

Male Partner Involvement and Its Effects on HIV Treatment Adherence Among HIV Infected Pregnant and Postpartum Women in Mbarara District, Uganda

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Abstract:

Introduction: Male partner involvement in PMTCT program have been reported to lead to higher uptake of PMTCT among women living with HIV and improved adherence to antiretroviral therapy (ART). However, there is a worrying gap of women that drop out of care especially after 6 months into the pregnancy and after childbirth. The study was guided by four objectives namely, to assess the HIV treatment adherence levels among HIV infected pregnant and postpartum women, to determine the proportion of male partner involvement, to identify the demographic, socio-economic, belief and socio-cultural factors associated with male partner involvement in HIV treatment adherence and to examine the perceptions of HIV infected pregnant and postpartum women on male involvement on HIV treatment adherence.

Method: A cross-sectional study was used. Data was collected using structured and semi-structured questionnaires. The study population was HIV infected pregnant and 5 months' postpartum women on ART drugs. One hundred thirty-five randomly selected pregnant and postpartum women living with HIV who attended antenatal clinics participated in the study. Both quantitative and qualitative methods were used to collect data. The data was analyzed at three different levels; Univariate, bivariate and Multivariable analyses. Multivariate logistic regression was employed to identify makers of male partners' involvement that associated with HIV treatment adherence more than the other. Qualitative data were thematically analyzed.

Results: Explicitly, 64% of the respondents reported that their male partners financially supported them, 62% reported that their spouse's knew their appointment schedules at the antenatal clinic (ANC). Only 35% reported that their male partners accompanied them to the ANC, and 56% reported that they discuss what happens at ANC with their male partners and 79% disclosed or shared their HIV status to their male partners. At multivariate analysis, factors associated with male involvement in HIV treatment adherence were partner's age (31-50 years) and being married. Increasing partners' age significantly reduces the odds of missing antiretroviral pills by pregnant and postpartum women living with HIV as compared to male partners aged 21-30 years. That is 31-40 years (AOR=0.27; 95%CI [0.11-0.68]);

41-50 years (AOR=0.25;95%CI [0.07-0.81]). The study further revealed that married partners were less likely to miss antiretroviral pills compared to those who were single (AOR=0.54; 95%CI [1.8 - 16.1]).

Qualitative findings revealed perceptions of women on effects of male involvement in HIV treatment adherence as financial support, psychosocial support, reduction in stigma, safer conception, prevention of other sexually transmitted diseases, promotion of HIV testing as couples and promotes partner communication.

Conclusion: Male involvement is crucial in HIV treatment adherence as perceived by the HIV infected pregnant and postpartum women in this study. However, the proportion of male involvement was generally low as reported by the pregnant and postpartum women living with HIV. Makers of Male partner's involvements which significantly associated with HIV treatment adherence included partners' age and being married.

The study recommended developing and implementing accepted and appropriate strategies such as community based strategies that is engaging community leaders through dialogue, involving community health workers (VHTs), facility-based strategies such as shorter waiting time, facilitating access for men by altering clinic hours and creation of family support groups could contribute to strengthening male partner involvement in the ANC program which would eventually have a positive impact on HIV treatment adherence.

Keywords — Male Partner Involvement, Effects, HIV treatment adherence, Pregnant and postpartum women, Mbarara district, Uganda.

Introduction

The Joint United Nations Program on HIV and AIDS (UNAIDS) ambitious goal of “Getting to Zero” which is a strategy that aims at getting zero new Human immune viral (HIV) infection, zero deaths and zero discrimination, cannot be achieved by reaching only half of the population; prevention and treatment must reach both sides of the equation – men and women – to get to zero. Increasing men’s involvement in caring for their own health and that of their families requires creative solutions (UNAIDS, 2016).

Globally, advances in HIV research, prevention, and treatment have made it possible for many women living with HIV to give birth without transmitting the virus to their babies. The introduction of antiretroviral medications has significantly reduced deaths attributable to AIDS as well as vertical and horizontal transmission (UNAIDS, 2016).

Over the years, large strides have been made, and rates of new HIV infections have shown a sharp decline among children due to the successful implementation of prevention of mother-to-child transmission (PMTCT) programs. Despite those successes gained from large-scale PMTCT rollout, about 180,000 children were reported to be newly infected with HIV in 2017 (UNICEF, 2018), and mother-to-child transmission (MTCT) is largely responsible for most new cases in this age group (Sifunda et al, 2019). Today, if a woman takes HIV medicines as prescribed throughout pregnancy, labour and delivery, and provides HIV medicines to her baby for 4-6 weeks, the risk of transmitting HIV can be 1% or less (CDC, 2016).

High levels of sustained adherence to treatment have been demonstrated to be directly associated with a decline in the babies’ HIV acquisition risk, and viral load suppression and increased life expectancy in the mother. In 2013, the World Health Organization (WHO) recommended that countries implement the Option B+ strategy, which includes early HIV testing and provision of lifelong antiretroviral therapy(ART) to HIV infected pregnant and breastfeeding women regardless of CD4 count or WHO clinical stage and Uganda was one of the countries that adopted this strategy (WHO, 2013).

Despite this progress, non-adherence to ART remains a barrier to achieving its maximum benefits, especially that of elimination of mother to child transmission of HIV. Less than two-thirds of women remain in care 18 months following ART initiation, which is below the UNAIDS target of 90%

(Muhumuza et al, 2017). The risk of mother to child transmission can be as high as 10–30% during pregnancy and breastfeeding if no preventive measures are taken (UNICEF, 2016)

Studies have shown that some of the reasons for non-adherence to ART in sub-Saharan Africa include lack of male involvement, the timing of HIV testing and counselling, fear of stigma, non-sero-status disclosure, young age and lack of education (Fagbamigbe & Idemudia, 2015) Therefore, this study aimed at investigating and documenting the effects and factors associated with male partner involvement in facilitating antiretroviral treatment adherence patterns among HIV infected pregnant women and postpartum women in Mbarara district, Uganda.

