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# Factors Influencing EMTCT Service Utilization by HIV-Positive Pregnant Women at Karoli Lwanga Hospital, Rukungiri District, Western Uganda

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**ABSTRACT**

This study assessed the knowledge, attitude, and health-related factors affecting the utilization of Early Mother-to-Child Transmission (EMTCT) services among HIV/AIDS pregnant women at Karoli Lwangi Hospital in Rukungiri district. Data was collected from 97 pregnant mothers with HIV/AIDS through questionnaires. The findings revealed that most participants had a good understanding of HIV transmission routes, particularly from mother to child during pregnancy, labor, and breastfeeding. The majority were aware that antiretroviral therapy (ARV) could prevent mother-to-child transmission (MTCT) but disagreed that using condoms could prevent it. The study also showed a high willingness to separate from spouses if they tested positive for HIV and strong support for HIV-infected mothers delivering with skilled health workers. However, a significant barrier to the utilization of EMTCT services was the unaffordability of healthcare costs. This suggests that despite positive attitudes and knowledge, financial constraints remain a critical hindrance to EMTCT service utilization.

**Keywords:** EMTCT, Pregnant women, HIV/AIDS, Healthcare, Health worker.

## INTRODUCTION

Mother-to-child transmission (MTCT) of HIV infection refers to the situation when a mother who is HIV-infected spreads or transfers the infection to the unborn child either during pregnancy, labor and delivery, or during breastfeeding [1–3]. It has been reported to be one of the greatest health challenges affecting developing countries in handling the HIV/AIDS pandemic. Globally, HIV/AIDS has affected the lives of nearly 4.3 million children, with about 3.2 million children living with HIV worldwide [4, 5]. UNAIDS/WHO [6] revealed that there were roughly 2 million new HIV infections, of which 11% were in children. WHO and UNAIDS [7] state that every day, over 1700 infants become infected with HIV, and 90% of these new infections are acquired through mother-to-child transmission (MTCT). Thus, eliminating Mother-To-Child HIV Transmission (EMTCT) is crucial to curbing the high global pediatric HIV epidemic and promoting maternal and infant health [7–9].

Currently, it is estimated that without treatment, transmission rates of HIV from mother to infant would range from 20-45%[10]. Approximately 5-10% of infants would be infected during pregnancy, 10-15% during labor and delivery, and 5-20% during breastfeeding [1]. In 2012, WHO updated the EMTCT guidelines and recommended that HIV-infected women identified during pregnancy and breastfeeding should start triple Antiretroviral Therapy (ART) irrespective of their CD4 cell count and WHO clinical staging, and then either stop ART after complete breastfeeding cessation or continue to take ART for the rest of their lives [11, 12]. Despite the existence of EMTCT, there are barriers to the implementation of the EMTCT program. In

2010, it was estimated that only 45% of HIV-positive pregnant women in Sub-Saharan Africa (SSA) had access to the EMTCT program [13] MTCT rates remained high in developing nations, particularly in SSA countries, where the majority of HIV-infected women of childbearing age live. Such high rates persist mostly due to a lack of access to existing prevention interventions, lack of male involvement, and women not disclosing their status to their partners [14]. The reported coverage of any antiretroviral (ARV) prophylaxis for the elimination of mother-to-child transmission (EMTCT) has increased in sub-Saharan Africa in recent years but was still only 60% in 2010[15]. However, the coverage estimate is subject to overestimations since it only considers enrollment and not completion of the EMTCT program. Mother-to-child transmission (MTCT) is the main mode of acquisition of HIV infection in children, and each day an estimated 1600 children born to HIV-infected mothers become infected, the great majority in sub-Saharan Africa [16, 17].

