# Determinants of Utilization of Prevention of Mother to Child Transmission in Busia-Uganda

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## ABSTRACT

This paper examined the determinants of utilisation of PMTCT services by HIV positive mothers in Busia, Uganda. It was based on a sample of 225 HIV positive pregnant and breast feeding women, key informants and focus group discussions. Although 87% of the women were aware of the existence of PMTCT services, only 46% reported ever use of the PMTCT services. Predictors of utilization of PMTCT services were education, religion, attitudes towards PMTCT enrollment of all HIV positive pregnant women, discussion of PMTCT with the partners or significant other, and partners' willingness to accompany the woman to access antenatal care. Women whose partners were not willing to accompany them to access ANC had reduced odds of PMTCT enrollment. Enhancement of PMTCT enrollment should emphasize promotion of effective male involvement and partnerships in reproductive health matters and countering stigma at all levels.

**Key words: PMTCT utilization, Partner relations, Uganda.**

## Introduction

MTCT accounts for 90% of HIV infections among children[1]. While MTCT in developed countries has virtually been eliminated through effective voluntary testing and counseling (VCT), access to antiretroviral therapy, safe delivery practices, and safe use of breast-milk substitutes, in Africa, infant infection rate estimated at 230 000 infections in 2012 is still high [1, 2]. The severity of mother to child transmission problem in Africa, Uganda inclusive has been attributed to high prevalence of HIV among women of reproductive age, coupled with high birth rates and lack of effective MTCT prevention interventions [3, 4].

HIV prevalence among Ugandan adults currently stands at 7.2 percent, an increase from 6.5 percent in 2006. The prevalence is higher among women in the reproductive age (7.7%) and even much higher among pregnant women with 9%. HIV prevalence among children under five years is less than 1 percent[5, 6].

While antenatal care attendance in Uganda is almost universal (95%), only 48% meet the basic requirement of at least four times. Skilled birth attendance stands at 41% [6]. The risk of mother to child transmission of HIV in Uganda (without the requisite interventions) is 26-30%. However, owing to the scaling up of the PMTCT program, by 2012, about 72% of pregnant women living with HIV received ARVs for PMTCT, coverage higher than the Sub Saharan Africa estimate of 64%. New infections among children in Uganda reduced from approximately 25000 in 2001 to 15000 in 2012 [1]. However, the relatively low levels of utilization of health facilities for delivery (57%) still imply incomplete coverage of PMTCT services, hence, necessitating identification of determinant of PMTCT enrollment for facilitation of targeted interventions for increased PMTCT coverage.

Literature shows that age, birth order and parity had a bearing on accepting HIV testing. The likelihood of accepting tests was greater among younger (below age 25 years) than older women aged 25 years and above [7].

Acceptance of HIV test results has a bearing on acceptance of PMTCT services. Non-receipt of HIV test results is a key hindrance to PMTCT enrolment[8]. A study in Malawi revealed that some of the contributing factors to loss to follow-up of women enrolled in PMTCT were poor quality of VCT services where women were not well prepared for HIV tests, the possible requirement of abstinence from breast feeding[9, 10]. In Tanzania, some of the barriers to women's acceptance of VCT were limited or lack of confidentiality, partner involvement and self-efficacy regarding alternative feeding methods and religion[10].These factors could also influence the uptake of PMTCT. According to Car et al[11] an integrated approach to delivery maternal health service delivery, provision of information about PMTCT increases likelihood of testing for HIV, and receipt of results.

Stigma is a key barrier to VCT [12-16]. Stigma attached to the HIV test is one of the main reasons for refusals of testing for HIV, non-disclosure of sero status and uptake of precautionary measures that significantly reduce the risk of MTCT[14, 17, 18].

Intra household relations are pivotal. Women's subordinate positions compromise their ability to translate acquired knowledge into risk reduction practices[13, 17]. In the developing countries, HIV transmission in marriage usually occurs heterosexually. Prospective fathers are therefore equally responsible for the HIV sero status of their children; hence, the term PPTCT (prevention of parent to child transmission) in India instead of PMTCT[19]. However, although men have a

significant influence on the family reproductive health decisions, their involvement especially in the utilization of modern reproductive health services is minimal[20]. Evidence shows that approval by male partners is a critical consideration in women's decision to enroll in the PMTCT programs[17, 18]. Survey findings in Uganda revealed that the odds of accepting an HIV test were six times higher among women who thought their partners would approve of the testing compared to those who did not[21].

