# Fertility intentions and use of contraception among monogamous couples in Northern Malawi in the context of HIV testing

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Knowledge of HIV status may influence fertility desires of married men and women. There is little knowledge about the importance of this influence among monogamously married couples and how knowledge of HIV status influences use of contraception among these couples. We carried out a cross-sectional analysis of interview data collected between October 2008 and September 2009 on men aged 15-59 years and women aged 15-49 years who formed 1766 monogamously married couples within the Karonga Prevention Study demographic surveillance study in northern Malawi. 5% of men and 4% of women knew that they were HIV positive at the time of interview and 81% of men and 89% of women knew that they were HIV negative. 73% of men and 83% of women who knew that they were HIV positive stated that they did not want more children, compared to 35% of men and 38% of women who knew they were HIV negative. Concordant HIV positive couples were more likely than concordant negative to desire to stop child bearing (odds ratio 11.5, 95%CI 4.3 – 30.7, after adjusting for other factors) but only slightly more likely to use contraceptives (adjusted OR 2.1, 95%CI 0.9-4.9). Knowledge of HIV positive status led to an increase in the reported desire to cease childbearing but there was limited evidence that this desire led to higher use of contraception. More efforts directed towards assisting HIV positive couples to access and use reproductive health services and limit HIV transmission among couples are recommended.

**Key words**: Malawi, couples, fertility intentions, contraception

## Introduction

Knowledge of HIV status could influence desired fertility in two opposing ways (UN, 2002). Knowledge of HIV positive status could reduce the desire for additional children through concern for the health consequences for the mother and child and ability to care for the children until maturity. Alternatively, awareness of HIV status could accelerate childbearing for fear of not reaching a desired family size before the onset of AIDS or due to an increased desire for more children because of high levels of child mortality (Zaba and Gregson, 1998, Setel, 1995, Magadi and Agwanda, 2010).

In the mid 1990s testing for HIV was not widespread and an HIV diagnosis late in the course of disease implied that many infected people could not survive long enough to change their fertility (Setel, 1995). As a consequence, studies on the effect of HIV on fertility found that although HIV positivity is associated with lower fertility, knowledge of HIV positive status did not translate into a noticeable negative or positive impact on fertility (Setel, 1995, UN, 2002). .

Research to date on knowledge of HIV status and couples' fertility intentions has been limited. Individual level studies reveal that HIV positive individuals want to limit childbearing (Heys et al., 2009, Taulo et al., 2009, Hoffman et al., 2008) in consideration of factors such as risk of infection to their partners and their unborn children (Nduna and Farlane, 2009); awareness that the onset of AIDS will lead to ill-health and increased difficulties in caring for themselves and their children (Laher et al., 2009); perceived community disapproval associated with HIV and reproduction even though motherhood and childbearing are socially valuable for young HIV positive people (Cooper et al., 2007). These factors have varied by gender with women expressing more concern about the health consequences of carrying a pregnancy to full-term and childbearing while men are more concerned about their own early death and the future of their children (Yeatman, 2009a). Men and women who tested positive and yet had perceived themselves as being HIV negative changed their fertility intentions from desiring to have more children to desiring to stop (Yeatman, 2009b).

While research findings have been consistent on the effect of HIV awareness on fertility intentions, studies of the effect of antiretroviral treatment (ART) on fertility intentions have tended to be inconclusive (Nduna and Farlane, 2009, Maier et al., 2009, Myer et al., 2007). Studies in Uganda and South Africa found that women on ART were more likely to want more children compared to women who were not on ART and that this desire increased with duration of being on ART (Maier et al., 2009,

Myer et al., 2007) But other studies found no clear or no evidence that being enrolled in an ART treatment clinic modified fertility intentions (Laher et al., 2009, Heys et al., 2009).

Few studies have analysed the relationship between fertility intentions and HIV awareness in *couples* and how spousal differences in fertility intentions influence use of contraception. A review of these studies found mixed and inconsistent evidence of which partner carries more weight in reproductive decisions (Blanc, 2001). Another review argued that couple's joint fertility intentions lead to better predictions of subsequent behaviour (Becker, 1996). Doodo (1998) analysing two rounds of demographic and health survey data from Ghana and Kenya compared reproductive intentions of men and women; he found little evidence that men's preferences are more influential. A comparative study in 18 countries using couples' data from the Demographic and Health Survey found that there is a process of negotiation between couples with different reproductive goals and that use of modern methods of contraception was higher when both want to stop, except in Malawi where use was higher when the man, but not the wife, wanted to stop. (Bankole and Singh, 1998).

