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"Risk Behaviors For HIV Infection Among Injectable Drug Users In Dhaka, Bangladesh"

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Abstract

Introduction: *Injectable drug users are one of the most vulnerable groups to getting HIV/AIDS and STI. Injectable drug users of Dhaka City have been hailed from all over Bangladesh. This study investigates the risk behaviors for HIV infection among injectable drug users in Dhaka, focusing on factors such as demographics, knowledge of HIV/AIDS transmission, prevention methods, and STI awareness.*

Methods: *This descriptive cross-sectional study was conducted among male and female drug users of Dhaka city under the Department of Public Health, North South University, Dhaka, Bangladesh from January 2016 to May 2016. We included a total of 176 male and female drug users living in Dhaka. The sample population were those who came to the three Fill-funded implementing agencies for availing treatment facilities.*

Result: *The respondents, mostly aged 26 to 30 (31.3%) with low educational attainment (61.9% completed only grades 1 to 5), are predominantly married (78.4%), and earn between 4,001 and 6,000 Tk (73.9%). Awareness of HIV/AIDS transmission methods is widespread, with 89.6% recognizing sexual contact with commercial sex workers (CSWs) as a key risk, but only 3.2% identifying multiple sexual partners as a risk factor. The most common prevention method is avoiding CSWs (85.7%), while fewer respondents (38%) understand the risk of sharing needles or using condoms consistently (19.6%). Awareness of STI symptoms is also limited, with genital discharge (85.7%) being the most recognized symptom, and only 5% identifying painful urination as a sign. Misconceptions about STI transmission abound, with many believing poor hygiene (86%) and sex with multiple partners (72%) to be primary causes, but only 20% correctly identify unprotected sex as a risk factor. Attitudes toward condoms reveal significant stigma, as 91% feel carrying a condom suggests a plan for sex, and 34% find purchasing them embarrassing. Despite these barriers, a majority (97%) agree that condoms should be used in non-marital sex, and 86% acknowledge that a healthy-looking person can still be HIV-infected.*

Conclusion: *In conclusion, this study shows significant gaps in both knowledge and awareness regarding HIV/AIDS and sexually transmitted infections (STIs) among injectable drug users in Dhaka. The findings highlight the need for targeted education to address misconceptions, promote safe practices, and reduce the stigma surrounding HIV prevention methods.*

Keywords: *Risk Behaviors, HIV Infection, STI, Injectable Drug Users, Dhaka*

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I. Introduction

Among the developing countries in Asia, Bangladesh still has a low level of HIV epidemic status, where the adult prevalence of HIV infection is estimated to be below 0.1%.[1] However, the overall prevalence of HIV infection among most at-risk populations is increasing with each subsequent round of national HIV serological and behavioral surveillance (from 0.2% in the 2nd round of surveillance to 0.9% in the 7th round of surveillance), mostly due to increased HIV prevalence among injecting drug users (IDUs). [2-7] According to the results from the recent round of surveillance, the HIV epidemic appears to have reached a concentrated level (7%) among IDUs in Dhaka City, the capital of Bangladesh. [1,2]

To explore the future course of the HIV epidemic and to develop the most appropriate prevention programs, it is important to monitor the prevalence of HIV- related risk behaviors among high-risk groups, the behavior networks within and between the high-risk groups, and their changes over time, which is the role of behavioral surveillance. In 1998, Bangladesh adopted one of the world's most comprehensive behavioral surveillance systems.[2] Updated surveillance has revealed the presence of close sexual networks of IDUs with other high-risk groups, especially female sex workers (FSWs). [3,5-7] FSWs were found to have close sexual connections with multiple male client groups, not just IDUs. Recent behavioral surveillance in Dhaka city indicates that injectable drug users are among the clients of both street-based and brothel-based FSWs. The report shows as many as 50% and 72.8% of the injectable drug users who use injectable drugs had sex with FSWs in the last month and 12 months, respectively, mostly without consistently using a condom. The HIV-related risk behaviors of injectable drug users may have a substantial impact on the future course of the HIV epidemic in Bangladesh.[5]

However, one study conducted by the Population Council in 3 areas of Dhaka division including 2 areas of Dhaka city demonstrated only 2.69% of married IDUs having sex with FSWs in the last 3 months. [10] In addition, despite the potential importance of this population in the context of the HIV epidemic in Bangladesh, there are intervention activities toward this population; even the correlates of the HIV- related risk behaviors which are critical for a focused intervention program have never been identified.