A study in Eastern Uganda revealed that male involvement in PMCT was constrained by the poor quality of health services as well as socio-economic factors associated with the patients. Male involvement was significantly influenced by education levels, occupation and stigma, where males with higher levels of education were more likely to participate, and males with low status and high risk jobs, and those that feared disclosure of HIV sero status results were less likely to participate in PMTCT[22]. In Jamaica, enrolment into PMTCT programme was lower among married or cohabitating women relative to single women[8]. Lack of spousal support, anticipated repercussions of stigma in case of HIV sero status disclosure are among the key barriers to PMTCT uptake[9].

Whereas Uganda PMTCT service coverage estimate stands at 86%[1], intra country variations in coverage exist. Despite increased coverage of PMTCT services, by 2007, utilization of PMTCT services in Busia district was low at 42% [23]. Analysis of factors associated with utilization of PMTCT services is essential for targeted interventions to enhance PMTCT service uptake.

**Methods**

The paper is based on a study in Busia district, Eastern Uganda using quantitative and qualitative methods of data collection. Busia district is located on Uganda's boarder with Kenya. The

district attracts a diversity of people, formal and informal trade, fishing activities, which is associated with risky sexual behavior and therefore high HIV incidence.

Methods of data collection entailed a survey involving 225 pregnant or breast feeding women, 5 focus group discussions and 5 key informant interviews. For the survey, five out of 10 health units providing PMTCT services were selected based on location, grade of the unit and numbers that tested positive for HIV. Hospital records for 2009 – 2010 were reviewed with purpose of identifying HIV positive pregnant or lactating women who were aware of their sero status. According to the 2009 to May 2010 records, 359 of 7,444 met the criteria. Of the 359 HIV positive pregnant or lactating women, 305 (85%) could be located and were therefore initially selected as prospective study participants but only 225 (62.7%) consented to be accessed and interviewed.

Key informants interviewed were PMCT service providers in the five selected health units. Focus group Discussions (FGD) of 8 -10 participants each involved pregnant and lactating HIV positive women identified at selected health units and that freely consented to participate in the study. FGDs facilitated in-depth exploration of the influence of socio cultural factors and knowledge of PMTCT on utilization of PMTCT services.

The dependent variable was current utilization of PMTCT services in response to the question "Are you currently enrolled in the PMTCT? Responses were dichotomous (0 = no, 1 = yes). Independent variables included age, level of education, income levels, religion, marital status, type of union, occupation, type of residence. Intermediate variables were awareness of, and attitude towards and practices associated with PMTCT.

Quantitative data were analyzed at univariate, bivariate and multivariate levels. The univariate level used descriptive statistics, while the bivariate level of analysis used Pearson's chi-square ($\chi^2$) test to determine the association between the independent and intermediate variables, and outcome variable. Determinants of utilization of PMTCT services were established using multivariate logistic regression analysis. Only independent and intermediate variables whose p-value was less than 0.05 at the bivariate level of analysis were included in the final model. The level of statistical significance was set at $p< 0.05$. Results are reported using Odds Ratios (OR). Qualitative data were transcribed, edited, coded and captured in excel spreadsheets and analyzed through content analysis along the main themes of the study.

With respect to ethical considerations, the Institute of Statistics and Planning reviewed the research proposal and issued a clearance letter. The research team presented the letter to district and sub-district authorities prior to data collection. Clearance was obtained from district, local and health facility authorities. Before collecting data, researchers sought voluntary informed consent from all respondents. Prospective respondents were informed about their right to choose to participate or decline participation without negative consequences and their right to withdraw from the interview at any point. Researchers assured prospective respondents of confidentiality through anonymity and privacy during interviews. Respondents' names were not documented for purposes of confidentiality. Home visits, where necessary were with prior consent from the prospective respondents.

