Assessment of Sexual Behavior of Men in Bangladesh : A Methodological Experiment

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Foreword

Bangladesh has an internationally recognized and well-established 2nd generation HIV/AIDS surveillance system in place, which helps to closely monitor the HIV situation and to understand the levels of risk behavior associated with HIV infection within population groups surveyed. Groups so far included in the surveillance system have been male, female and transgender sex workers, men who have sex with men, injecting drug users and representatives of 'clients of sex workers groups' such as rickshaw pullers, truckers, STD patients, dock workers, launch workers, *'babus'* and students.

Behavioral Surveillance Surveys (BSS) show that client turnover between sex workers in Bangladesh is among the highest and condom use during commercial sex among the lowest in Asia. BSS among the male groups surveyed indicate high levels of sexual activities with a range of partner types. Although HIV prevalence is still low among sex worker and client groups, the experience from other countries in the region clearly indicates that without comprehensive and strategically targeted interventions, a rise in HIV prevalence is bound to happen.

Through BSS it has become apparent that sex workers receive clients coming from diverse occupational groups with different socio-economic status. HIV prevention interventions that only focus on sex worker groups, and not on male clients, are less effective as the clients ultimately decide on whether to use (male) condoms during commercial sex. In order to gain insight on how to target and motivate these clients, it is important to understand their demographic and socio-graphic characteristics. This study was designed to obtain a better understanding about the sexual networks of men in Bangladesh with a range of different partners. Additionally, in an effort to correct for 'social desirability bias' in this type of study, extensive efforts were made to carry out a parallel data collection exercise using the 'ballot box' method. This method is a first for sexual behavior research in Bangladesh, and just one of the important contributions made by this study.

The FHI Bangladesh Country Office and the Asia Regional Program are proud to have been able to conceive, commission and support this study. The research accomplished by ICDDR,B will make an important contribution to understanding the significant role that the clients of sex workers play in the dynamics of HIV transmission in Bangladesh. The results of this study will be used to design new interventions, inform current project activities and surveillance studies, and contribute to our efforts at modeling the epidemic in Bangladesh.

Dr. Robert Kelly
Country Director, FHI Bangladesh

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We are grateful to those participants who without hesitation unveiled facts relating to their very personal matters. Without their voluntary participation it was not possible to conduct this study. We are thankful to our interviewers and supervisors who collected data for this study from the community. They were very sincere in meeting the requisite numbers and expected quality at various phases of implementation of this study. Their sincere efforts helped collect the sensitive information on sexual behavior of males in the community.

We are indebted to district and upazilla administration, health and family-planning department and law-enforcing agency at selected district, thana and union levels for extending their full-co-operation during implementation of this study. We are also thankful to the Bangladesh Bureau of Statistics for their assistance in selecting samples (clusters) from the population census of 2001. We gratefully appreciate the co-operation offered by the local dignitaries and community leaders who were very supportive to our teams during their stay in the study sites.

We sincerely acknowledge the contribution of Dr. Robert Kelly, Country Director, FHI Bangladesh and Dr. Tobi Saidel, Senior Technical Officer, Asia Pacific Division, Family Health International (FHI) who provided us with necessary technical support for designing the study and developing data-collection tools. We are thankful to Dr. Dimitri Prybylski, Senior Technical Officer, from Asia Pacific Division, FHI for his technical input during implementation of this study. We are also acknowledging the significant contribution of Dr. Steve Mills, Country Director, FHI Vietnam and Dr. Bob Magnani, Country Director, FHI Indonesia during the design and piloting stage of this study in terms of sampling and interview methods.

We sincerely acknowledge the contribution of Mr. Moyazzam Hossain, Senior Field Research Officer, for his extensive field visits that ensured quality of data collection and smooth implementation of the study. We extend our sincere thanks and appreciation to all staff and other professionals in ICDDR,B and the FHI for their help and co-operation.

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Executive Summary

In Bangladesh, the prevalence of HIV is still low (<1.0%) among most-at-risk population. So far, most intervention programs for HIV prevention have been targeted to these groups. Little data are available on sexual behavior and sexual networks among the general male population and these are required to understand the potential trends and patterns of HIV transmission. Again in community surveys, answers to sensitive questions on sexual behavior are often under-reported due to social desirability bias. To address this, a confidential data-collection method is needed for developing countries.

This one year project (September 2004 - August 2005) was designed (1) to understand the sexual behavior of the general male population (aged 18-49 years) in Bangladesh; (2) to compare the response rates to sensitive questions on sexual behavior with two different interviewing techniques: (a) asking sensitive questions in face-to-face interview (FTFI), and (b) administering the sensitive questions by a pre-recorded audio system while collecting the responses with the use of ballot-box and ballot-slips (strips of paper to provide answer) to maintain confidentiality called Modified Ballot-Box Method (MBBM); and (3) to measure knowledge, risk-perceptions, substance abuse, and prevalence of symptoms of Sexually Transmitted Infection (STI), and healthcare-seeking behavior among the general male population in Bangladesh.

