Factors Influencing Reproductive Choices of HIV Infected Women in India

Abstract:

With the paradigm shift in the concentration of HIV epidemic from high-risk to low-risk women belonging to childbearing ages, there has been growing concern about their reproductive decisions. Women with HIV have the stress of facing not only early death, but also to decide whether they would bear children and if they are pregnant, whether or not to have an abortion. Evolution of effective therapies to decrease the rate of transmission from infected mothers to their children has also affected the overall reproductive decision-making process. The objective of this paper is to understand how the desire for future child is associated with a range of demographic, social, psychological, HIV-related and attitudinal factors. This study was designed inside a feasibility study of prevention of mother-to-child transmission of HIV in Mumbai, India. After the antenatal HIV test, 198 HIV infected women along with 83 husbands were interviewed with the help of a semi-structured interview schedule for a period of one and half year during various stages of their follow-up to the antenatal OPD. During the time of interview, nearly one third were pregnant and majority asserted that they would continue with the pregnancy. Nearly three fourths cited the reason as being late in deciding anything else except giving birth. About two fifths accepted that although they thought of abortion but delayed ANC registration and HIV testing were attributed as the reasons for not seeking abortion. The overall incidence of pregnancy subsequent to HIV diagnosis was 10 percent. Around nine percent of them underwent sterilization procedure and one fourth had an induced abortion. The logistic regression shows that the women without a male child, marriage duration of 1-3 years, lower family income, migration status were the socioeconomic factors significantly predicting the desire for an additional child. Prominently, an increase in active-behavioral coping and physical functioning was positively related to the desire for children. Time since knowing the HIV status was inversely related while husband not being tested for HIV was positively related with the fertility desire. Although more than half of the women reported to have sex after HIV diagnosis still less than a quarter continued to have sex without using any family planning method. This group of women might be considered under high risk of unwanted pregnancy. Many women become pregnant unintentionally and this has very different implications for service needs than do intentional pregnancies. The study concludes that in PMTCT program, use of family planning methods as a strategy to reduce unintended pregnancies among HIV positive women has received much less attention.

Introduction

India is currently experiencing a large epidemic of HIV infection. Women in India are in fact, the fastest growing demographic group of HIV-infected individuals representing an increasing proportion of those infected with HIV/AIDS. They are particularly at risk to HIV infection due to the dominance of heterosexual transmission, high rate of Sexually Transmitted Diseases (STDs), social vulnerability and constraints for negotiating 'safer sex practices' with their partners (Mane &

Maitra, 1992; de Zoysa, Sweat & Denison, 1996; Nag, 1996). The national sentinel surveillance indicates that HIV prevalence among childbearing women found to be 0.9 percent nationwide. It is also estimated that out of 28 million pregnancies occurring annually in India, approximately 140,000 deliveries occur to HIV-positive women with an average 0.5 percent of HIV prevalence in these pregnant women (NACO, 2004). When HIV began infecting women of childbearing age in increasing numbers, it prompted to understand the reproductive decision making which is influenced by a complex web of socio-cultural factors in India (Van Hollen, 2007). Moreover, this increasing trend of monogamous woman contracting HIV is likely to be crucial throughout Indian society where motherhood is perceived as the ultimate validation of womanhood. Family, husbands' and societal expectations for childbearing are important influence on women's reproductive intentions.

Worldwide, there is a considerable amount of literature in the form of scientific papers and conceptual articles providing critical analysis of the reproductive decision making among HIV-infected women. A number of studies indicates that occurrence or desire of a pregnancy after HIV diagnosis do not always agree with those of their partners and this complex process is influenced by a number of individual, social and demographic characteristics such as age, ethnicity, marital status, prior reproductive history, poor outcome of the previous pregnancy (still birth, infant death), time since diagnosis of HIV infection and non disclosure of HIV status and also by the health-related factors such as severe immunodeficiency, physical functioning and overall health (Ahluwalia, DeVellis & Thomas, 1998; Bedimo, Bessinger & Kissinger, 1998; Chen et al., 2001; Myer, 2007; Nebie et al., 2001; Oladapo, 2005; Ogilvie; 2007). Fears of partner and infant infection and having a previously infected baby are important factors deterring some individuals from considering having children (Richter, Sowell & Pluto, 2002; Cooper et.al. 2007). As a result, reproductive decisions among HIV infected women often face contradictions creating an ethical tension between the interests of HIV-positive women and familial as well as societal level factors.

Family planning is a standard component of most of the antenatal care and maternal-child health programmes within which Prevention of Parent to Child Transmission (PPTCT) of HIV programme is being organized. Preventing unintended pregnancy among HIV positive women by means of family planning services is one of the key strategies of the programme. Once HIV positive women learn their status, they seek to use a method of contraception to avoid unintended

pregnancies. But Rutenberg et.al (2003) in evaluation of United Nations-supported pilot projects for the prevention of mother-to child transmission of HIV in India found that use of family planning methods as a strategy to reduce unintended births among HIV positive women has received much less attention. Demand for family planning methods among HIV positive women varies depending on the extent of communities' openness about HIV/AIDS, fertility norms and knowledge of PPTCT programme (Rutenberg & Baek, 2005). Despite of almost all women received counselling on family planning, yet use of contraceptives and condom was low (Peltzer, 2008). There are studies those highlight that HIV infected women have more affirmative attitudes about condoms and are highly motivated to use condoms more frequently than their HIV negative counterparts (Brown, 2002; Magalhaes et al., 2002).

