpartum women who had complicated labour and delivery. The areas covered were: demographic data, whether care was comprehensive or satisfactory, care during hospitalization which included observations and assessment of the mothers and Information, Communication and Education (IEC) during hospitalization. After the data collection instrument was developed, it was subjected for scrutiny by the supervisors who checked the questions whether they were valid enough to yield the intended responses and advised on the necessary revisions to be made. The questionnaire was then pre-tested at a General Hospital within Lusaka. Midwives working in the postnatal ward completed the questionnaires. Pretesting of the instrument helped establish reliability of the instrument in that after analyzing the questionnaires, areas of inconsistencies were established, revised and retested.

The revision of the questionnaires involved removing some repeated questions, and those which were unclear or ambiguous and also rephrasing some questions. The revision of the questionnaire also ensured that questions were clear, concise, appropriate and consistent. The proposal was approved by the Biomedical Research Ethics Committee of the University of Zambia; written permission was granted by the National Research Council under the Ministry of Health and the Senior Medical Superintendents at the UTH and the General Hospital. Privacy, anonymity and confidentiality were maintained and participation in study was purely voluntary.

Collected data were securely kept in a locked cupboard and only accessible to the researcher. Data were entered in a computer and analysed using SPSS version 20 computer statistical package. The demographic variables (age, parity, level of education) were summarized using descriptive summary measures and inferential statistics: expressed as frequencies and percentages/proportions for continuous and categorical variables. Results were presented as frequency distribution tables. Likert scale results were summarised in frequency distribution tables with 'Always' scoring the highest mark (3) and 'Rarely' the lowest mark (1). A score of 'Never' did not attract any mark (0). An average score for each category of care has also been computed on the 4 point likert scale. The following variables assessed the different aspects of care from the time the mothers were admitted to the postnatal wards until their discharge from the hospital: demographic characteristics, whether care was satisfactory and comprehensive, observations and assessment of mothers, self deficit care and IEC.

Table 2. Reasons why Midwives thought the care they provided to Postpartum mothers who had complicated labour and delivery was not comprehensive and satisfactory.

N=37	N	%
Low staffing levels and too much work	24	64.9
Inadequate medical and surgical supplies	5	13.5
Lack of medical equipment	2	5.4
Others (No Motivation, bad attitude, erratic	6	16.2
Water supply, no blood for severe cases of anaemia)		%

RESULTS

Demographic characteristic of respondents

There were a total of 51 midwives who participated in the study and all of them 51 (100%) were females 21(41.2%); aged between 30 -39 years and 11(21.6%) were 50 and above years. On level of education, 34(66.7%) had diplomas, 15(29.2%) had certificates and only 2(3.9%) had Bachelors' degree in nursing. As regards the designation of the respondents, 34(66.7%) were Registered Nurse-Midwives, 14(27.5%) were certified or enrolled midwives and 3(3.9%) were either Nursing officers or ward in charges. Majority of the respondents 29(56.9%) had worked for less than one year in the postnatal wards followed by 18 (35.3%) respondents who had worked between 1- 5 years in the postnatal wards (Table 1).

Whether care of postpartum mothers (PPM) who had complicated labour and delivery was comprehensive and satisfactory

Respondents were asked whether the care they provided to the postpartum mothers who had experienced complicated labour and delivery was comprehensive and satisfactory. Majority of the respondents 40(78.4%) stated that the care they rendered to postpartum mothers with complicated labour and delivery was not comprehensive and satisfactory and only 11(26.6%) felt that the care they provided to the women was comprehensive and satisfactory.

Reasons why midwives thought the care they provided to postpartum mothers who had complicated labour and delivery was not comprehensive and satisfactory

A total of 37(92.5%) midwives out of 40(100%) who had said that the care they provided to the postpartum women with complicated labour and delivery was not comprehensive and not satisfactory gave the following reasons why they thought the care was not

comprehensive and satisfactory. 24(64.9%) out of a total of 37(100) respondents stated that low staffing levels and too much work were the main reasons for care to postpartum mothers not being comprehensive and satisfactory "*(Sometimes especially night duty only two nurses get overwhelmed with patients, 50 patients to 2 nurses, can't observe or do what they need to do on each mother and baby)*"; 5(13.5%) stated that inadequate medical and surgical supplies were the main reason and 6(16.2%) stated other reasons such as no motivation for staff "*(frustrations, no promotions as to what someone deserves – no appointment for specialized training achieved)*"; bad attitude by nurses "*(Sometimes even when staffing is good, do not carry out care)*"; erratic water supply and inadequate blood for severe cases of anaemia. 2(5.9%) stated that lack of necessary equipment to carry out care as one of the reasons for the care not being comprehensive and not satisfactory as well (Table 2).

Care of postpartum women who had complicated labour and delivery during hospitalization in the postnatal wards

To assess the postpartum care of women with complicated labour and delivery during hospitalization to postnatal wards, midwives were asked to score themselves on how often they performed caring activities using a 4 point likert Scale which had 'always -3, sometimes - 2, rarely - 1 and never - 0'. Respondents scored themselves as ALWAYS carrying out the caring activities in the following areas: Out of a total of 51 respondents, 47(92.2%) always checked the vital signs, 43(84%) always provided clean environment, 43(84.3%) always administered medicines, 33(64.7%) always assisted with early ambulation, 31(60.8%) always checked for vaginal bleeding, 24(47.1%) always checked the episiotomy/laceration site for healing or signs of infection, 17(33.3%) always examined the abdomen for involution and 15(29.4%) always performed breast examination. The total average score on the 4 point likert scale (always - 3, sometimes – 2, rarely – 1 and never – 0) was 2.5 (Table 3).

Table 3. Likert scale rating of respondents' responses on care of postpartum women with complicated labour and delivery during hospitalization to postnatal wards.