A pilot study was conducted in one urban area and in one rural area during December 2004 - January 2005 to test how interviews of sensitive questions using a ballot-box with audio system compare with those with the Simple Ballot-Box Method (SBBM) (by asking sensitive questions in face-to-face interview and collecting the responses with the use of ballot-box and ballot-slips). After piloting the MBBM was found to be effective and was planned for use in the main study. A cross-sectional descriptive survey was conducted among men aged 18-49 years in three purposively selected urban areas (Dhaka metropolitan, Chittagong metropolitan, and Bogra town) and three rural areas (Faridpur, Rajshahi, and Cox's Bazar districts) of Bangladesh. A 30 cluster sampling method with segmentation at the second stage and systematic selection of subjects in the third stage was used. In each cluster, from the master list of eligible respondents, identified through household listing, 50 were systematically selected and randomly allocated to either of the two interviewing methods (FTFI or MBBM). During February-August 2005, 24 trained interviewers and six supervisors, divided into six teams, were employed for data collection. Of 4497 and 4498 respondents who were approached for interviewing in each FTFI and MBBM, 3623 (80.6%) and 3499 (77.8%) respectively were successfully interviewed.

Overall, 17.5% of the respondents ever had pre- or extra- marital vaginal/anal sex (non-marital sex) in the past year. The corresponding figures were 9.9%, 8.6%, and 2.2% respectively for sex with female sex workers, casual female partners, and males/transgenders. In MBBM, 11.7%, 8.8%, and 2.9% ever had vaginal/anal sex in the past year with female sex workers, casual female partners, and males/transgenders respectively. The corresponding figures in FTFI were 8.1%, 8.5%, and 1.4%. The MBBM elicited higher responses for those who had sex with female sex workers (Odds Ratios [OR]=1.54, 95% Confidence Interval [CI]: 1.25-1.90) and males/transgenders (OR=2.16, 95% CI: 1.24-3.75) than FTFI. The MBBM did not produce substantially different responses for sex with casual female partners (OR=1.10, 95% CI: 0.87-1.30). However, for any of the afore-mentioned partners, the response in MBBM (OR=1.29, 95% CI: 1.11-1.52) was higher than for FTFI. There was no statistical difference in response to condom-use and number of non-marital sexual partners by the two interview methods. Overall, condom-use rate at last sex with female sex workers, casual female partners, and males/transgenders was 40.1%, 30.0%, and 8.7% respectively. Among the respondents who had non-marital sex in the past year, overall, 44.4%, 35.9%, and 19.7% had 1, 2-3 and >=4 partners respectively.

Most (92%) respondents had heard of AIDS, 86% knew that some diseases are transmitted through sexual intercourse, and 85% knew that a healthy looking person may be HIV-infected. Thirty-five percent knew that STI symptoms can differ between the sexes but 46% could not mention any STI symptoms and 18% did not know any modes of transmission. Approximately 76% of the respondents perceived that they were at low risk for acquiring HIV. About 8% suffered from STI symptoms during the past year; 59% of them went for treatment, and of them 37% visited qualified physicians and 63% went to informal providers. About one-third had sex at times when they also had STI symptoms, most (85%) without condoms and 51% did not inform partners about the presence of symptoms during sex.

Non-marital sex with high-risk partners is common among the general male population in Bangladesh. Low condom use further augments the risk of HIV transmission in the community. The MBBM is more effective than FTFI in eliciting higher responses regarding non-marital sexual contact from males, especially sex with female sex workers and males/transgenders. The MBBM may be useful in improving response rates to sensitive questions on sex behavior among the general male population. Overall knowledge of the general male population on HIV infection was high and the majority perceived themselves at low risk of contacting infection. Although the prevalence of STI symptoms was high in the general male population, care-seeking for STI symptoms was low. To prevent a generalized epidemic, behavior change communication programming with males should be implemented urgently to reduce rates of sexual partners in increase condom use and seek care for STI symptoms.

Chapter 1

Introduction

Background Information

In Bangladesh, most of the intervention programs for prevention of HIV have so far been targeted to different high-risk populations (GOB 2004; Sarker et al., 1998; Azim et al., 2000; Rahman et al., 2000). Available data indicate that sexual behavior that might put people at risk of non-marital sexuality are not uncommon among the general male population (Sabin et al., 2003; Hawkes et al., 2002; Caldwell et al., 1999). One study in a slum in Dhaka city reported that 59.1% of males had more than two sex partners in their lifetime, and 6.6% had sex with female sex workers in last one month (Sabin et al., 2003). Another study in Chittagong Division (southeast Bangladesh) found 47% unmarried and 52% married men had pre- and extra- marital sex respectively in lifetime (Caldwell et al., 1999). However, these studies were limited to small groups of the population and were not representative of the country. Therefore, to design an intervention program for prevention of HIV for the male population in the community, there is a need to get accurate information on sexual behaviors and sexual network of men in the general population.

None of the above studies attempted to assess the extent of social desirability bias that might have affected the results. Social desirability bias occurs when respondents tempt to give the socially desirable response rather than what they actually believe or do. Underreporting is most likely to occur when questions are asked on experience of activities that run contrary to dominant local social norms (Catania et al., 1990; Fay et al., 1989; Anderson and Stall, 2002; Konings et al., 1995). In Bangladesh, non-marital sex is traditionally viewed as shameful and not to be discussed in public or within the family. Thus, information on sexual behavior is likely to be under-reported due to social desirability bias. Reporting sexual behavior in face-to-face interview may be embarrassing and may cause conceal important aspect of social relationship of the respondents. By experimenting with the mode of survey administration, it is possible to estimate the relative level of reporting bias associated with one mode verses another. Therefore, to develop an appropriate HIV infection prevention program, there is a need to find a suitable mode of interview for community surveys on sexual behavior for use in developing countries.