In 2013 in Ethiopia, there were an estimated 793,700 people living with HIV, including 200,300 children[11]. There were approximately 45,200 AIDS-related deaths in 2013 and about 898,400 AIDS orphans in the same year [11]. Besides the dominant heterosexual transmission in Ethiopia, vertical transmission from mother to child accounts for more than 90% of pediatric AIDS [18]. In Nigeria, about 69,400 children became infected with HIV through mother-to-child transmission [19, 20]. This has led to a rise in the total number of children living with HIV in the country to an unprecedented 440,000 [7]. Larsson et al.,[15]reported that in 2010/11, the HIV incidence was estimated at 0.29%, with an adult prevalence rate of 2.4% (1.9% among males and 2.9% among females). Women account for the larger proportion (59%) of people living with HIV/AIDS. Urban and rural HIV prevalence rates were estimated at 7.7% and 0.9%, respectively [21]. In a study done at Mulago hospital in Uganda in 2018 on the utilization of prevention of mother-to-child transmission of HIV services by adolescent and young mothers, 30% had optimally utilized PMTCT services [22]. However, the utilization was better among HIV-positive mothers, with 83% having utilized services optimally compared to only 20% of HIV-negative mothers. No study has been carried out in Nyakibale Hospital to establish the knowledge and attitude towards EMTCT and health system challenges that they face in accessing EMTCT services. Therefore, there was a need to conduct a study to assess the knowledge, attitude, and health-related factors affecting the utilization of EMTCT services among HIV/AIDS pregnant women attending Karoli Lwanga Hospital, Rukungiri district.

According to the WHO EMTCT status report, the proportion of pregnant women receiving the EMTCT services has been low, and the proportion of pregnant women counseled and tested for EMTCT was 21.4%, with only 6.3% of infants born to HIV-positive mothers receiving ARV prophylaxis for EMTCT [23]. ANC, skilled birth attendant, and HCT services influence the utilization of EMTCT for HIV. About 20% of the pregnant women in Uganda do not attend ANC services. Even among women who attend ANC, most deliver at home due to a lack of easy access to maternity services. In 2010/11, only 16.6% of deliveries were attended by skilled attendants at a health institution. A huge gap exists between ANC attendance and skilled attendance at birth [12] However, despite concerted efforts to scale up EMTCT services in Uganda, the coverage and uptake of the service by pregnant women remain low and unevenly distributed. Worse still, there is little information on the challenges and obstacles to EMTCT interventions in Rukungiri as a result of limited studies, especially in the context of scaling up this program [24]. Therefore, the aim of this study was to assess the knowledge, attitude, and health-related factors affecting the utilization of EMTCT services among pregnant women attending Karoli Lwanga Hospital, Rukungiri district.

## METHODOLOGY

### Area of Study

This study was conducted at Karoli Lwanga Hospital, Nyakibale, Rukungiri District. The hospital is a private Not-for-Profit (PNFP) facility, located along the Ntungamo - Rukungiri Road, next to Immaculate Heart Girls School. Nyakibale Hospital is situated within the Rukungiri District in the southwest of Uganda and serves a population of over 300,000 people, with more than half of them being under the age of 18. The hospital's catchment community is comprised of a mixture of several Ugandan tribes, with the Banyankole being the predominant tribe.

### Study Design

The researcher employed a cross-sectional study design, chosen for its cost-effectiveness and efficiency in terms of time. This design was well-suited to the limited time and resources available for the study.

### Study Population

The target population consisted of pregnant mothers with HIV attending Karoli Lwanga Hospital.

### Sample Size Determination

We utilized Krejcie and Morgan's 1970[25] table for sample size determination, as illustrated below. Consequently, a sample of 97 respondents was selected for this study, as the estimated population of mothers with HIV attending Karoli Lwanga Hospital during the three-month period was between 130 and 140. This is further illustrated below:

### Sampling technique

The researcher used purposive sampling to select her respondents to participate in the study. The respondents that participated in this study were HIV positive pregnant women aged 15 years and above. Therefore, every mother in the above category attending health care in the study period was considered till the required number was achieved.

