

Exploring fertility decisions among pregnant HIV-positive women on antiretroviral therapy at a health centre in Balaka, Malawi: A descriptive qualitative

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Abstract

Background

The proportions of women of reproductive age living with the human immunodeficiency virus (HIV) vary between different regions of the world, with significantly higher proportions in sub-Saharan Africa. Family planning is one of the major issues that couples and families affected with HIV must confront. We aimed to assess the cultural and social factors associated with childbearing and family planning knowledge, decision-making, and practices among HIV-positive pregnant women attending antenatal clinic at a health centre in Balaka, Malawi.

Methods

This was a qualitative descriptive study carried out at Kalembo Health Centre in Balaka. A purposive sampling technique was used to select pregnant women enrolled in the antiretroviral therapy (ART) programme. A sample size of thirty-five women was decided upon after data saturation. Qualitative inquiry was used during data collection. Data were analysed using systematic text condensation, while numbers and percentages were generated using Microsoft Excel.

Results

Out of 35 participants, 20 were aged between 25 and 34 years, and 18 had been married at least three times. All 35 women wished to have their own biological child. Factors, reported by participants, that promote childbearing included: the desire to please their husbands, fear of losing their husbands to others if they did not bear children, the knowledge that ART would help prevent their children from acquiring the virus, the desire to prove to others that they can also bear children, and a lack of family planning leading to unplanned pregnancies.

Conclusions

The factors that lead to pregnancies among women on ART in Balaka ranged from assured safety of the child from HIV, lack of contraception, to other factors related to their partners. The authors recognize and support the freedom for women to become pregnant and bear children, and, in the context of HIV infection, fertility and reproductive services should include a comprehensive approach towards addressing issues of HIV and AIDS and childbearing among infected women.

Background

Worldwide, the acquired immunodeficiency syndrome (AIDS) is a leading cause of death among women of reproductive age and infants¹. The percentage of women living with the human immunodeficiency virus (HIV) and AIDS varies significantly between different regions of the world. However, in sub-Saharan Africa, the percentage is significantly higher. Globally, at the end of 2014, it was estimated that 70% of all new HIV infections occurred in sub-Saharan Africa and that the region had about 25.8 million people living with HIV, most of which were women^{1,2}. In Malawi, the prevalence of HIV among women and men of reproductive age (15 to 49 years) was estimated at 12.9% and 8.1%, respectively, with the overall prevalence at 10.6%³. In Balaka, a district in Malawi's Southern Region, the overall HIV prevalence is about 14%: 16% among women and 12% men⁴.

HIV/AIDS continues to be a major public health challenge, as it directly and indirectly contributes to high morbidity and mortality rates among people of all demographic groups, including women of reproductive age and infants born to these women. More than 90% of newly infected children are babies, born to women with HIV, who acquire the virus during pregnancy, labour, delivery, or through their mothers' breast milk³.

A study that evaluated gender-based violence and HIV/AIDS in South Africa in 2011 found that male-dominated cultures accorded women a lower status than men, and that high levels of male control in a relationship was associated with seropositivity⁵. A related study in Sudan found that 36% of families do not discuss sexual matters and, as such, the women's inferior status affords them little or no power to protect themselves by insisting on condom use or refusing sex⁶. The resulting unequal power relation between the sexes increases women's vulnerability to acquisition of HIV and unplanned pregnancies^{5,6}.

In Malawi, around 60% of adults living with HIV are women, of which 45% rely completely on their husbands for financial support⁷. This high dependence on men leaves many women powerless to make their own fertility and reproductive health-related decisions. A South African study on fertility intentions among HIV-positive men and women in reported that, culturally, many women and men desire to have biological children⁸. For married women, particularly, childbearing is seen as a social obligation and is associated with a sense of respect and value. Some researchers have hypothesized that, because HIV-positive individuals are more likely to experience deaths among their children, they might increase their fertility in order to replace those children who have died or to ensure that a sufficient number of children survive⁹. Some have speculated that HIV-positive women may seek to shorten birth spacing and produce children more quickly in order to establish their fertility before the disease progresses¹⁰.

