

Full Length Research Paper

Fertility intention in the era of HIV/AIDS among rural women in Bure Woreda, West Gojam, Amhara Region, Ethiopia

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ABSTRACT

Although subsistence agriculture is the major economic activity, parents want to have large number of children to get assistance in farming activities as well as economic support during old ages. Women's fertility and HIV infection are not independent of one another. Conditions and behaviors producing high levels of fertility are also likely to bear upon rural women's 'likelihood of acquiring HIV. We investigated the association between perceived HIV risk and child mortality by the desire to have children among married women in rural Ethiopia. A cross-sectional sample of 1,380 married women age 18-49 years was randomly selected from the rural kebeles of Bure woreda. One eligible subject was randomly selected per household for a structured interview on factors associated with desire for future pregnancy. Data were entered and analyzed using SPSS version 17. Both bivariate and multivariate analyses were used to investigate the association between self-perceived risk for HIV infection and child mortality by the desire for a future pregnancy. Overall, 32 % of subjects expressed desire to get pregnant in future, 8.8 % perceived themselves at high risk for HIV infection and 26.7% reported the death of at least one child in past five years. In multiple logistic regression analysis, reporting at least one child's death (OR=6.92; 95% CI 4.91- 9.47) was significantly associated with a higher desire to get pregnant and high perceived risk for HIV infection (OR=2.08; 95% CI 1.35-3.19) was found to be associated with a high desire to get pregnant. Being currently married, having no education, being of low parity and having low household income were significantly associated with having the desire for more children. High perceived risk for HIV infection was not associated with lower desire for future pregnancy. Moreover women seem to have higher desire for future pregnancy to replace childhood deaths that may result from HIV infection. Further research is needed to explore utilitarian-economic, social and psychological values attributed to children by women and their partners.

Keywords: Fertility, Intention, Child mortality, HIV, Ethiopia.

INTRODUCTION

Since the beginning of the pandemic, HIV/AIDS has been spreading at an alarming rate worldwide, and it has created enormous challenges on the survival of mankind. About 2.5 million people are infected afresh and around 33.3 million people are living with HIV all over the world and more than two third (68%) of adults are infected with HIV live in Sub-Saharan Africa and more than three fourth (76%) AIDS deaths in 2007 occurred there (Joint United Nations Programme on

HIV/AIDS (UNAIDS, 2010). Despite recent access to antiretroviral treatment and the growing awareness on the pandemic, in many regions of the world, HIV/AIDS claimed 2.1 million lives in 2007 only and over 25 million since the first cases were identified in 1981 (Joint United Nations Programme on HIV/AIDS (UNAIDS), 2010).

In Ethiopia, the HIV epidemic continues to impact every sector of society with huge sex differentials (Federal Ministry of Health and Federal HAPCO, 2007). Adult HIV prevalence in 2009 is currently estimated to be between 1.4% and 2.8% (Ethiopian Health and Nutrition Research Institute, 2010). According to the

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single point estimate, prevalence was 1.8% among males and 2.8% among females, and women accounted for 59% of the HIV-positive population.

Ethiopia, being one of the developing countries where subsistence agriculture is the major economic activity, families often prefer large number of children since they are considered as economic assets. In rural areas, parents also want to have large number of children to get assistance in farming activities (Bairagi, 2001) as well as economic and emotional support during old ages (Fapounda and Todaro, 1988). Like many countries in sub-Saharan Africa, traditional norms and values in Ethiopia favor high fertility. Having many children is considered as a virtue and respect of God in a number of Ethiopian rural communities (Desta and Seyoum, 1998).

A range of socio-cultural and economic factors is thought to favor HIV transmission in many African societies to a much greater extent than elsewhere in the world (Cohen and Trussel, 1996). It has been suggested that the cultural and socio-economic factors that shape marriage and fertility in sub-Saharan Africa might also limit the effectiveness of AIDS control strategies (Bledsoe, 1991).

As in most sub-Saharan Africa in Ethiopia HIV transmission among women is primarily through unprotected heterosexual intercourse with an infected spouse or steady sexual partner. Although marriage is the socially sanctioned institution for procreation, it is also a source of high exposure for HIV infection among women because the relationship may not be mutually monogamous (Basset and Mhloyi, 1991). The dilemma is that marriage is highly valued in this type of culture to the extent that it is the legitimate source of children, yet it is the same institution that exposes women and their fetuses to HIV infection (Machekano et al., 1998; Mbizvo et al., 1996). Given the magnitude of the problem and the importance placed on fertility demonstrated through the notion that a man will not marry a woman unless she has a child with him because this can be perceived as infertility (Preston-Whyte, 1999).