As per the Behavioral Surveillance Survey (BSS) 7th round survey, it is found that 0.9 percent vulnerable population has been infected with HIV. Among them, 7 percent of the IDUs were found infected with HTV. Injectable drug users are one of the most at-risk group populations. Knowledge attitude and practice of injectable drug users need to know to combat HIV/AIDS. Among the vulnerable groups, HIV/AIDS is mostly limited to IDUs and FSWs.

In recent rounds of behavioral surveillance, injectable drug users in Dhaka city are among the client groups of streets and brothel-based FSWs. 72.8% of the injectable drug users had sex with FSWs in the last 12 months, mostly without consistently using a condom.[5] More than 2 million rickshaws are estimated to be operating nationwide with 0.3 million in Dhaka city pulled by more than 0.05 million injectable drug users.[8,9] The HIV-related risk behaviors of injectable drug users may have a substantial impact on the future of the HIV epidemic in Bangladesh. HIV/AIDS is a serious concern in Bangladesh. The most at-risk groups are CSW, MSM, IDU, injectable drug users, truckers/helpers, hijra, and youth.

Therefore, we conducted a cross-sectional study on the HIV-related risk behavior of injectable drug users in Dhaka city.

II. Methodology & Materials

This descriptive cross-sectional study was conducted among male and female drug users of Dhaka city under the Department of Public Health, North South University, Dhaka, Bangladesh from January 2016 to May 2016. We included a total of 176 male and female drug users living in Dhaka. The sample population were those who came to the three Fill-funded implementing agencies for availing treatment facilities.

These are the following criteria to be eligible for enrollment as our study participants:

Inclusion Criteria

a) The injectable drug users of Dhaka City;
b) The injectable drug users aged between 15-50 years
c) Injectable drug users who were willing to participate in the study.

Exclusion Criteria

a) Injectable drug users who were unable to speak or who were hard of hearing
b) Injectable drug users who were interested in participating in the interview (refused)
c) Injectable drug users who were not able to continue the whole interview

Data Collection Procedure: A list of injectable drug users was made to make a sampling frame. Then required numbers of injectable drug users were selected using a simple random sampling technique. From each garage, 10-12 injectable drug users were selected. A total of 449 injectable drug users were selected randomly, but many of them left the study in the middle of the study period, so only 176 participants were interviewed. A structured questionnaire was developed for face-to-face interviews. However, for FGD a checklist was prepared and used. Survey tools were pre-tested to see any inconsistency of language, check the skipping instruction, tune required and any other issues related to the survey, and finalize. A consent form indicating survey objectives, time required, and importance of the survey was read out to the respondents and a final interview was conducted after obtaining verbal consent from the respondents.

Statistical Analysis: All data were recorded systematically in preformed data collection form. Quantitative data was expressed as mean and standard deviation; qualitative data was expressed as frequency distribution and percentage. Data processing was involved in the following stages: Data entry and entry verification, Cleaning and processing of data, Coding, and code transfer, Development of analysis plan, Analysis program development, Program running, and report generation. Statistical analysis was performed by using SPSS 16 (Statistical Package for Social Sciences) for Windows version 10. Ethical clearance was taken from the ethical review committee of BMRC and North South University to conduct the study.