Another study reported that although 68% of HIV-infected mothers knew their infants were at high risk of HIV acquisition, 43% expected their peers would be supportive if they wanted babies and 56% anticipated positive responses from their partners¹¹. A qualitative study from Zambia reported that, in the presence of signs or symptoms of HIV disease, both women and men are overwhelmingly against continued childbearing and support the use of condoms to prevent transmission of the virus to a spouse¹². Some women who participated in the Zambian study feared getting pregnant if they suspected they were HIV-positive because pregnancy would "bring out" the disease, and some women preferred taking an HIV test before having another child.

Studies in Malawi indicate that 20% of HIV-positive mothers are conceiving every year and around 300,000 deaths of children are related to HIV^{3,13}. In Balaka, 7,881 women on antiretroviral therapy (ART) gave birth to children in 2014 alone, giving a fertility rate of approximately 9%, which is higher than the national rate of 5.7%^{3,4}. In response to this, the Malawi Government and international donors have endeavoured to target health providers, Community

Based Organizations (CBOs), and women living with HIV and AIDS (WLHA) to assist HIV-positive women to make informed decisions about childbearing. Current studies show that the country is still experiencing a high birth rate among women who are on ART¹¹. We are not aware of another study that has examined the factors influencing pregnancy in WLHA in Malawi. Therefore, the purpose of this study was to explore the factors that influenced HIV-positive women to have children.

Methods

This was a qualitative descriptive study that was carried out from April to September 2013. The study was done at Kalembo Health Centre, which is located in Balaka District, which has among the highest fertility and HIV prevalence rates in Malawi's Southern Region³. Qualitative enquiry was used to explore HIV-positive women's motivations to bear children. We targeted women of reproductive age who were on ART and enrolled in the prevention of mother-to-child transmission (PMTCT) programme. A purposive convenient sampling technique was used to select the participants who were women enrolled in the ART programme. A sample size of 35 women was determined upon saturation of the data. The inclusion criteria were all women who were pregnant and were on ART, whereas the exclusion criteria were all women who were not on ART, not pregnant, and women above the reproductive age group.

A semi-structured questionnaire was used to collect data from the participants who were approached at the antenatal clinic (ANC) and the antiretroviral drug collection clinic. Participants were approached after their medical consultations at the hospital and were asked to participate in an interview in a private room offered by the hospital staff. The interviews took about 45 to 60 minutes and were tape-recorded. Only those who consented were interviewed. The interviews were done according to themes on the semi-structured questionnaire until the saturation point was reached. Saturation was reached when consecutive individuals repeated the same answers given by previous interviewees without adding something new. Five assistant environmental health officers (AEHOs) were trained and assisted in conducting one-to-one interviews. One-to-one interviews were chosen with the intent of allowing participants to feel free to give more information about their lives. A pretest of the data collection tool was done to increase the competency of research assistants and to ensure quality data. Antenatal clinics are run every day from Monday to Friday at Kalembo Health Centre, so participants units were approached every working day for a period of three weeks. The main reason for non-participation was lack of time, as some women were rushing to do some activities at home.

Prior to the study, permission was obtained from the Balaka District Health Office (DHO), the health centre in-charge officer, and then the study participants, themselves, during the study. The study was then reviewed and approved by the National Health Science Research Committee (NHSRC) in Lilongwe. The purpose of the study was clearly explained to the participants of the study, and hence the questionnaire administration commenced only after the participant had granted and signed the consent form. The respondents were assured of confidentiality and did not have to write their names on any of the pages of the consent form or questionnaire. The data collectors also signed an agreement form declaring that information obtained will not be

disclosed to any person or used for purposes other than this research. Since the data collectors were health workers, they easily understood the need for confidentiality. Analysis of the data was done manually, using the principle of systematic text condensation, as described by Malterud [14]. There are four stages involved in this: repeated review of the data to gain a thorough sense of the overall content in the text, identifying central meaningful units in the materials, condensation of the content through coding of the text, and creating categories that contain the condensed meaning of the main themes in the data collected¹⁴. The data from recorders were transcribed verbatim and read three times to gain overall understanding and identify themes through induction. Important quotations were chosen and have been included in this article.

Results

Sociodemographic characteristics of participants

Out of 35 participants, 20 (57%) were between 25 and 34 years of age (Table 1). Most women had been married more than once and involved in polygamy. The source of money for most of them was small-scale business, through which they earned less than USD \$5 in a month.

