

WHAT DO THEY KNOW ABOUT HIV/AIDS – ADOLESCENTS AND YOUNG ADULTS FROM SLUMS IN MUMBAI, INDIA

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ABSTRACT

Introduction: In compliance with guidelines from NACP III, wide spread activities are continued, by public, private and NGO sectors, to enhance the level of knowledge about HIV/AIDS among vulnerable adolescent and young adult population in urban areas, in the forms of various projects, so as to facilitate positive behavioural changes among them. Present cross-sectional study, was conducted in three, representative administrative wards (namely L, K/East & R/North) of Municipal Corporation of Greater Mumbai (MCGM), India, in December 2010, to assess the level of knowledge and attitudes about HIV/AIDS amongst the adolescents and young adults.

Methodology: Total 4306, adolescents and young adults representing all 28 health posts from selected wards were interviewed by 100 trained NSS volunteers of University of Mumbai, under the leadership of Department of Community Medicine, T. N. Medical College & Nair Hospital. Data was analysed with the help of statistical software (SPSS).

Results: Seventy-nine percent (3407/4306) and 49.81% (2145/4306), of respondents had heard about HIV/AIDS, and STI/RTIs respectively. Unsafe sexual relationship, as route of transmission is known to 51.81 % (2231/4306) respondents, whereas use of condom, as preventive measure is known to 87% (3746) of people. Only 30.05% (1294/4306) respondents know nearby testing facilities. Everybody should be tested for HIV, to reduce transmission, is believed by 93.96%, (4046/4306) respondents. Knowledge grade given to each respondent based on the score obtained by them out of total obtainable 25 score, reveals, 57.36%, (2470/4306), in poor grade. Multinomial logistic regression confirms the significant influence of age and education status of respondents on their knowledge and positive attitudes.]

Conclusion: When compared with other relevant studies, the present status of knowledge of adolescents and young adults from slums of Mumbai appears to be poor and justifies the need for intensified efforts towards improving the same, taking into account their vulnerability. Well planned coordinated efforts of public, private and NGO sectors, would go a long way to get the desired impact.

Key words: HIV/AIDS, Adolescents, Young adults, Knowledge, Attitudes

INTRODUCTION

HIV/AIDS is the biggest public health challenges

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in the world today. Even though the prevalence of HIV infection is showing declining trend in present times, globally, estimated 33.2 Million individuals are infected with HIV so far and total number of 2.1 million deaths are reported since the identification of first case of HIV/AIDS, in US in the year 1981. In Asia, an estimated 4 million people are living with HIV/AIDS, in 2007.¹ Taking into account number of people living with HIV/AIDS, India, ranks second, in the world and has estimated 22.7 lakh HIV infected

people with an estimated 0.29% prevalence rate, among general public, at the end of 2008.² State of Maharashtra, has the identity of high prevalence state in the country with ANC prevalence rates as high as, 0.5%. Mumbai is said to be the epicentre of the epidemic in Maharashtra.

Young people are especially vulnerable to HIV infection, more so if they belong to slum areas. Although young people, 15–24 years of age, account for 45% of all new HIV infections in adults, many young people still lack access to adequate health information and services.¹ Around the world empowering youth (aged 15-25 years) with the information and skills to protect themselves and their families from HIV infection is considered one of the best long term strategies to contain the HIV/AIDS epidemic. The youth in the age group 15-25 years, usually incorporates two categories, adolescents (15 – 18 years) and young adults (19-25 years). Adolescent stage, represent transition from puberty to adulthood, while young adult stage represents adoption to mature, responsible adulthood, and hence influencing behaviour pattern of this youth group with wide spread advocacy, communication and social mobilization activities would yield great result.

Studies on knowledge, attitude, behaviour and practices (KABP), conducted in different parts of India, reveal widespread ignorance and misconceptions about the disease among adolescents. Efforts are intensified in compliance with guidelines from NACP III, by public, private and NGO sectors, to enhance the level of knowledge about HIV/AIDS among vulnerable adolescent and young adult population in urban areas, in the forms of various projects. Present study was undertaken to assess the level of knowledge and attitudes about HIV/AIDS, among adolescents and young adults (15 – 24 years), from slum areas of Mumbai, India, to understand the impact of IEC activities, so far in this respect, and identify the scope for further improvement to sustain declining trend of HIV epidemic.