Until now, there has been very less exploration in India to find out the reproductive decision making among HIV infected women. This reason provided the incentive to undertake the present study in order to penetrate the contexts, processes and other inter-related factors playing crucial roles behind such decisions. In brief, the paper also highlights predictors of contraceptive use.

Methods

Sample recruitment

Study participants were recruited from one feasibility study site on prevention of parent to child transmission (PPTCT); initiated by National AIDS Control Organisation (NACO) with support from UNICEF in the year 2000 at eleven medical institutions of five high prevalence states of India. This bio-medical study was completed in two phases with the help of two drugs namely Zidovudine (Phase-1) and Nevirapine (Phase-2) during April 2000 to March 2003. During that period a total of 489 antenatal women were diagnosed as HIV positive in the antenatal clinic of JJ Hospital; one of the study site and the largest public health facilities in Mumbai, provides maternity services for women of predominantly lower socio-economic status and exhibiting a high antenatal sero-prevalence. The antenatal HIV sero prevalence in this hospital has increased from five percent in the year 2000 (Phase-1) to seven percent in the year 2002 (Phase-2) under the feasibility study. A purposive sample of 198 HIV infected women was interviewed during January 2002-May 2003 observing high follow-up pattern. The HIV status of all the women was confirmed from medical records. Women were interviewed after explaining about the study by the author. Data collection

was guided throughout by the principles of informed consent and confidentiality of information. Because the study concerned the reproductive decision making among HIV infected women, enrolment criteria included being of reproductive age (15-44 years) and interviewed only when they passed with three months of infection status.

Sample

Most of the study participants were housewives and young; with age ranged from 15 to 37 year (median=24). Overall, formal education ranged from 0 to 14 years (median=8); quarter of the participants had never been to school. Around one-fifth of the women had been married for just one year or less and therefore in parity zero (22%) and were diagnosed during their first pregnancy (39%). Nearly half of the women were living in nuclear family (49%) and were migrants (52%); of which more than two-thirds were migrated exclusively to accompany their previously migrated husbands. Less than a quarter of the women belong to the households with medium Standard of Living Index (SLI). Likewise, only one-third belongs to households with income more than Rupees 4000 (US$88) per month. Despite of being living in metropolitan city, less than quarter had high mass media exposure and autonomy. Less than half of the women were aware of their HIV status for a period of more than 6 months. Of those whose husbands were tested (n=174), 87 percent had husbands with concordant HIV status. About 58 percent had not disclosed their HIV status to anyone other than their husbands, a quarter of the women were disclosed forcefully; whereas only 17 percent reported to have disclosed voluntarily. Majority of the women (61.5%) were registered for the ANC after the prescribed period i.e. first trimester of pregnancy. It has been noticed that only one fifth were directly registered in the study site (JJ Hospital, Mumbai) whereas others were referred either from other government (24.4%) or private health facilities (52.9%). In this sample of women, 29.8 percent were pregnant at the time of interview, 65.2 percent were administered with the prescribed drugs under PPTCT and remaining 5 percent delivered without the prescribed drugs. Despite being exposed to rigorous post-test counselling nearly two-fifths of the women had low knowledge on PPTCT related issues. One-fifth reported higher number of symptoms on general or reproductive health problems.

Table 1: Background characteristics of 198 HIV positive women

Characteristics	Number	Percent	Characteristics	Number	Percent
Age group			**Conceptions**		
15-19	4	2.0	One	78	39.4
20-24	111	56.1	Two	67	33.8
25-29	65	32.8	Three or more	53	26.8
30+	18	9.1	**Surviving children**		
Education			No child	44	22.2
Illiterate	49	24.8	At least one child	154	77.8
Up to primary school	11	5.6	**Time since learning about HIV infection**		
Up to secondary school	114	57.6	3-6 Months	106	53.5
Beyond high school	24	12.1	6-12 Months	55	27.8
Occupation			12 Months & above	37	18.7
Housewife	170	85.9	**Place of HIV testing[2]**		
Working	28	14.1	Study site	44	22.8
Marital status			Other Govt. hospitals	47	24.4
Married	184	92.9	Private hospitals	102	52.9
Others	14	7.1	**Trimester of Pregnancy at first ANC[3]**		
Duration of marriage[1]			First trimester	74	38.5
Up to 1 Year	43	21.9	Second trimester	70	36.5
1-3 Years	56	28.6	Third trimester	48	25.0
4-6 Years	60	30.6	**Terciles of HIV knowledge**		
7 Years & above	37	18.9	Low	77	38.9
Type of family			Medium	57	28.8
Nuclear	97	49.0	High	64	32.3
Joint	101	51.0	**Terciles of GHP[4]**		
Migration status			Low	67	33.8
Migrants	102	51.5	Medium	88	44.4
Non-migrants	96	48.5	High	43	21.7
Standard of living			**Terciles of RHP[5]**		
Low	36	18.2	Low	83	41.9
Medium	143	72.2	Medium	72	36.4
High	19	9.6	High	43	21.7
Mass Media Exposure			**Delivered with medicine**		
Low	93	47.0	Yes	129	65.2
Medium	71	35.9	No	10	5.1
High	34	17.2	Currently pregnant	59	29.8
Autonomy			**Disclosure of HIV status**		
Low	51	25.8	Voluntary	34	17.2
Medium	98	49.5	Forceful	50	25.3
High	49	24.8	Not disclosed	114	57.6
Income groups			**Husbands HIV Status[6]**		
Upto 2000	37	18.7	Positive	148	75.5
2001-4000	93	47.0	Negative	22	11.2
4001 & above	68	34.3	Not tested	26	13.3
Total	**198**	**100**	**Total**	**198**	**100**