To date, studies have shown that HIV infection may affect fertility by influencing desires and intentions for having children. On the other hand studies of fertility intentions among HIV-positive individuals have found ambivalence and mixed results while some studies reporting a strong desire to have children, consistent with the high social value placed on children. The relative strength of these conflicting feelings varies according to individual and contextual factors. For instance unmarried women express more confidence in their ability to stop childbearing than married women, who in many contexts report pressure from husbands to have children (Cooper et al., 2007).

People who do not know their sero-status but suspect they are HIV-positive may, in turn, modify their desire

for children in response to fears about the disease. The limited evidence about this topic has identified a relationship between HIV perceived risk and fertility intentions, but the direction and magnitude of this effect remain unclear. Indeed, subjective assessments of HIV risk has been shown to be correlated with increased fertility intentions in some settings (Baylies, 2000; Yeatman, 2009), whereas other studies suggest that perceived HIV risk is not associated with desires for additional children (Moyo and Mbizvo, 2004; Rutenberg et al., 2000). Another possibility is that women who perceive a higher risk of death from HIV/AIDS may desire fewer children, possibly in the belief that no one would be able to take care of the children (Grieser et al., 2001).

The behavioral mechanism in which women want to have more children in order to replace children who have died, or insure themselves against possible higher mortality of offspring in the future, has been explored within the context of the HIV epidemic. Studies have found mixed results for a replacement or insurance response to HIV prevalence. Greiser et al (2001) use qualitative methods in Zimbabwe to suggest a weak replacement response to childhood mortality (Grieser et al., 2001), while Gyimah and Rajulton (2004) find a strong intentional replacement behavior in Ghana and Kenya (Gyimash and Obeng, 2004). Kalemli-Ozcan (2005) uses cross-country regressions to suggest an insurance behavior mechanism via a positive correlation between HIV and the total fertility rate (Kalemli-Ozcan, 2005).

In fact, with the increase in child mortality primarily due to mother-to-child transmission of HIV, a woman may be under pressure from their spouses or sex partners not only to reproduce, but to also achieve a desired number of surviving children (Gregson et al., 1998; UNICEF 1998). However, a different school of thought is that women who experience several childhood deaths or fetal losses may be so traumatized that they are motivated to stop childbearing (Temmerman et al., 1994). The question is whether women will take measures to prevent HIV infection in themselves and their fetuses if they perceive themselves at high risk for HIV infection, or will endeavor to fulfill the utilitarian-economic, social, or psychological dictates of childbearing (Ethiopia Demographic and Health Survey, 2005; Giaquinto et al., 1998).

Therefore, this study attempts to contribute to the existing literature on the subject by systematically identifying the relationship between perceived HIV risk and child mortality by fertility intentions among married women in rural Ethiopia. The hypotheses that the study attempted to test is that a high self-perceived risk for HIV infection is associated with a lower desire for a future pregnancy. And higher desire for a future pregnancy to replace childhood deaths that may result

from HIV infection.

MATERIALS and METHODS

Description of the Study Area

The study was conducted in Amhara region which is the second largest region in the country which is located in the northern part of Ethiopia. The region is administratively divided into 11 administrative zones and 133 districts (woredas) and about 3,232 villages known as *Kebeles*. *Bure* is amongst the Woredas in the region which is included in this study for its high HIV prevalence and the presence of the most at risk population in the Amhara region (United States Agency for International Development USAID, 2008). It is located 148 km southwest of the capital of the region Bahir Dar, and 400 km northwest of Addis Ababa, the capital of the country. The Woreda has a total of 23 rural kebeles and an estimated population of 281,310 (141,683 males and 139,627 females). It is located along the main route to other major towns and is frequented by businessmen from the HIV hot spot areas. The town hosts several population groups such as farmers, rural migrant labourers, local businessmen, and youth having sex with female sex workers at increased risk of contracting HIV evidenced from a long-established tradition of married men having long-term sexual affairs with younger women (United States Agency for International Development USAID, 2008; Federal Democratic Republic of Ethiopia, Ministry of Health, 2008/2009), in addition to the practice of widow inheritance and polygamy (Federal Ministry of Health, 2007/2008).

Study Design

The study design was a cross-sectional, descriptive survey. The required sample size was determined using STATCALC program of the EPI INFO statistical package with a 95% confidence level ($Z=1.96$), 2% margin of error, 16% of women assumed to have the desire for children (EDHS, 2005) and 10% non response rate. A total of 1,418 study subjects (women) were estimated.

