

# Association of socio-demographic issues with level of knowledge of HIV/AIDS among injecting drug users in Dhaka City in Bangladesh

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## Abstract

Human Immune Deficiency Virus (HIV) and Acquired immune Deficiency Syndromes (AIDS) continues to be a major burden of morbidity and mortality among the population. Injecting drug users (IDUs) are at high risk of contracting the disease. The study was conducted to assess the level of knowledge of HIV/AIDS and the influence of different socio-demographic factors among IDUs in Dhaka city, Bangladesh. A descriptive type of cross-sectional study was conducted. A total of 200 injecting drug users were selected purposively. A semi-structured questionnaire was used for collecting socio-demographic information of the respondents and their knowledge regarding HIV/AIDS. The level of knowledge was categorized into two: poor ( $< \text{Mean} - 1 \text{ SD}$ ) and good ( $\geq \text{Mean} + 1 \text{ SD}$ ). The  $\chi^2$  test was used for finding the association between socio-demographic factors and level of knowledge about HIV/AIDS. Forty-eight percent of the respondents were aged 18-26 years, and 33% were educated up to secondary level. About 47% had an income of Taka 4500-5500. Of the respondents, 41% and 47% were aware of HIV/AIDS and their preventive measures respectively. Age and education of the respondents were significantly ( $p < 0.05$ ) associated with level of knowledge of HIV/AIDS among IDUs. Functional and productive educational campaigns to educate people regarding the health consequences of HIV/AIDS are strongly suggested for creating awareness through disseminating knowledge among IDUs in Bangladesh particularly for the age group with a low level of knowledge and limited access to HIV/AIDS educational intervention programs.

**Keywords:** Socio-demographic factors, Knowledge, IDU, HIV/AIDS, Bangladesh.

## Introduction

HIV/AIDS is a major source of morbidity and mortality worldwide with a large socioeconomic impact. In 2015, an estimated five million people were living with HIV in South, South-East, and East Asia combined.<sup>1</sup> Five countries (India, Indonesia, Myanmar, Nepal, and Thailand) account for the majority of HIV infections in the same region.<sup>2</sup> Among the countries of the South Asian Association for Regional Cooperation (SAARC), India has the highest prevalence of HIV/AIDS.

Bangladesh is at vulnerable location for spread of HIV/AIDS due to its geographical proximity with India.<sup>3</sup> The cumulative number of reported HIV cases in Bangladesh in 2015 stood at 3,674, AIDS cases at 1,101, and death toll at 325.<sup>4,5</sup> However, the actual number of HIV/AIDS cases is still unknown due to limited and incomplete surveillance facilities.<sup>6</sup>

Among the drug-related infectious diseases, HIV/AIDS carries the most serious health consequences. Explosive HIV epidemics have occurred in many countries among injecting drug-users (IDUs), most recently in Asia, where risky injection practices have been attributed to rapid HIV spread.<sup>7</sup> This issue has become more complex by an overlap of sex and drug networks of IDUs, which may not only enhance their vulnerability to HIV but can also promote HIV transmission among their sexual partners.<sup>8</sup>

## Practice Points

- HIV/AIDS is considered to be an epidemic when 10% of the total population is affected. Recently, Bangladesh had a concentrated HIV epidemic among IDUs.
- Explosive HIV epidemics among IDUs have become more complex by an overlap of sex and drug networks of IDUs, which may not only enhance their vulnerability to HIV but can also promote HIV transmission among their sexual partners.
- An important factor for spreading the disease is through selling infected blood by IDUs for buying drugs.
- Most IDUs represent socio-economically diverse population groups. Lack of knowledge about safe sex, contraceptive methods, STIs, and HIV infection can be attributed to a low literacy rate among IDUs.
- The IDUs are less likely to access health care services due to fear of discrimination and social stigma. Thus it is important to develop and implement effective harm-reduction strategies for IDUs.