N	(%)	Average score on likert scale	
Provided clean and ventilated environment			
Always	43	84	2.8
Sometimes	7	13.7	
Rarely	0	0	
Never	1	2.0	
Check vital signs 4 hourly or as necessary			
Always	47	92.2	2.9
Sometimes	3	5.9	
Rarely	3	5.9	
Never	0	0	
Check vaginal bleeding			
Always	31	60.8	2.6
Sometimes	19	37.3	
Rarely	1	2.0	
Never	0	0	
Breast examination			
Always	15	29.4	2.1
Sometimes	25	49.0	
Rarely	10	19.6	
Never	1	2.0	
Assist in early ambulation			
Always	33	64.7	2.4
Sometimes	11	21.6	
Rarely	7	13.7	
Never	0	0	
Check episiotomy/laceration site			
Always	17	33.3	2.1
Sometimes	24	47.1	
Rarely	9	17.6	
Never	1	2.0	
Check abdomen for involution			
Always	24	47.1	2.5
Sometimes	26	51.0	
Rarely	1	2.0	
Never	0	0	
Administer drugs			
Always	43	84	2.8
Sometimes	6	11.8	
Rarely	2	3.9	
Never	0	0	
Average performance			
Always	253	62	2.5

Table 3. Cont.

Sometimes	156	41
Rarely	33	8.0
Never	3	0.7

Midwives performing self care activities for postpartum mothers who had complicated labour and delivery during time of hospitalization in postnatal wards

In order to assess whether midwives performed nursing care activities for the postpartum women who had complicated labour and delivery while admitted to the postnatal wards, respondents were asked to rate their performance on a 4 point likert scale (always - 3, sometimes - 2, rarely - 1 and never - 0) on how often they performed or assisted the women in the various self care activities while admitted to the postnatal wards. Out of a total of 51 respondents, the following rated themselves as ALWAYS performing or assisting with the caring activities in the following areas: 5(9.8%) always performed or assisted with bed bath, 3(5.9%) always helped women with sitz baths and dressing up and 1(2.0%) always performed or assisted with either oral toilet or grooming for the women. The average total score on the 4 point likert scale (always - 3, sometimes - 2, rarely - 1 and never - 0) was 1.6 points (Table 4).

Information, education and communication (health education) to postpartum mothers who had complicated labour and delivery while admitted in postnatal ward

In order to assess how often respondents delivered IEC to postpartum mothers while admitted in the postnatal wards, respondents were asked to rate themselves on a likert scale (always - 3, sometimes - 2, rarely - 1 and never - 0) on the various IEC (health education) items they gave to the postpartum women who had complicated labour and delivery while admitted to the postnatal wards. Out of a total of 51 (100%) respondents, the following rated themselves as ALWAYS performing the IEC activities to the women as follows: 36(70.6%) always gave IEC on general hygiene, 23(45.1%) on perineal toilet, 19(37.1%) on how to detect excessive bleeding, 32(62.7%) on the importance of early ambulation, 15(29.4%) on involution of the uterus, 5(9.8%) on care of the breasts including management of breast problems, 21(41.25) on importance of exclusive breastfeeding, 16(31.2%) on types of medicines given, relevance and administration, 26(50.9%) on importance of good nutrition, 16(31.4%) on importance of rest and 3(5.9%) on postnatal exercises. The average total score on the 4 point likert scale (always - 3, sometimes - 2,

rarely - 1 and never - 0) was 2.2 points (Table 5).

DISCUSSION

Improving healthcare performance is an increasing challenge globally. High quality service provision and enhanced patient experience are a common element of healthcare policy. Postnatal care especially for women who have had complicated labour and delivery is very critical for prevention of complications in the postpartum period. The aim of this study was to assess the self reported practices of midwives in the postnatal wards on the care of postpartum women who experienced complicated labour and delivery from time of admission to the postnatal wards until their discharge from the hospital.

Midwives assessed their own practices on various aspects of care on the postpartum women who had complicated labour and delivery admitted to the postnatal wards at the University Teaching Hospital – Women and Newborn in Zambia. From the background characteristics, it could be deduced that midwifery is still predominantly female driven as all the respondents were females though qualified at different levels. The scenario may be similar in other parts of the world such as the United Kingdom where sex discrimination was abolished in 1975 which also allowed males to train as midwives; yet the male midwives still make up 0.4% of the entire midwifery population under the National Health System (Jones, 2017).

Facility based postnatal care is very important especially for mothers who have had complicated labour and delivery as mothers are observed and monitored to enhance quick recovery and also to prevent postpartum complications. A number of studies have however found that the care provided to postpartum mothers does not equal to their needs. In a study conducted in Germany, midwives felt that they could not live up to the quality of midwifery care they aspired for, they were disappointed with themselves as they thought that the women were underserved and also disappointed with the care they received. Midwives attributed this situation to them being overwhelmed with work (Lohmann et al., 2018). Similar findings were obtained in a study in which majority of the professional nurses reported that the quality of care for postnatal women had deteriorated meaning that patient care was poor in the public hospitals (Somahela et al., 2015; Pallangyo et al., 2017; Dlamini et al., 2017).

However, some participants in the same study reported

Table 4. Respondents' responses on performing self care activities for postpartum mothers who had complicated labour and delivery during time of hospitalization in postnatal wards.

N	(%)	Average Score on likert scale	
Bed bath			
Always	5	9.8	1.7
Sometimes	22	52.9	
Rarely	11	21.6	
Never	8	15.7	
Big bath			
Always	5	9.8	1.7
Sometimes	27	52.9	
Rarely	17	33.3	
Never	2	3.9	
Oral care			
Always	1	2.0	1.2
Sometimes	15	29.4	
Rarely	18	35.8	
Never	8	15.7	
Sitz baths			
Always	3	5.9	1.7
Sometimes	23	5.1	
Rarely	17	33.3	
Never	17	33.3	
Grooming			
Always	1	2.0	1.5
Sometimes	23	45.1	
Rarely	20	39.2	
Never	7	13.7	
Dressing up			
Always	3	5.9	1.7
Sometimes	31	60.8	
Rarely	12	23.5	
Never	5	9.8	
Average performance			
Always	18	5.9	1.6
Sometimes	146	47.6	
Rarely	95	31.0	
Never	47	15.3	

that the quality of care had remained the same (Somahela et al., 2015). Other studies also revealed that health care providers felt the same way and they cited similar reasons as in this study for the state of care provided to postpartum women (Rayner, 2010; Mannava et al., 2015). A study conducted in Victoria,

Australia revealed that hospital postnatal care was complex and characterized by multiple barriers which impact on the provision of quality postnatal care (Rayner 2013). Midwives in this study felt in a similar way as in many other studies that the care they provided to postpartum mothers who had complicated labour and

Table 5. Information, education and communication to postpartum mothers following complicated deliveries while admitted in postnatal ward.

