

The knowledge of health workers on the available interventions for elimination of mother-to-child transmission in selected health centers in Otuke district. A cross-sectional study.

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Abstract

Background:

Effective elimination of mother-to-child transmission (eMTCT) depends largely on the knowledge and competence of health workers who implement prevention strategies. This study assessed the knowledge of health workers regarding available interventions for the elimination of mother-to-child transmission of HIV in selected health centers in Otuke District, Uganda.

Methodology:

A cross-sectional descriptive study was conducted among health workers in Orum Health Center IV, Aliwang Health Center III, and Okwongo Health Center III. A sample of 44 health workers, including nurses, midwives, clinical officers, doctors, and nurse aides, was selected using probability sampling techniques. Data were collected using pretested interviewer-administered questionnaires and analyzed using SPSS and STATA software. Descriptive statistics were used to summarize the findings.

Results:

The majority of respondents were nurses (52.5%) and had worked for 6–10 years (52.5%). Although all respondents (100%) correctly defined eMTCT, knowledge of key interventions was inadequate. Only 37.5% correctly identified the current Option B+/Treat-All guideline, while 60% knew that antiretroviral therapy should be initiated immediately in HIV-positive pregnant women. Only 22.5% correctly identified the recommended timing of the first PCR test in HIV-exposed infants. Knowledge regarding HIV transmission during pregnancy, breastfeeding, and delivery was 75%, 55%, and 45%, respectively. Furthermore, only 45% knew the recommended breastfeeding duration for HIV-positive mothers.

Conclusion:

Health workers in the selected health facilities demonstrated inadequate knowledge of critical eMTCT interventions despite high awareness of the existence of national guidelines.

Recommendations:

Regular pre-service and in-service training, continuous medical education, and refresher courses on current eMTCT guidelines should be provided to all health workers, particularly newly recruited staff, to improve knowledge and strengthen eMTCT implementation.

Keywords: *Health Workers, Knowledge on HIV Prevention, first PCR Timing, breastfeeding duration, Otuke District, Uganda.*

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Background.

Globally, about 2.3 million HIV positive women get pregnant annually, out of whom 700,000 children are born infected from their parents (Tigabu, 2018). In 2018, an estimated 1.3 million pregnant women were living with HIV globally. Approximately 90 per cent of these women live in sub-Saharan Africa.(UNICEF, 2019). In Uganda, women are disproportionately affected by HIV. For example, of the 1,300,000 adults living with HIV, 770,000 (59.23%) were women. When these mothers get pregnant, their fetuses have a high chance of mother-to-child HIV transmission.

Mother-to-child transmission is the transmission of HIV from an HIV positive woman to her child during pregnancy, childbirth, and breastfeeding. Mother-to-child transmission (MTCT) is also called vertical transmission, and it accounts for the vast majority (88%) of infections in children (0-14 years) (Hill, Dauncey, Levi, Heath, and Pérez Casas, 2015). Without treatment, if a pregnant woman is living with HIV, the likelihood of the virus passing from mother to child is 15% to 45%. Nearly all young children newly infected with HIV are infected through mother-to-child transmission (MTCT). According to WHO, 86% children newly infected with HIV in 2018 were in the African Region (WHO, 2019).

Therefore, adherence to the eMTCT recommendation is a serious concern that needs to be investigated.

There are four prongs of eMTCT, which consist of: primary prevention of HIV among women and men of childbearing age, prevention of unintended pregnancies among women living with HIV, prevention of HIV transmission from a woman living with HIV to her infant, provision of appropriate treatment, care, and support to women living with HIV, including their children and families. Not only the four prongs but also the current recommended Option B+ entails lifelong antiretroviral treatment is provided to all pregnant and breastfeeding women living with HIV to be continued even after delivery and completion of breastfeeding and continued for the rest of a woman's life. All these are intended to reduce the mother-to-child transmission risk (UNICEF, 2017). The implementation depends on the knowledge, attitude, and good practice of health workers. Although MTCT used to be high in underdeveloped countries (8 to 9%) (UNAIDS 2019), there are countries like Belarus, Cuba, Thailand, and Malaysia, Anguilla, Antigua and Barbuda, Bermuda, Cayman Islands, Montserrat, and Saint Kitts and Nevis that have now reached the elimination threshold for mother-to-child transmission of HIV and syphilis. MTCT rate in Botswana is as low as 2.0% (Hill et al, 2015). However, this has not been realized in many resource-limited countries. Many countries failed to achieve the two important related Millennium Development Goals (MDGs), namely to reduce child mortality and to combat HIV/AIDS, thus it is still included in the Sustainable Development Goals (SDGs), with similar targets to be achieved by 2030 (Ogbona K, 2016).