III. Results

Table 1: Socio-demographic characteristics of respondents

Category	Frequency (N=176)	Percentage (%)
Age		
≤20 years	12	6.8%
21-25 years	35	19.9%
26-30 years	55	31.3%
31-35 years	28	15.9%
36-40 years	26	14.8%
>40 years	20	11.3%
Gender		
Male	140	79.5%
Female	36	20.4%
Education		
Class 1-5	109	61.9%
Class 6-9	62	35.2%
SSC	2	1.1%
HSC	3	1.7%
Marital Status		
Married	138	78.4%
Unmarried	32	18.2%
Widow/separated	6	3.4%
Income level		
≤4000 tk	32	18.2%
4001-6000 tk	130	73.9%
6001-10000 tk	9	5.1%
>10000 tk	5	2.8%

Table 1 indicates that the majority of respondents (31.3%) are between 26 and 30 years old, while a significant portion (19.9%) falls within the 21 to 25 age group. Education levels are low, with 61.9% of respondents having only completed grades 1 to 5, and only a small percentage (1.7%) reaching HSC. Most respondents (78.4%) are married, while 18.2% remain unmarried. In terms of income, a large majority (73.9%) earn between 4,001 and 6,000 Tk, while 18.2% earn 4,000 Tk or less. Only 7.9% earn more than 6,000 Tk.

Table 2: Distribution of respondents by knowledge of ways to get HIV/AIDS

Mode of HIV/AIDS Transmission	Frequency (N=176)	Percentage (%)
Through sexual intercourse with CSW	158	89.6%
Through sexual intercourse with an AIDS patient	82	46.8%
Through sharing needles/syringes	74	42.2%
Receiving blood from an HIV-infected person	31	17.5%
Through receiving blood from other people	20	11.5%
From mother to child	12	6.9%
Through sexual intercourse with multiple partners	6	3.2%

Table 2 shows people's awareness of how HIV/AIDS is transmitted. The majority (89.6%) believe it can spread through sexual contact with commercial sex workers (CSWs). Nearly half (46.8%) think it can be contracted through intercourse with an AIDS patient, while 42.2% associate it with receiving infected blood (17.5%) or mother-to-child transmission (6.9%). Surprisingly, only 3.2% recognize having multiple sexual partners as a risk factor.

Table 3: Distribution of respondents by knowledge of ways to prevent HIV/AIDS

Prevention Method	Frequency (N=176)	Percentage (%)
Avoiding sexual intercourse with CSWs	151	85.7%

Not sharing needles	67	38.0%
Avoiding intercourse with an HIV-infected person	48	27.4%
Using a condom every time during sex	34	19.6%
Receiving blood only after HIV testing	27	15.2%
Don't know / Can't say	20	11.5%
Being faithful to a sexual partner	4	2.3%
Avoiding sex with MSM	4	2.1%
Only having sex with one's wife	1	0.7%

Table 3 shows people's awareness of HIV/AIDS prevention methods. The most commonly recognized method is avoiding sex with commercial sex workers (85.7%). A significant portion (38%) understand the risk of sharing needles, while 27.4% associate prevention with avoiding intercourse with an HIV-infected person. One-fifth of the respondents (19.6%) mentioned that using condoms during every sexual encounter is the most reliable means of preventing HIV/AIDS. Additionally, only a small number (15.2%) recognize the importance of HIV testing before receiving blood. Notably, 11.5% of respondents are unsure about how to prevent HIV/AIDS. Very few believe that being faithful to a partner (2.3%) or limiting sex to one's spouse (0.7%) can help prevent the disease.

Table 4: Knowledge of STI Symptoms Among Respondents

Symptoms of STI	Frequency (N=176)	Percentage (%)
Discharge from penis/vagina	151	85.7%
Burning pain or itching in penis/vagina	112	63.6%
Painful urination	9	5.0%
Swelling in groin region	1	0.6%
Abnormal vaginal bleeding	1	0.6%
Sores or warts on penis/vagina	1	0.6%
Don't know/Can't say	14	8.0%

The table shows respondents' awareness of sexually transmitted infection (STI) symptoms. The most commonly recognized symptoms are genital discharge (85.7%) and burning pain or itching (63.6%). However, awareness of other symptoms is significantly lower, only 5% identified painful urination, while less than 1% acknowledged swelling in the groin, abnormal vaginal bleeding, or sores/warts. Additionally, 8% of respondents admitted they were unsure about STI symptoms.