Statement of the problem

Uganda has a high HIV incidence with 83,000 annual infections, and the total fertility rate is also high with 5.59% which impacts on the perinatal HIV transmission with 3,500 HIV-infected infants annually (MOH, 2014).

There is a worrying gap of women that drop out of care especially after 6 months into the pregnancy and after child birth (Matthews et al., 2016).

Male involvement stands at 10% and yet they play a pivotal role in ART adherence, decision making. many studies have indicated gender power dynamics as a vital factor that has an impact on the health and that men greatly influence their partners' decisions, including decisions regarding health care, (Morfaw et al, 2013).

Given this background, it is critical to understand the effects and factors associated with male partner involvement in HIV treatment adherence among pregnant and postpartum women if we are to attain the UNAIDS ambitious goal of “Getting to Zero.”

Objectives of the study

- To assess the effects and factors associated with male partner involvement in facilitating ART treatment adherence patterns among HIV infected pregnant and postpartum women.

Specific objectives

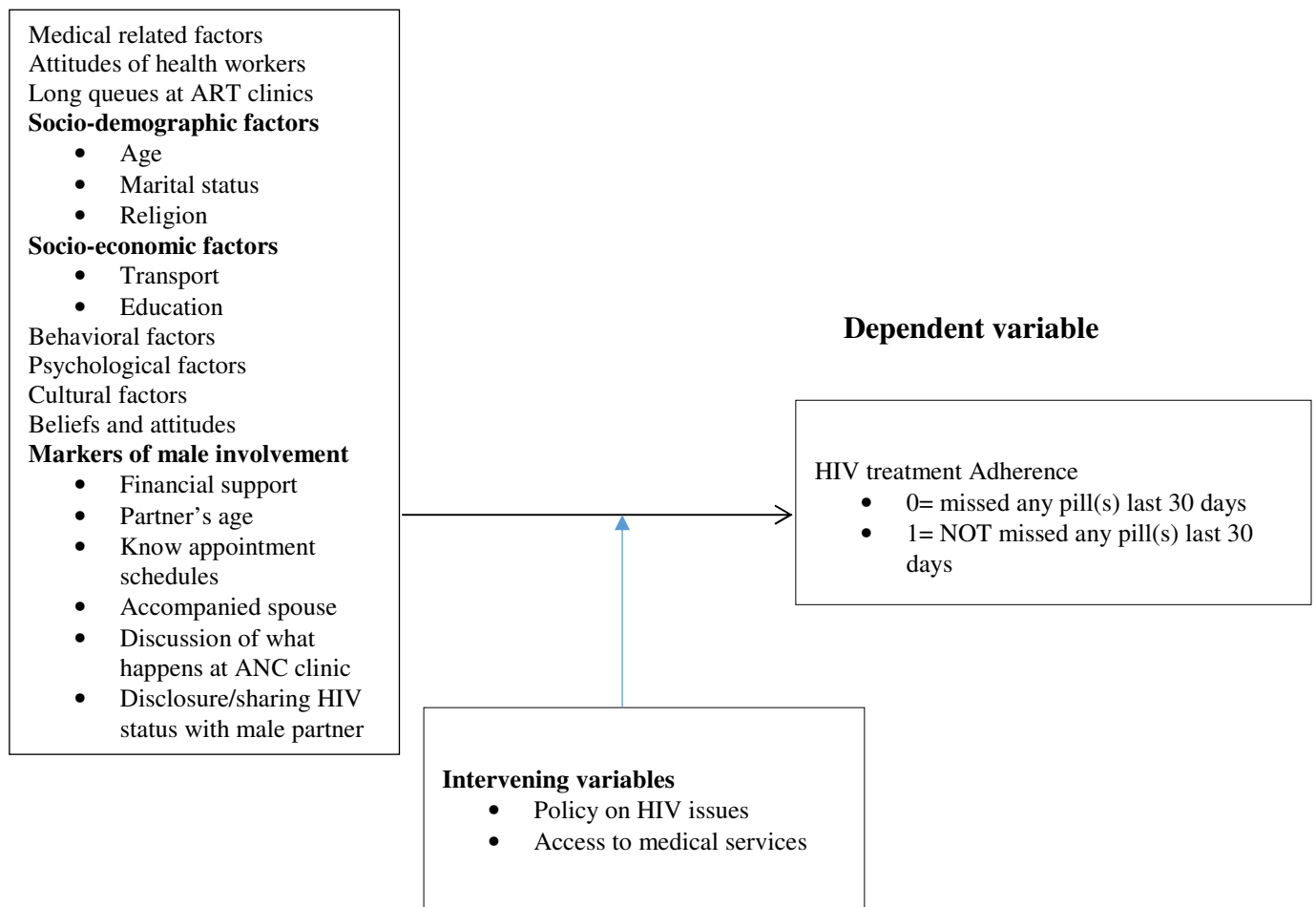
- To assess the HIV treatment adherence levels among HIV infected pregnant and postpartum women.

- To determine the proportions of male partner involvement in HIV treatment adherence among HIV infected pregnant and postpartum women.
- To identify the demographic, and socio-economic factors associated with male partner involvement in HIV treatment adherence among HIV infected pregnant and postpartum women.
- To examine the perceptions of HIV infected pregnant and postpartum women on the effects of male involvement on HIV treatment adherence.