Sampling Procedures

Simple random sampling was applied to select the study participants from the prepared fresh list of the sampling frame. The total sample was equally selected from the 23 rural kebeles of Bure woreda and from each kebele 62 respondents were selected randomly from the sampling frame which was prepared from the census.

Data Collection

The data collection for the study was conducted from November 2010 to January, 2011 by eight female trained interviewers using a standard, structured and pretested questionnaire designed in English and translated and administered in the local language. During data collection, the interviewers introduced themselves to the head of the household, briefly explained the objectives of the study, and sought permission to talk with married women of reproductive age (18–49 years) residing in the household. If granted the permission, the interviewers explained the objectives of the study in detail to the potential participants, answered any questions raised, and invited them to consider participating in the study. If the potential participant was willing to participate in the study, the interviewer obtained written informed consent before conducting the interview in a separate place. If there were more than one eligible participant in a household, one was selected at random. If there were no eligible participants in a household or potential participant refused to participate in the study, the interviewer moved to the next randomly selected household.

Dependent variable

The dependent variable in this analysis is whether a woman wants to have a child within the next two years. Measures of intentions for childbearing in the short term have been shown to be stronger predictors of behavior than non-time specific preferences (Morgan, 2001). Two years is the standard measure for short-term used in the Demographic and Health Surveys of developing countries. The variable is constructed based on two questions. Women were first asked whether they wanted another child. Those who respond positively were asked how soon they wanted to have their next child; possible responses were immediately, within two years, more than two years from now, and a set of don't know responses (don't know, up to God). Women who responded immediately or within two years to this question were classified as wanting more children soon. Women who gave any other response to the question about timing or who did not want more children were classified as not wanting children soon.

Independent variables

In addition to socio-demographic and economic factors (used as control variables), the main independent variables investigated in relation to the outcome were self perceived risk of HIV infection (high, moderate, low, or that you have no risk at all) and child less than 5 years mortality (never had a child's death / had at least

one child's death in the last 5 years). Given the relatively low level of HIV testing in Ethiopia especially in the rural areas, HIV risk perception is unlikely to be primarily determined by medical knowledge of HIV status. Information on the respondents experience with HIV testing was asked almost all respondents responded they were not taking HIV test

Data Analysis

The data were entered and analyzed using SPSS 17 software. Prior to analysis, the whole data were cleaned and 15% of the data was double entered. The quality of the data was assessed and the age distribution of the respondents was compared with that of DHS 2000 and 2005 surveys.

In bivariate analysis, the chi-square test was used to compare the self-perceived risk for HIV infection, child less than 5 years mortality and socio-demographic characteristics of the participants by the desire for a future pregnancy. In multivariate analysis, a multiple logistic regression model was fitted to investigate the independent effects of self-perceived risk for HIV infection and child mortality through controlling the possible confounding effects of socio demographic and economic factors.

Ethical Clearance

This study was approved by the Institutional Review Board of the School of Medicine Addis Ababa University. Written informed consent was obtained by thumbprint or signature from each study participant before conducting the interview. The key linking the study participants' information with copies of the signed consent forms were kept in a locked cabinet to which only PIs had access.

RESULTS

A total of 1,418 participants were invited to participate in the study, of whom 38 (2.7 %, 38 /1,418) were not available as the time of the survey despite repeated revisits. Their non availability however was not related to this particular study. Thus, 1,380 participants were interviewed. Table 1 depicts the socio-demographic characteristics of the rural married women by their fertility intention. Of the total married women assessed in the present study, only 33.0% had a desire to have children in the future and the difference noted was significant ($p=0.001$). The proportion of currently married women ($p=0.010$), had no education ($p=0.001$), involved in Wage labor ($p=0.002$), and monthly expenditure below 500 Local currency, Ethiopian Birr (ETB) ($p=0.015$) had significant association with the

desire to have more children. In addition, the desire for future pregnancy was highly associated with lower mean age group ($p=0.001$), low parity ($p=0.001$), lower mean number of surviving children ($p=0.001$), lower mean desired number of children ($p=0.001$) and lower mean ideal number of children ($p=0.001$).

Table 2 demonstrates the multivariate logistic output explaining the major independent factors identified earlier in the bivariate analysis for desire of future pregnancy. Almost all the previously associated factors that included women with high perceived risk groups, who had at least one under-five child death, with marital union, age group below 35 years, parity level below 5, ideal number of children below 6, desired number of children below 3, education level below primary school, and income level of less than 500 ETB retained their significant association with the desire to have future pregnancy.