### Inclusion criteria

Pregnant mothers with HIV/AIDS attending Karoli Lwanga Hospital consented to take part in this study.

### Exclusion criteria

Pregnant mothers who were not HIV/AIDS positive, non-pregnant mothers and mothers with unsound mind.

### Dependent variable

The dependent variable was Utilization of EMTCT services.

### Independent variables

- Demographic characteristics.
- Knowledge about EMTCT.
- Attitude towards EMTCT.
- Health system factors affecting utilization of EMTCT including integration of EMCT. services in ANC clinic, quality of health care, distance to the health centre, and cost of care.
- Waiting time at the hospital among others.

### Data collection techniques

The researcher used the following methods during data collection: Interviewing and Questionnaires as his data collection procedures. Through these, the researcher was able to collect raw data from his respondents.

### Data collection tools

The researcher used an interviewer-administered questionnaire. To ensure that no information was missed, the researcher translated the questions into the local language for those who did not understand English. Interviews were used because some respondents were illiterate so the researcher had no option but to ask the questions so that the respondent's answers were followed by the researcher filling out the interview guide. They also allowed the researcher to obtain information that was not directly observed.

### Data collection procedure

After the researcher had been granted permission to carry out the research by the hospital administration, he was introduced to the mothers by the head of the maternity section of the hospital. The researcher then enrolled them after gaining their consent to take part in the study. The interview was administered to the participants on a daily basis until the required number of 97 respondents was

raised. The researcher used face to face method in collection of data from respondents privately. Data was collected for 10 days, with the researcher interviewing and observing a maximum of 10 caretakers on each data collection day.

### Data Analysis

Data was manually tallied accordingly and later fed into a computer. Then coding was done using numeric values to reduce the level of entering errors. Data was analyzed using the Microsoft excel program and presented in percentage, frequency distribution tables, pie charts and bar graphs.

### Ethical consideration

Prior to data collection, ethical clearance was obtained from the Dean of the Faculty of Clinical Medicine and Dentistry, who provided the researcher with an introductory letter. This letter served as the basis for the researcher's permission to conduct the study. Participants were informed about the study's purpose and their full right to choose whether or not to participate in interviews. Informed written consent was obtained from every participant before conducting the interviews. For the sake of confidentiality, the addresses and names of the respondents were not included. The participants' privacy was ensured by conducting interviews in a private setting. It was made clear to participants that there were no rewards or incentives for participating in the study and no harm for choosing not to participate or refusing to take part in the study.

## RESULTS

### Socio-demographic findings

**Table 1: Socio-demographic findings**

N=97

| Variables | Frequency | Valid Percent |
|---|---|---|
| **Age of the respondent** | | |
| 20-24 years | 34 | 35.1 |
| 25-29 years | 37 | 38.1 |
| 30-34 years | 13 | 13.4 |
| 35 years and above | 13 | 13.4 |
| **Marital status** | | |
| Single | 13 | 13.4 |
| Married | 69 | 71.1 |
| Separated | 15 | 15.5 |
| **Religion** | | |
| Catholic | 51 | 52.6 |
| Anglican | 32 | 32.9 |
| Moslem | 13 | 13.4 |
| Pentecostal | 1 | 1.1 |
| **Level of education** | | |
| Primary | 42 | 43.3 |
| Secondary | 42 | 43.3 |
| Tertiary | 13 | 13.4 |
| **Spouse's level of education** | | |
| Primary | 37 | 38.1 |
| Secondary | 45 | 46.4 |
| Tertiary | 15 | 15.5 |
| **Occupation** | | |
| Peasant | 56 | 57.3 |
| Casual worker | 12 | 12.5 |
| Petty business | 27 | 28.1 |
| Teacher | 2 | 2.1 |
| **Spouse's occupation** | | |
| Peasant | 37 | 38.1 |
| Casual worker | 32 | 32.9 |
| Petty business | 26 | 26.8 |
| Teacher | 2 | 2.2 |
| **Parity** | | |
| Prim | 29 | 29.9 |
| Multiparous | 60 | 61.9 |
| Grand multiparous | 8 | 8.2 |

