Correlates of AIDS Knowledge among Two Groups having Multiple Sex Partners in Mumbai, India

The increasing number of HIV/AIDS cases in India has alarmed various developmental sectors, resulting in attempts at efforts to increase awareness about AIDS and also to promote condom use. Such efforts focused largely on the conventionally defined vulnerable groups, including sex workers. The need to spread awareness about condom use and to strengthen the supply chains was strongly felt and subsequently a massive condom use promotion campaign was designed and is being implemented. In addition, attempts are underway to educate people about the consequences of entering into sexual relationships outside marriage, thus promoting monogamous relationships.

Although the intervention efforts have achieved some results, three facts are confronting all those concerned with the prevention of STD and AIDS in India. First, the number of HIV/AIDS cases is increasing alarmingly; estimates put the figure as above 4 million AIDS cases in India with some of the states having high prevalence rate. Second, studies have shown that sexual relationships outside marriage, especially premarital sex has been on the increase in the country[3,4,5,6]. Third, the little available evidence does not reveal a significant increase in condom use that would help to substantially reduce the incidence of AIDS and STDs[7,8].

The national level data available shows that only 60 percent of ever married women in the reproductive age group have ever heard about AIDS[9]**.** There are wide variations in the extent of awareness depending upon the educational status,

religious/caste affiliation, standard of living and exposure to mass media. Given similar backgrounds, whether knowledge about HIV/AIDS and or condom use is lower or higher among those having multiple sex partners is not clear from the available studies. The present paper is an attempt to bridge this gap by examining the level of AIDS knowledge among two population groups that engage in multi-partner sex.

DATA AND METHOD

It is estimated that more than 50,000 female sex workers operate from the red-light areas of Mumbai city and its suburbs. From this, two red-light areas were selected for the present study; these areas are characterized by the relatively lesser extent of recent interventions (especially from NGOs). A house listing with the objective of obtaining an estimate of the number of female sex workers found that 1578 sex workers were operating from these two areas. We selected 501 female sex workers from the two selected areas, the number from each being proportionate to the total estimated number of female sex workers operating from that area. The selected female sex workers were interviewed with the help of an interview schedule; in addition twenty in-depth interviews were conducted. Using direct approach, through the selected female sex workers, and through contact with the pimps and those running video parlors near the area, we interviewed 215 clients using an interview schedule and had 15 in-depth interviews with a sub group of them.

AIDS knowledge was ascertained from the responses to two types of questions. One, 'Are you aware about AIDS?' Those who responded as not aware of AIDS were counted as having no knowledge. Those who said that they are aware, were asked seven questions related to HIV transmission. Each were given three codes:

yes, no, not sure. Based on the responses to these and the first question on awareness, an individual was categorised as having no knowledge, partial knowledge, or complete knowledge. The same classification procedure was adopted for clients also. Since only one client had no knowledge, this case was excluded from further analysis thus resulting in two categories: partial knowledge and complete knowledge. The correlates of AIDS knowledge use are studied using bi-variate analysis and logistic regression, carried out separately for female sex workers and clients.

RESULTS

Sample Characteristics

Tables 1 and 2 provide the characteristics of selected sample respondents; these are later treated as the independent variables in studying the correlates of AIDS knowledge among the two high risk groups. Most of the female sex workers (65 percent) are in the age group 25-34 years with close to one-quarter being 35 or more years old. About 60 percent are from Lamington Road area (one of the selected area) where the general socio-economic characteristics of selected FSWs was slightly better compared to those from second area (Falkland Road area). Most of the selected sex workers never had any education (83 percent), an important point in designing interventions aimed to create awareness. While a majority of them have never married, close to one third are divorced/widowed/separated implying that only one fifth of them currently have a marriage partner. Most of the selected respondents were Hindus; others were Muslims or Christians.

(Table 1 about here)

One third of the female sex workers earn an income less than or equal to Rs. 2050 (approximately $ 43) per month. The mean monthly income is Rs.3,099 (US $ 65). One may say that 12 percent of the selected sex workers live below the official poverty line suggested for urban areas in India. Sex workers come to the Mumbai metropolitan area from various regions of the country; a majority of the selected respondents (55 percent) are from the southern region, followed by the eastern and northeastern regions. Importantly, close to one sixth of the selected female sex workers are from the neighboring country, Nepal. The major reasons for entering this profession were 'came on their own' (without any one forcing them, or they thought they would enjoy life), financial reasons, and husband/lover related reasons. A little more than half of the respondents have at least one child. Half of them had an average two clients per day while 19 percent reporting one client and a little less than one-third had three or more clients.