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Worldwide around 16 million people are IDUs and of these around 3 million are infected with HIV.<sup>9</sup> It is estimated that around 10% of new HIV infection is due to injecting drug use.<sup>9</sup> Like other developing countries, drug-use has been increasing in both urban and rural communities in Bangladesh.<sup>10</sup> The estimated number of IDUs was at least 20,000–40,000 in 2008 in Bangladesh, of which at least 5,000 were concentrated in Dhaka itself.<sup>4,11</sup>

A significant number of IDUs are extremely marginalized and live on the streets and out of any social structure, which leave them in a more vulnerable situation. Recently, Bangladesh had a concentrated HIV epidemic among IDUs.<sup>12</sup> The latest round (2011) of serological surveillance in Bangladesh showed that the prevalence of HIV was less than 1% among all population group tested, with the exception of IDUs.

The prevalence of HIV in the cluster of IDUs increased from 4% in 2002 to 7% (in one locality of central Dhaka) in 2007–2008, which fell to 5.3% in 2010.<sup>11</sup> HIV/AIDS is considered to be an epidemic when 10% of the total population is affected. But when 5% among the high-risk group of population (such as IDUs, commercial sex workers, men who have sex with men, truck drivers) is affected by HIV/AIDS, it is considered to be an epidemic condition.<sup>12</sup> The IDUs often engage in unsafe sexual behavior which increases their risks of acquiring sexually transmitted infections (STIs) and HIV infection.<sup>13</sup>

Drug-users are mobile as they travel from one city to another. This enhances the possibility of contracting the disease. They contribute to the spread of infection by needle-sharing among themselves and also through sexual contact with commercial sex workers. An additional issue of concern is the bridging effect whereby non-injecting population is at risk of acquiring HIV/AIDS through sexual contact with IDUs. Another important factor for spreading the disease is through selling infected blood by IDUs for buying drugs.<sup>13</sup>

HIV/AIDS and IDUs both pose a significant challenge to sustainable human development in several regions of the world.<sup>14</sup> Economic, political and social changes make the situation more difficult and increase vulnerability to HIV infection.<sup>14</sup> Most IDUs represent socio-economically diverse population groups.<sup>15</sup> Lack of knowledge about safe sex, contraceptive methods, STIs, and HIV infection can be attributed to a low literacy rate among IDUs.<sup>12</sup>

HIV/AIDS continues to be a neglected issue among IDUs. There is a paucity of data regarding level of knowledge of HIV/AIDS among IDUs in Bangladesh. It is important to explore the level of knowledge among IDUs on HIV/AIDS infection including its mode of transmission, prevention and treatment among others. It is also prudent to investigate the influence of the different social, demographic and economic factors that contribute to the spread of HIV among IDUs.

This study is aimed to identify those sections of IDUs who need greater attention from intervention programs for promoting harm reduction from HIV.

## Materials and methods

### *Study Design and Study Area*

This cross-sectional descriptive study was conducted in 2013 among IDUs in Shahzadpur, Uttara, Dhaka to assess the level of their knowledge of HIV/AIDS and the influence of different socio-demographic factors on their knowledge level.

### *Study population*

A total of 200 eligible consecutive respondents were selected through purposive sampling. The respondents were identified with the help of field supervisor of a drop-in center (DIC) working with IDUs at the study area. The rationale behind purposive sampling was an unwillingness of self-identification as IDUs due to social stigma. Those who were unwilling to participate in the study were excluded.

### *Data Collection*

Data were collected by face-to-face interview method using a set of semi-structured questionnaires adapted from the WHO's Modified AIDS Questionnaire.<sup>16</sup> A brief introduction explaining the importance of the study was given verbally to each respondent at the beginning of the interview. Data were collected by trained interviewers who had a minimum of secondary level education. An orientation about the questionnaires and instructions about their applications was conducted among interviewers prior to commencement of the actual data gathering procedure. The questionnaire was used for collecting socio-demographic information of the respondents and their knowledge regarding HIV/AIDS.

The English questionnaire was translated into Bangla. The Bangla version of questionnaire was pretested to assess its clarity, sequencing, and time needed to complete it. It was modified based on the results of pretesting.

### *Ethical aspects*

The Ethical Review Committee of Bangladesh University of Health Sciences (BUHS) approved the study. Written informed consent was obtained from all the participants. Ethics has been respected throughout the study period. No data was disclosed without the permission of the respondents. No forceful attempt was taken to interview any unwilling respondent. Respondent's right to refuse and withdraw from the study anytime was respected.