This study, using data on fertility intentions and information on HIV status of couples linked to an on-going demographic surveillance system in Karonga district in Northern Malawi will investigate how knowledge of HIV status alters men's, women's and couples' fertility intentions and how existing differences in fertility intentions influence use of contraception.

Specifically, the paper will address the following questions:

1. How does knowledge of HIV status influence fertility intentions for men, women and couples?

2. How does knowledge of HIV status influence contraceptive use?

## Methods

This study uses data collected between October 2008 and September 2009 from a module on fertility intentions linked to an on-going Demographic Surveillance system (DSS). The DSS baseline census was conducted in 2002-2004 in a population of around 33,000 individuals, following which the population has been under continuous surveillance with an annual re-census. A population-based adult HIV and behaviour survey started in the DSS area in September 2007(Jahn A., 2007, Molesworth, 2010)

Questions, asked separately to men and women, using the local language (Tumbuka), captured marital status, current fertility, including total number of children ever born and surviving, fertility intentions, including perception of their partner's desire and the preferred timing of the next birth, and use of contraception. Respondents who wanted no more children were also asked consequences of having another child. Unique individual identification numbers in the DSS permits the linking of couples' intentions data.

This paper analyses the baseline round of data. Data on fertility were collected along with data on sexual behaviour as part of a survey which also offered HIV testing. Individuals could refuse testing and still complete the questionnaire. The data were collected approximately one month after the re-census of that area, which included collection of socio-economic data and identification of spouses.

We collected data on HIV status between October 2007 and October 2008 using door-to-door HIV testing with rapid tests(Molesworth, 2010). We collected data on knowledge of HIV status and whether the participants have ever been enrolled on ART after filling fertility intentions questions. Free ART has been available in Karonga District since 2005 and in the DSS area since 2006. For the analysis we used stated

knowledge of HIV status rather than actual status, since it is knowledge that will influence behaviour.

***Statistical analysis***

We used Stata 11 software to analyse data. We carried out bi-variate analysis using Chi-square tests for associations and then ran logistic regression analyses for the probability of wanting no more children. We examined whether fertility intentions of couples varied by their HIV status. There were four possible outcome combinations for the couples: both wanting more children or undecided; both wanting no more children; wife wanting no more children husband wanting more/undecided; husband wanting no more children wife wanting more/undecided. The undecided were grouped with those who wanted more children because, in a high fertility society their reproductive behaviour tends to be similar. Owing to small numbers, we subsequently collapsed this outcome variable to two categories: both want no more children and both or either want more or undecided. There were also four different ways in which knowledge of HIV status could be distributed in the couple: concordant positive; concordant negative; discordant husband positive, discordant wife positive. Using logistic regression we also explored how couples' knowledge of their HIV status influences use of contraception. We used women's reports of use of contraception to represent couples' use of contraception.

## Results

Of 4654 married couples known from the census, 3164 consented to the behavioral survey, and 2748 couples where both husband and wife were seen agreed to take part in the fertility intentions study. We dropped 112 couples due to mismatching information on the partner's identity, marital status or the name of the wife or husband. We obtained information on 2636 matched unions of which 67% were monogamous couples and not currently pregnant, 11% were pregnant, 20% polygamous and 2% were outside childbearing age group. The mean age of women was 29 years (range 15 – 49 years) and mean age of men was 35 years (range 17 – 66 years).

Based on previous test results from sero-surveys and others studies carried out among the study population, 98% of those who reported being HIV negative were really HIV negative at the time they last had an HIV test before the survey (1139/1160 men and 1318/1341 women with results available). 100% of those who reported being HIV positive were indeed HIV positive.

**(Table 1 here)**

Table 1 shows the proportion of men and women wanting no more children, and proportion of women using contraception, by background characteristics of the study participants. The proportion wanting no more children increased with age, number of children and level of education among both men and women. Fertility intentions differed by knowledge of HIV status. Both men and women who reported that they were HIV positive, either on ART or not on ART, were twice as likely to report a desire to stop child bearing compared to men and women who reported that they were HIV negative. For subsequent analyses we have excluded those with unknown HIV status. Using Fishers Exact Test we found no significant difference

between those on ART and those not on ART and therefore combined these two groups.