N =51	N	(%)	Average Score
General purpose hygiene			
Always	36	70.6	2.7
Sometimes	13	25.5	
Rarely	1	2.0	
Never	1	2.0	
Perineal toilet/hygiene			
Always	23	45.1	2.4
Sometimes	26	51.0	
Rarely	1	2.0	
Never	1	2.0	
Detecting excessive bleeding			
Always	19	37.3	2.1
Sometimes	17	33.3	
Rarely	5	9.8	
Never	10	19.6	
Early ambulation			
Always	32	32.7	2.6
Sometimes	17	33.3	
Rarely	0	0	
Never	2	3.9	
Involution of the uterus			
Always	15	29.4	2.1
Sometimes	29	56.9	
Rarely	7	13.7	
Never	0	0	
Care of breast/mgt of problems			
Always	5	9.8	2.1
Sometimes	45	88.2	
Rarely	0	0	
Never	1	2.0	
Importance of colostrums/exclusive BF			
Always	21	41.2	2.1
Sometimes	19	37.3	
Rarely	1	2.0	
Never	2	3.9	
Types of medicine/relevance/Admin			
Always	16	31.4	2.3
Sometimes	33	64.7	
Rarely	0	0	
Never	2	3.9	
Nutrition			
Always	26	50.9	2.1

Table 5. Contd.

Sometimes	21	41.2	
Rarely	3	5.9	
Never	1	1.9	
Importance of rest			
Always	16	31.4	2.1
Sometimes	30	58.8	
Rarely	5	9.85	
Never	0	0	
Postnatal exercises			
Always	3	5.9	1.7
Sometimes	32	62.7	
Rarely	10	19.6	
Never	6	11.8	
Nutrition			
Always	209	37.3	2.1
Sometimes	291	52	
Rarely	33	5.9	
Never	26	4.7	

delivery admitted to the postnatal wards was unsatisfactory and not comprehensive to meet the needs of the mothers due to a number of factors. This study therefore agrees with other studies that health care providers including midwives are aware of the care they provide to their clients/patients and thus capable to give a clear and unbiased situation of the care they provided to the postpartum women who had complicated labour and delivery. All studies cited low staffing levels as the main reason for their dissatisfaction with the care they provided to the postpartum mothers.

A study on improving inpatient postnatal services, midwives' views and perspectives of engagement in a quality improvement initiative which also sought to find out the timing when midwives performed observations and examinations on postpartum mothers in postnatal wards revealed low percentages such as, on first contact (7- 13%), at most times (33 -89%) and whenever it was necessary (3 -33%) (Bick et al., 2011).

Midwives in this study scored themselves low in breast examination and postnatal exercises. Another study conducted in Dedza District in Malawi, revealed that only 22% nurse-midwives conducted full postnatal examination on mothers and neonates on discharge and 63% of midwives discharged mothers without checking their vital signs (Chimtembo et al., 2013). The inadequacy in postnatal health care could be attributed to differing priorities and perceptions among health care staff as well as patients themselves and because of this discrepancy, the needs of the postpartum mothers are not adequately provided for (Fogel, 2017). However, in

another study, midwives scored themselves high (85%) on checking the observations on postpartum mothers (Rayner, 2010).

In this study, the average score on always performing observations and examination on mothers was 62% which was not too different from other studies. A study on what prevents quality midwifery care uncovered a number of barriers to the provision of quality care by midwifery personnel. The barriers were grouped into three broad areas as social, economic and professional with all the three resulting in moral distress and burnout (Filby et al., 2016). Midwives provide the majority of care for women before and during pregnancy, labour and delivery and in the postpartum period but most of the times their views on matters of service delivery may be underplayed.

After enduring a complicated delivery, women may not be in a position to undertake self care activities and it is the duty of the midwives to assist the women depending on the level of independence. Midwives were asked to score themselves on how often they performed caring activities on the postpartum mother who had complicated deliveries in relation to self care deficits (Table 4). Self care nursing activities are those activities which individuals may not be able to perform for themselves because of illness or any other condition but they would be able to do so if they were in good condition (https://en.wikipedia.org/wiki/Self-care_deficit_nursing_theory).

The overall performance was very low as only 5.9% of the midwives scored themselves as 'Always' performing

the self care activities for the postpartum women who had experienced complicated deliveries. Similar findings have been reported in many studies where health care providers reported not to be able to provide quality of care to postpartum women due to the same reasons cited in this study. However, there are also studies where quality care has been provided by health care providers (Aiken et al., 2000; Mannava, 2015; Lohmann et al., 2018).

Midwives caring for postpartum women with complicated deliveries help in the prevention of complications and enhances quick recovery (Çapik, 2015). A literature view on midwifery in the postpartum period revealed that postpartum mothers who delivered by cesarean section expressed concern that the care and assistance they received was not what they had expected as midwives were uncaring, neglectful and disappointing. Midwives were expected to engage in care of the somatic or physical needs such as relief of pain and the need for mobilization while admitted to postnatal wards (Panagopoulou et al., 2017). A postpartum woman should be cared for as a whole, with all the aspects of care being considered.

Information, Education and Communication (IEC) to postpartum women is a very important component of postnatal care as this ensures continuation of care after discharge from the hospital. Postpartum mothers are educated on various aspects of puerperium and how to care for themselves and their newborn babies to prevent complications that may arise during and after hospitalization. Midwives were asked to score themselves on how often they educated or advised postpartum mothers on various aspects of postnatal care. Only an average of 37.8% of midwives reported as 'Always' giving IEC to postpartum women while admitted in the postnatal wards.

A study conducted in Kenya revealed that the overall adequacy of health information given by health workers to postpartum women was 16% on voiding and pelvic exercises. However, the same study revealed that 92% of health workers gave adequate health information on breast feeding (Kamau, 2014). Another study from Dedza District in Malawi also found that majority of the midwives gave health education to the mothers (Chimtembo et al., 2013).

On the other hand, a literature review on midwifery in the postnatal period indicated that midwives did not give advice to postpartum mothers as the women lacked information and knowledge concerning postpartum care and that there was noticeable lack or inconsistent advice regarding breastfeeding, both in relevance to the importance for the infant or the appropriate technique (Panagopoulou et al., 2017). Women further stated that advice related to their own self care needs and their role in the postpartum period was highly valued.

