# **Research Article**

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20160440

# Age of sexual debut and associated factors among HIV positive individuals registered at anti-retroviral therapy centre of a tertiary hospital of South Gujarat, India - a cross sectional study

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Received: 11 December 2015 Revised: 11 January 2016 Accepted: 20 January 2016

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#### **ABSTRACT**

Background: Evidence shows that early sexual debut "is a significant predictor of prevalent HIV infection". With this background, this study was planned with objectives of finding the age at sexual debut and to determine mean age of sexual debut, its trend among different age groups and factors associated with it among HIV positive individuals.

Methods: A Cross sectional study was conducted at Anti-Retroviral Therapy (ART) centre of a Tertiary Hospital of Gujarat region of India. Two hundred fifty patients were enrolled in the study. Age of sexual debut and associated factors like education, occupation, marital status, substance abuse and condom use at sexual debut were explored.

Results: Among 250 participants, 240 (96%) had initiated sexual activity among which 133 (55.4%) were males and 107 (44.6%) were females. Mean age of sexual debut was 19.6 (±3.7) years; among males 21.2 (±3.9) years and females 17.7 (±2.2) years. The lowest age of coital debut was 14 years in males and 13 years in females. Mean age of sexual debut in the younger age group was significantly lower than among the older age group. Age of sexual debut was found to be independent of socioeconomic status, educational status and history of substance abuse; lower age of sexual debut was found to be associated with being a laborer, a migrant or female.

Conclusions: Interventions for behaviour change regarding sexual health among vulnerable groups like adolescents, migrants and females need to be intensified.

Keywords: Sexual debut, HIV positive individuals, ART centre, India, Migrant, Labourer

## INTRODUCTION

Evidence shows that early sexual debut "is a significant predictor of prevalent HIV infection". 1-3 It has also been has been significantly associated with sexual behavior and risk taking behavior. Over the past several years, substantial funding has been directed towards programmes to delay sexual debut among adolescents in various countries but various attempts at initiating sex

education at an earlier age in schools of India have failed owing to the cultural norms and social taboos that prohibit sex related discussion. 4,5 With this background, this study was planned with objectives of finding the age at sexual debut and to determine mean age of sexual debut, its trend among different age groups and factors associated with it among HIV positive individuals. The study population was selected from among the HIV positive individuals assuming that after having pretest

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counseling and post-test counseling from designated Counselors at the Integrated Counseling & Testing Centre (ICTC) and Anti-Retroviral Therapy (ART) Centre, the patient might be free to share sensitive matter such as sexual behaviour with the investigator.

### **METHODS**

## Sampling

One Anti-Retro viral centre out of three ART centres in the city was selected for the study according to the feasibility of the investigator. Participants were recruited by consecutive sampling. Five percent of the recently detected HIV positive individuals were taken as sample size. This came to be roughly around 250. In a period of four months, fifteen different participants were interviewed each week. Excluding two participants who withdrew from the study in the middle of their interview, a total of 250 participants participated in the study.

# Eligibility criteria

Individuals in the age group of 15-60 years ,detected HIV positive and registered at ART Centre of tertiary care hospital, Surat during the study period and who agreed to participate in the study were interviewed. A prestructured tested questionnaire was used to extract information regarding education, occupation, income, medical history & age of sexual debut.

## Exclusion criteria

Individual registered in period of more than three months of the date of interview were excluded as another objective of study which is not published in the present paper was to elicit recent sexual behaviour.

# Ethical approval

The study was undertaken after approval from the local Human Research Ethics Committee. A written informed consent was obtained from each of the participant in vernacular language. To ensure anonymity and confidentiality, names of the participants were not filled in the questionnaire; instead their Pre-ART or ID number was noted.

## Analysis

The data were entered in MS excel and analysed in SPSS version 16 (permission granted by Statistics department of Veer Narmad South Gujarat University, Surat, Gujarat). We used descriptive statistics to describe demographic profile of participants, to identify the proportion of participants who had sexual debut, use of condom, marital status and substance use at time of debut. We performed logistic regression analysis to examine associations between age of sexual debut, occupation, migration status, education and gender. Odds

ratios were estimated to determine the change in likelihood of age of sexual debut with factors such as gender or occupation. Age of sexual debut in three age groups was compared by applying one way - Kruskal-Wallis test. All data are presented as means and standard deviation, odds ratios with 95% confidence interval, and percentages of the total population (unless otherwise stated).