DISCUSSION

Overall, 32% of the women wanted to have more children and the difference noted was significant. The proportion of currently married women had no education and able to read and write, had significant association with the desire to have more children than those who had secondary and above educational level. This finding is in conformity with EDHS, 2005 and 2010, which showed education reduces fertility as it changes the outlook of women on the number of children to be born to her (Ethiopia Demographic and Health Survey, 2005; Cochrane and Farid, 1990). Illiterate women, on the other hand, wish to have as many children as they could as they think some of the children would be successful by chance and would support them later on. Education is also likely to delay timing of marriage, increase a woman's awareness and motivation to adopt contraceptive methods besides improving her decision-making autonomy that enhances bargaining power on all aspects of marital life (Mhloyi, 1994). Furthermore monthly expenditure below 500 ETB had significant association with the desire to have more children than those relatively higher level of income; this findings is coherent with other findings which showed women in the poorest households have twice as many children as women in the wealthiest households (6.6 children versus 3.2 children, respectively) (Ethiopia Demographic and Health Survey, 2005).

According to the results of the current study, the desire for future pregnancy was highly associated with lower mean age group, low parity, mean number of surviving children, mean desired number of children and mean ideal number of children. Similar results were reported in a cohort study of Rwanda in which women with fewer than four children were more likely to get pregnant regardless of a high self perceived risk for HIV

Table 1. Socio-demographic Characteristics of the rural Women by their fertility intention in Bure Woreda, Amhara Region, Ethiopia, 2011.

Variable	Fertility intention						p-value	
	No		Yes					
	n	Percents		Percents	n	percent		
Total	1,380	100	939	68.0	441	32		
Marital Status								
Currently Married	1,171	84.9	785	67.0	386	33.0	0.010	
Widowed	24	1.7	23	95.8	3	4.2		
Divorced	185	13.4	129	69.7	56	30.3		
Education								
No education	896	64.9	609	68.0	287	32.8	0.001	
Read and write	344	24.9	209	60.8	135	39.2		
Primary School	83	6.0	67	80.7	16	19.3		
Secondary school and above	57	4.1	54	94.7	3	5.3		
Occupation								
Agriculture	1,301	95.7	899	69.1	402	30.9	0.002	
Service Provider	30	1.8	17	56.7	13	43.3		
Wage Labourer	49	2.4	23	46.9	26	53.1		
Monthly household expenditure in Ethiopian Birr								
≤ 320	709	51	486	68.5	223	31.5	0.015	
321-500	601	43	394	65.6	207	34.4		
501-999	32	2.3	26	81.3	6	18.8		
≥ 1000	38	2.8	33	86.8	5	13.2		
Mean Age in Years	32.86		33.06		32.44		0.001	
Mean Parity	4.08		4.12		3.9		0.001	
Mean number of Surviving children	3.41		3.51		3.18		0.001	
Mean desired number of Children	3.48		3.53		3.36		0.001	
Mean Ideal number of Children	4.24		4.11		4.50		0.001	
Childhood Mortality								
Under 5 death in last 5 years	368	26.7	134	36.4	234	63.6	0.001	
Never had child death	1,012	73.3	805	79.5	207	20.5		
Perceived risk for HIV infection.								
High chance		21	8.8	93	76.9	28	23.1	0.001
Moderate		65	19.2	189	71.3	76	28.7	
Low chance		37	2.7	29		8	21.6	
No Chance		957	69.3	628	78.4	329	34.4	
Comprehensive Knowledge of HIV/ AIDS					65.6		0.956	
Yes								
No		83	6	65	78.3	18	21.6	
		1,297	94	642	49.4	655	50.5	

Table 2. Fertility Intention of the rural women in relation to HIV perceived risk and Childhood Mortality in Bure Woreda, West Gojam Zone, Amhara Region, Ethiopia, 2011.