METHODOLOGY

Present community based, descriptive epidemiological study, carried out in December 2010, adopted cross sectional exploratory survey design, to assess the knowledge and attitudes of adolescents and young adults (15-25 years) about HIV/AIDS, from slum areas in Mumbai, India. Three representative administrative wards (L, K/East & R/ North) were randomly selected, out of total 24 wards under Municipal Corporation of Greater Mumbai. Total slum population of these 3 wards together is 20.3 lakhs, out of which 20% belong to the age group of 15-25 years. For the purpose of health care delivery, each ward is divided into health post areas, and each health post, further divided into different sections and areas within each section. To represent entire study area, data is collected from 24 health post areas (out of total 28 health posts) in all 3 wards, which includes 75 sections (out of total 152 sections in 3 wards) and 150 areas (out of total 858 areas). Convenient sample of total 4306 respondents (Average 180 from each selected health post, adolescents, 15 – 18 years, 120, and young adults, 19 – 25 years, 60), constitutes study group subjects with adequate representation of males (2224) and females (2082).

Total number of 100 trained, National Service Scheme (NSS) volunteers of University of Mumbai, who worked in pairs, were involved in data collection by undertaking house to house survey, with the help of preformed, pre tested semi structured interview schedule, which included questions on knowledge as well as attitudes of the people about HIV/AIDS. Informed oral consent of the respondents was obtained prior to their interview. The data was analysed with the help of statistical software (SPSS, 17.0 version) package, in terms responses to each question and score obtained by each respondent to the correct responses, out of maximum obtainable 25 score, for all questions.

RESULTS

Out of total number of 4306 study subjects, who belonged to L ward (1980), K/East ward (1447) and R/North ward (879), 2224, 51.65% are males (1285 adolescents and 939 young adults) and 2082, 48.35%, are females (1219 adolescents and 863 young adults) (Table 1). Educational status wise distribution, reveals maximum number of respondents educated up to secondary school level (2867, 66.58%), followed by college going youths (1234, 28.66%) and rest were educated up to only primary level (89, 2.06%) or illiterate (116, 2.70%). Overall high percentage of individuals educated up to secondary school level and above, (as against the findings of NFHS III data³) is mainly because of availability and accessibility of low cost education facilities extended to slum areas through MCGM run schools, and overall general awareness among the people about the importance of education, being residing in urban areas. Among the adults, 13.63% males (128/939) and 39.39% females (340/863) are married and the corresponding figures for adolescents are 2.64% (34/1285) and 5.17% (63/1219), which are much less than NFHS III data.³

Knowledge grade given to each individual is based on the score obtained by him/her, on the questions as per the interview schedule, with maximum

obtainable score of 25. Those who scored 8 or less than 8 are given poor grade, those who scored in the range of 9 to 16, are given average grade and those who scored 17 & above are given good grade. The mean knowledge score is 6.98 with the range of 0 to 19 & Standard Deviation of 4.45, for L Ward. Similarly mean score for K/East & R/North wards are 6.85 (SD=3.64) & 9.39 (SD=5.36) respectively. The average score obtained by all respondents is 7.74 out of 25 i.e.30.96 %. The average score obtained by all in poor grade is 3.21 whereas it is 13.05 and 17.12 for those in average and good grade respectively. Poor, Average and Good grades are obtained by 2470 (57.36%), 1706 (39.61%) and 130 (3.01%) respondents respectively (Table 2). Mean score of males (7.73/25) is more than females (7.11/25) and it is statistically significant (P < 0.01). Similarly mean score in adult males (8.53) and adult females (7.73) significantly differs from their adolescent counterparts (Males - 7.14 & Females - 6.67). Among the unmarried respondents, 57.92% (2167/3741) obtained Poor grade, 38.92% (1456/3741) obtained Average grade and only 3.16% (118/3741) obtained Good grade. Among the married individuals the corresponding figures for Poor, Average & Good grade are 55.22% (312/565), 42.47% (240/565) and 2.31% (13/565) respectively. Even though the situation apparently appears to be better for married individuals as compared to unmarried individuals, difference