Table 1: The sociodemographic characteristics of the participants (n = 35)

Characteristic	Category	Frequency
Age	14-24	9
	25-34	20
	35+	6
Marital Status	Married	12
	Single	10
	Single Partner	8
	Divorced	2
Number of Marriages	Widow	3
	Only Once	3
	Twice	14
	Three times	10
Disclosure	More than three times	8
	Yes	26
	No	9
Desired number of children to bear	None	0
	Only 1	3
	2-3	20
	3 above	12
Source of income	Employee	1
	Business	19
	Farmer	10
Income per month (USD)	Others	5
	<\$2.50	14
	\$2.50 - \$5.00	8
Education	>\$5.00	3
	None	0
	Primary	30
	Secondary	5
	Tertiary	0

Influences on childbearing

We endeavoured to establish the influences on childbearing among WLHA at Kalembo Health Centre. All 35 participants agreed that there were multiple influences. Some of the influences pertained to their spouses. Two participants, who were aged 27 and 30 years, respectively, said:

"I wanted to please my husband."

For some, their husbands were looking for either a male or female child. Some women reported that they feared marital breakdown if they did not bear children.

Some of the respondents said that they planned to have children because their status does not limit them from bearing children, as there are drugs available to protect their children. They wanted to bear children and prove to others that they can also produce since there are messages disseminated in the media regarding childbearing among HIV-positive women. A 24-year-old participant said:

"Doctor, do you listen to radio? HIV-positive people are free to bear children but adhere to drug therapy to prevent transmitting HIV to the new baby."

Another participant, aged 32 years, offered:

"Everyone needs to have her own children before she dies. I am stronger than before because of the ARVs and being HIV-positive is not being barren. Should I fail to bear my own children because of HIV? It is not good. Children are provided and cared by God. If He (God) does not want me to produce, he shall make me so."

However, some reminded us that pregnancies are sometimes unplanned. This was evident by what one 19-year-old participant said:

"I just found myself pregnant. I was on contraceptives but on a certain month, I missed my menses. It was very disappointing, and I could not terminate it for fear of my life."

Another response, from a 39-year-old participant, was:

"I do not know what made me to bear children. I just wanted to bear children."

Although the number of children to be borne by every participant differed, the categorised data showed responses such as, offered by a 38-year-old participant:

"At least 5—it's a good number because childbearing is a gift from God. Three are enough for easy caring, I will bear children as per advice from medical personnel."

Partner's reaction to the pregnancy

The majority of participants reported positive reactions by their partners to the news of a pregnancy. According to the participants, the positive reactions were facilitated by the fact that their partners knew about the HIV-positive status already. Some said that they went together with their partners to ANC, where they tested positive during the previous pregnancies. Following interview questions aimed at gaining insight into the strategies or methods used by the participants to notify their partners after testing positive for HIV, and after missing their menstrual periods, and how the partners reacted, different responses were given. Some women reported that they were together with their partners on the day of HIV testing, so they got the results as a couple. Some said that they communicated to their husbands when they reached home. It was difficult for some husbands to believe the results, such that some women went back for a

retest. Upon confirming the results, some women ended up finding themselves in a polygamous situation because their husbands became frustrated and married a new wife. The participants reported that some of the husbands believed that their wives were not faithful. One of the participants, aged 22 years, said:

"I lost my husband when I tested HIV-positive. He thought I am the one who has infected him. He committed suicide by drinking a poison, which we were using to kill the rats."

Another participant spoke of her separation from her husband:

"I am taking care for children alone; my husband left me. He married another wife out of anger. We are no longer staying as a family. He did not believe it and looked scared."

Some women reported suffering the physical and psychological consequences of sexual abuse. Some reported not engaging in safe sex to prevent unwanted pregnancies and transmission of HIV and other sexually transmitted infections (STIs). Three participants expressed narratives similar to the following:

"He fails to use condoms now, and I am under pressure... Before I got pregnant, I told him that I am HIV-positive, but he was angry, scared, and beat me several times... and he has not told me his status."

Some participants reported that, after testing positive for HIV, they chose not to tell their husbands because, likewise, the participants had never been on the receiving end of such disclosure from their husbands. These couples lack a mutual understanding of open communication through which they can discuss such difficult topics, as expressed in the following statement:

"Why should I tell him?... I don't know his status. I am a part-time, wife so why should I tell him?"