According to table one above, of 97 participants 37(38.1%) of were aged 25-29 years and 34(35.1%) were aged 20-24 years. Many 69 (71.1%) were married, 51 (52.6%) were Catholics by religion, and regarding education, those of primary and secondary accounted for 42(43.3%) each, 56 (57.3%) were peasants and 60(61.9%) were multiparous. Many 45(46.4%) of the participant's spouses were of secondary level of education and 37(38.1%) were peasants.

**Knowledge about the utilization of EMTCT services**

**Table 2: Knowledge about the utilization of EMTCT services among pregnant women**

| Statements | Frequency | Per cent |
|---|---|---|
| **Unprotected sexual intercourse with an infected person transmits HIV** | | |
| Yes | 92 | 94.8 |
| No | 5 | 5.2 |
| **Unsafe blood transfusion transmits HIV** | | |
| Yes | 78 | 80.4 |
| No | 19 | 19.6 |
| **Sharing sharp instruments with an infected person transmits HIV** | | |
| Yes | 82 | 84.5 |
| No | 15 | 15.5 |
| **HIV can be transmitted from mother to child** | | |
| Yes | 91 | 93.6 |
| No | 3 | 3.2 |
| Not sure | 3 | 3.2 |
| **HIV can be transmitted from mother to child during pregnancy** | | |
| Yes | 84 | 86.6 |
| Not sure | 13 | 13.4 |
| **HIV can be transmitted from mother to child during labor** | | |
| Yes | 94 | 96.9 |
| No | 3 | 3.1 |
| **HIV can be transmitted from mother to child during breastfeeding** | | |
| Yes | 79 | 81.4 |
| No | 2 | 2.1 |
| Not sure | 16 | 16.5 |
| **MTCT be prevented by ARV therapy** | | |
| Yes | 91 | 93.8 |
| No | 6 | 6.2 |
| **MTCT be prevented by Using condoms** | | |
| Yes | 20 | 20.9 |
| No | 77 | 79.1 |

According to table 2 above, many 92(94.8%) knew that unprotected sexual intercourse with infected person transmits HIV, 78(80.4%) knew that unsafe blood transfusion transmits HIV, 82(84.5%) knew that sharing sharp instruments with infected person transmit HIV, 91(93.6%) knew that HIV can be transmitted from mother to child, 84(86.6%) knew that HIV can be transmitted from mother to child during pregnancy, 94(96.9%) knew that HIV can

be transmitted from mother to child during labour, 79(81.4%) knew that HIV can be transmitted from mother to child during breastfeeding, 91(93.8%) knew that MTCT be prevented by ARV therapy, and lastly many 77(79.1%) disagreed with MTCT be prevented by Using condoms.

**Attitude towards utilization of EMTCT services**

**Table 3: Attitude towards utilization of EMTCT services among pregnant women**

| Statements | Frequency | Per cent |
|---|---|---|
| **What would you do if your spouse tested HIV positive** | | |
| Support | 89 | 91.6 |
| Separate | 8 | 8.4 |
| **All pregnant women should be screened for HIV** | | |
| Yes | 94 | 96.9 |
| Not sure | 3 | 3.1 |
| **HIV infected mothers should be delivered by skilled health workers** | | |
| Yes | 95 | 97.9 |
| Not sure | 2 | 2.1 |

According to Table 3 above, 89 (91.6%) could separate from their spouses when they tested positive, 94(96.9%) agreed that all pregnant women should be screened for HIV, lastly 95(97.9%) agreed with HIV-infected mothers delivered by skilled health workers.