Despite all these efforts in eMTCT, they have not been fast enough to reach the 2020 targets set by UNAIDS (UNICEF, 2019). The major challenges in scaling up national eMTCT services and implementing the new guidelines are: limited management capacity, weak health infrastructure, limited human resources, incomplete follow-up of participants, disclosure of HIV status, limited funding and support for eMTCT, reluctance of women to be tested for HIV, and difficulties with infant feeding for HIV positive mothers. However, there are many hopeful signs that eMTCT now has a greater priority both at the national and international levels (WHO, 2019). Many authors working in different research settings have underpinned the importance of KAP of health workers (HWs) in the implementation of eMTCT. In South Africa, a qualitative study to determine the Registered Nurses' perspectives on the eMTCT programme implemented reported that education of the staff members is a contributing factor to the successes of eMTCT, as well as effective teamwork ($n = 7$) and positive attitude and commitment ($n = 6$) (Hanrahan and Williams, 2017). In Uganda, continuous health worker training and follow-up and support for mothers were identified as the urgent needs to strengthen the eMTCT programme (Rujumba, Tumwine, Tylleskar, Neema, and Heggenhougen, 2012). Therefore, the implementation of successful eMTCT depends on the KAP

of health workers. The health facilities and the health workers play a key role in eMTCT services. This study assessed the knowledge of health workers regarding available interventions for the elimination of mother-to-child transmission of HIV in selected health centers in Otuke District, Uganda.

Methodology.

Study design.

This was a cross-sectional study that assessed the KAP of health workers on eMTCT in Otuke district, lower health facility IIIs and IVs. The design was cross-sectional since information on knowledge, attitudes, and practices of health workers on the implementation of eMTCT was assessed at the same point in time.

Study location (Area, Site).

The study was conducted in Otuke District at Orum Health Center IV, Aliwang Health Center III, and Okwongo Health Center III. These health centers were chosen because they are among the health centers in the country that are providing eMTCT services.

Study population

Health workers include doctors, nurses, clinical officers, midwives, and nurse aides. They were chosen because they implement eMTCT services.

Sample size determination.

The sample size was determined using Krejcie and Morgan's table of sample size determination, which clearly indicates the sample size for any given population.

For a population of 50 health workers, the table gave 44 health workers as the sample size. Therefore, the sample size used was 44 health workers.

Sampling procedures.

Probability sampling methods were applied to quantitatively examine the KAP of health workers on eMTCT. Probability sampling was chosen to give everyone an equal chance to be selected.

Sampling techniques.

Probability sampling techniques were used to get the sample. This was done to give every health worker an equal chance to be selected.

Data collection procedures.

The data were obtained using coded pretested questionnaires. The data were collected using an interviewer-administered questionnaire.

Data collection tools.

An interviewer-administered questionnaire was used during data collection. The tools were formulated and pretested before use. The questionnaire consisted of closed-ended multiple-choice questions with an option for the individual to give their response if not captured. This was used to obtain quantitative data such as knowledge, attitudes, and practices of health workers towards the implementation of eMTCT.

Variables.

Dependent variable.

Implementation of eMTCT by health workers

Independent variables

Health workers' knowledge of the implementation of eMTCT.

Inclusion and Exclusion criteria

Inclusion criteria

Health workers, irrespective of their profession, of all ages, working in the different wards in the selected health centers, and carrying out the implementation of eMTCT, were included.

Data management and analysis.

The collected data were entered into the SPSS software and analyzed using STATA.

Quality control procedures.

A pre-visit was done, and the research instruments were pre-tested. Questionnaires were then fully developed before the actual study was undertaken.

Ethical considerations.

Obtained a letter authorizing the study to be conducted from Lira University Faculty of Health Sciences, Department of Nursing and Midwifery, District Health Officer, Otuke District, and in charge of all the health centers from which I conducted my research.