Available interviewing methods to minimize social desirability bias

Methods such as self-administered questionnaire, computer-assisted self-interviews (Audio-CASI), telephone survey technique that allow less interaction between the respondents and the interviewers help reduce social desirability bias (Gribble et al., 1999; Anderson et al., 2002; Lau et al., 2003). However, each of these methods has its own problem for administering in community

surveys in developing country context. Although self-administered questionnaire provide an alternative approach for conducting in-person interviews by reducing fear of embarrassment or disclosure but limited in its use due to high non-response (Anderson et al., 2002; Boekeloo et al., 1994). Crucial to the effectiveness of self-administered questionnaire is the ability to read and comprehend the questions by the study population. In developing countries, literacy level is generally low and population of special interest in study of sexual behavior may have literacy problem. Moreover, because sexual behavior is complex, survey instruments that collect such data may be too complex even for literate respondents to fill-up self-administered forms. Audio-CASI using portable lap-top computers, respondents listen to questions through headphones and enter answer by pressing labeled key that provides a private mode of collecting data (Turner et al., 1998; Potdar and Koenig, 2005). However, this method is not suitable to administer in the community specially when study population is not familiar with the computers and their literacy level is low (Potdar and Koenig, 2005). Telephone survey technique although effective in reducing cost as well as response bias (Midanik et al., 2001), is problematic because accessibility to a telephone is not homogeneous for geographic, socio-economic and demographic factors of the general population particularly in many developing countries.

The SBBM was found to be effective in reducing the social desirability administered in several African settings (Gregson et al., 2002). In this method, the interviewer reads out the question from the questionnaire, and the respondent provides the answer by means of a secret voting procedure using ballot-box and ballot-slips.

In SBBM, lightweight portable wooden boxes with a slot on the top similar to ballot-box and sets of ballot-slips are used to collect information on sensitive questions. The ballot-slips are the sets of strips of papers cross-referenced with the questionnaire. Questions are constructed so as to elicit simple yes/no/don't know responses and thereby to minimize non-participation and response errors. The interviewer reads out the corresponding question from the questionnaire, one at a time, and to answer the question, the respondent puts a circle on the corresponding symbol in the voting slip. After completing each strip the respondent places it into the box through the slot on the top. At the end of the interview the interviewer mixes it with those completed by earlier participants. Thus the information provided is kept secret from the interviewers. The field supervisor who does not know the identities of the respondents, subsequently matches the voting responses to the appropriate questions using the respondents' identification and questions numbers which is written beforehand on the back of each voting slip. Gregson et al., field-tested this method in Zimbabwe and effective in eliciting higher response on reporting multiple sexual partners. As compared to face-to-face interview, more male (35%) and female respondents (97%) in ballot-box method reported having multiple current sex partners in the past year. Although the SBBM is a step towards increasing confidentiality in answering the sensitive questions but in a community survey, particularly in urban setting, it is often difficult to find an isolated place to ask the sensitive questions face-to-face. This problem is crucial while conducting interview in household settings.

What is Modified Ballot-Box Method (MBBM)?

In a community survey, often other people including family members are around which may embarrass the respondents during interview especially when sensitive questions are asked that may result in introducing biases due to under-reporting or non-response or even refusal. To solve this problem, we modified the SBBM with the incorporation of audiocassette player and headphones called MBBM as shown in **Figure 1**.

Figure 1 : *Modified Ballot-Box Method*

The only difference between new method and the SBBM is that the sensitive questions are administered through the audio system instead of asking them face-to-face. In MBBM pre-recorded sensitive questions are administered using a portable cassette player and two pairs of headphones-one for the respondent and the other one for the interviewer. After administration of each sensitive question by the interviewer, the respondent provided the answer using secret ballot-slips and ballot-box. This method is completely standardized with respondents hearing all questions in a same way.

The pilot study

Prior to starting the main survey, a pilot study was conducted to assess how to conduct interviews on sensitive questions in MBBM compare to those with SBBM. In the pilot study, we tested three data-collection methods: FTFI, SBBM, and MBBM; (1) to select a set of sensitive questions for the main study; (2) to compare the rates of responses to sensitive questions among the three methods, and (3) to assess the feasibility of MBBM as compared to SBBM.

During December 2004 - January 2005, the pilot study was conducted covering 200 males, aged 18-49 years, in one urban area and in one rural area. For the rural area, Kapasia upazila (sub-district), about 60 km to the northeast, and for the urban area, Narayangonj upazila, about 30 km to the southwest of the capital, were purposively chosen. We recruited and trained six field research supervisors for conducting interviews in piloting. A Field Research Officer (FRO) coordinated the field activities.