Table 2 presents unadjusted and adjusted odds ratios (OR) predicting the likelihood of wanting no more children among married men and women. Adjustment for a wide range of possible confounders made little difference. We found that HIV positive individuals were more likely to want no more children compared to their HIV negative counter parts, with adjusted odds of 4.6 for men and 6.2 for women.

**(Table 2 here)**

***Couples' HIV awareness and fertility intentions***

Table 3 shows fertility intentions by the couples' HIV status. The expressed desire for both to have no more children was highest (69%) among concordant HIV positive couples and lowest (25%) among concordant HIV negative couples, with discordant couples having an intermediate value (51%). Among concordant negative couples husbands and wives were equally likely to want no more children. Among concordant positive and discordant couples, the majority agreed in wanting no more but, in cases of disagreement, it was the husband who was more likely to want no more.

**(Table 3 here)**

For the subsequent analysis couples with at least one member wanting more or undecided were combined with those where both wanted more or were undecided. Logistic regression in table 4 shows that concordant HIV positive couples were much more likely to desire to stop child bearing than were their negative counterparts: odds ratio 6.6, increasing to 11.5 (95%CI 4.3-30.7) after adjusting for other factors associated with fertility intention. The pattern was less clear for HIV discordant couples (adjusted odds ratio 2.1 (0.9-4.6).

Among those who did not want more children the most important reason given varied. Among HIV negative women who wanted no more children, finances or effects on woman's health were major foreseen adverse consequences, each reported by 83%. Among HIV positive women effects on woman's health was the major reason, reported by 77% of women on ART and 66% of women not on ART.

For HIV negative men, 66% reported finances and 24% the woman's health. Among HIV positive men on ART 42% reported women's health and 27% child health. Among HIV positive men not on ART 32% reported woman's health, 32% finances and 25% child health.

**(Table 4 here)**

***Couples' HIV awareness and contraception***

**(Table 5 here)**

Levels of contraceptive use reported by wives were almost identical among concordant negative, concordant positive and discordant couples (Table 5). Little difference was apparent between concordant couples in method choice, with hormonal methods and condoms equally popular. However, hormonal methods were less commonly used by discordant couples and condoms were more likely to be used**.** Logistic regression showed no significant difference in contraceptive use between the three types of couples. Compared with concordant negative couples, adjusted odds ratio of use of any contraception in the concordant positive couples was 2.1 (95%CI 0.9-4.9). The odds ratio for discordant couples was 1.0 (95%CI 0.5-2.0) (Table 6). After controlling for HIV status and other background characteristics couples who agree to stop child bearing were more likely to use any method of contraception (1.7 95%CI 1.2 – 2.4) .

**(Table 6 here)**

## Discussion

In this population based cross-sectional study of 1766 monogamously married men and women we found that most HIV positive men and women wanted to stop child bearing. 70% of men on ART and 69% of men not on ART desired to stop child bearing. Similar proportions were found among women. These proportions are higher than those found in others studies (Panozzo et al., 2003, Loutfy et al., 2009, Cooper et al., 2009). Our findings confirm those of other individual level studies: that awareness of HIV positive status leads to desire to stop child bearing among married men and women (Nduna and Farlane, 2009, Nattabi et al., 2009). These expressed differences in fertility desires could assist reproductive health services planners in designing programmes that address couples' aspirations and needs.

Use of any modern method of contraception was slightly higher in this setting than in similar settings in Malawi (National Statistical Office (NSO)[Malawi], 2010). 48% of HIV concordant negative, 52% of HIV concordant positive, 50% discordant husband positive and 44% discordant wife positive used any method of contraception. Condom use, especially among HIV discordant couples, was lower than that reported in other studies (Panozzo et al., 2003). Condoms have been described as 'an intruder' in marriage in rural Malawi and associated with extra-marital sex (Chimbiri, 2007) and therefore couples may find it difficult to introduce condoms within marriage, especially if the HIV positive partner has not disclosed their status to their spouse (Anglewicz and Chintsanya, 2011) There are a number of limitations of our study. An important limitation of our data is that we have only limited information on whether an individual knew about their partner's HIV status. 54% claimed to have told their spouse, and 56 % claimed that their spouse had disclosed to them. We noted however that 98% of those who disclose were HIV negative. HIV status of the partner cannot inform fertility intentions of the other partner if it is

unknown. Self reports of disclosure of an HIV positive status can be unreliable which could also introduce bias (Anglewicz and Chintsanya, 2011). Our analysis has focus on monogamously married couples and therefore the findings cannot be generally applied to all couples including those in polygamous unions which constitute 20% of all married unions in the study population.