Conceptual framework

This is a systematic model conceptual framework as designed from the literature review.

Independent variables



1 schema

Source: (Research Data 2020)

The risk of perinatal HIV transmission is much higher if the mother's antiretroviral HIV treatment is interrupted at any time during pregnancy, labour, or delivery, or if HIV medicines are not provided to her infant (Miller et al, 2017).

Being pregnant and childbirth brings difficulties to women living with HIV. Pregnant women may have nausea during pregnancy that can interfere with taking medicines. Some mothers feel weak and sick during pregnancy and after childbirth and may not be able to see their HIV medical care provider consistently. They may also fail to take their pills in time due to the exhaustion and fatigue felt during pregnancy and during breastfeeding time. Some women may also experience depression during pregnancy and post-partum especially for those with an unplanned pregnancy. This raises another burden in addition to them being HIV positive; causing them not to adhere to their drugs due to the emotional distress they may have (Delvaux, 2009).

Social and economic factors, especially poverty, affect access to all health care and disproportionately affect people living with HIV. Patients' psychological and behavioral factors are central in the acceptance and adherence to antiretroviral therapy (Rutaremw,2015). Pregnant women living with HIV may face more barriers in accessing medical care if they also use injection drugs, abuse other substances, or are homeless, incarcerated, mentally ill, or uninsured.

The involvement of male partners is an important consideration in the woman's decision to receive and adhere to antiretroviral medications for prophylaxis or treatment. Male involvement boosts social support that is vital for ART adherence (Morfaw, 2013).

Methodology

The study was conducted in Mbarara district at Mbarara municipal health center IV at the Antenatal HIV clinic and also Kakooba health center III. This area is located in Mbarara Municipality in western Uganda. This area was selected because it has a high numbers of pregnant women who are living with HIV as observed during the antenatal days. A cross-sectional design was used for the study, employing both quantitative and qualitative methods of data collection to generate responses

from the mothers. The design helped the researcher to explore and understand the levels and effects of male partner involvement on ART adherence among pregnant and post-partum women, especially in Mbarara district. The study population included HIV positive pregnant and postpartum women who have at least spent a month on ART and are above 18 years of age. Data was collected from a sample of 139 respondents. The study adopted simple random sampling technique in the selection of respondents. This technique was considered suitable because each respondent would have equal chances of being selected into the study. On different HIV clinic days at the different health centers, pregnant and postpartum women were approached and taken through a short questionnaire to assess whether they met the inclusion. Those that were found to meet the inclusion criteria of this study were then interviewed. Semi-structured questionnaires containing both open and closed-ended questions were administered to participants to elicit information. Questionnaires were designed in English and later translated into Runyankore for respondents to read and understand. The tool was checked for completeness, coded, and entered into STATA version 13 software for cleaning and analysis. The qualitative data was analyzed using thematic analysis. Using the inductive approach, themes were generated from the comments made by the participants. Data was analyzed to generate descriptive and inferential statistics which aided in the presentation and interpretation of findings.

Results

Analysis of the study was based on the objectives of the study seeking to assess the HIV treatment adherence levels of HIV infected pregnant and postpartum women, to determine the proportions of male partner involvement, to identify the socio-economic factors associated with male partner involvement in adherence to HIV treatment, to examine the socio-cultural beliefs on male involvement and to determine the perceptions of HIV infected pregnant and postpartum women on effects of male partner involvement on ART adherence.

Demographic Characteristics of HIV infected pregnant and postpartum women

Findings of the study indicated that the mean (SD) age of respondents was 29.1 (± 5.1) years. The highest percentage of respondents 42(31.1%) was in the 25-29-year age group, most of the women were married 105 (77.8%) and of these 65% live with their male counterparts. The majority had attained primary school education 73(54.5%), 76(56.3%) of respondents were in informal sector. Most of the respondents were pregnant 95(70.4%). (table 1).

Furthermore, the mean(SD) age of the sexual partners of the respondents was 35.2(±8.3) years). 100(75%) of the respondents knew the HIV status of their sexual partners. In most of the cases in which the respondents knew their partner’s HIV status,100(68%) had positive HIV results(table2).

Table 1: Percent distribution of demographic Characteristics of respondents

Variable	Category	Frequency (%) n=135
Age (years)	Mean= 29.1; Median=29 ; standard deviation=5.1; min 18 -max 41	
	18-24	29(20.7)
	25-29	42(31.1)
	30-34	41(30.4)
	35-41	24(17.8)
Marital Status	Married	105 (77.78)
	Separated/divorce/widowed	11 (8.15)
	Single	19 (14.07)
Ethical group	Munyankore	100 (74.07)
	Mukiga	16 (11.85)
	Muganda	12 (8.89)
	Others (Munyarwanda, Mutoro, Mufumbira)	7(5.19)
Religion	Anglican	64 (47.76)
	Catholic	41 (30.60)
	Moslem	16 (11.94)
	Others (Pentecostal, Adventists)	13 (9.7)
Level of Education	Primary	73 (54.48)
	Secondary	49 (36.57)
	Tertiary (Vocational, University, Postgraduate)	12 (8.96)
Occupation	Informal	76 (56.3)
	Formal	50 (37.04)
	None	9 (6.67)
Current pregnant status	Pregnant	95 (70.37)
	Not pregnant	40 (29.63)