The preliminary results of the pilot study showed that the overall rate of positive response to sensitive questions (defined as having at least one pre- or extra-marital penetrative sexual act in the last one year) was higher (21.6%) in MBBM compared to the other two methods (19.7% in FTFI and 17.6% in SBBM). About 23% of the rural respondents in MBBM had at least one non-marital sex experience in the last one year. The corresponding figures in SBBM and FTFI were 18% and 21% respectively. In urban areas, response rates on sensitive questions in MBBM, SBBM, and FTFI

were 19.4%, 17.2%, and 18.5% respectively. The MBBM was found to be an acceptable tool of data collection for sensitive questions in urban settings where there were problems of isolating the respondents for asking sensitive questions in households. This method was also found to be easily understandable between the illiterate and those with a lower level of education in rural areas. The internal consistency of the responses in this method was high in both urban and rural areas. During piloting of a long list of 21 sensitive questions, we finally selected nine sensitive questions to be administered in the MBBM. The nine sensitive questions, three for each of three types of partners (female sex workers, casual female partners, and males/transgenders) and ballot-slips used are shown in **Figure 2**. A set of four demonstration questions was also incorporated before asking the sensitive questions. These demonstration questions were found helpful in familiarizing the respondents with the MBBM and improving the internal consistency of the responses. Based on the findings of the pilot study, necessary modifications were also made in data-collection tools and implementation plan before starting the main study.

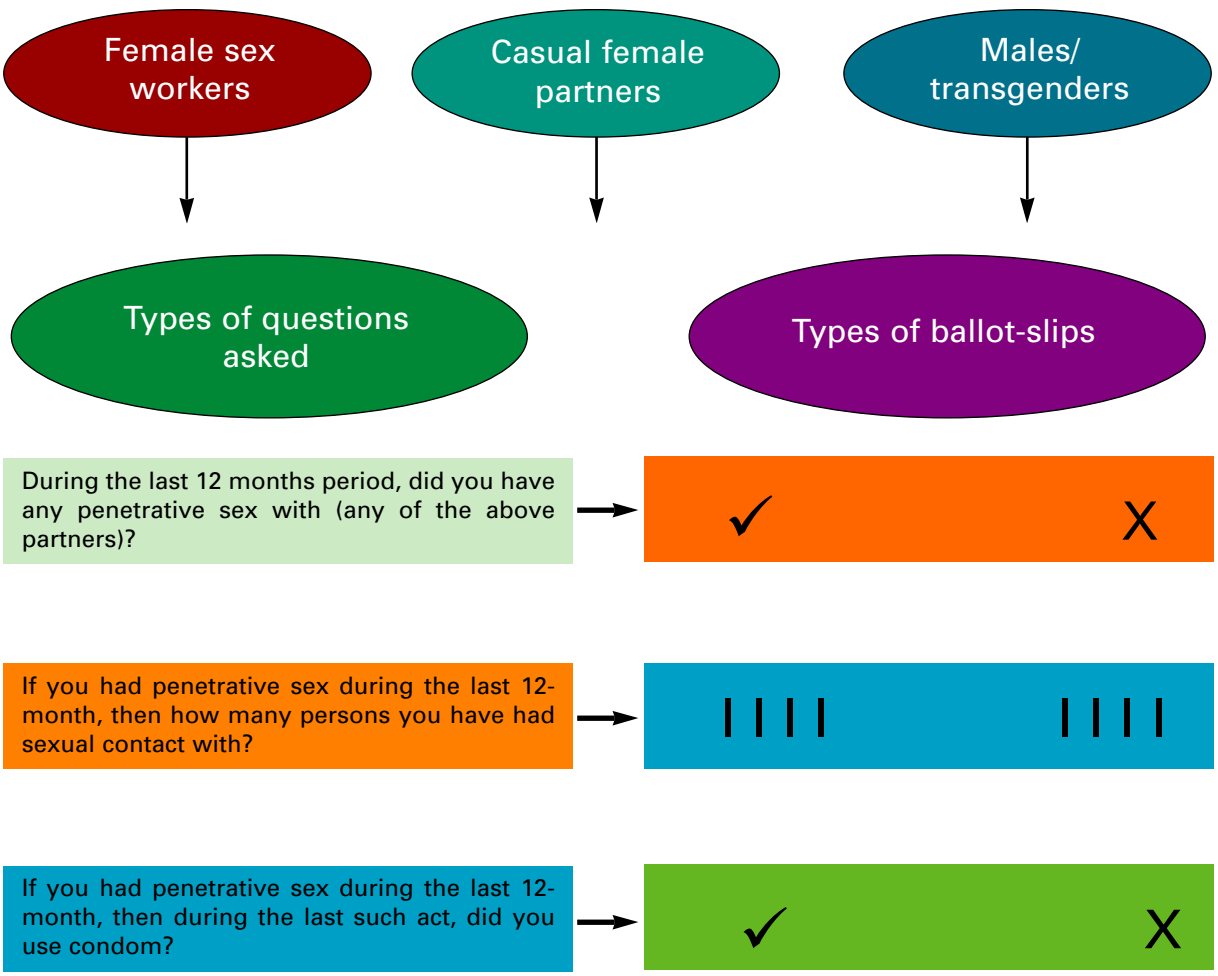

Figure 2 : *Types of sensitive questions asked and ballot-slips used in MBBM*

Specific objectives of the main study

1. To estimate the proportion of males who had pre- or extra-marital penetrative sex in the past one year.
2. To estimate the proportion of males who used a condom in last sex in the past one year.
3. To find out the number of non-marital sexual partners among respondents who had any non-marital sex in the past one year.
4. To assess the differences in responses for the above (1, 2 and 3) estimates in MBBM as compared to FTFI.
5. To assess the association of non-marital sexual behaviors of men with their socio-demographic characteristics.
6. To document the STI/HIV/AIDS-related knowledge and risk-perceptions among study subjects.
7. To assess the level of misconceptions about STI/HIV/AIDS.