Due to small numbers our analysis has been unable to establish whether in discordant couples the effect of HIV status on fertility intentions differs depending on whether it is the husband or the wife who is positive. Our analysis however is one of the few cross sectional studies on this subject involving relatively larger numbers of monogamously married couples.

## Conclusion

We have demonstrated that awareness of HIV positive status leads to desires to stop child bearing and that members of couples who both want no more children are more likely to use contraception – but contraceptive use is quite low. Greater promotion of an environment which facilitates condom use and contraceptive use within marriage in this and similar settings is warranted, such as couples counselling, linking HIV services and family planning, and taking into account couples expressed fertility preferences.

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## TABLES

**Table 1: Fertility intentions by background characteristics.**

| Background characteristics | Fertility intentions (N=1766) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | % wanting more children | | % wanting no more children | | % missing intention | | Number | |
| | Men | Women | Men | Women | Men | Women | Men | Women |
| **Reported HIV Status** | | | | | | | | |
| Negative | 63 | 60 | 35 | 38 | 2 | 2 | 1437 | 1574 |
| Positive on ART | 29 | 14 | 70 | 86 | 1 | 0 | 56 | 29 |
| Positive not on ART | 28 | 24 | 69 | 73 | 3 | 3 | 36 | 37 |
| Unknown | 54 | 60 | 43 | 39 | 3 | 1 | 237 | 126 |
| **Age** | | | | | | | | |
| 15-24 | 88 | 88 | 9 | 11 | 3 | 1 | 223 | 643 |
| 25-34 | 77 | 58 | 22 | 41 | 1 | 1 | 715 | 686 |
| 35-44 | 48 | 19 | 51 | 80 | 1 | 1 | 488 | 347 |
| 45 plus | 25 | 3 | 70 | 87 | 5 | 10 | 340 | 90 |
| **Number of living children** | | | | | | | | |
| No child | 68 | 70 | 32 | 20 | 0 | 10 | 60 | 154 |
| 1-3 children | 77 | 77 | 22 | 23 | 1 | 0 | 877 | 962 |
| 4-6 children | 43 | 32 | 54 | 68 | 3 | 0 | 544 | 525 |
| 7 plus | 21 | 14 | 76 | 82 | 3 | 4 | 183 | 125 |
| Missing | 76 | - | 17 | - | 7 | - | 102 | - |
| **Child Mortality** | | | | | | | | |
| No child death | 64 | 64 | 34 | 34 | 2 | 2 | 1373 | 1308 |
| Child death | 47 | 42 | 51 | 57 | 2 | 1 | 393 | 458 |
| **Education** | | | | | | | | |
| None/Primary 1-5 grade | 64 | 54 | 34 | 44 | 2 | 2 | 412 | 782 |
| Primary – 6-8 grade | 56 | 55 | 42 | 43 | 2 | 2 | 576 | 595 |
| Lower Secondary | 65 | 72 | 34 | 27 | 1 | 1 | 415 | 307 |
| Upper Secondary/Tertiary | 57 | 72 | 39 | 28 | 4 | 0 | 363 | 82 |
| **Dwelling category** | | | | | | | | |
| Richest | 47 | 46 | 49 | 53 | 4 | 1 | 346 | 346 |
| 2 | 53 | 53 | 46 | 46 | 1 | 1 | 275 | 275 |
| 3 | 61 | 59 | 37 | 39 | 2 | 2 | 663 | 663 |
| Poor | 72 | 70 | 26 | 28 | 2 | 2 | 482 | 482 |

**Table 2: Unadjusted and adjusted odd ratios (OR) predicting men's and women's likelihood of wanting no more children by HIV status.**

| HIV Status | Men (N=1372) | | | | Female (N=1372) | | | |
|---|---|---|---|---|---|---|---|---|
| | Unadjusted | | Adjusted | | Unadjusted | | Adjusted | |
| | OR | 95 CI | OR | 95 CI | OR | 95 CI | OR | (95% CI) |
| Known Negative | 1.0 | | 1.0 | | 1.0 | | 1.0 | |
| Known Positive | 4.4 | (2.4– 8.0)*** | 4.6 | (2.3– 9.1)*** | 6.5 | (3.0 -3.6)*** | 6.2 | (2.5-4.9)*** |