**Results**

Of the 225 respondents that were interviewed, less than half (46%) were enrolled in PMTCT.

**Table 1 about here**

Descriptive results in Table 1 show that almost two thirds of the respondents (65%) were under 30 years, 63% had primary level education, 85% were married and over half (58%) were in monogamous unions. As expected, over three quarters (77%) were rural residents. The majority were Christians: either Protestants (37%) or Catholics (32%), unemployed or farmers (41% and 39% respectively), with a large majority (97%) living within less than five kilometres to health facilities where they could access PMTCT drugs. With respect to knowledge concerning MTCT, results in Table 1 further show that almost all women were aware that an HIV positive mother could infect her baby (97%), and that, the risk of HIV transmission could be reduced through avoiding breast-feeding (77%). Concerning attitudes and practices associated with PMTCT use, 88% of the respondents were supportive of enrolment of all HIV positive pregnant women in PMTCT, and HIV positive pregnant women's PMTCT enrolment without permission from partners or significant others. The majority (80%) discussed PMTCT with their partners or significant others, about half (51%) reported that their partners were willing to accompany them to access antenatal care.

Utilization of PMTCT services was significantly associated with respondents' level of education; residence; religion; current occupation; knowledge about HIV transmission through breastfeeding; support of enrollment of all HIV positive pregnant women in PMTCT; possibility of enrolling for PMTCT without partners' or significant others' permission and whether the respondent discussed PMTCT with her partner or significant others. Proportions of PMTCT enrollees were higher among women with primary level of education (52%); rural areas (51%); Pentecostal and seventh day Adventists (63%); farmers (62%) and residents within less than five kilometers of the health facilities (48%). Higher proportions of enrollees were observed among respondents who reported that avoiding breast-feeding could reduce the chance of MTCT (52%);

supported enrollment of all HIV pregnant woman in PMTCT (51%); reported that an HIV positive pregnant woman could enroll for PMTCT services without permission from partners or significant others (54%); and discussed PMTCT with their partners or significant others (56%). Utilization of PMTCT services was not significantly associated with respondent's age, marital status and knowledge of the possibility of an HIV positive mother infecting her baby (see Table 1).

**Determinants of Utilization of PMTCT services**

The determinants of utilization of PMTCT were analyzed using a binary logistic regression model. Variables that were not significant at the bi-variate level of analysis were excluded from the model.

**Table 2 about here**

Significant predictors of utilization of PMTCT services are respondents' level of education, religion, supportive attitude towards enrollment of HIV positive pregnant women in PMTCT, acknowledgement of the possibility of a woman's PMTCT enrollment without the consent of the partner, discussion of PMTCT with a partner or significant other and willingness of the partner to accompany women to access ANC. Women with secondary or tertiary level of education had reduced odds of utilizing PMTCT compared to those with no formal education (OR = 0.129; $p = 0.01$). Moslems had reduced odds of using PMTCT compared to Pentecostals and Seventh Adventists as a group (OR = 0.188; $p < 0.05$). Women who reported that all HIV positive women should not be required to enroll for PMTCT and those that did not discuss PMTCT with their partners or significant others had reduced odds of using PMTCT compared to those that did (OR = 0.242; $p < 0.05$ and OR = 0.074; $p < 0.001$ respectively). Enrolling for PMTCT implies disclosure of sero status. A participant of a group discussion observed:

"*Why should I cause myself problems by disclosing my status, we have children and it is my husband supporting us buying food, paying school fees, so I can't risk."(Female FGD participant).*

Women who reported that their partners were not willing to accompany them for antenatal care had reduced odds of using PMTCT (OR = .349; $p < 0.01$). Qualitative sources revealed that despite awareness about MTCT, anticipated negative consequences from spouses were a barrier to PMTCT enrollment as evidenced by this observation:

*"Our babies would rather be free from this horrible disease. However, how would I approach my husband and tell him that I am infected and he understands; I will only be scratching a lion's back". (Female FGD participant).*

Key informants and community sources agreed that overall, men's direct involvement in PMTCT interventions is limited yet they are the main decision makers in families. This affects PMTCT enrollment.