Note 1. N=196; 2. N=193; 3. N=192; 4. GHP: General health problems; 5. RHP: Reproductive health problems; 6. N=196; 7. Terciles are created by diving scores to three equal parts

Measures

(1) Background Characteristics: age, education, income, number of children surviving, duration of marriage, migration status, having a male child, Standard of Living Index (SLI), Mass Media Exposure (MME), autonomy index.

(2) HIV Related Characteristics: HIV status of the husband (positive/negative/not tested), disclosure of HIV status (voluntarily/forcefully/not disclosed) time since knowing HIV status (3-6/6-12/12m & above), terciles of PPTCT knowledge (Low/medium/high), terciles of reproductive and general health problems (below median/above median).

(3) Social support- Satisfaction with social support was measured with three items adapted from the social support questionnaire (Sarason,1983). For each type of support, participants rated their degree of satisfaction with the support they had received using a five-point Likert scale that ranged from 'not at all satisfied' to 'very satisfied'. Three types of supports were assessed namely, emotional (receiving emotional comfort), informational (receiving advice or information) and practical (getting help in a crisis). An overall support score was derived by including all types of support taken together. As expected, the three types of support were fairly highly inter-correlated.

(4) Coping-This was measured with a modified COPE scale (Carver et.al.,1989), a 25-item questionnaire that asks women how often in the past 6 months they have utilized certain coping strategy with their HIV status. As in the original COPE, items were elicited on a four point Likert scale (1=didn't at all, 2= a little bit, 3=a medium amount, 4=did a lot). In order to get the dominant factors emerging from the data, principal component analysis was performed. Five dominant factors were retained for the analysis with the consideration that the eigen values for these factors exceed 2. These factors accounted for about 58 percent of the total variance. The five factors represented the items in the specific groups (based on eigen values for dominant items), which may be named as active planning, avoidance, apologetic, seeking support and hope & fatalism. Based on these dominant factors and a review of the pertinent literature (Lazarus and Folkman,1984; Moneyham et.al. 1997) scores of coping were then generated for two theoretical categories, namely types of coping and methods of coping. The types of coping were elaborated as problem-focused and emotion-focused coping while the methods were active-cognitive, active-behavioural and avoidance. Much of the analysis has been done across these two sets of coping categories. In order to validate

the scales they were retained for preliminary analysis. The Cronbach's alpha for categories were found as problem-focused coping (0.97; 13 items); emotion-focused coping (0.92; 16 items); active-cognitive (0.91; 14 items); active-behavioural (0.80; 5 items) and avoidance (0.49; 8 items). The responses obtained from the women were recoded in such a way that higher values were indicative of an increase in that particular type of coping. The scores for the various categories of coping were generated by using the items falling under them. These mean/sum of scores for various sets of coping were used for the analyses as per the significance observed from the existing literature.

(5) Depression-The Centre for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) was used to measure the signs (symptoms) of depression. This is a 20-item scale, developed in the US for use in studies examining the epidemiology of depression in the general population. The CES-D has been shown to have good reliability and internal consistency among American samples (Radloff,1977) and has been used and validated in various cross-cultural settings including studies related to the HIV infected women who have recently given birth (Bennetts et al., 1999). Women were asked to indicate how often they experienced a variety of psychological symptoms during the past week, on a 4-point Likert scale from (0=less than 1 day, 1=1-2 days, 2=3-4 days, 3=5-7 days). The responses were so adjusted that higher values of different items reflect higher levels of depression. Total sum of scores range from 0 to 60, with, higher scores indicating greater depression. A cut off score of 16 or more is understood to represent depressive symptomatology and a score of 23 and above is understood to represent more severe depressive symptomatology. In the present study, Cronbach's alpha has been observed to be 0.88. Noteworthy is that this scale has been used as a tool to screen the signs of depression and not to measure clinical depression.