**Health system factors affecting utilization of EMTCT services**

**Table 4: Health system factors affecting utilization of EMTCT services among pregnant women attending Karoli Lwanga Hospital, Rukungiri district**

| | Frequency | Per cent |
|---|---|---|
| **Distance from home to health Centre of choice** | | |
| Less or equal to 5km | 57 | 58.8 |
| > 5km | 40 | 41.2 |
| **Affordable payment for health care** | | |
| Yes | 46 | 34.4 |
| No | 64 | 65.6 |
| **Waiting time to see the health worker** | | |
| less or equal to 30 minutes | 69 | 70.8 |
| > 30 minutes | 28 | 29.2 |
| **Time spent with health worker** | | |
| Less or equal to 15 minutes | 61 | 63.4 |
| > 15 minutes | 36 | 36.6 |
| **Amount of time spent during the visit** | | |
| Too long | 19 | 19.1 |
| Reasonable | 78 | 80.9 |
| **Ever received health education about EMCT** | | |
| Yes | 72 | 74.4 |
| No | 25 | 25.6 |

According to table 4 above, many 57(58.8%) travelled less or equal to 5kmfrom home to their health Centre of choice, many 64(65.6%) said the payment for health care was not affordable, 69(70.8%) were waiting to see the health worker for less or equal to 30 minutes, and 61(63%) spent less or equal to 15 minutes with health worker, and 78(80.9%) accounted time spent with the health worker as reasonable and 72(74.4%) had ever received health education about EMCT.

## DISCUSSION

**Knowledge about the utilization of EMTCT services**

According to UNAIDS [7], maternal knowledge of MTCT is a cornerstone of the effective implementation of the World Health Organization (WHO) recommendation of the four-pronged approach to reduce mother-to-child transmission of HIV. However, the research carried out by Bhardwaj et al., in 2015[26] revealed that more than half of the women in this study did not know of any method of preventing mother-to-child transmission of HIV. In this study, 91 (93.6%) knew that HIV can be transmitted from mother to child. This finding is better when compared to results in a study done in Cameroon by Sama et al. [27], who found that 79.3% (119/150) of them were aware of MTCT.

Regarding correct knowledge, 13 (13.4%) knew that HIV cannot be transmitted from mother to child during pregnancy, 94 (96.9%) knew that HIV can be transmitted from mother to child during labor, 79 (81.4%) knew that HIV can be transmitted from mother to child during breastfeeding, 91 (93.8%) knew that MTCT can be prevented by ARV therapy, and lastly, many 77 (79.1%) disagreed with the idea that MTCT can be prevented by using condoms. Thus, on average, 72.92% had good knowledge of MTCT (transmission and prevention of HIV to the child). This is better than the results in a study by Luba et al., [28] in Ethiopia, which showed that the overall correct knowledge of Ethiopian women about MTCT and EMTCT (correct answers to all five questions) was very low (34.9%). Another study in Ethiopia showed that 57.5% of the mothers had full knowledge about the three critical modes of HIV transmission from mother to child, but only 67 (17.4%) knew the possible prevention methods [29]. Another study in Ethiopia showed that about one-fifth (19%) of women were knowledgeable about mother-to-child transmission of HIV [30]. In Cameroon, (37.0%) had adequate knowledge of the periods of transmission [31].

In this study, 79 (81.4%) knew that HIV can be transmitted from mother to child during breastfeeding. This finding is better when compared to the result by [32, 33], who found that avoiding breastfeeding was identified by 24% of the respondents as a means of preventing transmission from mother to child. According to a study in South Africa by Carole Leach-Lemens [34], exclusive breastfeeding and triple-drug antiretroviral treatment (ART) were found to be protective factors, while unplanned pregnancies and mixed feeding were risk factors associated with MTCT. Therefore, there is generally good knowledge of MTCT as per this study, which contradicts the results by Atwiine et al.[35], who found that in Mwizi country Uganda, most women of child-bearing age lacked adequate knowledge to prevent MTCT despite high awareness of MTCT and the need for EMTCT. Thus, knowledge of MTCT differs from place to place.