Another participant said:

"I am scared of him. He will kill me. He will think that I have infected him. Before I got pregnant, I told him that I am HIV-positive in a joking way; he was angry and also scared... He has not told me his status; why should I tell him mine? We do not stay together... I don't know his mood by the time I am going to tell him, or it depends on his mood at the time I tell him."

It was difficult for some participants to express how their husbands would react because their husbands were away from home. Three participants shared a similar story to that described in the following quotation:

"My husband goes to South Africa, so there is not enough time for me to open up everything to him... even if I make a call he may fail to respond properly unlike if he was with me at home."

However, another participant was suspicious that her husband is the one who infected her because the husband had another wife in South Africa:

"Doctor, it is not possible for a man to stay three to five years without meeting a woman."

Most of the participants did not discuss anything with their husbands about childbearing, as illustrated by statements like "I have never talked about it with him," and, "We have never discussed it".

Types of support given to pregnant HIV-positive women who are on ART

Most of the participants had support from the community, either material or spiritual. In some cases, it was found that parents buy soap, clothes, food, and cover other daily needs. Parents also counsel, especially on the number of children to bear as reported by one participant:

"My mother told me that I need not to worry because motherhood is nice and good when you bear children."

In other cases parents advise their daughters not to bear more children while HIV-positive. Participants gave statements like:

"They are saying the number I have is okay because I am HIV-positive."

"They just encourage me not to have any more children, as I am now sick so I have to take care of myself."

Some husbands have been found to be supportive. In such cases, the husbands take the responsibility of providing daily needs:

"My husband buys me whatever I ask him. At the moment the child preparation plans (buckets, napkins, new zitenje) are available," said a 24-year-old mother.

Not only do the parents and husbands provide support, but so do the community and society. Some churches pray for HIV-positive pregnant women to have good health. Community groups conduct nutrition education for HIV-positive people. This was evident from this quotation:

"In our village our pastor keeps on praying for us and encourages us that God can heal us if we pray in truth."

While most women received support, a small number indicated that they do not receive any support. A 28-year-old said interviewee said:

"My husband pays very little attention to me. He just knows how to produce children with me... hubbb... [shedding tears]... My husband does not support me. I bear children just to buy love from him."

This indicated that there are difficult circumstances that some HIV-positive mothers go through. Another example was the following:

"My husband pleases his second wife. He will come when he hears that I have delivered so that I should fall pregnant again. I would have loved if I were still with my first husband."

Some women expressed poor community support being related to stigmatization of people living with HIV; however, some of these women reported receiving support from non-governmental organizations (NGOs), for example:

"Yes, I see some women in the village laughing whenever I pass close to them. Nobody supports me. Without the initiative of 'Options' [an NGO that runs programme called the Results-based Financing for Maternal and Newborn Health Initiative], who are distributing buckets, money and clothing, I would have stopped bearing children. Nevertheless, I see friends carrying their own children and living happily,

even though they are as poor as I am."

Perception on the use of family planning

Since some of the women got pregnant unintentionally, we sought to evaluate the use of family planning in this group. The majority of the participants disclosed to their partners that they were using a form of contraception. Some had coordinated their family planning as a couple (usually condom use). Others said that they did not inform their partners about the use of family planning because of fear of being suspected of having other sexual partners:

"Ehh! if he knows that am on family planning, he can beat me up or leave me alone for other women."

The types of family planning used included long- and short-term methods (Table 2). In other cases, more than one method was used. However, no participant reported to using contraception consistently.

Table 2: Family planning methods used by WLHA

Family Planning methods	Number of responses*
Intrauterine device/system	6
Depo-Provera	21
Condoms	20
Oral pills	16
Jadelle	5
Natural methods (withdrawal)	15

When asked the types of family planning methods they use and reasons for their choice, it was reported that oral pills, condoms, withdrawal and Depo-Provera were the family planning methods well known to the women. Tubal ligation and Norplant were never mentioned. Some women reported that oral pills are not preferable because one can easily forget and miss doses. Side effects, such as heavy menstruation, were mentioned as reasons against the use of Depo-Provera. Some participants said that they do not like condoms, as in the quote below:

"Doctor, condoms bring rashes to the private parts. I used them when we were found HIV-positive together with my first husband, and the doctor advised us to use them. But after some time while using them we developed rashes."

In some women condoms were not used because of personal perception and teachings that emphasize that married women should not use any barrier, because marriage exists for reproduction and that a married person should enjoy sex fully:

"Brother, where have you ever seen someone eating a sweet in a pack," said a 39-year-old participant.