The age distribution of clients is a little younger as compared to the sex workers. While half of them are in the 25-34 age group, a notable feature is that close to one-third are youth in the age group 15-24 years. A little above one half of the clients are from urban areas while 45 percent are from rural areas of various states in India. Close to one half of the clients are staying in Mumbai for 10 or more years while a little higher than a quarter has been in the city for less than three years. Educational status of clients is significantly better as compared to the female sex workers; close to one half are educated at least up to secondary level.

(Table 2 about here)

A little more than 52 percent of the clients are single; the extent of extramarital sex can be seen from the fact that 39 percent are currently married (the remaining 4.2 percent were either widowed or divorced). This is against the generally held belief that in India the clients of sex workers are mostly single/widowed/divorced persons. Three quarter of the selected clients are Hindus, followed by Muslims (17 percent) and Christians (3 percent). A majority of the clients are from joint or extended nuclear families (55 percent). Close to 30percent of clients are having income less than Rs. 2,050 ($43 per month); in general the clients are from lower socio-economic category - mostly from lower middle class background. Five percent of the clients live below poverty line. The mean monthly income (individual) is Rs. 3655 (or US $ 76) only marginally higher than that of female sex workers. However, the mean monthly household income (not shown in the Table) is Rs. 7474 (US $ 156) indicating a better status and the presence of other earning members in the family.

Correlates of AIDS Knowledge

Socio-demographic and economic characteristics along with some variables related to the profession (in the case of sex workers) were considered as the possible correlates of AIDS knowledge. Table 6 presents the results of bi-variate analysis of the association of each individual level variable with AIDS knowledge of sex workers. Among the selected sex workers, less than 10 percent had complete knowledge about AIDS transmission, whereas a large majority (63 percent) had partial knowledge. Notably, a considerable proportion (28 percent) did not have any knowledge (or have never heard) about AIDS despite the governmental and non-governmental efforts to improve the awareness among this high-risk group.

(Table 3 about here)

Out of the ten independent variables considered, seven were found to have statistically significant association with AIDS knowledge level. Younger sex workers (aged 15-24), those operating from Falkland Road area, those with some education, those who are single/divorced/separated (as compared to currently married), those who belong to the religions Islam or Christianity, those who came to profession on their own, and those who have three or more clients per day, do have a better knowledge about AIDS. Monthly income, region of origin, and whether a sex worker has any children did not have any significant bearing on the level of AIDS knowledge.

A similar bi-variate analysis was carried out for the AIDS knowledge of clients, with socio-demographic and economic characteristics as independent variables. The two categories of AIDS knowledge in this case were: those having partial knowledge and those with complete knowledge. Results of the bi-variate analysis are presented in Table 7. Of the 214 clients who have ever heard about AIDS, 60 percent had some knowledge while the remaining 40 percent had complete knowledge about AIDS. Out of the eight variables considered, only two were found to have significant association with AIDS knowledge level of the clients. Education and marital status have statistically significant association with AIDS knowledge. Knowledge about AIDS was found to be considerably higher if the level of education is secondary or above. However, there is no substantial difference between the level of AIDS knowledge among illiterate and those with less than secondary level of education. In contrast to the observation made for sex workers, the level of AIDS knowledge was found to be significantly better among ever-married clients as compared to never married. Other variables did not show

statistically significant association with the level of AIDS knowledge. Though the differences are not statistically significant, the level of AIDS knowledge is marginally better among older clients, those from urban areas, those who have spent more number of years in Mumbai, those who are not Hindus, those from extended nuclear and joint families, and those having a higher monthly income.

(Table 4 about here)

In brief, the bi-variate analyses show that the independent variables considered have an association with the level of AIDS knowledge among the two groups, with the relationship being stronger for sex workers.

Multivariate Analysis

Logistic regressions were carried out in an attempt to ascertain the effect of each background variable on the level of AIDS knowledge among the two groups. The results of these analyses for sex workers and clients are presented in Tables 8 and 9 respectively. For logistic regression analysis, the three categories of AIDS knowledge of sex workers were re-classified into two: 'no knowledge' and 'some knowledge'; the latter category included those having partial knowledge as well as those with complete knowledge.