(6) Physical Functioning-. Health related quality of life has been measured with a modified version of the Medical Outcomes Study HIV (MOS-HIV) Health Survey inventory (Ware & Shenvourne, 1992). The modified scale contains 20-items which include dimensions of physical functioning, general health, pain, mental health, energy/fatigue and perception about overall quality of life. The Physical functioning scale included six items slightly modified on item no. 5 and item no. 6 and asked women if their health limited them a lot, a little or not at all in : (1) vigorous activities; (2) moderate activities; (3) climbing stairs; (4) walking more than a mile; (5) lifting or carrying groceries; (6) doing household work. The entire HRQL scale representing all the above domains have demonstrated good reliability (Cronbach's alpha=0.92) for this sample of women. They were

asked to rate their health during the past four weeks. The final score for this scale was calculated by summing item responses after reversing some items where necessary to ensure that a higher score is indicative of better quality of life. Raw scores are then linearly transformed to a 0-100 scale, with 0 representing the lowest possible score and 100 the highest possible score. The percentiles of the scores were obtained from the actual sum of scores for each woman for analysis.

Results

Counselling regarding Childbearing

Although there were no official directives regarding reproductive counselling, there has been a general feeling among health professionals and even among HIV infected individuals that when a woman becomes HIV positive, she should not have further children. Hence, they are often advised to avoid further pregnancies. The concern behind this advice is to prevent the risk of progression of the disease, transmission of HIV to the infant during pregnancy, delivery or breastfeeding and the child becoming an orphan in the future. Thus counselling is an integral component of the feasibility study of the PPTCT programme, which not only aims to prevent mother to child transmission but also provide adequate opportunities on options with current pregnancy, although sometime directive, is intended to protect the woman and her infant.

Table 2: Distribution of women by recommendations on pregnancy provided during ANC

Recommendations on Pregnancy	First trimester	Second trimester	Third trimester	Total	Number
Suggested to abort	51.5	4.1	2.3	11.4	22
Child may be infected	9.1	2.7	3.5	4.2	8
Asked for my own choice	0.0	9.5	12.8	9.3	18
Possible problems in future pregnancy	3.0	6.8	7.0	6.2	12
Convinced of child not getting infected	21.2	60.8	52.3	50.3	97
Can't recall	15.2	16.2	22.1	18.7	36
Total	100	100	100	100	**193**
Number of women	**33**	**74**	**86**	**193**	
Chi2(10)=71.8007		Pr=0.000			

A significant association between stage of ANC registration and recommendations on pregnancy was observed. In other words, women registering early were advised to abort. However, those who were late in registering were assured of their children not getting infected by the use of antiretroviral

drugs as a part of the PPTCT programme. The following quotation highlights how counselors normally deal with the situation.

"We normally discuss all the possible problems that may arise when a pregnant woman is diagnosed with HIV virus, but a majority comes to us after they have crossed the eligible period of abortion. So we do not have any other option except convincing them about the medicines available to prevent transmission. Of course, we discuss with them about the risk of further pregnancies. Because, there are women coming back for a second delivery even after their first child was born HIV-negative and also who knows if she will not follow up after this post-test counselling. So we try to give her as much information as we can"-(Counsellor working since the beginning of the feasibility study)

Although all the counselors are committed to the view that childbearing decisions ought to be left to the HIV infected women themselves and they want to respect women's autonomy in making these decisions, but they are afraid of *"HIV infected women being ignorant and lacking the negotiating skills become pregnant again. Also, we have seen them getting sick more often compared to their children. So we talk again and again about the transmission rate to the child and tell them that they should avoid childbearing".*

Intention towards Current Pregnancy

Second type of reproductive decisions seeking an abortion is one of the most wrenching decisions. Majority of women (69 percent) could not be asked about their decisions towards current pregnancy as they had already delivered during the time of interview. More than half of them who were pregnant responded that they would be continuing their pregnancies. The reasons behind continuing the pregnancy were diagnosed at late stage of pregnancy, followed by desiring either first child or a son. Only five women decided to seek an abortion. Almost all of the women desired the current pregnancy in which they diagnosed as HIV positive. Only one fifth of the women and their husbands could have still desired this pregnancy even after knowing their HIV status. The strong significant (Chi2=24.4) associations between women who wanted current pregnancy and decisions if known about HIV status clearly reveals the importance of perceived threat of HIV infection in the occurrence of pregnancy among young couples (Table 3). In the total sample only 11 women were planned to become pregnant after learning their sero-status and it is mainly because of availability of medicines to prevent the transmission to child.

Of all women interviewed on the above issue, although a total of 29 HIV infected women were found to be eligible for MTP at the time of diagnosis, nearly half of them were against termination of pregnancy.