**Attitude towards the utilization of EMTCT services:**

In this study, 94 (96.9%) agreed that all pregnant women should be screened for HIV, and 95 (97.9%) agreed with HIV-infected mothers being delivered by skilled health workers. This indicates good attitudes towards MTCT. Thus, we agree with Cherie et al., [36], who suggests that negative attitudes shown by some HIV-positive pregnant women were due to ignorance and poor quality of counseling received. Since all pregnant women want to have a healthy baby, they are likely to take action to avoid the risk

of transmitting HIV to their baby if the benefits are adequately explained to them. In this study, 94 (96.9%) agreed that all pregnant women should be screened for HIV. This finding is better than the results in a study conducted by Hailu et al. [37] among antenatal care clients in Mizanaman town public health facilities, which found that 108 (63.5%) strongly agree with the idea that the importance of every pregnant woman to be tested for HIV, and the majority of the respondents. Thus, there was a good attitude of pregnant mothers towards MTCT in a study, which can be linked with mothers' love for the baby.

**Health system factors influencing the utilization of EMTCT services:**

A study by Chukwulaodinak [33] showed how policy changes, such as introducing EMTCT, integrating HCT in ANC clinic with opt-out options, and free ANC services, improved uptake of EMTCT services in a rural Malawi setting. In this study, 57 (58.8%) traveled less or equal to 5 km from home to the health Centre of choice. Therefore, according to Kasenga [38], there was integration of HIV testing within ANC in March 2005, and a study done by Gizaw & Gebremdhin [39] showed that with access to ANC in place, access to HCT and EMTCT will not be a challenge. However, this does not make it conclusive that they are going to use MTCT services since 64 (65.6%) said the payment for health care was not affordable. This creates a gap in utilization of the services of TBA since a study done in Ethiopia by Gizaw & Gebremdhin [39] described TBAs as the trusted provider, the first help to women and widely accepted in the community. In addition, during a visit to one of the rural EMTCT sites supported by CIDA Grant on averting HIV infected birth in Enugu state in Nigeria, a collaborative service by the TBA and the midwife in the site was noted according to Hoog AHV [40]. According to FHI [41], most developing countries can provide only limited MCH services, as they face managerial, financial, and human resource constraints. Even where services are available, potential beneficiaries do not fully use them. Improving the availability, quality, and use of MCH services is critical in reaching women who may benefit from EMTCT interventions.

## CONCLUSION

The findings of this study highlight the importance of knowledge and attitude in the utilization of EMTCT services among HIV/AIDS pregnant women. The majority of participants demonstrated a good understanding of HIV transmission routes and were willing to take necessary precautions. This positive attitude was reflected in their support for HIV testing during pregnancy and delivering with skilled health workers. However, the study also revealed a significant obstacle in the form of unaffordable healthcare costs. This financial burden can deter pregnant women with HIV/AIDS from accessing essential EMTCT services. To enhance EMTCT service utilization, it is crucial to address the financial barriers and make these services more accessible and affordable to the target population.

## RECOMMENDATIONS

The study suggests several recommendations to improve the utilization of Early Mother-to-Child Transmission of HIV (EMTCT) services among HIV/AIDS pregnant women. These include financial support from the government and healthcare organizations, raising awareness through community-based health education programs, reducing waiting times, and integrating EMTCT services into routine antenatal care. The study also suggests that further research is needed to understand the specific financial barriers faced by pregnant women in accessing EMTCT services. By addressing these recommendations, policymakers, healthcare providers, and organizations can work together to improve the utilization of EMTCT services among HIV/AIDS pregnant women and reduce mother-to-child transmission of HIV. The findings suggest that despite most participants receiving health education

about EMTCT, further efforts are needed to reduce waiting times and improve the overall experience for pregnant women.

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