Chapter 2

Methodology

Study design and settings

A cross-sectional descriptive survey was conducted among men aged 18-49 years in purposively selected three urban (Dhaka metropolitan, Chittagong metropolitan, and Bogra town) and three rural areas (Faridpur, Rajshahi, and Cox's Bazar districts) of Bangladesh **(Figure 3)** A three-stage cluster sampling method with segmentation at the second stage and systematic selection of subjects in the third stage was used in each of the six study areas (FHI and Impact, 2000).

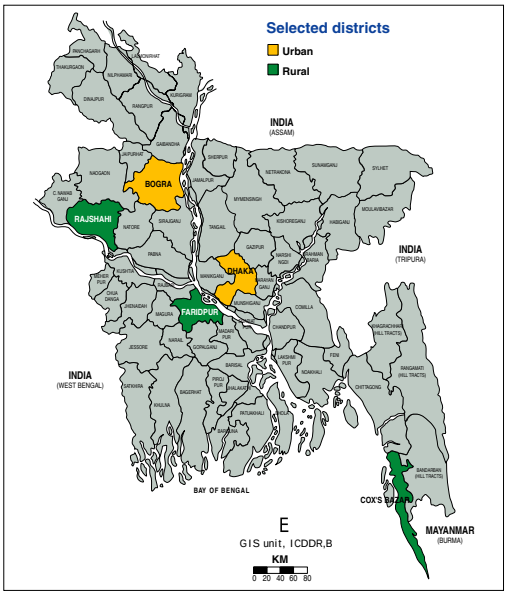

Figure 3 : *Study areas (selected districts)*

Selection of clusters

For selection of clusters in urban areas - mahallas, the smallest identifiable areas within city corporation/municipality, and in rural areas - mouzas, a revenue village with a jurisdiction list number were considered as Primary Sampling Unit (PSU). In each study area, 30 PSUs were selected by probability proportional to size (PPS) method considering males 18-49 years age as the study population.

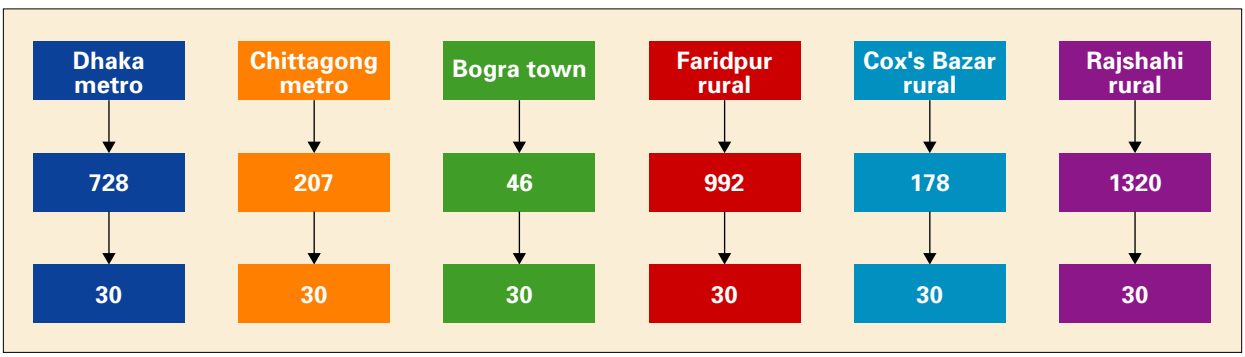

Figure 4 : *Selection of PSUs in each study area*

For example in Dhaka metropolitan city out of 728 PSUs 30 were selected. The distribution of number of PSUs in each study area including number of selected PSUs is shown in **Figure 4**. The Bangladesh Bureau of Statistics (BBS) using the population census data of 2001 drew the PSUs.

Sample size estimation

The sample sizes were estimated using formula for precision of proportion $n=(z^2 /2pq)/d^2$. Considering 8.8% of eligible men have sex with multiple sex partners in last one year in a rural community of Bangladesh (Hawkes, 2002), we sought an absolute precision of 0.025 with 95% confidence interval. Thus the minimum required sample size was 494 eligible men for one district. To adequately compensate for the loss of accuracy resulting from multistage sampling design we planed to arbitrarily apply a design-effect of 2. Thus minimum required number of subjects in one stratum was 988 1000. Considering the sensitivity of the research topic in a relatively conservative society like Bangladesh, we further proposed to inflate the sample size by 20% to account for expected refusal, which was lower than what was found in a previous similar study in Bangladesh (Caldwell et al., 1999). We further planed to inflate the sample by 10% to compensate for absenteeism. Thus, a total of 1429 1500 eligible men were needed for each district. In six districts, total 1500x6=9000 subjects were planned to enroll.

Selection of subjects

After the completion of the training, the 24 interviewers were equally divided into 6 teams, headed by a supervisor for field implementation of the study. One team was employed for data collection in one cluster. For selection of sample in each cluster, the team members systemically followed five sequential steps as shown in **Figure 5**.