A few participants said that it is against the God's will and that it disturbs nature to use family planning methods.

"Doctor, every woman who is on family planning shall receive the anger of God."

Risks associated with childbearing

Some of the risks associated with childbearing among HIV-positive women and sources of information about these risks were well known to the participants. All the women who were pregnant knew that they were HIV-positive for over a year or more. Some of the participants who continue

to bear children were unaware of the risks. Women reported that they were not clearly advised on the dangers of childbearing while HIV positive. Health workers, community volunteers, support groups, and churches were discussed as not being explicit in disseminating the correct information to women living with HIV. There were mixed responses from participants. A 22-year-old participant said:

"Just in a few instances, doctors do advise us that we HIV-positive women can also bear children, but we have low immunity."

Another participant said:

"My mother keeps on advising me that, if I continue bearing children, I will die early."

Others said that children could become orphans. One participant was quoted as follows:

"In our village, most of the orphans are due to HIV and AIDS and the orphanages are failing to support them... Yes, in some families... family members can take care of the children, but a biological parent is the best care."

The most commonly mentioned risks—brought up by almost all participants—were the risks of transmitting HIV to a new baby or to a partner:

"Doctor, we are bearing children because of the presence of the ARVs, but still some children are born HIV-positive."

Women also fear transmit HIV to their husband or partners, as illustrated by the following quotation:

"Sometimes the husbands who are HIV-negative can take HIV from us (HIV-positive women)."

Though most of the participants were open and willing to respond to the questions throughout the interview, some were resistant to respond and became. One participant said that she did not know the risks of childbearing while HIV-positive. She looked very disappointed and could not hold their emotions:

"Whether HIV-positive or not, childbearing is childbearing. Why do you discriminate us?"

The overall feeling of mothers interviewed was that, despite having some knowledge on the consequences of childbearing, they had not received relevant information and support from the antenatal clinics and antiretroviral therapy clinics.

Discussion

Several factors influencing fertility decisions among pregnant women on ART were brought to light by the women in Balaka. The majority of the women interviewed became pregnant after they had known that they were HIV-positive. Common factors associated with pregnancy included the husband's influence and the availability of drugs that maintain a good health status and help prevent vertical transmission of HIV. Many women indicated that they felt stronger than before starting ART and that they desired more children. They had hope that becoming pregnant would do them no harm.

It has been revealed in other studies that most HIV-positive women who become pregnant, or desire children after their diagnosis, seem more confident in the efficacy of risk-reduction strategies¹⁵. However, the findings of this study suggest that, regardless of a woman's pregnancy experiences

or intentions, reproductive decision-making of participants considers the perceived risks of vertical transmission (which is often overestimated); beliefs about vertical transmission risk-reduction strategies; desire for motherhood; stigma; attitudes of partners and healthcare providers; and the impact of the mother's health. Some women reported that they became pregnant because they wanted or desired to have another child, even though they knew that they were HIV-positive. This is contrary to a study in which many women feared getting pregnant if they suspected that they were-HIV positive, because pregnancy would "bring out" the disease¹². In this study, most of the participants reported the desire to have more than four children. Although the sampling was not random, most of the respondents had married more than once and a large proportion were unemployed. These characteristics possibly made the women less empowered to make their own decisions regarding childbearing or contraception, and thus become pregnant unwillingly. In other words, this vulnerability could lead to unstable relationships in which women enter relationships men with intention of receiving support, and this can contribute to repeated pregnancies. This idea is supported by a study on repeated pregnancies among women in India who were on ART¹⁶. The study found that women who were jobless were more likely to change spouses and to have children with almost every man with whom she married. [16] After a related study, a 1995 World Health Organization (WHO) report stated that through empowering vulnerable women, the rate of fertility in HIV-positive women would be reduced by 15%⁶. The study also revealed that women of reproductive age are not only being infected with HIV more frequently, but they are becoming infected at a younger age. Consequently, they may be less mature and less prepared to make informed decisions on the choice of childbearing.