P<=0.001*** (adjusted for own and partner education, woman and man experience of child mortality, partner's age, woman total number of living children, men number of children from past marriage and woman experience of past marriage)

**Table 3 Couples' fertility intention by knowledge of their HIV status**

| Couples' HIV status | Couples' fertility intention outcomes | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Both want more children /undecided | | Both want no more children | | Wife want no more children husband want more/undecided | | Husband want no more children wife want more/undecided | | Total | |
| | % | n | % | n | % | n | % | n | % | N |
| **Concordant Negative** | 53 | 693 | 25 | 325 | 10 | 134 | 12 | 150 | **100** | **1,302** |
| **Concordant Positive** | 7 | 2 | 69 | 20 | 7 | 2 | 17 | 5 | **100** | **29** |
| **Discordant Couples** | 15 | 6 | 51 | 21 | 7 | 3 | 26 | 11 | **100** | **41** |
| Total | **51** | **701** | **27** | **366** | **10** | **139** | **12** | **166** | **100** | **1,372** |

**Table 4: Unadjusted and adjusted odds ratios of couples' fertility intentions by couples' composite knowledge of their HIV status.**

| Couples HIV Status | Odds ratios (OR) of wanting no more children among monogamous couples | | | |
|---|---|---|---|---|
| | **Unadjusted** | | **Adjusted** | |
| | **OR** | **95% CI** | OR | 95 CI |
| Known Negative | 1.0 | | 1.0 | |
| Concordant Positive | 6.6*** | 3.0 – 14.8 | 11.5*** | 4.3 – 30.7 |
| Discordant | 3.1*** | 1.6 – 5.9 | 2.1 | 0.9 – 4.6 |

P<=0.001*** (adjusted for own and partner education, woman and man experience of child mortality, own and partner's age, woman total number of living children, men number of children from past marriage, type of dwelling and woman experience of past marriage)

**Table 5 Use of contraception by couples' knowledge of HIV status**

| Couples Knowledge of HIV status | Contraception | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Not using** | | **Hormonal methods** | | **Condoms** | | **Permanent methods** | | **Other methods** | | **Total** | |
| | % | n | % | n | % | n | % | n | % | n | **%** | **N** |
| **Concordant Negative** | 52 | 674 | 19 | 257 | 18 | 242 | 7 | 85 | 4 | 44 | **100** | **1,302** |
| **Concordant Positive** | 48 | 14 | 21 | 6 | 17 | 5 | 14 | 4 | 0 | 0 | **100** | **29** |
| **Discordant Husband positive** | 50 | 13 | 4 | 1 | 38 | 10 | 8 | 2 | 0 | 0 | **100** | **26** |
| **Discordant wife positive** | 66 | 10 | 7 | 1 | 27 | 4 | 0 | 0 | 0 | 0 | **100** | **15** |
| **Total** | **52** | **711** | **19** | **265** | **19** | **261** | **7** | **91** | **3** | **44** | 100 | **1,372** |

**Table 6: Logistic regression model presenting the probability of using contraception by couples' awareness of their HIV status and stated intentions**

| | Any contraceptive use | Odds ratio (95% CI) of using contraception | |
|---|---|---|---|
| | n/N (%) | Non-adjusted | Adjusted[1] |
| HIV status Knowledge | | | |
| Concordant negative (reference) | 628/1302 (48) | 1.0 | 1.0 |
| Concordant Positive | 15/29 (52) | 1.1 (0.6 -2.4) | 2.1 (0.9 – 4.9) |
| Discordant | 18/41 (41) | 0.8 (0.4 -1.6) | 1.0 (0.5 – 2.0) |
| Couple's fertility intentions | | | |
| Both want more (Reference) | 332/701 (47) | 1.0 | 1.0 |
| Both want no more | 198/366 (54) | 1.3 (1.0 – 1.7) | 1.7 (1.2 – 2.4) |
| Wife want no more children husband want more or undecided | 62/139 (44) | 0.9 (0.6 – 1.3) | 0.9 (0.6 – 1.4) |
| Husband want no more children wife want more or undecided | 69/166 (42) | 0.8 (0.6 – 1.1) | 0.9 (0.6 – 1.4) |

[1]Adjusted for own and partner education, woman and man experience of child mortality, own and partner's age, woman total number of living children, men number of children from past marriage, type of dwelling and woman experience of past marriage). For couple's fertility intentions also adjusted for HIV status knowledge.