## RESULTS

Majority of the participants were in the age group of 15-45 years (84%) and were literate (77.6%). More than three quarters of the participants (78.8%) were married and one third (36.4%) were labourers. Sixty two percentage of participants belonged to socio-economic status IV & Class V (according to Modified Prasad Classification). The proportion of migrants was 58%. Out of 250 participants, none of the study participants were addicted to intravenous drugs. Thirty eight percent had history of substance abuse wherein 61 (24.4%) had habit of chewing tobacco in any form, 19 (7.6%) had habit of smoking and 15 (6%) had habit of drinking alcohol. After being diagnosed as HIV positive, five participants had started smoking or drinking alcohol (Table 1).

Among 250 participants, 240 (96%) had initiated sexual activity among which 133 (55.4%) were males and 107 (44.6%) were females. Marriage was the most common reason cited for sexual debut. Other main reasons were friendship (11.2%) and for pleasure (4.12%). In males, primary reason to initiate sexual activity was marital (66.95%) and friendship (18.7%). In females, reason for sexual debut was marital 104 (96.2%) and friendship 3 (2.9%). Out of 133 males, 14 i.e. 10.5% of total males, sexual debut was with female sexual workers. One male had reported forceful anal sex from his co-worker in his inebriated state. Among 240 participants only 7 (3.4%) had taken drug or alcohol at the time of sexual debut. Among females, none of the sexual partners with whom they had debut were under effect of alcohol or drug. It is of great concern that more than 60% were unaware of condoms at time of their sexual debut. Only 16 (6.7%) of participants had used condom as contraceptive at the time of sexual debut and among them 11 (4.5%) were males, while partners of remaining 5 (2.2%) females had used condom. Different reasons for not using condom at sexual debut were no knowledge about it prior to sexual debut, unfelt need, awkwardness in buying condom and refusal of partner (Table 2).

Amongst 240 participants, 130 (54.2%) had their sexual debut at age more than 18 years, 84 (35%) had sexual debut in age group 16-18 years and 26 (10.8%) had initiated sexual life at age less than 16.

Among females, 50 (46.85%) had first sex at age between 16 to 18 years while it was notable to see that 21(19.6%) had started their sexual life before attaining age of 16 years. Mean age of sexual debut was 19.6 (±3.7) years

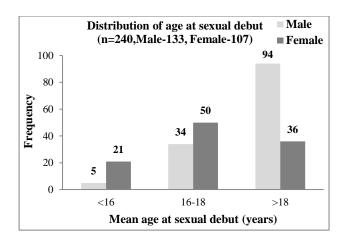
among males it was  $21.2 \pm 3.9$ ) years and among females 17.7 ( $\pm 2.2$ ). Mean age of sexual debut was higher in males compared to females and it was statistically significant by applying Mann Whitney U test (Figure 1).

Among males 94 (70.7%) had sex after the age of 18 years, while 34(25.5%) had initiated sexual activity in the age group of 16-18 years. Only 5(3.8%) had initiated sexual activity before the age of 16 years (Figure No.1). The lowest age of coital debut was 14 years in males and 13 years in females. There was only one adolescent male participant in age group of less than nineteen years so three age groups: 20-25 years, 26-49 years and more than or equal to 50 years were made and age of sexual debut among these was compared. Among both the adult age groups (26-49 years and more than 50 years) mean

age of sexual debut was similar (Mann Whitney U test insignificant), while mean age of sexual debut among youth (20-25 years) was significantly lesser than both the adult age groups of 26-49 years and more than 50 years (Mann Whitney U test significant). Kruskal Wallis Test was applied to check for the difference in means of age of sexual debut in three different age groups and the difference was found to be significantly different. Mean age of sexual debut in the younger age group was significantly lower than among the older age group. This analysis was done to explore recent trends in age of coital debut. It may be concluded that youngsters are initiating their sexual life earlier than their elders (Figure 2). Factors associated with age of sexual debut less than 18 years (Table 3).