The odds ratios for sex workers were significantly different from the reference category for five variables: locality, education, religion, reason for entering the profession, and the number of clients per day. The chance of having at least some knowledge about AIDS is higher among younger sex workers by 1.75 times as compared to older sex workers. Interestingly, sex workers operating from

Lamington Road area (whose educational status and living conditions were better) had an odds ratio of 0.24 indicating that sex workers from this area has a chance 76 percent lower than that for those from Falkland road area, to have at least partial AIDS knowledge. A probable reason for this difference is a better presence of NGOs in Falkland Road area especially in the months previous and during the course of the present study. Those who had at least some education have an odds ratio twice higher as compared to sex workers without any education, in having AIDS knowledge. While never married sex workers had lower odds ratio (by 34 percent) as compared to currently married, the ratio among divorced/separated/widowed sex workers was lower by 17 percent.

(Table 5 about here)

Religion appears to make a difference on AIDS knowledge among sex workers; those with Muslim and Christian religious background have an odds ratio three times greater as compared to Hindus. Increase in monthly income tends to result in an increased odds to have AIDS knowledge, the difference is not statistically significant. One may, however, note that the odds ratio of AIDS knowledge is 1.5 times higher in the highest income category compared to the lowest. Region of origin (the region of birth) of sex workers is not associated with the level of AIDS knowledge as we had observed in the bi-variate analysis also. Those hailing from the northern and central states of India had a better knowledge as compared to others. Noteworthy is the fact that sex workers from the neighboring country-Nepal, had the chance of having lowest AIDS knowledge (odds ratio being only 0.50); also important is the lower level of knowledge among sex workers from the southern region who constituted 55 percent of the sample.

AIDS knowledge is associated significantly with the major reason for entering into this profession. When the reason is economic, the odds of having AIDS knowledge is found to be the lowest. Also, if the reason is related to husband or lover (such as husband deserted, lover cheated or sold by either of them) the knowledge level is low. When a sex worker entered the profession on her own choice, the chance of having AIDS knowledge is more than three times higher as compared to the level if the reason is husband related (reference category) or financial. Though there is not a statistically significant association of having or not having children with AIDS knowledge, the odds ratio is lower (by 25 percent) among those having no children. Although we found that AIDS knowledge level was higher among those with more clients per day, this is not so in the multivariate analysis. The results show that the ratio is the highest when the average number of clients is 1 and it is close to 1 when the average number of clients is three or more. The difference from the reference category is significant only when the number of clients is 2, where the odds ratio is less by 42 percent.

The effect of background factors on the level of AIDS knowledge among clients can be observed from Table 9. For this analysis the categories used in the bi-variate analysis was retained ('partial knowledge' and 'complete knowledge'). Three variables (as against two in the bi-variate analysis) were found to have significant effect of the level of AIDS knowledge. Number of years in Mumbai, education, and marital status are important predictors of AIDS knowledge of clients. There is no significant difference in the odds ratios across age groups. Surprisingly, natives of urban areas had a lower odds ratio (by 26 percent) as compared to clients from rural areas. The subsequent variable, however, tells us that though this is so, the number of years spent in Mumbai has a significant impact on the level of AIDS knowledge. When the number of years stayed in Mumbai is 3-9 years, the odds

ratio is 1.9 times and when the stay is for 10 years or more it is 2.3 times higher compared to those spent less than three years.

(Table 6 about here)

Education appears to significantly influence the level of AIDS knowledge among clients also; however, this impact depends on the level of education. Clients with less than secondary education do not significantly differ in their level of AIDS knowledge from illiterate clients. In fact, the odds ratio is found to be marginally lower among the former category (by 14 percent) as compared to the latter. Never married clients can be expected to have complete AIDS knowledge in 51 percent cases less than married clients; this difference is marginally significant statistically. Religion does not influence AIDS knowledge of clients and so is family type. However, the level of knowledge can be expected to be better among Muslim and Christian clients as compared to Hindu clients and among those hailing from joint or extended nuclear families as against those from nuclear families. The influence of income on the level of knowledge is not statistically significant:

Discussion

Three important observations from the profile of the respondents are related to the educational status and income of the female sex workers and the marital status of the clients. Not only that a large majority of the FSWs are illiterate, but they also do not possess any skill which may earn them a livelihood once they are out of this profession due to the age factor or due to any planned rehabilitation effort. The high illiteracy percentage has implications for the health education programmes aimed at increasing awareness, among others, about sexually transmitted diseases

and condom use. The fact that the daily income of a large section of FSWs is far less than the amount required to cover even the basic needs and that the number of clients is low in many cases point to their bargaining power both in terms of the amount charged per client and also in terms of restrictions regarding the types of sexual activities engaged in.