RESULTS.

Table 1: Demographic Data

Demographic Data		FREQUENCY	PERCENT (%)
Gender	Male	14	35
	Female	26	65
Personal Qualification			
	Certificate	22	55
	Diploma	14	35
	Degree	4	10
Level of Education			
	Training Institutions	37	92.5
	Universities	3	7.5
Profession			
	Nurse	21	52.5
	Midwife	14	35
	Clinical Officer	3	7.5
	Doctor	2	5
Religion			
	Pag	7	17.5
	Anglican	20	50
	Moslem	0	0
	Catholic	13	32.5
Duration of Service			
	0-5 Years	13	32.5
	6-10 Years	21	52.5
	11 Plus	6	15
Age			
	21-30	7	17.5
	31-40	24	60
	41-50	8	20
	51plus	1	2.5
Ward			
	Outpatient	9	22.5
	Inpatient	13	32.5
	Antenatal	8	20
	Maternity	6	15
	All Wards	4	10

Table 1 shows the distribution of demographic characteristics among the providers. There were more females interviewed in the health centers (65%) than males. (35%).90 percent of the health workers interviewed in the health centers were nurses, doctors represented 5 percent of the study population, and clinical officers (7.5%). There is a difference in age distribution in the health centers; most of the health workers were between 31 and 40 years (60%), and

52.5% had worked for 6 to 10 years. There were few university graduates in the health centers (7.5%) compared to those from the training institutions (92.5%). Most of the health workers are Anglicans (50%). In summary, most of the health workers are females, nurses, and have worked for 6-10 years, and are in the age bracket of 31 to 40 years.

KNOWLEDGE RELATED TO PMTCT

Table 2: Knowledge of health workers.

KNOWLEDGE ON eMTCT	FREQUENCY	PERCENT
Definition of eMTCT		
Yes	40	100
No	0	
National guidelines on eMTCT		
No	12	30
Yes	28	70
Guidelines on eMTCT		
AZT 3TC	3	7.5
Option A	2	5
Option B+	20	50
Treat all	15	37.5
When to start ART among HIV positive women		
Should first be monitored	4	10
After the first PCR	4	10
Should be initiated immediately, regardless of the clinical stage of HIV	24	60
Others	8	20
When to do the first PCR in exposed infants		
At birth	1	2.5
One week	3	7.5
Four weeks	27	67.5
Six weeks	9	22.5
Length of breastfeeding among HIV positive women		
2 months	3	7.5
6 months	1	2.5
1 year	18	45
Up to 24 months	13	32.5
Others	5	12.5

Continuation of table 2: Knowledge of health workers

Knowledge on EMTCT	NO		YES	
	FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE
During pregnancy	10	25	20	75
Through breastfeeding	18	45	22	55
At delivery	22	55	18	45
Others	39	97.5	1	2.5
Nothing	40	100	0	0
Eat better	40	100	0	0
Abstain from sex	18	45	22	55
Use condom	10	25	30	75
Seek ANC	6	15	34	85
Take ART prophylaxis	9	22.5	31	77.5
Exclusive breastfeeding	40	100	0	0
Duration of breastfeeding	14	35	26	65
Others	40	100	0	0
Recent infection with HIV	12	30	28	70
Condition of the breast	9	22.5	31	77.5
Others	34	85	6	15
Mixed feeding	9	22.5	31	77.5

Basic knowledge of HIV as it relates to eMTCT was generally poor. Only 20 percent of the respondents knew when to start ART among HIV positive patients, although all of them knew the definition of eMTCT. Only 37.5% knew the current guideline of treating all in the fight against the AIDS scourge. 22.5% of the respondents knew when to do the first PCR among HIV exposed infants. 75 percent knew the risk of transmission of HIV during pregnancy. As regards transmission through breast milk, 55 percent gave a correct response. Forty-five percent knew of the risk of transmission at delivery. Although 70 percent of the respondents were aware of the availability of national guidelines on eMTCT, only 37.5 percent gave the correct guideline of treat all, and only 45% knew the correct length of breastfeeding among HIV positive mothers.

Discussion of results.

Knowledge of health workers.

