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Short Report

Family support is important for adherence to antiretroviral therapy among HIV positive mothers in Dar es Salaam, Tanzania

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ABSTRACT

Adherence to antiretroviral treatment (ART) is of utmost importance to reduce the risk of vertical transmission of HIV. We enrolled 106 patients from two Prevention of mother-to-child transmission (PMTCT) clinics in Dar es Salaam in September- November 2016. Study participants were given structured standardized questionnaires regarding their self-estimated adherence and barriers and enablers to adherence. Good adherence was defined as taking $\geq 95\%$ of the pills as prescribed. About 70% of the participants achieved this level of adherence. The odds ratios for poor adherence among women with medium and poor family support were 5.69 (95% CI: 1.36-23.75) and 6.86 (95% CI: 1.89-24.96) respectively compared to good support. A large portion of the women failed to reach the high set limit for adherence. Increased spousal involvement and support could help many women to achieve good adherence.

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Introduction

High adherence to antiretroviral treatment (ART) is crucial in order to achieve adequate viral suppression [1, 2]. Previous studies from low, middle- and high-income countries have shown that an adherence level of $\geq 95\%$ is hard to achieve [3, 4]. Without sufficient viral suppression there is a considerable risk of drug resistance development, subsequent treatment failure and for women during pregnancy and postpartum there is also a risk for vertical transmission of HIV [5]. Since 2014, all HIV positive pregnant women in Tanzania are eligible for ART to be continued for life, in accordance with WHO option B+. However, earlier studies in Dar es Salaam have shown that a substantial part of the women fail to adhere to the treatment in the first two years after delivery [6]. According to a study conducted in Kenya in 2016, interventions that improve adherence and retention in care is the most cost-effective alternative to avert DALYs and is a crucial complement to the scale-ups of PMTCT programmes and the test and treat approaches that are being

laid out in many parts of the world [7]. Partner involvement and family support have previously been suggested to influence adherence in this group [8-10].

Aim

The purpose of the study was to assess adherence to ART among women during pregnancy and postpartum in the Dar es Salaam area and to identify factors associated with either good or poor adherence.

Methods

This cross-sectional, quantitative study was conducted at the Sinza and Tandale PMTCT clinics in Dar es Salaam in September- November 2016. We included women aged 18 years and above who were on ART and were either pregnant or had given birth within the last 12 months. We obtained informed consent on all study participants and thereafter interviewed them about their social-demographic characteristics and

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about ART adherence using a pre-set standardized questionnaire translated to Swahili. The questions regarding adherence and family support were adopted from validated ACTG ante/postpartum questionnaire. To calculate adherence, the participants were asked how many times they missed taking their pills in the previous month. The cut-off for good adherence was set at $\geq 95\%$. Family support was measured by asking if they agree on these two statements: "Your friends or family members help you remember to take your medications" and "Your friends and family are supportive of you." The answers "strongly agree" yielded 4 points, and "strongly disagree" yielded 1 point and zero points for no answer. The answers "somewhat disagree" and "somewhat agree" were given 2 and 3 points respectively. In order to combine the two questions a support score was created by adding the points, 0-2 points were regarded as poor support, 3-5 points as medium support and 6-8 points as good support. The factors were then tested for relation to adherence. Data was analysed using SPSS version 24. For univariate, non-parametric data Pearson's Chi-square tests were used. Differences with p -values < 0.05 were regarded statistically significant. Variables that have been found to influence adherence in previous studies were entered in a logistical regression model.

Results

The study included 106 women of whom 80 were postpartum and 26 antenatal. The women were categorized into adherent and non-adherent respectively depending on their self-assessed adherence during the previous month. Adherence during pregnancy was compared to adherence post-partum. Among the antenatal women the fraction that achieved good adherence was 73% compared to 69% among the postpartum women ($p=0.68$).

Women who had missed taking their ARV in the previous month were also asked to state the reasons for missing their pills and if several, point out the main reason. The most common reason was being away from home (38%) followed by that they simply forgot (19%).

The majority of the women (86%) had disclosed their HIV status to at least one family member, close friend or partner. It was most common to disclose their HIV status to the spouse followed by sister and mother. Even though the spouse was the most common person to confide in, 44% had not disclosed their serostatus to either spouse, steady sex partner or casual sex partner.

The serostatus of the intimate partner was unknown by 40 % of the women while 32% had spouses who were HIV negative and 22 % of the women had spouses who were positive.

The women were asked about in which degree they had support from their family and friends both in general and if they received help to remember to take their medicine as prescribed. In the adherent group 42 % were considered to have good support from their families whereas only 13 % in the non-adherent group reached the same level ($p=0.004$). The following variables were entered in to a logistic regression model: age, pregnant/post-partum, education, steady partner/no steady partner, work outside home or not, duration of ART and family support (Table 1). Medium or poor family support were shown to have an odds ratio for poor adherence of 5.69 (95% CI: 1.36-23.75) and 6.86 (95% CI: 1.89-24.96) respectively compared to good family support.