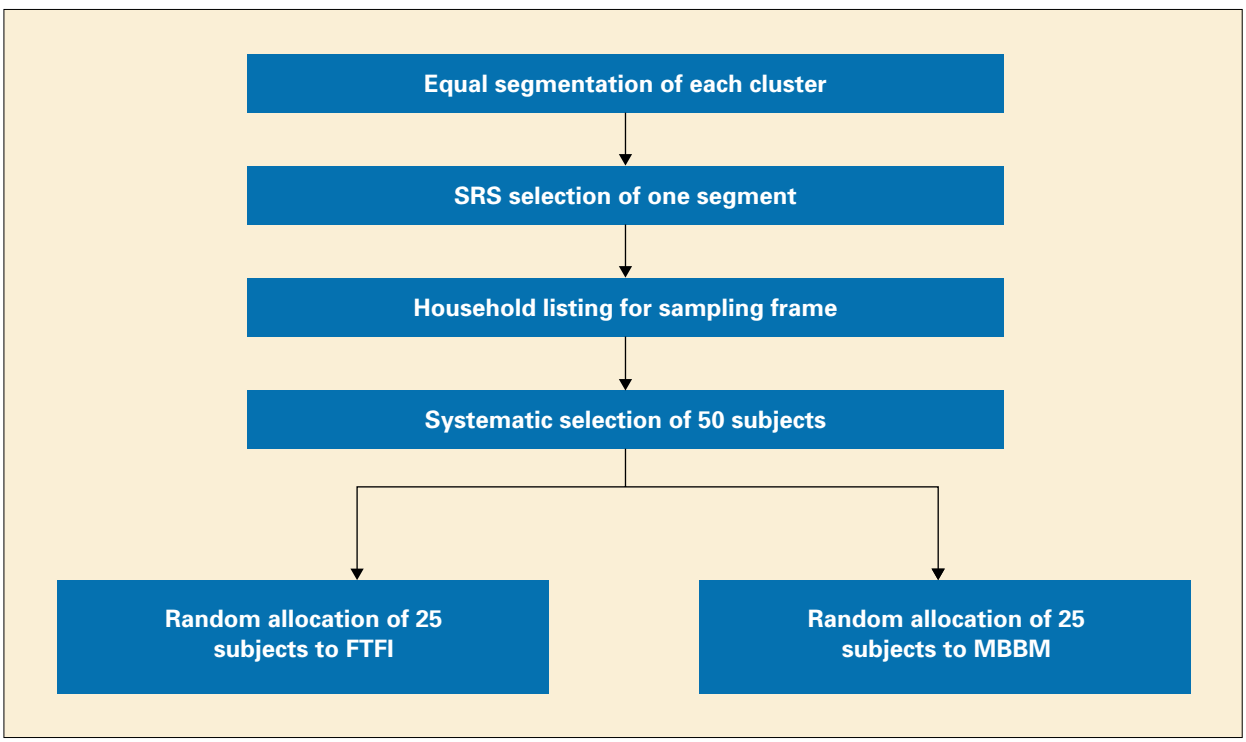

Figure 5 : *Sampling technique*

First, they visited the selected cluster and identified the cluster boundaries using an area map collected from the BBS and with assistance from the local people. Then they divided the cluster into a number of segments such that each segment consisted of approximately an equal number of households. The size of the segment in the six study areas ranged from 150 to 300 households. Second, in each cluster, one segment was randomly selected by a simple random sampling method. Third, all the households in the selected segment were visited to identify eligible respondents for inclusion in the study. Males, aged 18-49 years, who were resident in the area for at least last one year or visited home at least once last one year, were listed. For each household, one listing form was completed by interviewing a responsible person (mostly housewives or elderly family members) to record age, profession, relationship with the household head, and availability of the eligible respondents. To maintain anonymity, the name of the respondent was not recorded. Fourth, all the identified eligible respondents were posted in a logbook from where 50 were systematically selected for final interview. Fifth, half of the selected subjects were randomly allocated to FTFI, and the rest to MBBM for interviewing. Thus, in each study area a total of (25x30) 750 respondents were selected for interviewing in FTFI and another 750 in MBBM. And in the six study areas, a total of (750x6) 4500 respondents were selected for interviewing in FTFI and another 4500 in MBBM.

For final interview, the interviewers visited all the households of the selected respondents. Since no name was recorded in the listing form, the interviewers identified the selected subjects using information collected on age, profession, and relationship with the household head, as recorded in the listing form. After explaining the objectives of the study by the interviewer, the respondent was asked for his verbal consent to participate in the study. Only subjects who willingly provided their consent were finally interviewed.

Operational definition of variables

'Non-marital sex' was defined as having any pre- or extra-marital vaginal or anal penetrative sexual act with female sex workers, casual female partners or males/transgenders in the past one year time period. 'Condom-use' was defined as use of condom in the last pre- or extra-marital vaginal or anal penetrative sexual act with female sex workers, casual female partners or males/transgenders in the past one year time period. 'Number of non-marital partners' was defined as number of female sex workers, casual female partners or males/transgenders with whom had pre- or extra-marital vaginal or anal penetrative sexual act in the last one year. 'Female sex workers' were defined as female with whom participated in vaginal or anal penetrative sex in exchange of money. 'Casual female partners' was defined as a female neighbor, friend or relative with whom the respondent participated in vaginal or anal penetrative sex without exchange of money. 'Males/transgenders' were defined as either actively or passively participating in anal sex with another male or transgender or boy.