**Table 1: Socio-Demographic profile of participants.** 

		Female (%)	Total Freq. (%)
Gender distribution	141 (56.4)	109 (43.6)	250 (100)
15-25	17 (48.5)	18 (51.5)	35 (14.0)
26-35	47 (46.1)	55 (53.9)	102 (40.8)
Age group (in years) 36-45	51 (68)	24 (32)	75 (30.0)
>45	26 (68.4)	12 (31.6)	38 (15.2)
Married	110 (55.8)	87 (44.2)	197 (78.8)
Marital status Divorced/ widowed	18 (47.36)	20 (52.6)	38 (15.2)
Unmarried	13 (86.7)	2 (13.3)	15 (6.0)
Illiterate	24 (42.8)	32 (57.1)	56 (22.4)
Education status Primary	62 (58.5)	44 (41.5)	106 (42.4)
Secondary	41 (58.6)	29 (41.4)	70 (28.0)
Higher secondary and above	14 (77.8)	4 (22.2)	18 (7.2)
Labourer	65 (71.4)	26 (28.6)	91 (36.4)
House-wife		71 (100)	71 (28.4)
Employment Skilled labourer	53 (93)	4 (4)	57 (22.8)
Self-employed	12 (66.7)	6 (33.3)	18 (7.2)
Service	8 (88.9)	1 (11.1)	9 (3.6)
Unemployed	3 (75)	1 (25)	4 (1.6)
Socioeconomic status Class I	2 (40)	3 (60)	5 (2.0)
Class II	18 (64.3)	10 (35.7)	28 (11.2)
Class III	42 (68.8)	19 (31.1)	61 (24.4)
Class IV	59 (47.5)	65 (52.4)	124 (49.6)
Class V	20 (62.5)	12 (37.5)	32 (12.8)
Migration status Migrants	88 (60.3)	58 (39.7)	146 (58.4)
Non-migrants	53 (51)	51 (49)	104 (41.6)
Migrants (n=146) Interstate	73 (59.8)	49 (40.2)	122 (83.5)
Intrastate	15 (62.5)	9 (37.5)	24 (16.5)
Tobacco	54 (90.0)	7 (10.0)	61 (24. 4)
Substance above he form	19 (100.0)	0 (0)	19 (7.6)
Substance abuse before HIV diagnosis (n=250) Alcohol	15 (100)	0 (0)	15 (6.0)
HIV diagnosis (n=250)  None	53 (34.2)	102 (65.8)	155 (62.0)
Total	141 (56.4)	109 (43.6)	250 (100)



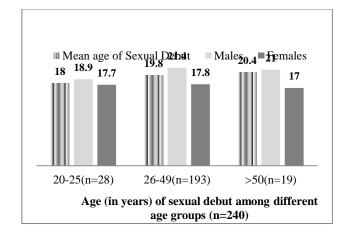


Figure 1: Comparison of males and females in different age groups of sexual debut.

Figure 2: Mean age of sexual debut among different age groups.

Table 2: Outline of sex debut among the study participants.