Table 3: Whether opted for current pregnancy if known about HIV status by desire of current pregnancy

Wanted this child now	Opted once known the HIV status				
	Yes	No	Can't say	Total	Number
Women					
Then	18.2	27.8	35.4	81.3	161
Later	0.5	3.5	0.5	4.6	9
No more	0.5	11.1	2.5	14.1	28
Total	19.2	42.4	38.4	100	198
Number	38	84	76	198	---
Chi2(4)=24.4805		*Pr=0.000*			
Husband					
Then	20.5	48.2	19.3	88.0	73
Later	0.0	2.4	0.0	2.4	2
No more	0.0	9.6	0.0	9.6	8
Total	20.5	60.2	19.3	100	83
Number	17	50	16	83	---
Chi2(4)=7.5041		*Pr=0.112*			

It might be because the current pregnancy being their first order pregnancy, they strongly desired their first child even after knowing the risk of transmission of HIV to the infant. Also "denial of husband/family pressure" was the second most important reason mentioned by nearly 31 percent of the women who were eligible for MTP followed by delayed HIV testing (17 percent) as the sole reason for not seeking an abortion.

Table 4: Distribution of HIV infected women giving reasons for not seeking an abortion after diagnosis

Reasons for not seeking an abortion	Stage of pregnancy when asked for test			
	First trimester	Second trimester	Third trimester	Total
Delayed ANC registration	--	50.0	70.4	51.1(96)
Family pressure	6.9	5.1	3.7	4.8(9)
Delayed testing	17.2	20.5	18.5	19.1(36)
Husband denied	24.1	5.1	3.7	7.4(14)
First child	48.3	15.4	2.5	14.9(28)
Convinced of child not getting infected	3.4	3.8	1.2	2.6(5)
Total	100	100	100	100
Number of women	**29**	**78**	**81**	**188**

From the above discussion it is very clear that there are two leading reasons emerging; “desire for first child” and “delayed HIV testing” for not being able to abort despite being eligible for abortion. However, more than half the women reported that “delayed ANC registration” been one of the dominant reasons for not able to abort the child after HIV diagnosis.

Fertility Desire

Fertility desire was defined by the responses to a question asking women *whether they would like to have children in the future*?

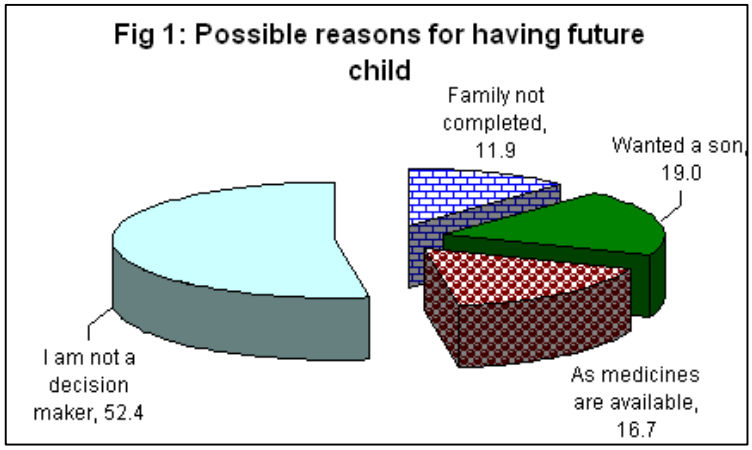
Table 5: Percent distribution of HIV-infected women desiring Children in future by background characteristics

Background Characteristics	Percent desiring a child in future		
	Yes	No	Total
Age group **			
<24 years	27.0	73.0	115
25-29 years	15.4	84.6	65
30+ years	5.6	94.4	18
Education			
Illiterate	28.6	71.4	49
Up to medium	20.0	80.0	105
High school +	15.9	84.1	44
No of children surviving ***			
Zero	59.1	40.9	44
One	14.0	86.0	93
Two+	4.9	95.1	61
Duration of marriage ***			
1-3 years	32.3	67.7	99
3-7 years	13.3	86.7	60
7 + years	5.4	94.6	37
Born in Mumbai			
Yes	17.1	82.9	82
NO	24.1	75.9	116
Husband's HIV status **			
Negative	13.6	86.4	22
Positive	19.7	80.3	152
Not tested	45.0	55.0	20
Disclosure of HIV status			
Voluntary disclosure	23.5	76.5	34
Forceful disclosure	24.0	76.0	50
Not disclosed	19.3	80.7	114
Health Problems			
Less than median value	25.6	74.4	78
More than median value	18.3	81.7	120
Importance of HIV for deciding future child* **			
Not important	50.0	50.0	8
Little important	50.0	50.0	26
Very important	15.3	84.7	164
If have a male child ***			
No male child	35.8	64.2	95
Male child	7.8	92.2	103
Total	**21.2 (42)**	**78.8 (156)**	**198**