Selection and training of interviewers and supervisors

For this study we recruited and trained 24 interviewers and six supervisors who received two-week intensive training by the study investigators in ICDDR,B. The training emphasized the use of data-collection tools including administration of pre-recorded questions in MBBM, development of sampling frame, maintenance of logbook, etc. Training was also imparted on rapport building with respondents for asking sensitive questions on sex behavior, fixing a suitable time with respondents for conduct of interview, isolation of subjects for interviews, and handling of unforeseen situations that might arise while interviewing. They also received one-day field training for hands-on-experience on use of data-collection tools.

Interview in Face-to-Face Interview (FTFI)

For FTFI, the interviewers identified a suitable place to maintain confidentiality. The interview was preferably conducted in a free room whenever it was available in the household. When a free room was not available, the interview was conducted in an isolated place, such as a corner of the courtyard of the household, where other members were advised not to intervene. Sometimes the respondents requested the interviewers to interview them in the working place. In rural areas, in some cases, interview was conducted in isolation under a tree, in a field, garden, etc. Depending on the situation, any of the above strategies was chosen by the interviewer to assure confidentiality/privacy issues. Questionnaire of FTFI is in Appendix A.

Interview in Modified Ballot-Box Method (MBBM)

For the conduct of interview in the MBBM, although the sensitive questions were administered using cassette players and headphones **(Figure 6)**, the interviewers still emphasized the identification of a suitable isolated place to maintain confidentiality. Before starting the interview, the MBBM and its usefulness were explained to the respondents to maintain confidentiality.

Conducting the interview in this method included three consecutive steps. First, questions on background information were asked face-to-face. During this step, rapport building was made for using of the MBBM. Second, the interviewers formally acquainted the respondents with the MBBM by administration of a simple story in audio and by asking four questions from there. After listening to each question, the respondents provided an answer on a ballot slip by putting a circle on tick or cross mark (to indicate 'yes' or 'no'), or crossing lines to indicate numbers. During this exercise the interviewers made sufficient interactions with the respondents to familiarize them with the system. Third, when the interviewers were convinced that the respondents understood the method, the final interview was started where nine selected sensitive questions were administered one after another.

The interviewer provided one ballot slip to the respondent at a time. Then the interviewer administered the question in audio with headphones, and allowed some time to the respondent to answer in ballot-slip. After answering the question on the secret ballot-slip, the respondent put it into the ballot-box. In this was the nine sensitive questions were administered one after another. During the final interview, the respondent was asked to raise his hand if he did not understand any question. The interviewer who operated the cassette player replayed the same questions then. At the end of the day of data collection, the field supervisor opened the ballot-box and subsequently matched the voting responses to the appropriate questions using the questionnaire serial number and question numbers which were written beforehand on the back of each voting slip. Questionnaire of MBBM is in Appendix B.

Figure 6 : *A demonstration of interview in MBBM*

For each of three types of non-marital partners (female sex workers, casual female partners, males/transgenders), three of sensitive questions were administered in MBBM. The ballot-slips were cross-referenced with the questionnaire. To answer yes/no, the respondents circled the appropriate symbol. To answer number, crossed exact number of vertical lines. For not applicable, nothing was marked in the ballot slip.

Supervision and monitoring of data collection

The quality of data was assured by field-level scrutiny of every completed interview schedule. In each site, at the end of the day of data collection, the supervisor reviewed each form for missing information or inconsistency. Each supervisor maintained format to document the interview status of every subject. A SFRO monitored the quality of collected data by regular field visits. The SFRO also maintained liaison between the field workers and the study investigators in ICDDR,B. In

addition, the investigators from ICDDR,B made regular visits to each site, reviewed the collected data and logbook in the field, and provided necessary advice to the SFRO, supervisors, and interviewers.

Data entry and analysis

The collected data were sent to ICDDR,B Dhaka office where all the forms of the final interview were computerized by experienced data-entry operators after necessary editing and coding. All the data were double entered and validated for any inconsistency. After the completion of data entry and cleaning, analysis of data has done using the survey data module of Stata (version 8.0) by taking into account cluster-wise variation in selection probability and design effects by employing weighted and cluster analysis techniques. Selection probability *(pi)* for the i^{th} cluster was estimated by *m x Mi/M* x 1/Si x ni/Ni, where m is the number of clusters to be selected in the survey, Mi is the census population in the i^{th} cluster, M is the total population in all the clusters in the sampling frame, Si is the number of segments created in the i^{th} cluster, ni is the number of respondents surveyed in i^{th} cluster, and Ni is the total number of respondents in the selected segment of the i^{th} cluster identified during household survey.

Chapter 3

Results

Coverage of interviews

In FTFI and MBBM, total 3623 (80.6%) and 3499 (77.8%) respondents respectively were successfully interviewed (Table 1). The rate of absenteeism were 19.1% in FTFI and 21.7% in MBBM. The major causes of absenteeism were : (a) unable to contact (after five visits), and (b) internal migration. Refusal rates in FTFI and MBBM were 0.3% and 0.5% respectively, which were very low.