Table 5: Distribution of respondents by knowledge of ways to contract STIs

Ways to Get STIs	Frequency (N=176)	Percentage (%)
If don't stay neat and clean	151	86.0%
Sexual intercourse with multiple partners	127	72.0%
If don't use a condom	35	20.0%
Don't know / Can't say	32	18.0%
Using a common bed or toilet	9	5.0%
Masturbation	2	1.0%
Using soap or a dirty toilet	2	1.0%
Having sex other than with one's wife	2	1.0%

The table highlights respondents' understanding of how sexually transmitted infections (STIs) spread. The most common belief is that poor hygiene causes STIs (86%), followed by engaging in sex with multiple partners (72%). However, only 20% correctly identify unprotected sex as a risk factor. Misinformation is evident, as a small percentage believe STIs can be contracted from using common toilets or beds (5%), masturbation (1%), or using soap (1%). Additionally, 18% of respondents admit they do not know how STIs spread.

Table 6: Percentage distribution of respondents' agreement or disagreement with statements

Statement	Yes (%)	No (%)	DK/CS (%)
Carrying a condom is difficult because it makes it look like a person plans to have sex	91	9	-
It is embarrassing to purchase a condom	34	66	-
Condoms are easy to use	85	12	3
A person can always tell by looking if someone has HIV/AIDS	25	71	4
A healthy-looking person can be infected with HIV	86	9	5
A person can get HIV/AIDS the first time they have sex	59	35	7
A woman with HIV can give birth to a child with HIV	78	12	10

HIV infection can be passed through sharing eating utensils with someone who has AIDS	37	47	16
A person can get AIDS through mosquito, flea, or bedbug bites	28	38	34
HIV can be transmitted from mother to child	84	8	8
I don't have sex outside of my marriage	68	24	8
It is necessary to use a condom when having sex with someone other than one's wife	97	2	1
I have seen many people my age have sex without a condom	5	86	9

The study asked a series of questions to understand the attitudes and misconceptions regarding HIV/AIDS/STI. This table presents respondents' attitudes and beliefs about condoms, HIV/AIDS, and sexual behavior. A large majority (91%) believe that carrying a condom makes it seem like someone is planning to have sex, and 34% find buying condoms embarrassing. However, 85% agree that condoms are easy to use, and nearly all (97%) believe they should be used when having sex outside of marriage. There are several misconceptions about HIV/AIDS. While 86% correctly recognize that a healthy-looking person can be infected, 25% mistakenly believe you can tell by looking at someone. Additionally, 28% think mosquito or flea bites can transmit HIV, and 37% believe sharing utensils poses a risk. Regarding personal behavior, 68% say they do not have sex outside of marriage, while 59% acknowledge that HIV can be transmitted the first time someone has sex. Notably, only 5% report having seen many peers engage in unprotected sex.

IV. Discussion

Injectable drug users represent one of the most at-risk groups in the population. There is a significant potential for spreading HIV among the general populace. This survey was conducted among injectable drug users in the Municipality area of Dhaka city, where a total of 449 users were selected, though only 176 were interviewed.

The findings of this study highlight considerable risk behaviors among injectable drug users (IDUs) in Dhaka, illustrating their vulnerability to HIV infection and the capacity for spreading the virus within the general population. The survey results indicate a high level of awareness about HIV/AIDS transmission through sexual contact with commercial sex workers (CSWs), with 89% of respondents recognizing this transmission route.

IDUs are among the most vulnerable groups impacted by the HIV epidemic, with the virus consistently detected in this population. Multiple sources, including national surveillance data, research cohort studies on IDUs, and rapid situational assessments by NGOs, provide insights into this issue. [11-13] Surveillance reports indicate a steady rise in HIV prevalence among IDUs in Dhaka, reaching 7% in the 7th round of surveillance in 2006. Although HIV was detected at lower levels among IDUs in three other cities, 14 out of 18 cities reported no cases. [14]

In Dhaka, research and surveillance data suggest that the HIV outbreak has concentrated in a specific neighborhood, effectively acting as the epicenter of the epidemic. [14,15] High rates of hepatitis C virus (HCV) have also been observed among IDUs across several cities. [16,17]

Risk behavior data consistently highlight dangerous injection-sharing practices among IDUs across various locations. The National Behavioral Surveillance Survey (BSS) from 2003-2004 revealed that over three-quarters of IDUs in Dhaka either borrowed or lent needles or syringes during their last injection. Among those who shared, the number of individuals involved in the sharing network ranged from 1.0 to 2.8. [18]