IEC to postpartum mothers is very important as it empowers mothers to take responsibility of their own health and that of the newborn baby and to prevent

postpartum complications which may result in morbidities and maternal mortalities.

IMPLICATION FOR PRACTICE, POLICY AND NURSING PROGRAMMES

This study has proved that health care providers such as midwives could be engaged to evaluate their own care they provide to the mothers during the postpartum period. As professionals, midwives would give a true reflection of the current situation as they desire to improve on the care they provide to the clients. Midwives' indication that the care they provide to postpartum mothers who had complicated labour admitted to the postnatal ward was not comprehensive and satisfactory gives an indication that the situation needs to be quickly addressed. There are a number of reasons advanced for the current state of care given to postpartum women which should be taken into consideration such as improvement in staffing levels to cater for the increased workload, increased supply of medical and surgical supplies including provision of necessary equipment. The other reasons such as low motivation, bad attitude, erratic water supply and inadequate blood for severe malaria clients may seem less important, but they are all very cardinal to the provision of quality care to the postpartum mothers. A true turning point comes with self-realization of one's own inadequacies and a deep desire to do something about it to change the situation. This study has just done that and it is hoped that policy makers will take this opportunity to provide the necessary requisites and challenge the midwives to improve their practice.

CONCLUSION AND RECOMMENDATIONS

This study has revealed that generally postnatal care to postpartum women who had experienced complicated labour and deliveries is low in a number of areas and therefore needs to be improved. Midwives scored themselves according to the care they provided to the postpartum women admitted to postnatal ward up to the time they were discharged. It is therefore recommended that ward managers should ensure that staffing levels are adequate to match the workload and also provide all the necessary materials and equipment for provision of care. It is also recommended that human resources issues that concern the motivation of midwives such as promotions should be looked at as demotivated workers though given all the requisites may still have low output. Situations which make midwives helpless and discouraged such as unavailability of water and blood for anaemic patients should be avoided. The hospital management should always make such provisions to ease up the work of midwives. Ward managers should also make efforts and step up their supervisory skills to ensure that more

midwives always undertake the necessary required care for the postpartum women who had experienced complicated labour and delivery in order to enhance maternal wellbeing and prevent ill health during the postpartum period.

LIMITATION OF THE STUDY

Although several studies have proved that nurses and midwives are reliable and valid informants on the care they provide in the hospital, a bias may still exist which may be over rating or under rating themselves. A study in which postpartum women are informants should be undertaken so that comparisons could be made on the care provided to postpartum women who have complicated labour and deliveries.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Full Length Research Paper

Acceptance of prevention of mother to child transmission of HIV among pregnant women in Ogbomosh, Oyo State

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Human Immunodeficiency Virus (HIV) is a global public health crisis with sub Saharan Africa having a disproportionately high burden of the epidemic. Women and children in many settings experienced high rates of new infection, HIV related illnesses, and deaths. High rate of infection among women reflected directly on children. This study aimed at assessing the acceptance of prevention of mother to child transmission (PMTCT) of HIV among pregnant women in Ogbomosh. A descriptive cross-sectional design was adopted for this study. It cuts across tertiary, secondary and primary health care in order to ensure appropriate representation of pregnant women attending different categories of health facilities. The instrument for the study was a self-structured questionnaire. Of the 300 pregnant women assessed, more than 50% of the respondent (n=184, 61.3%) had a high knowledge of PMTCT. Majority (89.0%) were willing to accept PMTCT measures if they are positive. There was a significant association between knowledge of PMTCT and acceptability of PMTCT of HIV measures (χ^2 :12.34, p-value 0.002). There was no significant association between antenatal location and acceptability of PMTCT (χ^2 :0.69, p-value 0.71). The study revealed that majority of the respondents had high knowledge of PMTCT and were willing to accept PMTCT measures if they are HIV positive. This underlines the necessity for improved availability of PMTCT services. The inclusion of health education on PMTCT during antenatal visits will improve pregnant women's knowledge of PMTCT.

Key words: Prevention of mother to child transmission (PMTCT), acceptance of PMTCT, knowledge of PMTCT, HIV, pregnant women.

INTRODUCTION

Human Immunodeficiency Virus (HIV) is a global public health crisis with sub Saharan Africa having a disproportionately high burden of the epidemic (World Health Organization, 2014). Women and children in many settings continue to experience high rates of new

infection, HIV related illnesses, deaths and high rate of infection among women reflect directly on children (WHO, 2014). Recent reports alarmingly showed that approximately 36.7 million people worldwide are living with HIV/AIDS, and of these are 2.6 million children less

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than fifteen years (WHO, 2015). Only 32% of children living with HIV were receiving antiretroviral treatment (UNICEF, 2015). With an estimated population of 177,071,561 people in Nigeria in 2013 (National Population Commission, 2014), Nigeria is second in the world in terms of the number of people living with HIV (United Nations, 2013). In 2014, an estimated 3.4 million people in Nigeria were HIV positive, 1,700,000 of these were women age 15 years and above and 380,000 were children aged 0 to 14 years (UNAIDS, 2015). Six states in Nigeria account for 41% of people living with HIV, including Kaduna, Akwa Ibom, Benue, Lagos, Oyo and Kano (NACA, 2017). Oyo State where Ogbomosho is located is ranked 7th among the 36 states including the Federal Capital Territory (FCT), in Nigeria, with a prevalence of 5.6% (National HIV/AIDS and Reproductive Health Survey, 2013).

Vertical transmission also known as Mother-To-Child-Transmission (MTCT) occurs when an HIV positive woman passes the virus to her baby (US President's Emergency Plan for AIDS Relief, (PEPFAR), 2010). Greater than 90% of HIV infections among children occur through MTCT with 90% of MTCT occurring in sub-Saharan Africa (UNAIDS, 2012). A woman with HIV who had no prevention of MTCT intervention has a 30 to 45% chance of passing the virus to her baby during pregnancy, labor and delivery as well as during breast feeding (WHO, 2012). The rate of MTCT is dependent on factors which include viral load, mode of delivery, prolonged rupture of membranes, prematurity and breastfeeding (Boucher et al., 2009).