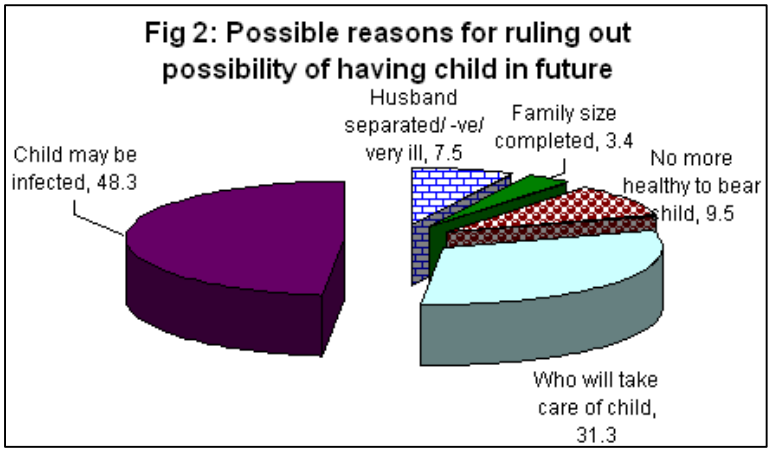
Chi square significance level * p< 10.0 , ** p<0.5 *** p<0.1

The percentage of women desiring and not desiring the child is presented in Table 5 by the background characteristics. Significantly a negative relationship was found between age, education, number of surviving children and duration of marriage of the HIV infected women and their desire for a future child. Among the HIV-related characteristics husband's HIV-status was significantly associated with the intention to future child bearing. Women who had relatively less of general or reproductive health problems tend to report more in terms of desire for future child, but these were not statistically significant. Another set of variables such as perceived threat of HIV infection and having a surviving male child was found to be associated with desire for a future child. Women who perceived HIV status exclusively as a threat for childbearing were significantly less likely to desire a child in the future. Also, women having a surviving male child were significantly less likely to desire another child in the future compared to their counterparts who had no surviving offspring.

Reasons for Desire of Additional Child



The decision to have or not to have an additional child is governed by a number of individual, familial and environmental factors. When inquired about the possible reasons for answering 'yes' or not ruling out the possibility of bearing a child in future, more than half of them responded that they were not the decision makers and they may go for child if husbands wanted one. Nearly one-fifth of women said that they wanted a son or an additional child, while 12 percent of them reported that their family size was not yet complete. Importantly, about one-sixth of the women said that medicines to prevent the transmission of HIV to child were available so there is no harm in having a child. This shows the lack of reproductive autonomy as well as the



urge to have a family along with optimism about the antiretroviral drugs as the leading reasons as far as desire for future child is concerned. Although in-depth interviews show the feelings that motherhood is integral part of such decisions as few women said, *"children are the main reasons for life".* Possible reasons for ruling out a future pregnancy were inquired from those women who were against having another child. Nearly 48 percent of the women were afraid that the child may be infected, followed by 31 percent saying 'who will take care of child'. Nearly one-tenth of the women expressed their inability due to deteriorating health conditions followed by only three percent of women who reported that as they have completed the family size so there is no need for a future pregnancy. Husband's HIV status *(i.e. separated/ HIV negative/ very ill)* for eight percent of the women was also reasoned against desire of having another child.

Couples Agreement on Desire of Future Childbearing

Considering the importance of studying couples' agreement on desire for future childbearing, analysis was carried out and related discussion has been included. If both the partners reported similarly to the question on future childbearing positively or negatively; they were considered as "couples without differences of opinion" whereas, if husband agreed and wife did not agree or vice versa then the couple is considered as "couples with differences of opinion". The bi-variate analysis of couple's agreement on desire of future childbearing was done by the background characteristics presented in Table 6. The table reveals that there was a statistically significant relationship between number of surviving children, number of surviving males, physical functioning of women, marriage duration, women's educational status and the couples attitudes towards future child bearing. More than one third of the couples without surviving children had expressed differences in opinion about the desire for a future child compared to one tenth of the women with at least one surviving child. Similarly, couples married for less than three years and women with a higher level of physical functioning were found to have differed in their opinion regarding future childbearing. It was surprising to find that illiterate women also expressed a difference in opinion. Therefore, it can be concluded from the table that number of surviving children, particularly surviving male children, largely affects the couples' agreement on desiring a future child.

Table 6: Couples agreements on desire of future child by selected background characteristics

Characteristics	Agreement between couple on future child		
	No difference in opinion	Difference in opinion	No of couples
Age gap			
Less than 3 years	100.0	0.0	11
3 years and More	80.8	19.2	73
No of surviving Children ***			
No surviving child	61.9	38.1	21
At least one child	90.5	9.5	63
No of surviving Males ***			
No surviving male child	72.1	27.9	43
At least one male child	95.1	4.9	41
Physical functioning of women **			
Below median	90.9	9.1	44
Above median	75.0	25.0	40
Marriage duration **			
1-3 Years	72.5	27.5	40
4-6 Years	88.9	11.1	27
7 years and more	100.0	-	17
Women's education *			
Illiterate	64.7	35.3	17
Up to middle	86.7	13.3	45
High school and more	90.9	9.1	22
Disclosure			
Acted voluntary	85.5	14.5	69
Disclosed forcefully	73.3	26.7	15
Total	**83.3 (70)**	**16.7(14)**	**84**