The relationship between residence, current occupation, whether avoiding breastfeeding reduced the chances of MTCT, and whether HIV positive pregnant woman enroll in the PMTCT services without obtaining permission from husband or significant others and utilization of PMTCT services.

**Discussion**

The prevalence of PMTCT use among pregnant HIV positive a woman is still low at 46% relative to 86% at national level[1].Education is usually positively associated with responsiveness of health promotion interventions[22]. In this case too, education was a

significant predictor of PMTCT enrollment, but surprisingly, women with secondary or tertiary level of education had reduced odds of enrolling for PMTCT compared with women with no formal education. This could be attributed to HIV associated stigma [14, 17, 18] that in this case appears to transcend the potential for increased awareness owing to higher education.

Religion was a significant predictor of PMTCT enrollment [10]. Muslims' reduced odds of enrolling for PMTCT is attributed to the possibility of polygamy and remarriage where upon disclosure of HIV sero status abandonment of women by their partners often occurs[24].

Studies have noted low acceptability and uptake of PMTCT interventions with many women declining HIV testing, or failing to take ARV therapy or make appropriate feeding choices[18]. As expected, women who were not supportive of enrolling all pregnant women in PMTCT and those that did not discuss PMTCT with their partners were less likely to enroll in PMTCT. PMTCT enrollment often implies disclosure of HIV sero status owing to requirements such as strict baby feeding regimes.

Discussion of the possibility of PMTCT enrollment would also raise questions about the couple's HIV sero status. It is often women that are blamed is she is HIV positive[25]. In such situations, HIV associated stigma and its consequences especially within marriage becomes a major challenge to PMTCT enrollment even at the risk of MTCT [9, 14, 17, 24].

Men's have a significant influence on uptake of reproductive health services and other interventions [26]. Male and female partners should take equal responsibility for preventing parent to child transmission [19]. Positive and supportive male partner involvement in reproductive health issues of a couple is essential for improving reproductive health outcomes

[10, 21, 26]. Unwillingness of the partner to accompany the women to access antenatal is an indicator of partner's limited involvement in the couple's reproductive health concerns. As evidenced by our results, such women were less likely to enroll in PMTCT. Men with strong patriarchal tendencies, who in this case deem ANC attendance a woman's role would not wish to be seen attending ANC with their spouses, let alone allow their spouses to enroll for PMTCT which carries more stigma. Hence, as noted by Bwirire et al[9] PMTCT uptake is challenged by limited partner support and anticipated consequences of stigma.

Contrary to Johnson et al.'s findings[8], marital status was not a significant predictor of PMTCT enrollment. Whereas practices associated with breast feeding in terms of self-efficacy regarding alternative feeding methods in Tanzania predicted PMTCT enrollment [10], knowledge about MTCT through breast-feeding did not predict PMTCT enrollment. Although age was a significant predictor of VCT in London [7] our results show that age did not predict PMTCT enrollment.

In conclusion, the PMTCT enrollment is less likely among women with secondary or tertiary levels of education, Muslims and those with negative attitudes towards PMTCT. Male involvement is pivotal as evidenced by the reduced odds of PMTCT enrollment among women that did not discuss PMTCT with their partners and those whose partners were not willing to accompany them to access antenatal care. Couple gender relations, perceived and self-stigma as well as community-based stigma[27] are pivotal in influencing PMTCT uptake. Enhancement of PMTCT enrollment should emphasize promotion of male effective involvement and partnerships in reproductive health and countering stigma at all levels.

This analysis would have benefited from inclusions of variables such as parity, birth order and disclosure of HIV sero-status, which are important factors elsewhere. The sample size was smaller than expected since prospective respondent has the right to decline to participate in the study. The study focused on client associated rather than a combination of clients' and health provider associated factors. Other underlying reasons for Muslim women's low uptake of PMTCT require further exploration.