A qualitative cohort study indicated that IDUs had differing perceptions regarding the sharing of needles. Some believed it was safe to share with family members or healthy-looking individuals, while others thought that "jerking" the needle or syringe between users reduced the risk of infection. At the baseline of the study, 48.3% of IDUs reported obtaining needles or syringes from needle and syringe programs (NSPs) or drug stores. However, the primary reason for sharing, even among NSP participants, was a lack of access to sterile needles at the time of injection (57.8%). [19]

Beyond risky injection practices, IDUs also participate in unsafe sexual behaviors. Among male IDUs in cohort studies, around 50% were married, 36% had sex with non-commercial partners (including spouses), and 8% had paid for sex in the previous month. Of those who purchased sex, only 51.2% reported using condoms consistently. [19]

A situational assessment of Dhaka's port in 1998 examined behavioral risk factors for HIV. The study, which aimed to design an HIV and STD prevention program, revealed an extensive hidden sex trade involving men from various occupations as well as both male and female sex workers. It also documented human trafficking, with women being brought from Burma and tribal areas of Bangladesh. [20]

Surveillance and research studies have also reported high-risk behaviors among truck drivers, rickshaw pullers, and more recently, boatmen in Teknaf who use injectable drugs. [21,22] A study involving boatmen aged over 18, who had worked in Teknaf for at least six months in trade, fishing, or transport, found disturbingly low rates of consistent condom use. Among truckers and IDUs, regular condom use with different

partners in the past month varied from just 1% to 11%. The rate among boatmen was even lower, falling between 0% and 4.7%. [22]

Women who inject drugs face significant risks as well. A cohort study conducted from December 2004 to March 2005 enrolled 135 female IDUs, recruited through outreach workers from the NSP of CARE Bangladesh and networks of drug users and sex workers. At the outset of the study, none of the participants tested HIV-positive, but 16.5% tested positive for HCV, and 9.1% had syphilis. Six months later, one woman was diagnosed with HIV. The prevalence of syphilis among female IDUs was higher than that among male IDUs and comparable to that of female sex workers. Female IDUs reported even higher rates of needle sharing than their male counterparts. Additionally, 63.1% of them indicated involvement in sex work in the past year, underscoring their role as a potential link between injection and sexual networks. [14] The study also emphasizes the heightened vulnerability of female IDUs, who encounter additional social and economic challenges compared to their male counterparts. In Bangladesh, female IDUs are more marginalized and stigmatized, which increases their susceptibility to HIV.

Overall, these findings underscore the urgent need for targeted harm reduction interventions, including expanding access to sterile needles, enhancing education on safer injection practices, and promoting consistent condom use among high-risk populations. Harm reduction programs that focus on needle exchange, safe injection education, and consistent condom use are essential to curtail the transmission of HIV and other STIs among IDUs.

V. Limitations Of The Study

The study was conducted among the injectable drug users of Dhaka City. There was a budget constraint, so it was not possible to draw a sample from all the areas of Dhaka City. The time of injectable drug users was another limitation of this study. Besides, due to the lack of space for interviews, confidentiality couldn't be maintained strictly.

VI. Conclusion And Recommendations

Bangladesh is a high risk but low prevalence of HIV/ AIDS. A total of 1495 reported HIV-positive cases were detected in Bangladesh. The current estimates suggest an HIV prevalence rate of <1% among the most -at-risk population groups. Injectable drug users are one of the vulnerable groups to HIV/ AIDS. Although the prevalence and vulnerability are high among the IDUs in Bangladesh there is high a chance of spreading HIV/ AIDS to other vulnerable groups like injectable drug users, CSW, and MSM. IDUs and injectable drug users both are customers of commercial sex workers. Misconceptions about HIV/ AIDS and low condom use increase vulnerability to getting HIV/ AIDS. The study findings revealed that most of the injectable drug users had low knowledge of spreading HIV/AIDS and STIs.

Therefore, further study with a larger sample size needs to be done to address these knowledge gaps and reduce stigma, interventions can better support injectable drug users in Dhaka to protect themselves from HIV infection and improve overall public health outcomes.

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