Chi square significance level * p< 10.0, ** p<0.5 *** p<0.1

Predictors of Desire for Future Childbearing

In order to understand the combined effect of the variables on the desire for future childbearing, multiple logistic regressions were carried out. Results of final logistic regression model are presented in the Table 7. The model had good explanation power with a high degree of statistical significance. Not having a male child (compared to those who had at least one) was a strong reason of desiring a future pregnancy among HIV infected women (at one percent level of significance). This shows that these women demonstrate a strong son preference. A similar analysis was carried out to see the preference for daughters but it did not turn out to be significant and was dropped in stepwise

procedures of maximizing likelihood estimation. Marriage duration and monthly family income were adversely related to the desire for a future child. The desire for a future child decreases significantly with an increase in marriage duration and monthly family income. Those who used more of active behavioral coping; a type of problem-focused coping were thrice more likely to desire a child in the future and this was significant at five percent level. Migrants were nearly five times more likely to go for a future child than non-migrants (at one percent level of significance). Women with discordant HIV status of husband were least likely to desire future child bearing. Time since knowing the HIV status found to be adversely related to the desire for a future child. Women who had known their status for 6-12 months (compared to 3-6 months) were less likely to desire a future child.

Table 7: Logistic regression analysis showing the adjusted effects (odds ratio) of some selected predictors on desires for future childbearing

Predictors	Reference category	Other categories	Odds Ratio	P>z
Male child	Yes	No	5.55	0.001
Marriage duration	1-3 years	4-6 years	0.39	0.086
		7 years and more	0.13	0.024
Income	Up to Rs. 2000	Rs. 2001-6000	0.45	0.161
		Rs. 6001 & more	0.05	0.022
Migrants	No	Yes	4.85	0.004
Coping (active behavioural)	Below med	Above median	2.68	0.053
Physical functioning	Below med	Above median	1.97	0.159
Discordant	Yes	No	2.02	0.360
		Not tested	8.31	0.034
Time since known HIV status	3-6 months	6-12 months	0.16	0.003
		> 12 months	0.40	0.175

Dependent variable=Desire for future child

Number of obs=184

LR chi2(12)=68.28

Prob > chi2=0.0000

Pseudo R2=0.3454

Predictors of Current use of Family Planning Methods

In order to understand the combined effect of the variables on the current use of family planning methods, multiple logistic regression analyses were carried out. Results of final logistic regression model are presented in Table 8. The model had a good explanation power with high degree of statistical significance. Time since learning HIV infection emerged as a strong predictor for current

use of contraception among HIV infected women. Women knowing their HIV status since last one year were 13 times more likely to use contraception with reference to the women who had been recently diagnosed (3-6 months). This may be because they were either pregnant or in the post-partum period or soon after diagnosis they were not exposed to sexual intercourse. Women who had been married for 4-7 years were three times more likely to use contraception than the recently married women (1-3 years). However, women who were married for more than seven years were less likely to use family planning methods.

Table 8: Logistic regression analysis showing the adjusted effects (odds ratio) Of some selected predictors on current use of contraceptives

Predictor	Reference category	Other categories	Odds Ratio	P>z
Male child	Yes	No	1.71	0.273
Marriage duration	1-3 years	4-7 years	2.84	0.046
		7 years and more	0.53	0.372
Age	Less than 24	25-29	1.89	0.205
		30+	0.61	0.616
Income	Up to Rs. 2000	Rs. 2001-6000	0.67	0.510
		Rs. 6001 & more	0.33	0.212
Physical functioning	Below med	Above med	0.49	0.142
Depression	Below med	Above med	0.23	0.006
Migrants	No	Yes	1.70	0.321
Overall support	Low	Medium	2.28	0.180
		High	1.32	0.667
Desire for child	No	Yes	0.49	0.368
Discussed FP	Yes	No	0.04	0.000
Problem focused coping	Low	Medium	2.40	0.142
		High	3.66	0.032
Time since known HIV status	3-6 months	6-12 months	8.52	0.001
		12 months & more	13.52	0.003

Dependent variable=Current use of FP

Number of obs=184
LR chi2(18)=92.91
Prob > chi2=0.0000
Pseudo R2=0.4119

Women who were more depressed were less likely to use family planning methods and this relationship was statistically significant. Whether women were migrants and living with a male child also influenced the current use of family planning methods, although the relationship was not statistically significant. Another important finding of this analysis is the effect of psychosocial factors on current use of family planning methods. With an increase in the satisfaction of overall social support and using of problem focused coping, there was a significant increase in the current use of

family planning methods among HIV infected women. As expected, inter-spousal communication significantly influenced current use of family planning. HIV infected women who had not discussed about family planning with the husbands were less likely to use family planning in comparison to the women who had discussed it with their husbands.

Discussion

The findings of this paper not only corroborate the earlier findings on reproduction with HIV but also provide enough insights in terms of monogamous women being forced by situations to react in certain ways. Paper revealed that the burden of the epidemic is borne by relatively younger women in their prime reproductive ages. Most of them were housewives without a source of their own income and had been living in a monogamous relationship; illustrative of the only risk factor 'sex with their husbands' similar to the findings of previous studies (Gupte, 2007). With lower autonomy they might have very little control over abstinence or condom use at home or husband's sexual activities outside marriage; made them increasingly vulnerable to the HIV infection. The city of Mumbai, being the financial capital of India has been attracting people across the country in order to seek employment. In the line of previous studies it was also observed that most of the husbands were migrating to the city as unmarried and living alone for a number of years enlarging their risk of being infected with HIV and in turn transmitting the infection to their wives.