Partner’s financial support to their spouse	Get financial support	86 (63.70)
	No financial support	49(36.30)
Know spouses appointment date for antenatal/clinic	Yes, I know appointment schedule	84(62.22)
	No, I don’t know	51(37.78)
Accompanied his wife during ANC/clinic services	Yes, ever accompanied the spouse	46(34.07)
	No, have never accompanied the spouse	89(65.93)
Discussion of what happens at Antenatal/clinic	Yes, we discuss	76(56.3)
	No, have never discussed	59(43.7)
Disclosure/sharing HIV status with the male partner	Yes, ever shared	106(78.5)
	No, never shared	29(21.5)

Table 2: Percent distribution of demographic Characteristics of sexual partners (males) of the respondents

Variable	Category	Frequency (%) n=135
Age (years) (n=134)	n=134; median=35; Mean 35.2; Std. Dev. 8.3; min= 21 max= 60	
Age group (n=134)	21-30	52(38.81)
	31-40	54(40.3)
	41-50	21(15.67)
	51-60	7(5.22)
Relationship with female partner (n=134)	Spouse	117(87.32)
	Ongoing casual partner	10 (7.46)
	Others (separated & partner died)	7 (5.22)
Knowledge of their partner’s HIV status (n=134)	Yes	100 (74.81)
	No	34 (25.19)

HIV status of their male partners (n=100)	Positive	68 (68.00)
	Negative	32(32.00)
Frequency of staying with their male partners (n=135)	On a daily basis	74 (54.81)
	Few days in a week	43 (31.85)
	Few days in a Month	2 (1.48)
	Others(separated, no longer see him- lost to follow up)	16 (11.85)

HIV Treatment and ART Adherence levels among HIV infected and postpartum women

This section addresses research objective one which sought to assess the HIV treatment adherence levels among HIV infected pregnant and postpartum women. Results in table 3, reveals 99(73.3%) have been on ART for more than 12 months, 89% of the participants reported that they take medicine once a day and of these 13(10%) have ever defaulted or taken a break from taking the antiretroviral pills. With regard to HIV treatment adherence, 57(42.2%) of the respondents reported missing at least one antiretroviral pill during the last 30 days. The reasons for missed taking all the pills were attributed to disrupted schedule e.g travelling and kept forgetting: 18(32.7%) and 16(29.1%) respectively.

Table 3: HIV status and ART Adherence

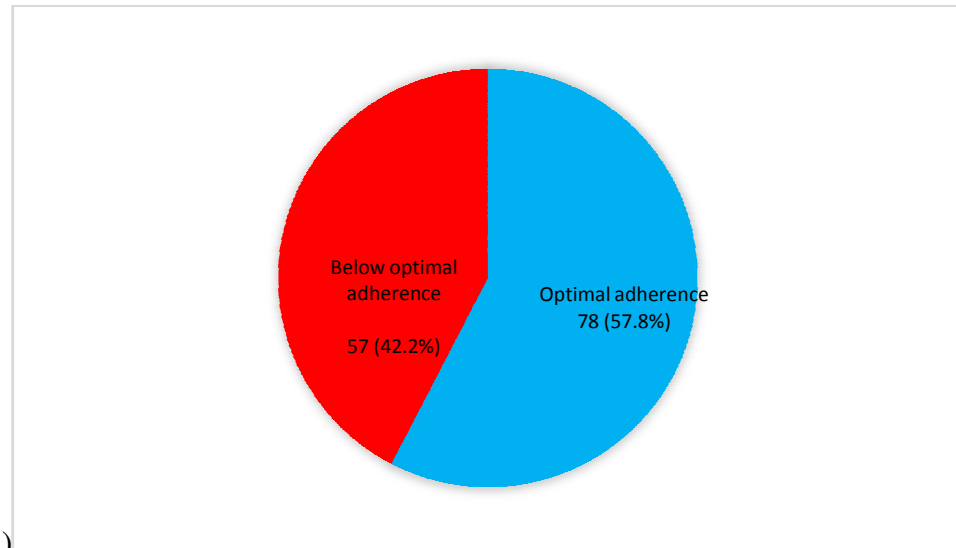
Variable	Responses	Freq(n=135); Percent (%)
		n(%)
Period spent on ART by HIV infected pregnant & Postpartum Women (n=135)	More than 12 Months	99(73.33)
	1 month -6 months	20(14.81)
	6months-12months	16(11.85)
Number of times in a day for an HIV infected pregnant & Postpartum Women take their pills/ medicine (n=135)	Once a day	121 (89.63)
	Twice a day	14 (10.37)
Ever taken a break from taking your pills (n=135)	No	122 (90.37)
	Yes	13 (9.63)
Number of antiretroviral pills missed during the last 30 days by the HIV infected pregnant & Postpartum	None (0)	78 (57.78)
	1 and more pills (1-21)	57 (42.22)

Women (n=135)		
What reminds you when to take ARVs? (n=135)	Watch/clock Mobile Phone Radio/Television Adherence supporter Partner Other (children, after super, after church)	21(15.56) 69 (51.11) 14 (10.37) 4 (2.96) 12 (8.89) 15 (11.11)
How much does it cost you to come to the health center? (n=135)	Free of Charge Less than 5000 5,000-10,000 >10,000	1 (0.74) 73 (54.07) 35 (25.93) 26 (19.26)
Number of times missed clinic appointment visit because of transport (n=135)	Never missed Ever missed	101 (74.81) 34 (25.19)

The current adherence rate to ART among pregnant and postpartum women

The current adherence rate was estimated by self-reporting of adherence. It was derived by getting the average of adherence level as reported by the respondents within the last 30 days. Percentage adherence was measured as the ratio of doses actually taken to the doses supposed to be taken in the month (prescribed) by using the formula [Adherence = (Number of doses taken / Number of doses supposed to be taken in the last month × 100)]. The average adherence rate was 95.5% which is optimal. The highest proportion 78 (57.8%) of the women had optimal adherence level of 95% and above while 57 (42.2%) of the women reported to have missed their doses at least one or more in the last 30 days.