The fact that a high proportion of the clients are married and are living with their spouses points to the immediate possibility of transmission of STDs including HIV/AIDS to their wives, which in turn, could transmit to their children born later. Further, there is a tendency among both married and unmarried clients to relate condom use with only female sex workers as sexual partners. However, it needs to be kept in mind that even among those who are single, the possibility of multiple sexual partners is very high. The study showed that the average number of current sexual partners among clients is quite high, indicating the potential extent of disease transmission.

Please Note:

[The section <u>Discussion</u> is incomplete as of now and shall be completed when the full paper is submitted. Similarly the first section (introduction) would be revised]

Acknowledgement

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Table 1: Percentage Distribution of Female Sex Workers by Selected Characteristics

Characteristics/Category	Percent (N=501)
Age (years)	
15-24	12.2
25-34	64.7
35 and above	23.0
Locality	
Falkland Road	40.1
Lamington Road	59.9
Education	
No education	83.4
Some education	16.6
Marital Status	
Currently Married	22.0
Never Married	44.3
Divorce/Widowed/Separated	33.7
Religion	
Hindu	86.2
Others	13.8
Monthly income (Rs.)	
≤ Rs. 2050	33.3
Rs. 2051- Rs. 3500	31.5
Rs. 3501 and above	35.3
Region/Country	
North/Central	5.2
East/Northeast	17.2
West	6.6
South	54.6
Nepal	16.4
Reasons for entering the profession	
Husband related	20.8
Financial	32.3
Came on own	33.9
Other reasons	13.0
Have any children	
Yes	53.7
No	46.3
No. of Clients per day	
One	18.6
Two	49.7
Three and more	31.7
Total	**100.0**

Table 2: Percentage Distribution of Clients by Selected Characteristics

Characteristic/Category	Percent (N = 215)
Age (years)	
15-24	32.6
25-34	47.9
35 and above	19.5
Place of Origin	
Rural	45.1
Urban	54.9
Years in Mumbai	
<3 years	27.0
3-9 years	23.3
10 years and above	49.8
Education	
Illiterate	18.1
Below Secondary	35.3
Secondary and above	46.5
Marital status	
Ever married	43.3
Never Married	52.6
Religion	
Hindu	75.3
Others	24.7
Family type	
Nuclear	44.7
Joint/Extended nuclear	55.3
Monthly income (Rs.)	
≤Rs. 2050	30.7
Rs. 2051- Rs. 3500	51.9
Rs. 3501 and above	17.3
Total	100.0

Table 3:Knowledge About AIDS According to Socioeconomic Status among FSWs

	AIDS Knowledge			
Variable/Category	**No knowledge (N=140)**	**Partial (N=313)**	**Complete (N=96)**	**Total (N=501)**
Age (years)				
15-24	14.8	67.2	18.0 **	61 (100.0)
25-34	29.4	62.5	8.0	323 (100.0)
35 and above	30.4	60.0	9.6	115 (100.0)
Locality				
Falkland Road	16.4	70.1	13.4 ****	201 (100.0)
Lamington Road	35.7	57.3	7.0	300 (100.0)
Education				
No education	30.1	63.2	6.7 ****	418 (100.0)
Some education	16.9	59.0	24.1	83 (100.0)
Marital Status				
Currently married	26.4	72.7	0.9 ***	110 (100.0)
Never married	28.8	59.0	12.2	222 (100.0)
Divorce/Widowed/Separated	27.8	60.4	11.8	169 (100.0)
Religion				
Hindu	30.4	60.3	9.3 **	431 (100.0)
Others	13.0	75.4	11.6	69 (100.0)
Monthly income (Rs.)				
≤Rs. 2050	27.9	61.8	10.3 ^{ns}	165 (100.0)
Rs. 2051- Rs. 3500	27.6	60.3	12.2	156 (100.0)
Rs. 3501 and above	26.9	66.3	6.9	175 (100.0)
Region				
North/Central	23.1	65.4	11.5^{ns}	26 (100.0)
East/Northeast	20.9	68.6	10.5	86 (100.0)
West	21.2	66.7	12.1	33 (100.0)
South	33.3	58.6	8.1	273 (100.0)
Nepal	22.0	65.9	12.2	82 (100.0)
Reasons for entering the profession				
Husband related	31.7	67.3	1.0 ****	104 (100.0)
Financial	43.2	54.9	1.9	162 (100.0)
Came on own	15.3	62.4	22.4	170 (100.0)
Other reasons	16.9	73.8	9.2	65 (100.0)
Have any children				
Yes	26.8	65.1	8.2	232 (100.0)
No	29.3	59.5	11.2	501 (100.0)
No of Clients per day				
One	25.0	73.9	1.1 ****	92 (100.0)
Two	32.5	63.8	3.7	246 (100.0)
Three and more	21.0	54.8	24.2	157 (100.0)
Total	**27.9**	**62.5**	**9.6**	**501** (100.0)