Table 1. Educational status of study subjects (N = 4306)

Sex	Illiterate		Primary		Secondary		College		Total
	Ado	Adu	Ado	Adu	Ado	Adu	Ado	Adu	
M	22	32	25	14	1075	412	163	481	2224
F	13	49	29	21	954	426	223	367	2082
Total	35	81	54	35	2029	838	386	848	4306

Ado – Adolescents, Adu – Adults

Table 2. Education Vs Knowledge Grade (N = 4306)

Ward Knowledge Grade	Educational Status								Total
	Illiterate		Primary		Secondary		College		
	M	F	M	F	M	F	M	F	
Poor	28	45	25	39	891	923	244	275	2470
Average	22	17	14	10	554	412	383	294	1706
Good	4	0	0	1	42	45	17	21	130
Total	54	62	39	50	1487	1380	644	590	4306

$\chi^2=7.487$, df-1, P=0.0062, Poor & Average/ Good grades Vs Education status
 $\chi^2= 8.929$, df-1, P < 0.0001, Poor & Average/ Good grades Vs sex,

is not statistically significant. There is significant difference in knowledge level between males and females, as well as among those who are educated up to primary level (68/205, 33.17%), Vs those educated up to secondary school level and above (1768/4101, 43.11%), (Table 2). This indicates the influence of education level on the awareness about HIV/AIDS. Present study thus indicates the importance of focusing on non student youth.

Significantly more number of males & adult population, have heard about HIV/AIDS (1571/1802, 87.18%) and STIs (1050/1802, 58.26%) as compared to females and adolescents. (For HIV/AIDS – 1836/2504, 73.32% and for STIs – 1095/2504, 43.73%), (Table 3). This may be because of more exposure to the knowledge on HIV/AIDS and STIs among adults (either in college or working place, through peers or other sources) as compared to Adolescents.

Table 3. Heard of HIV/AIDS & STI (N = 4306)

Sex	HIV/AIDS		STI s	
	Adolescents	Adults	Adolescents	Adults
M	957	842	584	596
F	879	729	511	454
Total	1836	1571	1095	1050

	χ^2	df	P value
Heard of HIV/AIDS Vs Adolescents and adults	120.99	1	< 0.0001
Heard of STI Vs Adolescents and adults	88.017	1	< 0.0001
Heard of HIV/AIDS Vs sex	8.485	1	0.0036
Heard of STI Vs Sex	19.087	1	< 0.0001

Table 4 shows that 34.81% (1499/4306) of study population did not know any modes of transmission of HIV. Almost 52% (2231/4306) of study population reported that they knew about unsafe sexual intercourse transmits HIV and 44.93%, 32.60% & 13.93% of subjects knew about transmission of HIV by contaminated needle, contaminated blood & parent to child transmission respectively. Findings that sharing tooth brushes (0.18%), living with infected persons, sharing their cloths (0.86%), contaminated air or water (0.23%) and mosquito bite (0.11%) can lead to infection, are indications of ignorance & lack of awareness.

Table 4. Modes of transmission (N=4306)

Modes of transmission	Total (N=4306)	
	No	%
Unsafe sexual relationship	2231	51.81
Contaminated needle, blade	1935	44.93
Contaminated blood	1404	32.60
Mother to child	600	13.93
Sharing toothbrushes	8	0.18
Staying together, sharing personal things, towels, cloths	37	0.86
Through air & water	10	0.23
Mosquito bite	5	0.11
Do not know	1499	34.81

Table 5 reveals that almost 87% (3746/4306) know the use of condom as preventive measure against HIV. The number of individuals who have mentioned use of new needles by IVDUs (748/4306, 17.37%), use of blood from accredited blood bank (521/4306, 12.09%), Safer sex practices (431/4306, 10.00%) and PPTCT (115/4306, 2.67%), are very low.

When specifically enquired to identify nearby places where diagnostic tests for HIV are done only 30.05% (1294/4306) respondents could mention them correctly (Table 6).