Prevention of Mother-To-Child Transmission (PMTCT) of HIV aims at reducing the risk of a mother infecting her child with HIV and starts with primary prevention of the infection in women of childbearing age who are the main vehicles of pediatric HIV transmission (WHO/UNAIDS/UNICEF, 2011). Primary prevention is considered the most important way to decrease MTCT of HIV (Lynne, 2002). PMTCT strategies include testing for HIV during pregnancy, modified obstetric practices, preventive anti-retroviral (ARV) drugs, and modified infant feeding practices. With the introduction of PMTCT globally, the strategy has reduced the risk of MTCT from nearly 40% to fewer than 5% thereby making PMTCT a gateway for HIV prevention, treatment, and care support services for the whole family (UNICEF, 2010).

Statement of the problem

Over the years, great achievements have been attained in the area of eliminating new HIV infections in children globally. In developed countries, MTCT rates have fallen to as low as 2% of births among HIV-infected mothers with the introduction of HIV counseling and testing, Zidovudine prophylaxis, elective Caesarean delivery, and safe use of infant formula instead of breastfeeding

(Maputle, 2008). The number of new HIV infections among children declined by 13% between 2000 and 2008, and by 48% between 2009 and 2014. Some countries in sub-Saharan Africa are also having good progress in reversing the high rate of new infection in children, this includes countries like Ghana that experienced a decline of 76% and South Africa that experienced a decline rate of 76% (USAIDS, 2015). However, some other sub-Saharan countries still face significant challenge in rolling out effective PMTCT services. This includes Nigeria that has the second largest number of new HIV infections among children with as much as 60,000 new pediatric infections occurring in 2012 alone (WHO, 2014). Since 2009, new pediatric HIV infections in the country have declined by only 15% (USAIDS, 2015). This is quite low compared to what is been experienced in other sub Saharan countries

This clearly indicates that there is a problem in the country which needs to be addressed urgently. This is especially distressing as good progress is being achieved in other countries within the region using the same approaches. The reasons for this might include poor knowledge of mothers on the risk of MTCT, poor knowledge on prevention of mother to child transmission strategies such as the use of anti-retroviral drugs during and after delivery, infant feeding options, and poor obstetric practice by health personnel (De Cock et al., 2012). There is limited information on the acceptability of pregnant women in relation to prevention of mother to child transmission of HIV in Ogbomosho, Oyo State. It is due to this perceived paucity of information and the problem identified earlier (poor decline rate in mother to child transmission of HIV in the country) that this study was conducted to assess the acceptance of prevention of mother to child transmission of HIV among pregnant women in Ogbomosho, Oyo State.

Study objectives

The broad objective is to assess the acceptance of Prevention of Mother to Child Transmission of HIV among pregnant women attending ANC in Ogbomosho, Oyo State.

Specific objectives

- (1) To evaluate the knowledge of prevention of mother to child transmission of HIV among pregnant women.
- (2) To examine pregnant women's willingness to accept prevention of mother to child transmission of HIV.

Study hypotheses

- (1) There is no significant association between the

Table 1. Pregnant women that attended ANC from NOV 2015 to ARIL 2016 and proportional allocation in the three settings.

Setting	No of pregnant women that attended antenatal in the last 6 months	Average of monthly attendance	Proportion of pregnant women	Study sample size
Bowen University Teaching Hospital	1800	300	300/634×264=125	150
General Hospital Sun-sun	1320	220	220/634×264=92	100
Adebayo Alata Primary Health Centre	680	114	114/634×264=47	50
Total	3800	634	264	300

pregnant women knowledge of PMTCT of HIV and their acceptance of PMTCT of HIV.

(2) There is no significant association in the pregnant women acceptance of prevention of mother to child transmission of HIV and their place of antenatal care.

Significance of the study

This study will help to provide baseline information on knowledge and acceptance of PMTCT of HIV among pregnant women. It will also help to facilitate quality and efficient health care services to reduce MTCT of HIV infection and identify the specific areas in the program that need to be improved. In order to optimize the use of PMTCT services, good knowledge of pregnant women is paramount, and potential mothers need to be aware of the risk of MTCT of HIV and the possibility of reducing it. The findings of this study will also help to inform health workers, educators and policy makers in designing appropriate and tailored health education and policies for women. This will increase their level of knowledge of PMTCT of HIV, translating into better access and utilization of PMTCT services in Ogbomosho. This should consequently result into reduced MTCT of HIV and improved maternal and child health. The study findings would establish data for nursing education and other health professionals to meet the pregnant women needs effectively by providing information about HIV/AIDS to pregnant women, and to improve the quality of care to HIV/AIDS positive mothers.

MATERIALS AND METHOD

Research design

The study was a descriptive cross sectional design (Neuman, 2011).

Study setting

Ogbomosho was founded around the mid-1600, the people predominantly belong to the Yoruba ethnic group. The study was conducted in selected health facilities in Ogbomosho, Oyo State. It cut across tertiary, secondary and primary health facilities in order to ensure appropriate representation of pregnant women attending different categories of health facilities. The selected facilities include

Bowen University Teaching Hospital, General Hospital Sunsun and Adebayo Alata Primary Health Care.

Target population

This consisted of all pregnant women attending ante natal clinics in health institutions within Ogbomosho.

Sample size

The sample size for the study population was determined using the formula for studying single population proportions with population less than 10,000 as follows:

$$n = (Z\alpha)^2 pq / d^2$$

$$n = (1.96 \times 1.96 \times 0.5 \times 0.5) / (0.05)^2 = 384.16$$

$$= 385$$

Since the study population was less than 10,000, then $nf = n/1+(n)/(N)$ (Araoye 2004),

$$Nf = 385 / 1 + (385) / (634)$$

$$nf = 239.58$$

$$= 240$$

Adjusting for non-response using a rate of 10% is 24. Sample size after adjusting for non-response = 264. Since the sample size calculated (264) is the minimum that could be used, an additional 38 was added to the sample size to make it 300 (Table 1).

Inclusion criteria

The respondents who were eligible to participate in the study were pregnant women who were attending antenatal clinics, those who speak and understand Yoruba or English and all pregnant women who gave an informed consent.