One of our findings was that the majority of respondents only had some primary education. However, they were knowledgeable about HIV infection and able to understand what it means to be HIV-positive. This is contrary to a report from a United Nations Conference that indicated that a low level of education hinders understanding of HIV infections issues.¹⁷

Most of the women had disclosed that they were HIV-positive to their husbands, friends, and family members. Women in a study done by Myer felt hesitant to disclose their HIV-positivity to others out of fear of stigmatization.¹⁶ Women were found to feel pressured by such attitudes, and this could have acted as a constraint to disclosure of their HIV-positivity¹⁸. The present study indicates that disclosure was not problematic, as the results showed that the majority of participants supported the idea of disclosing, either to their families or to their partners. The women discussed being able to participate in social activities more freely and actively. Their openness assisted them in discussing more of their family future through acquisition of knowledge from others. This is similar to a study in which the results showed that repeated pregnancies were more likely to occur among women who did not disclose to their spouses¹⁹.

Although most participants seemed to know the contraceptive methods and understood the importance of these methods, only few participants were using them consistently and only a small number used condoms, the method which prevents both pregnancy and STIs. The responses from participants showed that they gained knowledge of family planning

through ANC and ART clinics, where health workers, especially nurses and health surveillance assistants (HSAs) provide health talks. Most women were not consistent with any method mentioned and some even failed to use any method. This agrees with the results of a study on pregnancy desires and contraceptive knowledge and use among HIV-positive women for prevention of subsequent pregnancies, where most of the HIV-positive women spontaneously interrupted contraceptive methods, and hence more women had unplanned pregnancies²⁰ Another study in Kenya revealed similar results of low use of contraceptives amongst HIV-positive women in an ART programme²¹.

In some cases women were involved in both unsafe and unprotected sex as they were influenced to be sexually active by the use of ART that made them healthy and strong. This concurs with study done in United States of America on sexual functioning and activity among HIV-positive women, which found that although most women (90%) remained sexually active after testing HIV-positive, few used safe sex practices, with more than one-third (37%) engaging in regular unprotected sexual activity. Religious factor related to contraceptive use were also identified. Some women reported that on a religious basis, they could not use any family planning method. Their churches advise them that following modern family planning contradicts with God's doctrines. This was more commonly observed among Christians. A related study found that Muslims, owing to customs regarding large family size, were unlikely to use family planning methods²².

It was shown in this study that there is poor support by family, partners, and peers related the reproductive decisions of HIV-infected women. This concurs with a study that revealed a lack of support from partners, unequal gender relations, and stigmatization as results of increasing pregnancies amongst HIV-positive mothers, contribute to failure of drug collection in the ART clinics¹³. The same study also found that women who were on ART were the most stigmatized after frequent pregnancies, and this compromised their health.

Another important finding in this study was that the majority of participants stated that their family advised or encouraged them to continue bearing more children. This concurs with other studies on reproductive intentions among HIV-positive women, which point out that familial, spousal, and societal expectations for childbearing are important influences on women's reproductive intentions^{8,11,23}. Families often expect that marriages should give rise to children, and this influences HIV-positive couples to bear children.

Conclusion

This study revealed factors that influence fertility decisions among pregnant women with HIV attending ANC and ART clinic at Kalembo Health Centre in Balaka. Some of participants became pregnant because they desired to have another child and others because their partners wanted a child. A proper understanding of factors associated with pregnancies among these women is essential to guide interventions and counselling strategies to better inform and support them. Religious doctrines, beliefs about having a healthy baby, personal desire and familial desires to have a baby, combined with the social stigma that accompanies HIV, puts women who are HIV-positive in a difficult situation. HIV-positive women must be appropriately counselled about the risks of childbearing rather than focusing only on issues related to mother-to-child transmission of HIV.

Limitations

Despite the important roles carried out by husbands and partners in this context, males were not interviewed. There is a need to triangulate results from interviews with women with interviews with men to verify or dispute the points made by each group. The authors recommend further research involving partners of HIV-positive women who attend ANC services. Furthermore, the purposeful sampling method of recruiting participants means that data were collected from unrepresentative study informants, and the results cannot be generalized to a wider population. However, the qualitative data collected was relevant to the study topic.

Competing interests

The authors declare that they have no competing interests. The authors support the Government of Malawi policy that HIV-positive women should be free to become pregnant and bear children if they want.