Table 5. Knowledge about ways of prevention of HIV infection (N=4306)

Ways of prevention	Total (N=4306)	
	No	%
Use of condom	3746	86.99
New needle for IVDUs	748	17.37
Take blood from accredited blood bank	521	12.09
Safe sex (be faithful + Abstinence)	431	10.00
PPTCT	115	2.67
Not to talk/ touch infected person	33	0.76
Avoid kissing	29	0.67
Contraceptive pills/I pills	22	0.51

Table 6. Knowledge about nearest ICTC Centre

Nearest ICTC Centre	Total (N = 4306)	
	No	%
Know them correctly	1294	30.05
Do not know	2375	55.16

Rest of the individuals (Total – 637, L ward – 414, K/East ward – 5 & R/North ward – 218) gave irrelevant answers to this question like any dispensary, non allopathic private practitioners, any small pathology laboratory, where routine investigations are carried out, etc.

Total number of 5 attitudinal questions as mentioned in Table 7 were asked to each respondent. The expected or correct responses given are shown in the given table. It is apparent that, more than 50% of respondents are aware about true facts and have expressed their positive attitude to

the statements number 2, 4 & 5 i.e. 2276/4306, 2738/4306 & 2499/4306 respectively. However majority of the people still believe in getting everybody tested for HIV infection and around 69% (2938/4306) individuals are not awareness about more vulnerability of women for HIV, than males. This deserves attention in the scheduled training programmes for the beneficiaries at different levels and by different organizations.

Respondents giving expected responses to the statements are significantly higher among more educated classes as compared to illiterates and those who have learned only up to primary level. Similarly, percentages of married respondents is better as compared to unmarried respondents as far as desired responses to the statements number 3 & 4 are concerned, as against statement 1, 2 & 5. (Table 7).

Table 7. Expected responses to attitudinal questions – education and material status wise

Statement	Illiterate		Primary		Secondary		College		Total
	U	M	U	M	U	M	U	M	
Everybody should undergo HIV testing	0	3	0	2	159	18	70	8	260
Once HIV infection is diagnosed, person cannot survive at all	22	21	26	15	1271	206	635	80	2276
Women are more vulnerable to HIV/AIDS	14	17	21	3	776	107	395	35	1368
People should not interact with HIV infected person	24	28	32	13	1496	240	806	99	2738
No nursing care should be provided to HIV infected person at home	18	21	30	13	1375	223	739	80	2499

U – Unmarried, M - Married

Statements		χ^2	df	P value
Everybody should undergo HIV testing	Married Vs Unmarried	0.2002	1	0.6546
	Illiterates and those who have learned up to primary level Vs more educated classes	4.184	1	0.0408
Once HIV infection is diagnosed, person cannot survive at all	Married Vs Unmarried	3.072	1	0.0797
	Illiterates and those who have learned up to primary level Vs more educated classes	11.509	1	0.0007
Women are more vulnerable to HIV/AIDS	Married Vs Unmarried	20.472	1	< 0.0001
	Illiterates and those who have learned up to primary level Vs more educated classes	2.108	1	0.1466
People should not interact with HIV infected person	Married Vs Unmarried	4.076	1	0.0435
	Illiterates and those who have learned up to primary level Vs more educated classes	21.716	1	< 0.0001
No nursing care should be provided to HIV infected person at home	Married Vs Unmarried	0.6961	1	0.4041
	Illiterates and those who have learned up to primary level Vs more educated classes	27.688	1	< 0.0001

Table 8. Knowledge Grade Vs Expected responses to Attitudinal questions

Responses	Knowledge Grade						Total
	Poor		Average		Good		
	M	F	M	F	M	F	
Everybody should undergo HIV testing	82	74	69	32	2	1	260
Once HIV infection is diagnosed, person cannot survive at all	503	556	622	505	43	47	2276
Women are more vulnerable to HIV/AIDS	331	282	422	254	37	42	1368
People should not interact with HIV infected person	581	666	781	611	46	53	2738
No nursing care should be provided to HIV infected person at home	571	591	712	550	30	45	2499

M- males, F-Females

$\chi^2 = 23.168$, df-4, P =0.0001, Responses among those who have obtained poor knowledge grade Vs average/good grade	$\chi^2 = 5.437$, df-1, P = 0.0197, Statement 1, Males Vs Females
$\chi^2 = 0.1843$, df-1, P = 0.6677, Statement 2, Males Vs Females	$\chi^2 = 29.514$, df-1, P < 0.0001, Statement 3, Males Vs Females
$\chi^2 = 0.1280$, df-1, P = 0.7205, Statement 4, Males Vs Females	$\chi^2 = 2.576$, df-1, P = 0.1085, Statement 5, Males Vs Females