Sampling technique

A simple random technique (paper balloting) was used in selecting a health facility from the three categories (tertiary, secondary, primary). Consecutive sampling method was then used in selecting participants, as pregnant women presenting at the clinic meeting the inclusion criteria were recruited.

Instrument for data collection

The instrument for the study was a self-administered structured questionnaire. Section A seeks information on socio demographic characteristics of the pregnant women, Section B focused on

knowledge of PMTCT among the respondents and Section C exposed the acceptance of PMTCT measures among pregnant women. The instrument for data collection was translated into Yoruba (the local language) and back translated to English by a research expert who is also a Yoruba translator.

Validity of instrument

Face and content validity of the instrument was ensured by the use of relevant literature, as well as by presenting it to the study supervisor, HIV/AIDS researcher, obstetricians, research experts, and a statistical analyst.

Reliability of instrument

The reliability of the instrument was statistically determined using the test retest method with 20 pregnant women attending antenatal clinic in LAUTECH University Teaching Hospital. A reliability coefficient (Cronbach's alpha) of 0.79 was approved acceptable for the study.

Ethical considerations

Ethical approval for the study was obtained from the Oyo State Ministry of Health and permission from the various hospitals under study. Informed consent was obtained from participants after being duly informed about the details of the study.

Method of data collection

The questionnaires were administered by the researcher and research assistants. Two research assistants were recruited and trained on data collection instrument (correct and proper filling of the questionnaire). The research assistants were students who understand and can communicate in Yoruba (the local language) from School of Midwifery, Bowen University Teaching Hospital. During administration of the instrument, necessary assistance were made available to pregnant women in cases where they were unable to interpret the questions because of their level of formal education by reading out the questions in Yoruba (the local language) and their response were documented. The questionnaire was translated to Yoruba and back translated to English. Data was collected for a period of four weeks at the three health facilities.

Method of data analysis

Statistical Package for the Social Sciences (SPSS) version 23 was used for data analysis.

Objective one

To determine the knowledge of Prevention of Mother-To-Child Transmission of HIV among pregnant women. This constitutes 23 items and was dichotomized into good and poor knowledge using the average of the total score (12) score as cut-offs. The items were rated 0 (wrong) and 1 (correct) based on participant's responses. A score of 12 and above was rated as high knowledge, while a score below 12 was rated low knowledge. This was analyzed using frequency table, percentages and descriptive statistics such as mean and standard deviation.

Objective two

To determine pregnant women's willingness to accept PMTCT of HIV, acceptance of PMTCT constitutes 11 items. Responses were either Yes or No. Each correct response was scored 1 mark and incorrect response scored 0. Respondents with score of 6 or greater than 6 were categorized to be willing to accept PMTCT while those with scores less than 6 were categorized not to be willing to accept PMTCT. It was analyzed using frequency table and percentages and descriptive statistic such as mean and standard deviation. Statistical hypotheses were tested using Chi square test of significance.

RESULTS

Table 2 shows that among the overall 300 women selected for this study, the mean age was 29.5 ± 4.8 years. Majority (96.0%) were of Yoruba tribe and 53.0% involved in trading as a means of livelihood. About half of the women (53.3%) had tertiary education, more than 80% were Christians and in monogamous marriage. About one-quarter of the women (25.3%) have never given birth, 50.7% have 1 to 2 children while 24.0% have more than 2 children.

In Table 3, more than 50% of the total number of women selected for the study ($n=184$, 61.3%) had a knowledge score greater than 12 while the remaining 38.7% had knowledge score below 12. The mean knowledge score was 25.97 ± 7.78 greater than average of the total score and the range 0 to 23. More than 80% knew that a mother with HIV can infect her unborn child with the virus. A good proportion of the women knew that transmission of mother to child could occur during pregnancy while just 30.7% knew that transmission could occur during labor. More than three quarter of the respondents knew that mother to child transmission is preventable. Infants feeding options identified by majority of the respondents was breastfeeding alone with 50% followed by infant formula alone with 48.7%. 60.7% of the respondents knew that mixed feeding option increases the infant's risk of acquiring the infection and should be discouraged. More than half of the respondents knew the means of preventing mother to child transmission of HIV except Caesarean section in which only 45.7% of the respondents identified as a means of prevention (Figure 1).

Table 4 shows that majority of the pregnant women (89%) had an acceptance score of 6 and above while the remaining 11% had a score below 6. The mean average of the total score, with a range of 0 to 11. Furthermore, all the women have had HIV test done in their current pregnancy. More than three-quarter of the women stated that if they were to be HIV positive they would accept prescribed drugs, exclusive breastfeeding and replacement feed for baby for 6 months, to administer prescribed HIV medication to their newborn, cesarean section, to deliver their baby in a health facility (hospital), take baby for follow up visit in the hospital, and family

Table 2. Socio demographic characteristics (N= 300)

Variable	Frequency (f)	Percentage (%)
Age (years)		
20-24	47	15.7
25-29	116	38.7
≥30	137	45.6
Mean ± SD	-	29.5 ± 4.8
Tribe		
Yoruba	288	96.0
Hausa	1	0.3
Ibo	4	1.3
Others	7	2.3
Occupation		
Civil Servant	76	25.3
Trading	159	53.0
Unemployed	42	14.0
Others	23	7.7
Education		
Primary or less	36	12.0
Secondary	104	34.7
Tertiary	160	53.3
Religion		
Christianity	246	82.0
Islam	53	17.7
Traditional	1	0.3
Marriage setting		
Monogamy	261	87.0
polygamy	29	9.7
Single parent	9	3.0
Unmarried	1	0.3
Parity		
0	76	25.3
1-2	152	50.7
>2	72	24.0

planning measures after delivery to prevent unplanned pregnancy. A little above half of the respondents (61%) indicated that they would not practice mixed feeding in the first 6 months if they are HIV positive.

Table 5 shows that the null hypothesis of no significant relationship between knowledge of PMTCT and acceptability of PMTCT of HIV was accepted because the χ^2 value (12.34) yielded a p-value (0.002) which is less than 0.05. This implies that the proportion of women who would accept PMTCT of HIV vary significantly with

knowledge of PMTCT. Hence, we could conclude that there was significant association between knowledge of PMTCT and acceptability of PMTCT of HIV among the respondents.