		Male (%)	Female (%)	Frequency (%)
Covered debut (p=250)	Yes	133 (55.4)	107 (44.66)	240 (96.0)
Sexual debut (n=250)	No	8 (80.0)	2 (20.0)	10 (4.0)
	Spouse	90 (46.4)	104 (53.6)	194 (80.8)
Sex debut with whom (n=240)	Friend	28 (90.3)	3 (9.7)	31 (13.3)
	Female sex worker	14 (100)	0 (0)	14 (5.8)
	Marital	90 (46.4)	104 (53.6)	194 (80.8)
	Friendship	24 (89.3)	3 (10.7)	27 (11.2)
Reasons for sexual debut (n=240)	Experiment	3 (100.0)	0 (0.0)	3 (1.2)
	Pleasure	10 (90.9)	0 (0)	10 (4.12)
	Under stress	5 (100.0)	0 (0.0)	5 (2.1)
	<16	5 (18.5)	21 (81.5)	26 (10.8)
	16-18	34 (40.5)	50 (59.5)	84 (35)
Age of sexual debut (in years) (n=240)	19-25	76 (67.8)	36 (32.2)	112 (46.7)
	>25	18 (100)	0 (0)	18 (7.5)
	>18	94 (72.3)	36 (27.7)	130 (54.2)
	<18	39 (34.5)	71 (64.5)	110 (45.8)
Use of drug/alcohol at sexual debut (n=240)	Self	4 (100.0)	0 (0.0)	4 (1.7)
	Both	3 (100.0)	0 (0.0)	3 (1.3)
	Partner	1 (100.0)	0 (0.0)	1 (0.4)
	None	125 (53.8)	107 (46.2)	232 (96.7)
Condom use at debut (n=240)	Yes	11 (68.7)	5 (31.3)	16 (6.6)
	No	122 (54.4)	122 (45.6)	224 (93. 4)
	No knowledge	76 (56.2)	59 (43.8)	135 (60.6)
Reasons for not using condom	Not needed	44 (53.6)	38 (46.4)	82 (36.8)
(n=223)	Shy to buy	1 (100)	0	1 (0.4)
	Partner refusal	0	5(100)	5 (2.2)

Independent variables like Gender, Literacy status, Occupation, Migration status, Socio economic status and history of substance abuse were speculated / expected to influence the age of sexual debut. After performing binary logistic regression, gender, migration status and occupation and history of substance abuse were found to be significantly associated with sexual debut at age less than 18 years, among individuals who were HIV positive.

To see which factor can act as a predictor for age of sexual debut less than 18 years, multivariate analysis was carried out. In binary logistic regression, age of sexual debut less than 18 years was taken as the dependent variable and other variables were taken as independent variable. Method used to do the binary regression was 'Enter' method. The results of the analysis are as shown in Table 4. Hosmer Lemeshow test to assess goodness of

fit for the model was done and the model in Table 4 best explained the variability in age of sexual debut (Negelkarke square = 0.31).

So it can be seen from Table 4, that females, labourers and migrants are 9.6, 3.3 and 4.2 times more likely to have sexual debut at age less than 18 years than males, non-labourers and non-migrants respectively. The high odds of females having sexual debut at age less than 18 years can be explained by the fact that 100 (42.5%) participants were married at age less than 18 years and out of these 100, 68 participants were females married at early age.

Age of sexual debut was found to be independent of socioeconomic status, educational status and history of substance abuse.

Table 3: Factors affecting sexual debut at age less than 18 years.

Variable	Chi- square value	p value	Odds ratio	95% confidence interval
Gender	28.1	< 0.001	0.16	0.08-0.33
Literacy status	4.3	0.036	2.08	1.03-4.19
Occupation (labourer/n on labourer)	15.7	<0.001		
Migration status	10.6	0.001	3.2	1.5-6.6
Socio economic status	7.9	0.19	-	-
History of substance abuse	7.2	0.007	0.38	0.19-0.786

Table 4: Multivariate analysis of factors associated with age at sexual debut less than 18 years (From SPSS output).

	Est. coeff.	S.E.	Wald	Df	P value	Exp coeff.
Female/ gender	2.271	0.353	41.267	1	0.000	9.686
Migrant	1.451	0.329	19.500	1	0.000	4.269
Labou rer (occup ation- L/NL)	1.211	0.347	12.153	1	0.000	3.357
Const ant	-4.782	0.700	46.717	1	0.000	0.008

#### **DISCUSSION**

In present study eighty four percentages of participants were in the reproductive age group of 15-45 years among which seventy percent of study population was in the age group of 26-45 years. This section of the population is economically productive and sexually more active.<sup>6,7</sup>

Females are at mercy of their counterpart and are silent victims. They are unable to decline to their husbands' wishes of having sex. They do not have the right to ask for contraception and suffer from deadly disease just because of the male dominance and physical vulnerability.<sup>8</sup>

Also majority of participants were of poor socioeconomic status. Women of low SES may be economically dependent on male partners, limiting their ability to negotiate condom use in relationships, or forcing them to sell sex for money. 9,10,11