p ≤ 0.1; ** p ≤ 0.05; *** p ≤0.01 ; **** p ≤ 0.001

Table 4:Knowledge About AIDS According to Socioeconomic Status among Clients

	AIDS Knowledge		
Variables/Category	**Partial (N=129)**	**Complete (N=85)**	**Total (N=214)**
Age (years)			
15-24	66.7	33.3 [ns]	69 (100.0)
25-34	60.2	39.8	103 (100.0)
35 and above	50.0	50.0	42 (100.0)
Place of Origin			
Rural	60.8	39.2 [ns]	97 (100.0)
Urban	59.8	40.2	117 (100.0)
Years in Mumbai			
<3 years	70.2	29.8 [ns]	57 (100.0)
3-9 years	62.0	38.0	50 (100.0)
10 years and above	54.2	45.8	107 (100.0)
Education			
Illiterate	65.8	34.2**	38 (100.0)
Below Secondary	71.1	28.9	76 (100.0)
Secondary and above	50.0	50.0	100 (100.0)
Marital status			
Ever married	52.0	48.0**	102 (100.0)
Single	67.9	32.1	112 (100.0)
Religion			
Hindu	60.9	39.1 [ns]	161 (100.0)
Others	58.5	41.5	53 (100.0)
Family type			
Nuclear	64.2	35.8 [ns]	95 (100.0)
Joint/Extended nuclear	57.1	42.5	119 (100.0)
Monthly income (Rs.)			
⊆ Rs. 2050	63.6	36.4 [ns]	66 ((100.0)
Rs. 2051- Rs. 3500	60.9	39.1	110 (100.0)
Rs. 3501 and above	51.4	48.6	37 (100.0)
Total			

** Significant at p≥ 0.05; ns not significant

Table 5: Odds Ratios from Logistic Regression Predicting AIDS knowledge (FSWs)

Variable/Category	Odds Ratio
Age (years)	
15-24	1.00
25-34	0.57
35 and above	0.58
Locality	
Falkland Road	1.00
Lamington Road	0.24 ****
Education	
No education	1.00
Some education	2.09 **
Marital status	
Married	1.00
Single	0.66
Divorce/Widowed/Separated	0.83
Religion	
Hindu	1.00
Others	3.02 ***
Monthly income (Rs.)	
≤ Rs. 2050	1.00
Rs. 2051- Rs. 3500	1.39
Rs. 3501 and above	1.48
Region	
North/Central	1.00
East/Northeast	0.64
West	0.74
South	0.55
Nepal	0.50
Reasons for entering the profession	
Husband related	1.00
Financial	0.92
Came on own	3.04***
Other reasons	2.66**
Have any children	
Yes	1.00
No	0.75
No of clients per day	
One	1.00
Two	0.58*
Three and more	0.98
Constant ****	11.25****

* p ≤ 0.1; ** p ≤ 0.05; *** p ≤ 0.01 ; **** p ≤ 0.001

Table 6: Odds Ratios from Logistic Regression Predicting AIDS knowledge (Clients)

Variables/Category	**Odds Ratio**
Age (years)	
15-24	1.00
25-34	0.92
35 and above	1.09
Place of Origin	
Rural	1.00
Urban	0.74
Years in Mumbai	
<3 years	1.00
3-9 years	1.79
10 years and above	2.42**
Education	
Illiterate	1.00
Below Secondary	0.86
Secondary and above	2.26**
Marital status	
Ever married	1.00
Single	0.49*
Religion	
Hindu	1.00
Others	1.14
Family type	
Nuclear	1.00
Joint/Extended nuclear	1.22
Monthly income (Rs.)	
≤ Rs. 2050	1.00
Rs. 2051- Rs. 3500	0.93
Rs. 3501 and above	0.73
Constant	0.54***

* significant at $p < 0.1$; *** significant at $p < 0.01$