### *Scoring*

The questionnaire included 18 questions relating to level of knowledge of HIV/AIDS, with 54 probable answers. Each correct answer scored 1, and the wrong or unknown answer scored 0. The level of knowledge was divided into two categories — poor, and good. Poor knowledge corresponded to a score of ( $< \text{Mean} - 1 \text{ SD}$ ); good knowledge corresponded to a score of ( $\geq \text{Mean} + 1 \text{ SD}$ ).<sup>17</sup>

### *Analysis of Data*

The Window-based computer software, devised with the Statistical Packages for Social Sciences (SPSS© 17.0, SPSS Inc., Chicago, IL, USA), was used for analyzing data. Descriptive statistics was used for the interpretation of the findings. Frequency distribution for

all the variables was worked out and produced in a tabular form. The  $\chi^2$  test was used for finding the association between the socio-demographic factors and the level of knowledge of the respondents. A two-tailed p value of  $<0.05$  was considered significant at 95% confidence interval (CI) level.

## Results

In total, 200 respondents were involved in the study. Of them, 48% were aged 18-26 years, and about 68% were married. About 28% of the respondents were illiterate; 25% were educated up to tenth grade level; 26% could read and write; and 22% could read only. Fifty-six percent of the respondent-fathers were illiterate, and only 6.5% were educated up to tenth grade level. About 35% of the respondent-fathers were farmers, and 32% were shopkeepers (Table 1).

Of the respondents, 60% were living in family residence and the rest 40% were living in other types of accommodation. About 47% of the respondents had a monthly family income of Taka 4,500-5,500, and 41% had a family income of less than Taka 6,500 (Table 1).

Table 2 describes knowledge about HIV/AIDS among IDUs and the responses were categorized as 'correct' and 'incorrect'. Of the respondents, 41% were aware of or had knowledge on HIV/AIDS, and 49% were aware of the causative agent of AIDS. About 56% had good level of knowledge of AIDS as an infectious disease,

Table 1: Sociodemographic characteristics of respondents (n=200)

Characteristics	Respondents (%)
<i>Age (years)</i>	
18-26	96 (48%)
27-35	67 (33.5%)
36-44	19 (9.5%)
45-53+	18 (9%)
<i>Marital status</i>	
Married	135 (67.5%)
Unmarried	58 (29%)
Divorced	7 (3.5%)
<i>Education of respondents</i>	
Illiterate	55 (27.5%)
Only reading	44 (22%)
Reading and writing	51 (25.5%)
Fifth to tenth grade	50 (25%)
<i>Education of fathers</i>	
Illiterate	112 (56%)
Only reading	11 (5.5%)
Reading and writing	64 (32%)
Fifth to tenth grade	13 (6.5%)
<i>Occupation of fathers</i>	
Farmer	70 (35%)
Unemployed	24 (12%)
Shopkeeper	64 (32%)
Others	42 (21%)
<i>Place of residence</i>	
Living with family	120 (60%)
Living with others	80 (40%)
<i>Monthly family income (Taka)</i>	
4,500-5,500	93 (46.5%)
5,501-6,500	82 (41%)
6,501+	25 (12.5%)

and 34.5% had some knowledge on the mode of transmission of HIV/AIDS. About 48% knew about AIDS as a serious disease. About 60% were not aware that HIV could be transmitted through mosquito bites, and 23% were aware that it could not be transmitted during bathing and sharing of bed and clothes.

Of the respondents, 68% and 57% had good level of knowledge of treatment and AIDS vaccine respectively. About 57% and 77% had no idea about the risk factors and consequence of HIV/AIDS respectively. Forty-five percent were aware of the high risk groups of HIV/AIDS transmission, and 39.5% had good knowledge about condom to prevent HIV/AIDS.

Less than half (42.5%) of the respondents had concerns about available services relating to HIV/AIDS, and 55% had poor knowledge on morality due to HIV/AIDS. Of the respondents, 47% were aware of the preventative measures of HIV/AIDS, and 61% were familiar with the screening test for HIV. About 62% had no knowledge on the available source of information on HIV/AIDS (Table 2).