In present study nearly sixty percent were labourers were engaged in agriculture, sugarcane, diamond, textile industries, including migrant labourers, which is a vulnerable group which is similar to findings of study by Chakravarty J et al in done in Uttar Pradesh, where 71.5% were migrant workers.<sup>12</sup>

A number of studies in India further indicate that migration propels the HIV epidemic by creating living conditions that heighten engagement in risky behaviours (e.g., husbands residing without wives go to FSWs) and by providing a vehicle through which infection can move from high to low epidemic regions. <sup>13-16</sup> Studies document that men living without wives or not being married engage in transactional sex. <sup>13,17,18</sup>

About one forth participants acquired infection through heterosexual mode, fifteen percent through sex with non spousal partner and ten percent through sex with their spouse. Five to seven percent participants responded that they got infected by infected needle and syringe, and seven percent said they acquired it through blood and blood products. More than sixty percent responded that they did not know how they had contracted infection even when they knew modes of spread of HIV infection. Among them 84 (55.3%) were males and 68 (44.7%) were females. Spouse of 54 participants whose mode of infection was unknown (n=152) were HIV positive. Reasons of remaining 98 participants not knowing their source of infection could be, concealment from investigator, sero status of their spouse not known, spouse living in their native place, refusal of spouse to get tested (specially seen among males) or unwell spouse. Females did not attribute their infection to their husbands may be because of cultural reasons revealed as in a study in Mexico regarding HPV transmission.<sup>19</sup>

#### Age of sexual debut

Among 250 participants, 240 (96%) had initiated sexual activity, 133 (55.4%) were males and 107 (44.6%) were females remaining had not yet experienced sexual activity.

The age of sexual debut was relatively less in the younger age group. It shows that youngsters are having sex earlier than their elders.

Sex education was banned in India after uproar from various intellectual and religious communities because of fear of precocious sex causing moral degradation of the youth. Now it seems that informing youth regarding sexual and reproductive health will give dual benefits to the country. Firstly, the transmission of STI/RTI may be reduced if the youth practice safe sex and secondly reduction of unwanted pregnancies and septic abortions.

The lowest age of coital debut was 14 years in males and 13 years for females in our study which exactly same as found in a study done at Calcutta School of Tropical Medicine (CSTM), Kolkata, by Taraphdar P et al which was done among HIV positive individuals.<sup>21</sup> This fact points us that efforts are needed in the area of adolescent sexual health. A case control study by George et al done in South India reported a mean age of 20.27 years for first sexual intercourse among men and show that the risk of acquiring HIV was greater when the mean age of sexual exposure was less than 19 years.<sup>22</sup>

In our study the age of sexual debut was less among females owing to the fact that many of the females had been married at age less than 18 years resulting into less age of sexual debut. Child marriage, defined as a formal marriage or informal union before age 18, is a reality for both boys and girls; however girls are disproportionately the most affected. Globally nearly one in three girls are married before the age of 18, and one in seven is married before the age of 15. An estimated 10 million child marriages occur every year. <sup>23, 24</sup> Child marriages have also been shown to increase the likelihood of HIV infection and of domestic violence. <sup>25,26</sup>

A majority of research on HIV knowledge and sexual behaviour takes as a starting point the idea that knowledge is necessary but not sufficient for behaviour change which is true in our study also, as literacy status did not increase the age of sexual debut and only a few had used condom at sexual debut.<sup>27</sup>

# Partner for debut

Regarding their first sexual partner in a study by Taraphdar P et al, it was generally the spouse among 91.8% females and 42.9% males whereas in our study spouse was first sexual partner for 96.2% females and 66.9% males.<sup>21</sup> Non spousal coital debut was observed among 53.1% males (FSW and girlfriends) in the same

study but in our study it was 33.1% (FSW and female friends). In the same study, for females non spousal debut was 8.1% (boyfriends, customers) whereas in our study it was only 1.25%. In contrast to our study where premarital sex was more among males, Bo Wang et al whose study was conducted in a suburb of Shanghai reported that there were no gender differences in rate of premarital sex or frequency of contraceptive use. <sup>28</sup>