Women in this study usually learnt about their HIV infection status during routine antenatal testing. With no perceived risk of being infected with HIV they had not visited for ANC until the mid stage of pregnancy, therefore tested very late. Most of them were registered through the referral system either from private health facilities or municipal or government run health centres where no such counselling and testing facilities were available. Most of the referred pregnant women were reported as being routinely tested for HIV with or without pre-test counselling. The most interesting findings concerned the attitude of Indian women towards disclosure of HIV status and feeling of being stigmatised. Results showed that quite a substantial proportion of women had kept absolutely silent about their infection for fear of being stigmatised. On the other hand, where disclosure had been made, most were forcefully through breach of confidentiality while providing the test report.

It is found that a majority of HIV infected women desired this current pregnancy in the absence of HIV status. But, a remarkable change in attitude towards desiring this pregnancy has been noticed if they had been aware of their HIV positive status. That reflects the perceived threat of HIV infection largely influencing the pregnancy decisions going upside-down in the wake of infection. One of the other important findings of the study is that HIV infected women have to forcefully continue the current pregnancy due to two leading reasons, being late ANC seeking practices and being diagnosed at a late stage of pregnancy. Desire for the first child is the only factor that prohibits some of the HIV infected women from seeking an abortion.

With respect to reproductive counselling, although counsellors in the feasibility study are committed to the fact that childbearing decisions ought to be left to the HIV infected women, still they sometimes direct the HIV infected women to avoid further pregnancies. They justify their position by stating that they are concerned that there is thirty percent chance that the infant would be infected and mothers eventually would die, leaving their orphaned children.

About four-fifths of women are not planning on having any or more children explicitly because of their HIV infection status. In contrast, one fifth of women who have decided to have children are basically those who have not yet completed their desired family size. It also emerges from this study that the fertility desires of HIV infected individuals do not always agree with those of their partners. While discussing the attitude and beliefs about pregnancy decisions, a majority of the women expressed confusion about their chances of transmitting the virus to their children.

Women whose husbands' HIV status is unknown are significantly more likely to desire childbearing in future than those women whose husbands' HIV status is known. This finding is consistent with the findings of Chen (2001) in understanding the extent of desires and intentions of HIV positive individuals in USA. In the bi-variate analysis age, marriage duration, number of children surviving, if have a male child, importance of HIV and husband's HIV status are some of the variables found to significantly influence future fertility desire. This study reveals that presence of a surviving male child, migration status and marriage duration are significant predictors of future desire of childbearing in the HIV infected women.

Despite the high-level of HIV-tested husbands, only 29 percent of couples use condoms at the resumption of sexual activity after childbirth. When the husband is found to be negative, condoms are more frequently used. Generally, women reported taking the initiative to convince their husbands to use the condom. HIV related factor i.e. time since learning HIV infection along with some psychosocial factors such as depression level, satisfaction from overall social support and use of problem focused coping and inter-spousal communication emerge as strong predictors for current use of family planning methods in HIV infected women.

However, more than one fifth of sexually active HIV infected couples were still not using any contraceptive method at the time of interview despite counselling. This finding is similar to the study conducted by Vimercati (1999) while assessing the results of counselling on sexual habits and reproductive choices of discordant couples. Therefore, the finding clearly indicates the need of strengthening the family planning component of counselling in the PPTCT programme. Like other women, HIV infected women also have variations persistent in the desire for children. In this study the desire have been heavily controlled by reproductive history variables along with the health status of women.

This paper highlights the importance of incorporating fertility related counselling, as well as contraception and advice regarding safe conception and childbirth, as appropriate into HIV treatment services. The extent of fertility desires and intentions of these women poses a threat to the preventive strategies against vertical transmission. In view of their desire for parenthood, it may be wise for caregivers to desist from the conventional systematic advice against pregnancy but in addition to laying emphasis on the risks, provide adequate information on practicable reproductive options for HIV positive individuals.

Although this study has come out with interesting findings and significant policy implications on the emerging issues of women diagnosed with HIV/AIDS during pregnancy, certain limitations of the study are worth mentioning. Perhaps most important, this study relied completely on women's self report of behaviour. The cross sectional and selective design of study makes it difficult to generalise much of the findings. Due to the small sample size, one should be cautious in our interpretation of the results. The study did not involve a random sample of HIV-infected women living in Mumbai rather represent a particular sub-group of those who attend an antenatal clinic and were diagnosed

during pregnancy. Thus nothing we know about those infected women who do not attend this antenatal clinic and therefore results may not be generalised for the HIV infected women with different characteristics. Many of the problems in interpretation of the association between predictor and outcome variables could be resolved by longitudinal research. As we did not have an HIV-negative control group we cannot comment on how much of reproductive desire affected by the woman's HIV infection.

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