Table 3 shows the evidence of significant relationships between a set of socio-demographic factors and IDUs' level of knowledge of HIV/AIDS. The respondents aged 18-26 years had better level of knowledge compared to those aged 45-53 years ( $p<0.05$ ). Level of knowledge was better among more educated respondents (fifth grade to tenth grade) compared to the illiterate respondents ( $p<0.05$ ). However, monthly family income and place of residence had no significant relationship with the level of knowledge ( $p>0.05$ ) (Table 3).

## Discussion

The prevalence of HIV in Bangladesh remains relatively at a low level.<sup>6</sup> The spread of HIV among the risk groups is increasing. The use of injecting drugs is an alarming problem in Bangladesh.<sup>11</sup> The IDUs present a significant potential for an HIV epidemic due to their needle-sharing habits and through unsafe sex with commercial sex workers.<sup>9</sup> The IDUs are relatively neglected and represent a diverse section of the society with regard to access to health information and health services. The present study was designed to understand the association between socio-demographic factors and the level of knowledge of HIV/AIDS among IDUs.

This study shows that most IDUs belong to the age-group of 18-26 years. Young age is a vulnerable period when they are exposed to new experiences relating to sexuality and reproduction.<sup>18</sup> This finding is similar to those found in the studies conducted in Iran and Bangladesh.<sup>19-21</sup> Most of our participants had secondary school education (fifth grade to tenth grade) and all were unemployed.

The present study revealed that 41% of the respondents had knowledge on HIV/AIDS. This finding is higher than that of the study conducted among Afghani and Pakistani drug-users in Quetta, Pakistan.<sup>22</sup> It may be due to the fact that the education system in those countries has been affected by two

Table 2: Respondents' level of knowledge of HIV/AIDS (n=200)

Knowledge items*	Correct Response (%)	Incorrect Response (%)
Ever-heard of HIV/AIDS	82 (41%)	118 (59%)
Causative agent of AIDS	98 (49%)	102 (47%)
AIDS is an infectious disease	111 (55%)	89 (44.5%)
Mode of transmission of HIV/AIDS	69 (34.5%)	131 (65.5%)
AIDS is not a serious disease. It is a simple disease like the common cold	105 (52.5%)	95 (47.5%)
Mosquito bite and HIV transmission	81 (40.5%)	119 (59.5%)
Bathing, sharing bed and cloth and HIV transmission	46 (23%)	154 (77%)
Treatment of AIDS	136 (68%)	64 (32%)
Vaccine of AIDS	114 (57%)	86 (43%)
Risk factors of HIV/AIDS	86 (43%)	114 (57%)
Consequences of HIV/AIDS	79 (39.5%)	121 (76.5%)
High-risk groups of HIV/AIDS transmission	90 (45%)	110 (55%)
Knowledge about contraceptive method (e.g. condom) of preventing AIDS	79 (39.5%)	112 (56%)
Service available for health education about HIV/AIDS	85 (42.5%)	115 (57.5%)
Mortality due to HIV/AIDS	90 (45%)	110 (55%)
Prevention of AIDS	94 (47%)	106 (53%)
Screening test for HIV	122 (61%)	78 (39%)
Available source of information on HIV/AIDS	77 (38.5%)	123 (61.5%)

Table 3: Association between respondents' level of knowledge and socio-demographic variables (n=200)

Variables	Knowledge		p-value
	Good Knowledge (%)	Poor Knowledge (%)	
<i>Age in years</i>			
18-26	44 (22%)	52 (26%)	0.022
27-35	25 (12.5%)	42 (21%)	
36-44	7 (3.5%)	12 (6%)	
45-53+	7 (3.5%)	11 (5.5%)	
<i>Education of respondents</i>			
Illiterate	14 (7%)	41 (20.5%)	0.006
Only reading	6 (3%)	15 (7.5%)	
Reading and writing	24 (12%)	34 (17%)	
Fifth grade to tenth grade	39 (19.5%)	27 (13.5%)	
<i>Occupation of father</i>			
Farmer	27 (13.5%)	43 (21.5%)	0.187
Shopkeeper	14 (7%)	10 (5%)	
Unemployed	25 (12.5%)	39 (19.5%)	
Others	22 (11%)	20 (10%)	
<i>Place of residence</i>			
Living with family	56 (28%)	64 (32%)	0.018
Living with others	33 (16.5%)	47 (23.5%)	
<i>Monthly family income (BDT)</i>			
4500-5500	38 (19%)	55 (27.5%)	0.085
5501-6500	42 (21%)	40 (20%)	
6500+	10 (5%)	15 (7.5%)	