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References

1. UNAIDS. HIV and AIDS in Sub-Saharan Africa [Internet]. 2012 [cited 2014 Mar 12]. Available from: www.unaids.org/en/geographic+area/by+region/subsaharan+africa.aspxwww.naca.gov.mw
2. World Health Organization. HIV and AIDS [Internet]. WHO. 2015 [cited 2015 Sep 6]. Available from: <http://www.who.int/mediacentre/factsheets/fs360/en/>
3. National Statistical Office, ICF Marco. Malawi Demographic and Health Survey [Internet]. www.nsomalawi.mw. 2010 [cited 2013 Jul 14]. Available from: http://www.nsomalawi.mw/images/stories/data_on_line/demography/MDHS2010/MDHS2010%20report.pdf
4. Balaka DHO. Balaka Health Management Information System. Balaka, Malawi: Ministry of Health, District Health Office; 2014.
5. Dunkle KL, Jewkes RK, Brown HC, Gray GE, McIntyre JA, Harlow SD. Gender-based violence, relationship power, and risk of HIV infection in women attending antenatal clinics in South Africa. *The Lancet*. 2004 May 1;363(9419):1415–21.
6. Fathalla MF, Sinding SW, Rosenfield A, Fathalla MM. Sexual and reproductive health for all: a call for action. *The Lancet*. 2006;368(9552):2095–100.
7. Ministry of Health. National Reproductive Health Strategy. Lilongwe, Malawi: Malawi Government; 2009.
8. Cooper D, Harries J, Myer L, Orner P, Bracken H, Zweigenthal V. "Life is still going on": reproductive intentions among HIV-positive women and men in South Africa. *Soc Sci Med*. 2007 Jul;65(2):274–83.
9. Trinitapoli J, Yeatman S. Uncertainty and Fertility in a Generalized AIDS Epidemic. *Am Sociol Rev*. 2011 Dec 1;76(6):935–54.
10. Yeatman S. HIV Infection and Fertility Preferences in Rural Malawi. *Stud Fam Plann*. 2009 Dec;40(4):261–76.
11. Murphy DAM. Number of pregnancies, outcome expectancies and social norms among young women on ART program. *Health Afr*. 2009;470–5.
12. Rutenberg N, Biddlecom AE, Kaona FA. Reproductive decision-making in the context of HIV and AIDS: a qualitative study in Ndola,

Zambia. *Int Fam Plan Perspect*. 2000;124–30.

13. Chinkonde JRSJ. The prevention of mother to child HIV transmission program in Lilongwe. Why do so many women dropout? *Reprod Health Matters*. :143–51.

14. Malterud K. Systematic text condensation: a strategy for qualitative analysis. *Scand J Public Health*. 2012 Dec;40(8):795–805.

15. Njie-Carr V, Sharps P, Campbell D, Callwood G. Experiences of HIV-Positive African-American and African Caribbean Childbearing Women: A Qualitative Study. *J Natl Black Nurses Assoc JNBNA*. 2012 Jul;23(1):21–8.

16. Erande APH. Repeated pregnancy among women on ART in Pune, India. India; 2011.

17. United Nations. Report on the International Conference on Population and Development [Internet]. United Nations Population Information Network. 1994 [cited 2014 May 9]. Available from: <http://www.un.org/popin/icpd/conference/offeng/poa.html>

18. Myer L, Morroni C, Cooper D. Community attitudes towards sexual activity and childbearing by HIV-positive people in South Africa. *AIDS Care*. 2006 Oct;18(7):772–6.

19. Suryavanshi N, Erande A, Pisal H, Shankar AV, Bhosale RA, Bollinger RC, et al. Repeated pregnancy among women with known HIV status in Pune, India. *AIDS Care*. 2008;20(9):1111–8.

20. Batya EDT. Pregnancy desire and contraceptive knowledge and use among prevention of mother to child transmission clients in Rwanda. 2010;23:19–26.

21. Bij CS. Family planning and safer sex practices among WLHA at Kitale District Hospital in Kenya. *Kenya East Afr J*. 2010;85(1):46–50.

22. Davash R, Perchal P. Sexual and reproductive health needs of women and adolescent girls living with HIV: research report on qualitative findings from Brazil, Ethiopia and the Ukraine. 2010 [cited 2014 May 9]; Available from: <http://www.bvcooperacion.pe/biblioteca/handle/123456789/7344>

23. Selwyn PA, Shoenbaum E, Davenny K. Prospective study of human immunodeficiency virus infection and pregnancy outcomes in intravenous drug users. *JAMA*. 1989;261:1289–94.