In Table 6, the null hypothesis of no significant relationship between antenatal location and acceptability of PMTCT of HIV in Table 5 was rejected because the χ^2 value (0.69) yielded a p-value (0.71) which is greater than 0.05. This implies that the proportion of women who would accept PMTCT of HIV do not vary significantly by place of antenatal delivery. Hence, we could conclude

Table 3. Knowledge of prevention of mother to child transmission (PMTCT) of HIV.

Variable	Frequency (f)	Percentage (%)
A mother with HIV can infect her unborn child with the virus		
Yes	254	84.7
No	46	15.3
Mother to child transmission of HIV can take place during		
	Yes (%)	No (%)
Pregnancy	213 (71.0)	87 (29.0)
Labor	92 (30.7)	208 (69.3)
Delivery	127 (42.3)	173 (57.7)
Breastfeeding	179 (59.7)	121 (40.3)
Mother to child transmission of HIV is preventable		
	281 (93.7)	19 (6.3)
Infants feeding options before 6 months for PMTCT		
Breastfeeding alone	150 (50.0)	150 (50.0)
Infant formula alone	146 (48.7)	154 (51.3)
Breastfeeding + infant formula	81 (27.0)	219 (73.0)
Mixed feeding exposes the infant to infection		
	182 (60.7)	118 (39.3)
Means of preventing mother to child transmission of HIV		
	True (%)	False (%)
Being faithful to partner.	218 (72.7)	82 (27.3)
HIV counseling and testing for all pregnant women.	254 (84.7)	46 (15.3)
Use of family planning services by HIV positive women	165 (55.0)	135 (45.0)
Use of HIV drugs by infected mothers	262 (87.3)	38 (12.7)
Maintaining ART (HIV drugs) for life.	215 (71.7)	85 (28.3)
Abstinence from unprotected sex during pregnancy.	229 (76.3)	71 (23.7)
Delivery of HIV positive mothers in health facility	223 (74.3)	77 (25.7)
Good vagina delivery practice	216 (72.0)	84 (28.0)
Cesarean section (C/S) delivery.	137 (45.7)	163 (54.3)
Offering sacrifice/traditional rituals to appease the gods.	15 (5.0)	285 (95.0)
All infant born to HIV positive mothers should receive ARV drug	224 (74.7)	76 (25.3)
Use of native method e.g "agbo".	47 (15.7)	253 (84.3)
Follow up of a child delivered by a HIV positive mother	253 (84.3)	47 (15.7)

that there was no significant association between antenatal location and acceptability of PMTCT of HIV among the respondents.

DISCUSSION

Socio demographic characteristics

The mean age of the respondents was 29.5 ± 4.8 years. This report is similar to what was reported by Samuel et al. (2012), where the mean age of the respondents was 26.6 ± 1.4 years. This may be because this age bracket is the most productive age of an individual. Ogbomosho is dominated by Yoruba and majority were involved in

trading as a means of livelihood. Being a semi urban environment, the percentage of respondents with education above secondary level is more than 50%. More than 80% were Christians; this may be the reason why a high percentage of the respondents were in monogamous marriage.

Knowledge of PMTCT among pregnant women

This study focused on pregnant women regardless of their HIV status because one of the key components of PMTCT of HIV is primary prevention of HIV infection among women of childbearing age and HIV testing and counselling for all pregnant women during ante natal.

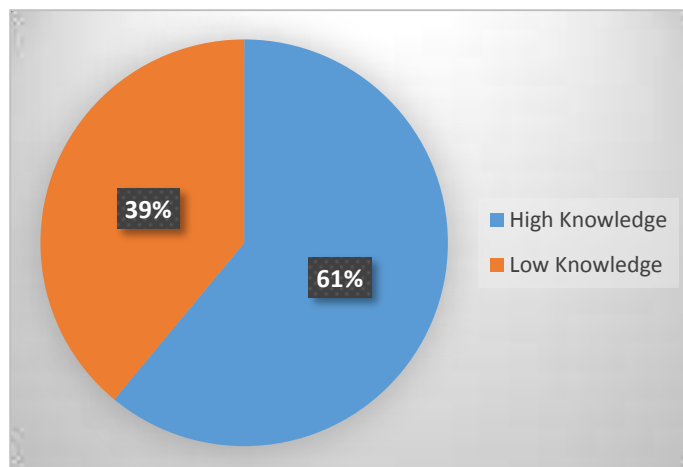


Figure 1. Knowledge of prevention of mother to child transmission of HIV.

Table 4. Acceptance of prevention of mother to child transmission of HIV.

Variable	Yes (%)	No (%)
Have you had HIV test done in this pregnancy?	300 (100.0)	0 (0.0)
If yes, did you encourage your partner (husband) to get tested for HIV too?	179 (59.7)	121 (40.3)
Acceptance of prescribed drugs	289 (96.3)	11 (3.7)
Acceptance of exclusive breast feeding as feeding option for baby	244 (81.3)	56 (18.7)
Willingness to give baby replacement feed for 6 months	271 (90.3)	29 (9.7)
Willingness to practice mixed feeding in the first 6 months	117 (39.0)	183 (61.0)
Willingness to administer prescribed HIV medication to newborn	280 (93.3)	20 (6.7)
Acceptance of cesarean section as a mode of delivery	268 (89.3)	32 (10.7)
Willingness to deliver baby in a health facility (hospital)	293 (97.7)	7 (2.3)
Willingness to take baby for follow up visit in the hospital	289 (96.3)	11 (3.7)
Acceptance of family planning measures after delivery	268 (89.3)	32 (10.7)

Table 5. Association between knowledge and acceptability of PMTCT of HIV among pregnant women.

Knowledge	Acceptability		χ^2	p-value
	Not willing	Willing		
High	16	168	12.34	0.002
Low	17	99		

Knowledge of PMTCT of HIV among the pregnant women was high. This is slightly similar to the findings of Olugbenga et al. (2013) in a study in South-Western Nigeria and Abajobir and Zeleke (2013) Hawassa Referral Hospital, South Ethiopia where a high level of knowledge about MTCT and PMTCT of HIV was recorded. The finding may be attributed to the fact that the study was conducted in South West Nigeria similar to the work of Olugbenga et al. (2013). Also, generally, in

Nigeria it is believed that people from south west value education. This may also be the reason why the knowledge on PMTCT was high as majority of the study respondent had at least a secondary education.