Most of the respondents 78 (57.8%) indicated optimal adherence while 57 (42.2%) below optimal



adherence (Figure 1)

Figure 1: The current adherence rate

Level of Male partner’s involvement in HIV treatment adherence

This section addresses research objective two which sought to determine the proportions of male partner involvement. Majority 86 (63.7%) of the respondents reported that their male partners provide financial support for their antenatal visits. 84(62.2%) of the participants reported that their male partners know when their antenatal or clinic appointments are scheduled. The analysis further reveal that only 46(34.1%) of the participants reported they ever accompanied their partners to the clinic or antenatal visits.

105(77.8%) of the HIV infected pregnant and postpartum women disclosed their HIV status to their male partners. 90% of these disclosed their sero-status by telling their male partners directly. Nearly half of the respondents 65(48.2%), strongly agree that it was taboo for men to discuss with women about HIV testing during pregnancy. 53(39.3%) of the respondents strongly disagreed that men and women should undergo HIV testing together at PMTCT while 50(37.04 %) of the respondents strongly agreed. 104(77.04%) of the respondents strongly agree that men should accompany their HIV infected pregnant and postpartum wives to ANC/PMTCT.

Associations between markers of Male partner involvement and HIV treatment adherence among HIV infected pregnant and postpartum women.

This section addresses research objective number three for identifying the markers of male partner involvements such as partners' demographic, financial support, knowledge of spouse's appointment schedules at the antenatal clinic, accompaniment of their spouse to the antenatal clinic, disclosure of HIV results to their male partners and discussion of what happens at the antenatal clinic. The bivariate analysis revealed that age of partner, marital status (married), discussion about what happens at the clinic/antenatal visits and disclosure/sharing HIV status with the partner were statistically significant with HIV treatment adherence and hence used for further analysis in the multivariable logistic regression analysis. At Multivariable analysis, variables which significantly predict the level of male partners' involvement in HIV treatment adherence were partners' age and being married.

HIV infected pregnant and postpartum women whose male sexual partners aged 31-40 years were 27% less likely to miss antiretroviral pills compared to women whose male partners were aged 21-30 years (AOR=0.27;95%CI [(0.11-0.68]; p=0.005). Similarly, those women whose male partners were aged 41-50 years were 25% less likely to miss their antiretroviral pills during the last 30 days compared to those aged 21-30 years (AOR=0.25; 95%CI [0.07 - 0.81]; p=0.022) Hence increasing age of male partners is protective, reduces significantly the odds of missing antiretroviral pills during the last 30 days by the HIV infected pregnant and postpartum women. Hence improves HIV treatment adherence. The multivariable analysis further revealed that HIV infected pregnant and postpartum women who were married were 52% less likely to miss antiretroviral pills compared to those who single.

Other makers for male partner involvement such as discussion of what happens ANC interventions with partner, and disclosure/sharing HIV status with the male partner were not significantly associated with HIV treatment adherence at multivariate analysis.

Bivariate and multivariate logistic regression output of markers of Male partners' involvement in HIV treatment adherence among HIV infected pregnant and postpartum women

	HIV treatment	
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	Adherence (Missed pills last 30 days or NOT missed any pill)				
Variables	Missed n(%)	Didn't miss n(%)	UOR(95% CI)	AOR(95% CI)	P-value
Partners' Age (n=135)					
21-30	16(30.8)	36(69.2)	1	1	
31-40	27(50.0)	27(50.0)	0.44(0.02 - 0.98)*	0.27(0.11 0.68)	0.005*
41-50	10(47.6)	11(52.4)	0.5(0.17 - 1.38)	0.25(0.07 0.81)	0.022*
51-60	3(42.9)	4(57.1)	0.6(0.12 - 2.96)	0.47(0.08 2.79)	0.405
Marital Status (n=135)					
Single	14(73.7)	5(26.3)	1	1	
Separated/divorced/widowed	7(63.6)	4(36.4)	1.6(0.32 – 7.9)	1.73(0.3-9.9)	0.535
Married	36(34.3)	69(65.7)	5.4(1.8 – 16.1)*	0.52(1.43-18.6)	0.012*
Partners' Financial support (n=135)					
Never	25((51.0)	24(49.0)	1		
Ever	32(37.2)	54(62.8)	1.76(0.86-3.58)		
Knowledge of partner's appointment schedules for Antenatal/clinic (n=135)					
Don't know	27(52.9)	24(47.1)	1		
Know	30(35.7)	54(64.3)	2.03(0.997- 4.111)		
Accompanied their spouse to the ANC/Clinic (n=135)					
never	42(47.2)	47(52.8)	1		
ever	15(32.6)	31(67.4)	1.85(0.88- 3.89)		
Discussion of what					