#### Condom use at debut

In a dissertation submitted to Masstricht University in 2010 by Mzolo T, individuals who used a condom at their sexual debut have a lower HIV prevalence than those who did not use a condom (14.8% vs 25%).<sup>29</sup> In present study, only 12 (5%) of participants had used condom as contraception at the time of sexual debut and among them 9 (75%) were males and remaining females. A survey done in India in 2012 among non-infected individuals says that 55% of the respondents used the Male condom when first having sexual intercourse. [30] Another study done on PLHIV in the same region found close to 43% of PLWHAs participants had practiced premarital sex and nearly 97% of them did not use condoms during premarital sex.<sup>31</sup> Most young people do not use any form of contraception or protection against STIs during their first sexual experience, thus risking pregnancy and STI/HIV. Young women, who are biologically more vulnerable to STIs and HIV infection, will generally, not be in a position to negotiate safer sex with their partners.32

Out of 240, 82 (36.8) had said that they did not want to use condom in sexual debut, probable reason is that their debut was marital .A study done by Dave SS et al also says that as per belief of many people faithfulness and condom use are mutually exclusive. 33 A study conducted by Wig et al, in tertiary healthcare center in north India among PLWHAs found that the reasons for an infrequent condom use among PLWHA were males feeling uncomfortable using it (83%), condoms being not available when needed (42%), the reduced sexual pleasure on using condoms (64%), and a wrong belief about no need for condoms for serocon cordant couples.<sup>3</sup> Reasons encountered for unsafe sex before HIV diagnosis was lack of awareness about HIV/AIDS for majority (80%) of PLWHA in study done by Kedar et al; in the present study it was 60 %.31

India has a very conservative and traditional concept of sex. Indian culture doesn't permit sex to be talked about in a casual way. Children are not told how babies are born by their parents or teachers. The youth of this nation learn either from peers or out of their own curiosity from any medium of information such as books, internet or movies. In the present study majority of the participants were not unaware of use of condom. It is a fact that nearly all of them initiated their sex life through marriage but having married doesn't imply that the individual is equipped with reproductive health knowledge. On the

contrary we see that 93.4% individuals didn't use condom at their first sexual encounter.

Condom use at sexual debut was found to be low which tell us that despite so many efforts at Information, Education and Communication and Interpersonal Communication strategies by Government and Non government agencies, we are still left with arduous task of achieving positive behavioural change among the vulnerable.

#### CONCLUSION

The lowest age of coital debut was 14 years in males and 13 years in females. The overall average age of sexual debut was 19.6 years; 21.2 years being mean among males and 17.7 years among females. Sexual debut before marriage and at early age poses for high risk behaviour for a longer period thus potential threat to majority of getting HIV in the age 25 to 30 years. Sexual debut is a very crucial event in life of an individual. An effort in making it a safe event is responsibility of both individual and society. Sex education in school is first step in this process.

The relationship of factors such as education status, socioeconomic status, and history of substance abuse predisposing for having sexual debut at the age of less than 18 years was not well established. Whereas the factors such as being female by gender, labourer and migrant were found to have statistically significant association with age of sexual debut less than 18 years. Hence, government actions for behaviour change through awareness among these vulnerable groups through targeted interventions need to be intensified with support and participation from the civil society.

## Limitation

The findings of this study must be interpreted in the light of its limitations.

- All quantitative data in this study are based on interviews with participants from a convenience sample of PLHIV. Although convenience samples cannot be used to generalize to larger populations, the findings reveal important insights into sexual behaviour selected sample population.
- Some of questions in our study were sensitive leading to non-response and less reporting of sexual behaviour.

# ACKNOWLEDGEMENT

We acknowledge the support from Gujarat State AIDS Control Society and staff at ART centre, New Civil Hospital, Surat, Gujarat. We are also grateful to the participants of this study who patiently gave answers to the questionnaire. We express our gratitude to Statistics

Department, Veer Narmad South Gujarat University for supporting us with SPSS version 16 software.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee of Government Medical College, Surat, Gujarat, India.

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Cite this article as: Dayama S, Kosambiya JK, Verma M, Ryavanki S. Age of sexual debut and associated factors among HIV positive individuals registered at anti-retroviral therapy centre of a tertiary hospital of South Gujarat, India - a cross sectional study. Int J Community Med Public Health 2016;3:498-505.