Variables	Adjusted Odds ratio (95%CL)	p. value
Perceived risk for HIV infection.		
High chance	2.08 (1.35-3.19)	0.001
Moderate	0.56 (0.31-1.02)	0.567
Low chance	1.02 (0.41- 2.63)	0.954
No Chance	1	
Childhood Mortality		
Under 5 death in last 5 years	6.92 (4.91-9.47)	0 .000
Never had child death	1	
Comprehensive Knowledge of HIV/ AIDS		
Yes	0.90 (0.53- 1.52)	0.700
No	1	
Marital Status		
Currently Married	2.6 (1.66-4.25)	0.001
Widowed	14.0 (0.17-1.27)	0.082
Divorced	1	
Education		
No education	3.8 (1.07-13.71)	0.040
Read and write	6.6 (1.86-13.39)	0.004
Primary School	5.6(1.41-12.27)	0.014
Secondary school and above	1	
Monthly household expenditure in Ethiopian Birr (ETB)		
≤ 320	4.42 (1.52-13.11)	0.007
321-500	4.91 (1.67-14.62)	0.004
501-999	2.14 (0.44-10..41)	0.356
≥ 1000	1	
Age		
≤ 24	2.0 (1.26-3.97)	0.006
25-34	5. 07 (3.32-7.76)	0.001
35-44	4.5 (3.04-6.89)	0.001
≥45		
Parity		
5	7.0 (3.67- 13.55)	0.001
4	8.2 (5.00-13.65)	0.001
3	3.0 (1.89-5.07)	0.003
2	3.9 (2.31-6.69)	0.000
1	1	
Ideal number of children		
5	0.08 (0.04-0.14)	0.001
4	0,45 (0.28-0.73)	0.001
3	0.25 (0.17- 0.37)	0.001
2	0.35 (0.23-0.47)	
	1	
Desired number of children		
<3	1.55 (1.09-2.22)	0.014
≥4	1	

infection (Lindan et al., 1991). Furthermore, this study has found that younger married women of lower parity were more likely to have the desire for more children regardless of a high self-perceived risk for HIV infection and histories of child mortality. This is a finding that deserves attention since it is this segment of the population that has the highest reported cases of HIV and AIDS among women in Ethiopia (Federal Ministry of Health and Federal HAPCO, 2007).

Likewise women who had more under-five children death in the last five years had significant association with higher desire to have children and similar to previous other studies documenting the likelihood of having additional child is significantly higher among those who lost at least one child. Qualitative evidences also indicate that the possibility of losing some of the offspring before they grow up often forces couples to have more children to develop confidence for some to survive (Ethiopia Demographic and Health Survey, 2005). Our data support the child replacement hypothesis to the extent that women who experience childhood deaths or fetal losses may continue to get pregnant to achieve the desired number of children (Scrimshaw, 1981; Takyi, 2000). The HIV epidemic may have contributed to the lack of decline in fertility rates, primarily through its associations with elevated child mortality (Magadi and Agwanda, 2010). Nevertheless the present study finding in contrary to what has been reported elsewhere; that women who experience child deaths or fetal losses could be so traumatized that they may be motivated to stop childbearing (Temmerman et al., 1994).

The results of the study have shown the association between high perceived risk and the desire for having children in the future but having HIV/AIDS knowledge was not associated with the desire to have children. This finding is in line with previous studies that showed awareness of the HIV epidemic at the community level has had little impact on decisions about whether and when to have children (Setel, 1995). In one study in Zambia, when asked whether the risk of HIV has changed the way people in their community think about the number of children they would like to have or when to have them, respondents were perplexed about how HIV would affect these decisions unless a person knew that he or she was infected (Rutenberg et al., 2000). Similarly, a study in rural Zimbabwe has also found no association between high self-perceived risk for HIV infection and the desire for more children (Gregson et al., 1998).

As a cross-sectional study, the current study has limitation in that it can only establish associations and not causal relationships. In addition, there was no validation mechanism for the self-reported outcome measure (intention to get pregnant in future). Nevertheless, the study has shown that high self-perceived risk for HIV infection is not associated with lower desire for a future pregnancy among women in rural Ethiopia. On the other hand, the study suggest a

higher desire for a future pregnancy to replace childhood deaths that may result from HIV infection.

CONCLUSIONS

A high self-perceived risk for HIV infection was associated with the desire for a future pregnancy among women in the study setting. Moreover women seem to have higher desire for future pregnancy to replace dead child that may have lost its life as a result from HIV infection. Voluntary counseling and testing services for HIV among women are challenged with balancing counseling messages on the strong desire for children, the risk of mother-to-child transmission of HIV, and poor fetal outcomes. Further research is needed to explore utilitarian-economic, social, and psychological values attributed to children by both women and their male sex partners. The involvement of men as partners in childbearing should be explored, as their desire for children may be the primary barrier to protective behavioral change among women.

In order to change rural Ethiopian parents' perception of values of children, child schooling needs to be compulsory through time so that costs of raising children would be getting higher in order to inhibit further desire for pregnancy.

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