It is evident from table 8 that, desired responses by the individuals to the attitudinal statements are influenced by the knowledge grade obtained by them. Those who have obtained either average or good grade have shown significantly better performances to the attitudinal questions as compared to those who have obtained poor grade. Similarly significant difference in correct responses is also observed among males and females for statements number 1 & 3. This indicates positive attitudinal changes towards HIV/AIDS among general public, because of IEC activities through various sources. However there is still enough scope to improve the situation still further especially related to statements 1 and 3.

Application of two way analysis of variance, shows statistically significant difference in level of knowledge among males and females in adults and adolescents as well as in married and unmarried population. However, multinomial logistic regression confirms the influence of only age (adults more than adolescents) and education status (Secondary and above more than Primary and below) on the overall level of knowledge and attitudes about HIV/AIDS. (Table 9)

Table 9 - Results of Two way ANOVA and Multinomial Logistic Regression

Two way ANOVA			
Determinant	F	DoF	Significance
Sex & Age group			
Sex	21.196	1	0.000
Age group	78.644	1	0.000
Sex by Age group	1.338	1	0.247
Sex & Marital status			
Sex	15.052	1	0.000
Marital status	3.538	1	0.06
Sex by Marital status	1.207	1	0.272
Multinomial Logistic Regression			
Determinant	OR (Adjusted)	95% Confidence Limit	P value
Sex (Male Vs Females)	1.419	0.988-2.037	0.058
Education level	0.998	1.103-2.590	0.000
Age	0.536	0.360-0.797	0.002
Marital status	0.815	0.434-1.530	0.524

DISCUSSION

In the present study, undertaken in December 2010, to assess the level of knowledge and attitudes about HIV/AIDS among adolescents and young adults (15 – 25 years age group) in slum areas of Mumbai city, India, total number of 4306 individuals were interviewed by 100 trained National Service Scheme volunteers of University of Mumbai. Total number of 3407 (79.12%) individuals, from slum areas, have heard about HIV/AIDS, as against only 2145 (49.81%) study subjects who have heard about STIs. Similar findings are made by the study conducted in Hyderabad⁴ among general population which reports, 80% & 51% study subjects have heard of HIV & STIs respectively. Around 45%, Youths from Shahapur block of Thane district, also have heard of STIs.⁵ Studies conducted by Bhalla et al⁶, in Jamnagar, Gujarat among secondary school students & Lal et al⁷, among college students in Kerala, reveal that almost all their respondents have heard of HIV/AIDS. This is mainly because of the difference in the study populations. In the present study the respondents are from slum areas, especially belonging to low socioeconomic profiles, who are difficult to reach. However, in this study, according to the grades given to the respondents, it is clearly found that, level of knowledge, is significantly better among those who are educated up to secondary school level and above as compared to illiterates and educated up to only primary school level (Table 2). Similar results were obtained by Sangole et al⁸, Sarkar P et al⁹, Sogarwal et al¹⁰, Bassey et al¹¹, Sarkar S et al¹², in their study where respondents with higher education had good knowledge of HIV/AIDS compared with respondents with lower level of education.

According to the NFHS III data³, 94.2% males and 80.7% females from urban areas have heard of HIV/AIDS, whereas here corresponding figures for males and females are 85.38% and 77.23% respectively. Studies carried out by Chakrovarty et al¹³ & Singh et al¹⁴ confirm awareness among males significantly more as compared to females. Present study also confirms desired responses, significantly more among males than females, when

compared independently. This could be because of accessibility and availability of opportunities to obtain knowledge, more likely among males as compared to females, especially among slum population.