Discussion

The main finding in this study is that lack of family support had a negative influence on adherence with a five to seven-fold increase in risk

of having poor adherence when not receiving adequate support. This corroborates previous findings in studies investigating barriers to adherence in this patient group and underlines how important it is to empower and educate not only HIV positive patients, but everyone in order to reduce discrimination, stigmatization and to promote disclosure [8-13]. HIV is a disease that affects the whole family and it has been shown that family involvement has a positive effect on adherence [11-14]. Some factors that women face during pregnancy and postpartum can significantly influence adherence; the demands on the mother are increased and without sufficient support from their partner or other family members the adherence can be reduced [14]. This study does not specify whether family support was increased during pregnancy and post-partum but as mentioned above good family support was associated with good adherence. The questions regarding family support were validated by ACTG, however self-perceived support is subjective and may differ between participants.

Serodiscordant couples are common since the HIV transmission rate per sexual intercourse is low [15]. If 40% of the women are unaware of their partner's HIV serostatus and another 32% are certain to be discordant it is plausible that there are many HIV positive men living with HIV negative women. If the HIV positive men are unaware of their serostatus and therefore not on ART, they can transmit the virus to their spouses during pregnancy or breastfeeding with high risk for transmission to the child, since the viral load of the newly infected women will be at the peak a few weeks after infection [16]. Furthermore, there seems to be an increased risk of acquiring the infection during pregnancy [17]. This further emphasizes the need for partner testing during pregnancy. Attempts with distribution of self-test kits to mothers attending antenatal and postpartum clinics in Kenya, for both the mother and her partner showed promising results regarding partner testing and might be a way to increase HIV testing among men [18]. Men in sub-Saharan Africa have significantly lower testing rates than women [19]. One could argue that instead of mother-to-child transmission one could preferably relate to it as parent-to-child transmission in order to involve the spouse to a greater extent. Increased spousal involvement in the treatment and the development of new ways to administer the drugs can be ways to improve adherence, where the first one is feasible today. Regarding the latter, there is currently a number of clinical trials regarding long-acting injection therapy.

Limitations to the study include a selection bias, since it was a cross-sectional study with no means of estimating the number of patients who had discontinued treatment on their own accord. Self-reported adherence has previously been related to underestimation of non-adherence. A study with a larger population and a longitudinal design would be interesting to conduct in order to more thoroughly investigate the barriers and enablers to adherence in this group. Some of the strengths of the study are the way the information was procured through an interview-based method that led to accurate answers and minimal misinterpretations of the questions. Being a cross-sectional study can be a strength as well as a limitation since the participants will not be influenced by being included in a research project in the same way as they might have been in a longitudinal study.

Conclusions

Seventy percent of the women were taking $\geq 95\%$ of the antiretroviral pills as prescribed and regarded adherent. The most important enabler to adherence was family support. The odds ratios for poor adherence among women with medium and poor family support were 5.69 and 6.86 respectively compared to good support.

There were a large number of women who had not disclosed their HIV status to their intimate partner and for 40% of the women the HIV-status

of the partner remained unknown. Increased involvement of the partner is essential for improved care.

Table 1: Associations between adherence and patient characteristics and family support. Adherent n=74; Non-adherent n=32)

		Adherent (%)	Non-adherent (%)	OR	CI (95%)
Age	>30	34 (72)	13 (28)	1.00	
	25-30	28 (72)	11 (28)	1.43	0.49-4.19
	<25	12 (60)	8 (40)	2.63	0.68-10.2
Category	Pregnant	19 (73)	7 (27)	1.00	
	Post-partum	55 (69)	25 (31)	1.9	0.61-5.91
Occupation	Work outside home	36 (71)	15 (29)	1.00	
	No work outside home	38 (69)	17 (31)	1.12	0.43-2.91
Marital status	Steady partner	51 (72)	20 (28)	1.00	
	No steady partner	22 (65)	12 (35)	1.20	0.45-3.17
Education	Over primary school	23 (70)	10 (30)	1.00	
	Max primary school	51 (70)	22 (30)	1.11	0.38-3.24
Family support	Good	31 (89)	4 (11)	1.00	
	Medium	18 (64)	10 (36)	5.69	1.36-23.75
	Low	25 (58)	18 (42)	6.86	1.89-24.96
Disclosure to spouse	Yes	37 (79)	19 (21)	1.00	
	No	37 (63)	22 (37)	2.20	0.92-5.3

Conflict of Interest declaration

No conflicts of interest reported

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