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**Table 1: Percentage distribution of respondents by demographic and socio-cultural factors and utilization of PMTCT services**

| Variable | Frequency n=225 | % of women | % Enrolled in PMTCT n=104 | p-values |
|---|---|---|---|---|
| **Age group** | | | | |
| <30 | 146 | 64.9 | 45.9 | |
| 30-49 | 79 | 35. 1 | 43.0 | 0.233 |
| **Educational level** | | | | |
| Primary | 142 | 63.1 | 52.1 | |
| Secondary/tertiary | 45 | 20.0 | 31.1 | |
| No education | 38 | 16.9 | 42.1 | **0.041** |
| **Marital status** | | | | |
| Married | 192 | 85.3 | 46.9 | |
| Not married | 33 | 14.7 | 42.4 | 0.636 |
| **Residence** | | | | |
| Urban | 51 | 22.7 | 31.4 | |
| Rural | 174 | 77.3 | 50.6 | **0.016** |
| **Religion** | | | | |
| Catholics | 73 | 32.4 | 42.5 | |
| Protestants | 83 | 36.9 | 51.8 | |
| Muslim | 28 | 12.4 | 14.3 | |
| Pentecostal and seventh day Adventists | 41 | 18.2 | 63.4 | **0.000** |
| **Current occupation** | | | | |
| Unemployed/student | 93 | 41.3 | 34.4 | |
| Non farmer | 44 | 19.6 | 38.6 | |
| Farmer | 88 | 39.1 | 62.5 | **0.000** |
| **A mother who is HIV positive infect her baby** | | | | |
| Yes | 218 | 96.9 | 46.3 | |
| No | 7 | 3.1 | 42.9 | 0.856 |
| **Avoiding breast-feeding can reduce the chance of MTCT** | | | | |
| Yes | 174 | 77.3 | 51.7 | |
| No | 21 | 9.3 | 28.6 | |
| Do not know | 30 | 13.3 | 26.7 | **0.009** |
| **Every HIV pregnant woman be enrolled in PMTCT** | | | | |
| Yes | 197 | 87.6 | 50.8 | |
| No | 28 | 12.4 | 14.3 | **0.000** |
| **An HIV positive pregnant woman can enroll in the PMTCT services without permission from Husband or significant others** | | | | |
| Yes | 144 | 64.0 | 54.2 | |
| No | 81 | 36.0 | 32.1 | **0.001** |
| **Discussed PMTCT with your partner or significant others** | | | | |
| Yes | 180 | 80.0 | 56.1 | |
| No | 45 | 20.0 | 6.7 | **0.000** |
| **Is your partner willing to accompany you to ANC?** | | | | |
| Yes | 115 | 51.1 | 59.1 | |
| No | 110 | 48.9 | 32.7 | **0.000** |

**Table 2: Results of Logistic Regression of selected factors on the current use of PMTCT services.**

| Independent Variables | OR [a] | p-value |
|---|---|---|
| **Education** | | |
| No education (RC) | 1.00 | |
| Primary | 0.950 | 0.919 |
| Secondary and tertiary | .129 | **0.004** |
| **Residence** | | |
| Rural(RC) | 1.00 | |
| Urban | 1.783 | 0.316 |
| **Religion** | | |
| Pentecostals and Seventh day Adventists (RC) | 1.00 | |
| Catholics | .577 | 0.289 |
| Protestants | 1.198 | 0.726 |
| Moslems | .188 | **0.046** |
| **Current occupation** | | |
| Farmers (RC) | 1.00 | |
| Un employed/student | .547 | 0.122 |
| Non Farmers | .858 | 0.791 |
| **Can avoiding breastfeeding reduce the chance of MTCT?** | | |
| Don't know(RC) | 1.00 | |
| Yes | 2.163 | 0.182 |
| No | .856 | 0.848 |
| **Should every HIV positive pregnant woman be enrolled in PMTCT?** | | |
| Yes (RC) | 1.00 | |
| No | .242 | **0.042** |
| **Can an HIV Positive pregnant woman enroll in the PMTCT services without permission from Husband or significant others?** | | |
| Yes (RC) | 1.00 | |
| No | .478 | 0.059 |
| **Do you discuss PMTCT with your partner or significant others?** | | |
| Yes (RC) | 1.00 | |
| No | .074 | **0.000** |
| **Is your partner willing to accompany you to ANC?** | | |
| Yes (RC) | 1.00 | |
| No | .349 | **0.005** |

**RC= Reference categories; [a] Odds Ratio**