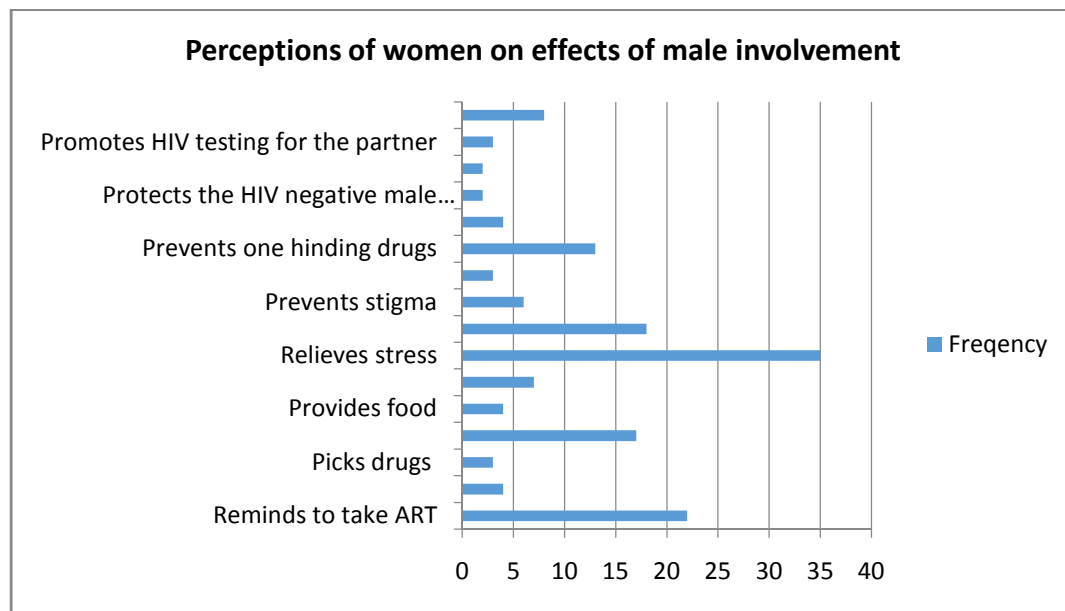
happens at antenatal/clinic visits (n=135)					
Never	32(54.2)	27(45.8)	1	1	
Ever	25(32.9)	51(67.1)	2.42(1.2-4.9)*	1.03(0.39-2.75)	0.948
Disclosure/Sharing HIV status with the male partner (n=135)					
No	18(62.1)	11(37.9)	1	1	
Yes	39(36.8)	67(63.2)	2.81(1.2 – 6.6) *	2.5(0.78-7.99)	0.125

Note. * = statistically significant at ($p \leq 0.05$); OR=1 is the reference category

The perceptions of HIV infected pregnant and postpartum women on the effects of male Involvement on their HIV treatment adherence

This section addresses the research objective four which was conducted using qualitative methods and it sought to examine the perceptions of pregnant and postpartum women on effects of male involvement on their HIV treatment adherence. The perceptions do not represent actual male involvement among this group. A total of 134 respondents were the ones able to answer the open-ended question which sought the effects of male involvement. The major themes that emerged included: treatment support, financial support, emotional support, prevent stigma, safer conception, and communication. These themes were developed from both parent and child codes. The figure below shows the frequency of the various themes that emerged.

Figure 3: Themes about the effects of male partner involvement on HIV treatment adherence among pregnant and postpartum women.



Qualitative data on Treatment support

According to the respondents, women mentioned that if the men are involved in their HIV treatment they would help to remind them to take their ART drugs and also pick for them their drugs in case they are weak or unable to pick their drugs from the health center. Treatment support also included the male partners reminding the respondents about their clinic visits which helps them not to miss their clinic appointments and picking their drugs. These views were supported by some of the quotes from the participants.

Respondent 028: “Male involvement helps me to be reminded of the time to take my drugs. This has helped me to keep hopeful for my life.”

Respondent 054: “If the man is involved it helps the woman to get a treatment supporter who reminds her to take her drugs.”

Respondent 024: “If a man is involved in HIV treatment of his wife, he can act as a treatment supporter and can pick the drugs for the wife in case she is sick.”

Respondent 086: “In case the woman forgets to go for clinic days a man can remind her if he is involved. A man can also help to provide transport to the woman to pick her drugs and all this helps the woman to live healthily.”

Financial support

One of the effects of male involvement in HIV treatment adherence for pregnant and postpartum women was financial support in terms of providing them transport money to go to the help facility to pick their drugs, money to buy food which helps them have a balanced diet which is essential as they take their ART drugs, all this was supported by the quotes from the different women.

Respondent 041: “Men who support women financially help their wives not to miss their clinic days which makes those women adhere to their drugs.”

Respondent 105: “My husband provides me with everything I need to eat and drink which helps me to take my drugs properly.”

Respondent 100: “If a man is involved he will always feed his wife on a balanced diet which helps the wife to stay on her drugs and remains healthy.”

Psychosocial support

Another theme that came up was psychosocial support. Male involvement was perceived to provide psychosocial support to the pregnant and postpartum women in HIV treatment adherence, this psychosocial support had sub-themes thus men act as counselors by continuing to counsel their female partners to adhere to their drugs, they also provide emotional support to the women which helps them not to be stressed which is vital since stress could affect their treatment adherence. The men were also seen as morale boosters for the women to continue taking their ART drugs.

Respondent 043: “If the man is involved the woman feels consoled and comforted by him and this encourages a woman to stay on her treatment.”

Respondent 047 “You do not get stressed if your partner is involved and you do not forget your drugs if you are not stressed.”

Respondent 017 “male involvement in HIV treatment offers strength and morale for a woman not to miss taking her drugs.”

Respondent 076 “Male involvement helps the woman feel cared for and does not feel alone which may be discouraging to take the drugs.”

Prevents Stigma

It was also clear from the findings that male involvement has effect on HIV treatment adherence for the pregnant and postpartum women in terms of facilitating disclosure of HIV status which in turn prevents the women from hiding their drugs which cause them to miss their drugs at times due to this stigma.

Respondent 045 “If the man is involved the woman gets her treatment freely without hiding which promotes her adherence.”