Unsafe sexual relationship is identified as the most important route of transmission of HIV/AIDS by 2231 (51.81%) individuals, followed by 1935 (44.93%) and 1404 (32.60%) respondents, who identified contaminated needles and syringes and contaminated blood, responsible for the transmission. Population First's Report⁵, on a Knowledge, Attitude and Practice (KAP) Study of Adolescent Reproductive and Sexual Health (ARSH) issues, among youth of Thane district, reports that, according to 57% of respondents, HIV spreads through Unprotected sexual intercourse. According to the study conducted by Lal et al⁷, among college students, 48% of study subjects identified, unsafe sex as mode of transmission of HIV. A study done among slum-dwellers in another metropolitan city of India (Chennai), showed that 67% males and 55% females were aware of the sexual mode of transmission.¹⁵ Study conducted by MAAIF Uganda under aegis of FAO revealed that over half of the respondents (53.7%) reported that HIV spread was as a result of people having multiple sexual partners & 46% of respondents agreed that condom use would prevent HIV infection.¹⁶

Only 1935 (44.93%), 1404 (32.60%) and 600 (13.93%) individuals in the present study are aware about transmission through contaminated needles and syringes, contaminated blood, and from mother to child, respectively as against the reported figures of, 72%, 98.5% and 83-96% respectively for the same, in other studies⁴⁻⁷. This may be because of only limited accessibility to the knowledge among slum dwellers in Mumbai. It is also observed in the present study that people are very hesitant to talk on the sensitive topic like HIV/AIDS, may be a social taboo, because of which almost 1499 (34.81%) have denied to give information on modes of transmission as well as ways of prevention (560, 13.00%). More intensified IEC efforts are justified on this ground especially for the people residing in slum areas.

In present study area, 3746 (86.99%) individuals are aware about use of condom as one of the most important ways of prevention of transmission of HIV, followed by use of new needle among IVDUs (748, 17.37%), receiving blood from accredited blood banks (521, 12.09%) safer sex practices (abstinence & be faithful, 431, 10%) and PPTCT (115, 2.67%). Study conducted by Bibi et al¹⁷ reveals 62% & 41% of study subjects, aware about Condom use & receiving blood from accredited blood bank, as ways of prevention of HIV transmission respectively.

Even though the insignificant numbers, present study also reveals that there are still misconceptions regarding modes of transmission & ways of prevention of HIV infection. These are spread of infection through staying together and sharing personal things, contaminated air or water, mosquito bite, etc., and no talk or touch with infected person, avoid kissing, use of contraceptive pills etc. Similar misconceptions are evident from the studies by Kore et al¹⁸, Gaash et al¹⁹, Lal et al⁷, Jaiswal et al²⁰, Bassey et al¹¹, Unnikrishnan et al.²¹ These issues deserve attention while reaching to these slum dwellers with intensified IEC efforts.

In our study 58.03% (2499/4306) respondents said that 'No nursing care should be offered to the patient with the HIV at home'. This finding is similar to the study by Gaash et al¹⁹ where 48% respondents said that AIDS patients must not be managed at home.¹²

In the present study application of Multinomial logistic regression analysis confirms the significant influence of age (adults & adolescents) and education status of respondents (Educated up to primary level Vs secondary level and above) on their knowledge and positive attitudes.

CONCLUSION

Present study undertaken to assess level of knowledge and attitudes about HIV/AIDS among slum population of Mumbai, which has identification as epicentre of HIV/AIDS epidemic in India, reveals that majority of people, have heard of HIV/AIDS and are also aware about use of condom as one

of the important method of prevention of infection. However, overall level of knowledge among them as assessed by composite score is low, especially among adolescents and those who are educated only up to primary level. Knowledge in relation to modes of transmission, measures of prevention and availability of nearby testing facilities deserves more attention. Level of knowledge and positive attitudes will go a long way, towards influencing behaviour of the people conducive to prevention of HIV. There is a scope to promote intensified IEC activities about HIV/AIDS especially for slum dwellers, adolescents and those with low level of education, who are difficult to reach, even though vulnerable, being dominated by migratory people, low socioeconomic profile, and reluctant to accept discussions on sensitive topic like HIV and STIs. Community based, need oriented, IEC activities to cover non student adolescents and youth would be an ideal strategy for the same.

ACKNOWLEDGEMENTS

The authors of the study are thankful to Programme Coordinators of National Service Scheme (NSS), University of Mumbai, for facilitating active involvement of NSS volunteers in this community based survey.

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