Knowledge levels among the study population were generally poor. Overall, Prevalence was poorly known, and although awareness of the existence of guidelines was high, the knowledge of their contents was fair; this cut across all sites. Other studies on provider knowledge of HIV in general and on PMTCT in particular have revealed varying results, with some studies revealing good knowledge. Harms et al (2005) found that knowledge levels were high among providers studied (83-93%) and varied directly with previous contact with HIV patients. However, other studies on provider knowledge have also shown poor knowledge scores. Hentgen et al (2002) in Madagascar, in a study to find out the feasibility of introducing VCT in an antenatal clinic, found that most healthcare workers had poor

scientific knowledge. Some of the healthcare workers believed transmission was possible by just living with somebody who is HIV positive without having sex. In their study, some also believed that transmission was possible by using the toilet after an HIV positive patient and even by blood donation.

Seventy-three percent of the health care providers studied by Hentgen et al (2002) also believed that a baby born to an HIV positive woman invariably was infected, and they did not know of any interventions to reduce the risk. In our study, although the total knowledge score was poor, most of the healthcare providers were aware of the right routes of transmission. They were also aware of eMTCT interventions. This study revealed that there was an association between provider knowledge and professional education as well as training in PMTCT (Table 7). Nneka et al (2007) and Hentgen et al (2002) also found that doctors were more knowledgeable than paramedics and nurses. However, Aisien and Shobowale (2005) found that there was no statistically significant difference in knowledge between different professionals. Previous management of HIV positive patients has been seen to result in better knowledge (Harms et al 2005; Ndikom and Onibokin, 2007). However, Olges et al (2007) also found that though most providers in their study were offering antenatal testing for HIV, they had poor knowledge of the disease as it relates to pregnancy unless they had also managed non-pregnant patients with HIV. Training of healthcare providers will help improve their knowledge on various aspects of PMTCT, particularly for those providers who have not previously had experience managing patients with HIV.

Conclusion.

Knowledge on eMTCT amongst health workers in Orum, Aliwang, and Okwongo health centers shows that there was poor knowledge. Without further training and an increase in staffing levels, the quality and access to eMTCT services will likely be negatively impacted.

Limitations of the study.

The study was sensitive, and some health workers never wanted to participate in it or answer the questions asked.

Recommendation.

There is a need for pre-service and continuous medical education on eMTCT. All new midwives and new medical officers should undergo eMTCT training, and those who are in service should have refresher courses on current guidelines.

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List of abbreviations.

AIDS – Acquired Immunodeficiency Syndrome
ANC – Antenatal Care
ART – Antiretroviral Therapy
AZT – Zidovudine
eMTCT – Elimination of Mother-to-Child Transmission
HIV – Human Immunodeficiency Virus
HWs – Health Workers
KAP – Knowledge, Attitudes and Practices
MDGs – Millennium Development Goals
MTCT – Mother-to-Child Transmission
PCR – Polymerase Chain Reaction
PMTCT – Prevention of Mother-to-Child Transmission
SDGs – Sustainable Development Goals
SPSS – Statistical Package for the Social Sciences
STATA – Statistical Analysis and Data Management Software
UNAIDS – Joint United Nations Programme on HIV/AIDS
UNICEF – United Nations Children's Fund
VCT – Voluntary Counselling and Testing
WHO – World Health Organization
3TC – Lamivudine (an Antiretroviral Drug)

Informed Consent.

Written informed consent was obtained from all participants prior to their inclusion in the study. Participants were informed about the purpose of the study, procedures involved, potential risks and benefits, and their right to withdraw at any time without penalty.

Source of funding.

The study was not funded.

Conflict of interest.

There is no conflict of interest.

Availability of data.

Data used in this study are available upon request from the corresponding author.

Authors contribution.

RO designed the study, conducted data collection, cleaned and analyzed data, and drafted the manuscript. TRO supervised all stages of the study from the conceptualization of the topic to manuscript writing and submission.

Author's biography.

Ronald Ogwang is a student of the Bachelor of Science in Midwifery at the Faculty of Health Sciences, Lira University.

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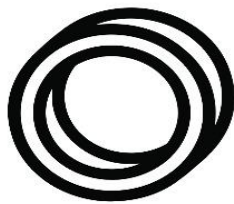
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