Respondent 122 “If the man is involved, the woman does not have to hide her drugs when she is taking them. He also reminds her to take her drugs.”

Respondent 049 “When the man is involved, the wife does not have to keep secrets about her treatment.”

Respondent 060 “If the man is involved you do not feel worthless and also worrying that he would get to know about my drugs.”

Safer conception

According to the respondents, men played a very vital role in ensuring safer conception which fosters the delivery of a free HIV child which is facilitated by the woman adhering to her HIV treatment and also ensuring that in case of the discordant couples the negative partner remains free of HIV in a situation where the female partner is HIV positive.

Respondent 033 “If the partner is involved, a woman get morale to take her HIV drugs. He also reminds her to take her drugs which helps her give birth to an HIV free baby.”

Respondent 050 “Male involvement helps discordant couples to keep protecting themselves. My husband has remained HIV negative because we tested together.”

Respondent 134 “Male involvement helps the woman to produce children who are HIV negative because the woman will remain on her drugs.”

Prevention of other sexually transmitted diseases

According to the respondents, men also played a vital role in the prevention of other sexually transmitted diseases if they are involved. Prevention of other sexually transmitted and promoting

healthy lifestyle all have an impact on the HIV treatment adherence for the pregnant and postpartum women.

Respondent 010 *“male involvement helps both partners to know their HIV status and to remain faithful to each other, cannot acquire other sexually transmitted diseases.”*

Respondent 087 *“If a man is involved, he helps the woman to have protection against other infections.”*

Respondent 027 *“Male involvement gives one a healthy life when the partner reminds you to take your drugs.”*

Promotes HIV testing for the partner

According to the respondents, male involvement also fostered HIV testing for the partner which helps the couple to know their HIV status and in case of discordance, the negative male partner is protected by the woman adhering to her HIV treatment.

Respondent 010 *“male involvement helps both partners to know their HIV status and to remain faithful to each other, the couple cannot acquire other sexually transmitted diseases.”*

Respondent 016 *“When men support their wives they also discover their HIV status and get treatment together.”*

Respondent 050 *“Male involvement helps discordant couples to keep protecting themselves. My husband has remained HIV negative because we tested together.”*

Promotes partner communication and family lifestyle

According to the respondents, effects of male involvement for the women during pregnancy and after delivery was that it helps to enhance communication for the partners and it also builds trust between the couple which in turn promotes HIV treatment for the woman. This is supported by the following quotes from the respondents:

Respondent 056 *“If the man is involved we get to have a family discussion on how to care for the family and this keeps me hopeful.”*

Respondent 015 “If your partner is involved you find peace in the home which in the end helps you not to miss your drugs.”

Respondent 073 “When the man is involved the woman loves her life and trusts the man.”

Respondent 074 “A woman feels secure when a man is aware of her status.”

Discussion

The objectives of the study were to assess the HIV treatment adherence levels among HIV and postpartum women, to determine the proportion of male partner involvement in HIV treatment adherence, to identify the demographic, socio economic, sociocultural factors associated with male partner involvement in HIV treatment and adherence and to examine the perceptions of HIV infected pregnant and postpartum women on the effects of male Involvement on their HIV treatment adherence

Demographic Characteristics

The study was conducted with a sample of 135 HIV infected pregnant and postpartum women. Findings indicated that more than half (61.5%) of the respondents were aged 25-34 years. This showed that HIV is still more prevalent among women of young reproductive age. In this study, partners' age was significantly associated with HIV treatment adherence. The study findings are in agreement with a study by Muheirwe (2018) that indicated that largely pregnant and postpartum women living with HIV are in a young reproductive age while their counterpart are older and encourage their HIV infected pregnant women to attend both PMTCT and antenatal clinics. A study carried out in Kenya which found that antenatal and postnatal women living with HIV who have no partners are likely to face adherence challenges due to lack of social support from their partners (Yende et al, 2017).

The study results further revealed that being married is associated with male involvement in ANC activities for Pregnant and postpartum mothers living with HIV. Similar studies in Uganda (Byamugisha et al., 2010) and South Africa (Matseke et al., 2017) have reported the same results.

ART Treatment Adherence

The study findings indicate that slightly less than half (42.2%) of the respondents had suboptimal adherence. This could indicate that there is less financial support from the partners. The findings are supported by other studies that indicate that male partner involvement is an important consideration in the woman's decision to receive and adhere to antiretroviral medications for prophylaxis or treatment (Matthews et al. 2016). The findings are also in agreement with a study done by Myer (2010), that there are significant challenges in providing antiretroviral therapy (ART) to pregnant and postpartum women, with specific concerns around maintaining optimal levels of adherence to ART and/or retaining women in long-term services (Myer et al 2010).

The proportions of male partner involvement and disclosure

The study findings found out that majority of the respondents 106 (78.5%) had disclosed their HIV status to their partners. However, male involvement was only evident in less than a half (33.3%) of those that disclosed their status to their partners. This means that generally, male involvement is still low. The findings are also in agreement with the report from the Ministry of Health of Uganda (2014) in which it was stated that male involvement in PMTCT has been limited and many pregnant women attend maternal health services unaccompanied and unsupported by their partners and that only 5 % of men accompanied their spouses to the antenatal clinic.

The perceptions of HIV infected pregnant and postpartum women on effects of male partner involvement on their HIV treatment adherence

According to the study findings, most respondents indicated that male involvement provides emotional support to the pregnant and postpartum women in HIV treatment adherence mainly by helping to relieve stress and also offer morale for the women to continue taking their ART drugs. This means that the emotional state of a pregnant and postpartum woman influences ART adherence. The findings are supported by Fagbamigbe & Idemudia (2015) that most male involvement during

labour and after delivery provides emotional benefits to the couple as well as health-related benefits including better labour outcomes, and earlier initiation of breastfeeding.