Furthermore, more than three quarter of the respondents (87.3%) knew that use of ARV (HIV drugs) by infected mothers as soon as possible after diagnosis is a means of preventing mother to child transmission, this is contrary to what was concluded by Abajobir and

Table 6. Association between antenatal care location and acceptability of PMTCT of HIV among the pregnant women.

Variable	Acceptability		χ^2	p-value
	No	Yes		
Place of antenatal				
Primary	4 (8.0)	46 (92.0)	0.69	0.71
Secondary	19 (19.0)	81 (81.0)		
Tertiary	10 (6.7)	140 (93.3)		

Zelege (2013) where only 48.3% of the respondents knew that ART drugs given to HIV positive pregnant mothers could reduce transmission from HIV-positive mother to child. This may be because of the high level of awareness of PMTCT demonstrated by the respondents, as respondents identified health workers, media and church/mosque as their major sources of information of PMTCT.

A good proportion of the respondents from this study (84.7%) knew that a mother with HIV can infect her unborn child with the virus, but in a hospital based study by Tatagan et al. (2011) in Togo among women attending ante natal clinic, only 27.1% were able to identify that a mother with HIV can infect her unborn child with the virus. These differences may be due to an increase awareness of PMTCT. Also from this study, majority of the respondents (93.7%) knew that mother to child transmission of HIV is preventable, this is similar to what was obtained by Artwine et al. (2012) on knowledge and practice of women in rural Uganda where 72% of the respondents were aware that mother to child transmission of HIV can be prevented. This can also be attributed to the high level of knowledge and awareness displayed by the study participants. According to Samuel et al. (2012) in a similar study, awareness of breastfeeding as a source of infection to new born was high at 83.6% but in this study only 59.7% of the respondents knew that mother to child transmission of HIV can take place during breastfeeding. The researcher could not ascertain the quality of health education given on PMTCT to pregnant mothers as none of the health facilities under study gave health education on PMTCT throughout the study period hence there could be an inadequacy in the health education given by health workers to pregnant women on PMTCT. Maputle and Jali (2008) also found low level of knowledge about MTCT through breast feeding among women attending an urban teaching hospital in Natal. In this study, less than half of the respondents identified that mother to child transmission of HIV can occur during pregnancy, labor and delivery, this is similar to what Falnes reported where only 40% of the women studied in rural and urban areas of Moshi district in the Kilimanjaro region of Tanzania were aware MTCT could occur during pregnancy. This finding is less than what the researcher expected since

the respondents demonstrated a high level of awareness of PMTCT.

Acceptance of PMTCT among pregnant women

Having a positive knowledge of PMTCT is highly important, but it is the positive utilization of the knowledge through accepting measures aimed at preventing mother to child transmission of HIV that will eventually lead to the desired outcome of eliminating new infection in children. In this study, majority of the pregnant women (89.0%) were willing to accept prevention of mother to child transmission of HIV. This may be because of their high level of knowledge of PMTCT. All the women have had HIV test done. In all the study settings, HIV test is a major part of the ANC booking requirement, it is mandatory and not optional for all pregnant women. Majority reported that they would accept prescribed HIV medication to prevent mother to child transmission of HIV if they are positive. This is similar to what was reported in a study by Moses et al. (2008) and Urban and Chersich (2014) on a similar topic where most of the women will accept HIV screening antiretroviral drugs if offered. The study also identified that only 29% will accept cesarean section if offered to prevent MTCT of HIV but in this study, majority of the respondents (89.3%) reported that they will accept cesarean section if procedure will reduce the risk of transmission to baby if they are positive. This may be because of the heightened advocacy on the important of caesarean section in delivery which has now translated to people seeing it as a safe method of delivery. Majority of pregnant women examined in another study by Moses et al. (2009) on knowledge, attitude and practice of ante-natal attendees toward PMTCT of HIV infection in a tertiary health facility, Northeast-Nigeria accepted PMTCT as a veritable means of preventing infants from HIV infection as well as an opportunity to know ones HIV status through voluntary testing.

Hypotheses testing

There was significant association between knowledge and acceptability of PMTCT of HIV among pregnant

women as the proportion of women who would accept PMTCT of HIV varies significantly with knowledge of PMTCT (χ^2 value (12.34) yielded a *p*-value (0.002) which is less than 0.05). Hence, the higher the knowledge of PMTCT of HIV, the more the willingness to accept PMTCT.

There was no significant association between antenatal location and acceptability of PMTCT of HIV among the respondents as the proportion of women who would accept PMTCT of HIV do not vary significantly by place of antenatal delivery (χ^2 value (0.69) yielded a *p*-value (0.71) which is greater than 0.05).

Conclusion

The findings revealed that knowledge of PMTCT of HIV among the respondents was high and majority of them were willing to accept prevention of mother to child transmission of HIV measures. Hence, knowledge of PMTCT and acceptance of PMTCT among pregnant women may not be the reasons for the poor decline rate of mother to child transmission of HIV leading to increased number of children living with HIV in the country.

Implication for nursing

Health education on PMTCT of HIV should be included during every antenatal visit to all pregnant women to increase their level of awareness and knowledge. As the concept of PMTCT is not static and the role of nurses cannot be over emphasized, it is therefore paramount for nurses to attend workshops and conferences on PMTCT to update their knowledge and improve their skills.

RECOMMENDATIONS

In as much as knowledge of prevention of mother to child transmission of HIV was good, inclusion of health education on PMTCT during antenatal visits on a daily basis will be of great importance as it was observed that none of the facilities gave health talk on the concept of PMTCT throughout the 4 weeks of the study. Though the acceptance rate was also excellent, there should still be increase awareness of prevention of mother to child transmission of HIV available to the members of the community.

Since this study is hospital based, a more encompassing evaluation of knowledge and attitudes of the community about HIV/AIDS and mother-to-child transmission, including the male partners, will provide added information for establishing a community involvement and intervention program on PMTCT

Male involvement in programs to prevent mother to child transmission of HIV will also go a long way in

promoting their support and participation in order to reduce mother to child transmission of HIV.

Willingness of PMTCT among HIV infected mother can be assessed in order to assess their actual level of acceptance.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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