\*The level of significance at  $\alpha=0.05$

decades of war and political turmoil.

Only 34.5% of the study participants were aware of the mode of transmission of HIV/AIDS. The lower percentage of our study differs from the finding of a previous study in Bangladesh which was conducted among drug-users using different routes including IDUs.<sup>20</sup> About 60% of the respondents believed that HIV could be transmitted through the mosquito bite. This finding is fairly similar to the findings of studies in Rio de

Janeiro, Brazil, and Kabul, Afghanistan.<sup>23,24</sup> It appears that a major gap in knowledge exists among drug-users about the means of transmitting/acquiring HIV. Correct response about treatment of HIV/AIDS (68%) was considerably higher among our study participants compared to the findings of the study in Vietnam on most-at-risk populations.<sup>25</sup>

Only 39.5% of the study respondents thought that the use of condom could prevent HIV/AIDS. This

was found to be higher in a study among drug-users in Brazil.<sup>23</sup> One possible reason for the difference between the findings of the two studies could be that the Brazilian study was conducted among all types of drug-users whereas our study included only IDUs. Another possible explanation is the lower educational level of our interviewees. Of the study respondents, 47% were aware of the preventive measures of HIV/AIDS. This is in contrast to a study conducted by the World Bank which showed that only 17% of the most at-risk population had correct knowledge of prevention of HIV/AIDS.<sup>15</sup> The time elapsed since conduction of the World Bank study (2001) and the present one might have resulted in higher percentage of level of knowledge about preventive measures of HIV/AIDS.

This study showed that level of knowledge of HIV/AIDS was significantly associated with the age of the respondents. The respondents aged 18-26 years were relatively better aware of HIV/AIDS compared to those aged 45-53 years. Poor level of knowledge in the latter group may be related to the traditional social system and healthcare service which often pay less attention to this group of people. A separate study in Bangladesh reported similar findings.<sup>26</sup>

Literacy has a positive impact on improving level of knowledge.<sup>27</sup> It affected the level of knowledge of HIV/AIDS in our study as well as other studies done elsewhere.<sup>26,27</sup> This can be explained by the fact that educated people can acquire more knowledge when they are exposed to sources of available information like electronic media (databases, Internet) and printed materials (books, journals, newspapers, posters, booklets). The highest number of the respondents was from low socio-economic background and all of them were unemployed. However, their family income, place of residence, and occupation revealed no significant relationship with their knowledge level.

Intravenous drug users belong to high-risk groups for the spread of HIV/AIDS. This study explored this important yet under-represented group among the high-risk population for knowledge regarding HIV/AIDS.

One of the limitation of this study was small sample size of two hundred respondents. A larger study would entail larger sample size which was not possible in this case due to time and fund constraints.

## Conclusion

The IDUs are three times more likely to be infected with HIV through needle sharing than sexual intercourse. They are less likely to access health care services due to fear of discrimination and social stigma. Thus it is important to develop and implement effective harm-reduction strategies for HIV/AIDS among high-risk groups like IDUs. There are a few ongoing harm-reduction interventions in Bangladesh e.g. needle and syringe exchange program.

The present study revealed that level of knowledge of HIV/AIDS among IDUs is positively influenced by the age and level of education. Based on this it could be proposed that to raise level of knowledge of HIV/AIDS among IDUs emphasis should be given on developing appropriate educational intervention programs particularly for the age group with a low level of

knowledge and those with a low access to healthcare information on HIV/AIDS.

## Competing interest

The authors declare that they have no competing interests.

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