It was also noted by the respondents that if the male partners get involved they act as treatment supporters by helping to remind the women to take their ART drugs and pick for them their drugs in case they are weak and also remind them about their treatment schedules. This is in agreement with USAID (2014), that there is evidence that husbands' and partners' participation in the PMTCT process creates an environment conducive to seeking treatment, following up with medication and clinical appointments and remaining in care both during pregnancy and after delivery.

The study findings also showed that the effects of male involvement in HIV treatment adherence for pregnant and postpartum women was provision of financial support in terms of providing money for transport to the health facility, and also money to buy food which helps them have a balanced diet which is essential as they take their ART drugs. This is supported by Maluka (2018), who asserted that women feel that men are mainly breadwinners of the households and are only supposed to support their partners financially and they are in charge of preparing money in case of emergencies or during delivery. This is also supported by the study done by Weiser et al. (2014) which indicated that lack of food is also a barrier to ART adherence and that lack of food will make it more likely for pregnant women to experience unwanted side effects and more hunger.

Another finding that was clearly expressed by many women is that male involvement has effect on HIV treatment adherence because it prevents stigma by facilitating disclosure of HIV status which in turn prevents the women from hiding their drugs. The hiding of the drugs may in turn cause them to miss their drugs at times due to this stigma. This in support with Fagbamigbe & Idemudia, (2015) who indicated that the reasons for non-adherence to ART in sub-Saharan Africa include lack of male involvement, timing of HIV testing and counselling, fear of stigma, and non-sero-status disclosure.

It was also found out that men played a very vital role in ensuring safer conception which fosters the delivery of a free HIV child which is facilitated by the woman adhering to her HIV treatment and also ensuring that in case of the discordant couples the negative partner remains free of HIV in situations where the female partner is HIV positive. This is supported by Davis (2016) that men are important in MCH care, not only as women's partners but also as individuals with significant reproductive impact on women's and children's health. This is also supported by a study in Kenya which reported that male involvement was associated with increased adherence to maternal ART prophylaxis, better

adherence to infant feeding methods, and a 45% decrease in risk of HIV transmission from mothers to infants over a one-year period.

The study findings also indicated that men played a vital role in prevention of other sexually transmitted diseases if they are involved. Prevention of other sexually transmitted and promoting a healthy lifestyle all have an impact on the HIV treatment adherence for the pregnant and postpartum women. This is supported by findings by Sharma et al (2018) that involvement of men in MCH services facilitates prevention of transmission of diseases to their partners.

Male involvement also fostered HIV testing for the partner which helps the couple to know their HIV status and in case of discordance, the negative male partner is protected by the woman adhering to her HIV treatment. This is supported by Sifunda et al (2019) who indicated that male partner involvement in antenatal care provides an opportunity to enhance the uptake of HIV testing and counselling among partners of HIV-positive pregnant women

Male involvement was also perceived by the women during pregnancy and after delivery that it helps to enhance communication and it also builds trust between the couple which in turn promotes HIV treatment for the woman. This is supported by a study by Buregyeya (2017) that support from their male partners and peer family support groups enhances good adherence This is also supported by Muheirwe (2018) that male involvement significantly improves communication among partners which leads to the reduction of maternal workload during pregnancy and encourages postnatal care attendance.

Conclusions

Male involvement is crucial in HIV treatment adherence as perceived by the HIV infected pregnant and postpartum women. However, the proportion of male involvement was generally low with 46.5% of the respondents reporting male partner involvement in HIV treatment adherence. Although generally, the women adhered to their HIV treatment, 42.4% did not have optimum adherence which causes a worrying gap. Knowledge of partners' HIV associated with HIV treatment adherence, as those that had not disclosed reported no male partner involvement. However, even disclosure did not guarantee male involvement: a majority of the respondents had disclosed to their partners' about their HIV status but only 33.3% of those that disclosed reported to have their partner support.

It was further concluded that effects of male partner involvement on HIV treatment adherence among HIV infected pregnant and postpartum women include: treatment support, financial support, psychosocial support, prevents stigma, promotes safer conception, promotes HIV testing for the partner and promotes partner communication and family lifestyle.

Recommendations

To overcome barriers to male involvement in HIV treatment adherence as per this study. Couple testing and education during pregnancy has to be introduced and emphasized.

The ministry of health should focus on promoting men's positive attitudes towards involvement in maternal and infant health care. These interventions need to be centered on encouraging HIV testing among men and disclosure of HIV status to female partners.

Health care providers should always document the factors that have led to optimal or below adherence of every HIV infected pregnant and postpartum women during adherence assessment so that they can build on them for continuous counselling and education.

Government health policies should normalize and provide guidance at all levels of health care in terms of male participation. National ANC policies should seek to restructure maternal health clinics so that they are culturally and practically acceptable to men.

PMTCT programs need to be tailored to promote positive shifts in male attitudes and behaviors that favor women's health by focusing on changing social and behavioral norms, drawing on support from community influencers to normalize male engagement in all aspects of PMTCT.

Programmers and policymakers have to recognize and address the cultural and social barriers surrounding gender and sexuality that exist within relationships and throughout communities, and work with community members and leaders to promote open and positive attitudes surrounding gender and sexuality. Examples include community outreach, and the utilization of community leaders and members to promote the recruitment of expectant fathers into ANC sites for HIV testing and couples counselling and receiving results together.

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Competing interests

The author declare that they have no competing interests

Conflict of interest

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