Table 1 : Coverage of interviews in six different areas by modes of interview

Area	% (number) in FTFI				% (number) in MBBM			
	n	Completed	Absentee	Refusal	n	Completed	Absentee	Refusal
Dhaka**	750	83.2 (624)	15.3 (115)	1.5 (11)	750	80.4 (603)	18.0 (135)	1.6 (12)
Chittagong**	750	84.5 (634)	15.5 (116)	0.0 (0)	750	81.3 (610)	18.3 (137)	0.4 (3)
Bogra**	750	82.8 (621)	16.9 (127)	0.3 (2)	750	77.6 (582)	21.3 (160)	1.1 (8)
Faridpur*	747	70.5 (527)	29.2 (218)	0.3 (2)	748	70.6 (528)	29.4 (220)	0.0 (0)
Cox's Bazar*	750	80.3 (602)	19.7 (148)	0.0 (0)	750	79.3 (595)	20.7 (155)	0.0 (0)
Rajshahi*	750	82.0 (615)	18.0 (135)	0.0 (0)	750	77.5 (581)	22.5 (169)	0.0 (0)
All	4497	80.6 (3623)	19.1 (859)	0.3 (15)	4498	77.8 (3499)	21.7 (976)	0.5 (23)

** Urban area; * Rural area

Background characteristics of respondents

Background characteristics of the respondents who were interviewed in FTFI and in MBBM for their sexual behavior are presented in Table 2-5. The tables show how similar or dissimilar the respondents were, in answering questions under the two methods.

Table 2 shows a lack of association of area of residence, age, schooling, marital status and religion of the respondents with the modes of interview for their sexual behavior in last one year from the date of interview. About 52% of the respondents were from urban and 48% from rural areas. There was no association between area and interviewing techniques (p=0.635). In each interview method, about three-fourths of the respondents were aged 20-39 years, and less than 10% were aged less than 20 years. Twenty-two percent of the respondents never attended school and only 30% had more than 10 years of schooling. In each FTFI and MBBM, about one-third of the respondents were never-married. The study population was pre-dominantly Muslim.

Table 2 : Percentage distribution of socio-demographic characteristics of respondents selected for interviewing for their sexual behavior by two different modes of interview

	% of respondents			
Characteristics	**FTFI n=3623**	**MBBM n=3499**	**Total n=7122**	**p value**
Area of residence				
Urban	51.9	51.3	51.6	
Rural	48.1	48.7	48.4	0.64
Age (years)				
<=19	7.4	9.4	8.4	
20-29	42.2	40.4	41.3	
30-39	30.8	30.2	30.5	
>=40	19.6	19.9	19.8	0.13
Schooling (years)				
0	22.2	21.1	21.7	
1-4	14.6	15.7	15.1	
5-9	33.4	33.2	33.3	
>=10	29.8	30.0	29.9	0.53
Marital status				
Never-married	32.8	34.6	33.7	
Currently married	66.8	65.0	65.9	
Widowed/divorced/separated	0.4	0.4	0.4	0.33
Religion				
Islam	91.8	92.4	92.1	
Others*	8.2	7.6	7.9	0.40

*Hinduism/Christianity/Buddhism

Table 3 shows that the distribution of selected economic characteristics of the subjects in terms of monthly family expenditure and wealth quintiles was similar. Wealth was measured by an asset index derived using principal component analyses (Gwatkin et al., 2000). The assets included durable consumption goods (e.g. table, chair, television, bicycle), housing facilities (e.g. type of toilet, source of drinking-water), housing materials (e.g. type of wall). Five wealth quintiles were created using the unweighted records and, later on, weighted cluster analysis was applied for estimating the percentages. In each interview method, about one-fifth of the respondents were least poor, and 20% were the poorest. More than half (59.0%) of the respondents had monthly family expenditure of Tk. 5000 or less. However, 30% of the respondents spent Tk. 5000-10,000 per month.

Table 3 : Economic characteristics of respondents interviewed for sensitive questions on sexual behavior by modes of interview

Economic characteristics	% of respondents			
	FTFI	MBBM	Total	p value
Monthly family				
expenditure	n=3620	n=3497	n=7117*	
<=3000	27.2	26.6	26.9	
3001-5000	33.6	30.3	32.0	
5001-10000	28.8	31.2	30.0	
>10000	10.3	11.9	11.1	0.06
Wealth quintile	n=3623	n=3499	n=7122	
Most poor	20.3	19.8	20.0	
More poor	21.1	18.9	20.0	
Poor	20.3	19.6	20.0	
Less poor	19.9	20.6	20.3	
Least poor	18.4	21.1	19.7	0.16

*Non-response = 5

Table 4 shows that there was an association between professional categories of the study subjects and the interview methods. More than three-fourths of the respondents were from four professional categories, including general service, business, farming, and transportation worker.

Table 4 : Percentage distribution of occupation of respondents selected for interviewing for their sexual behavior by two different modes of interview

	% of respondents			
Occupation	**FTFI**	**MBBM**	**Total**	**p value**
	n=3623	**n=3499**	**n=7122**	
General service holder	31.6	29.0	30.3	
Businessman	23.0	22.1	22.6	
Farming	12.1	12.4	12.3	
Transport laborer	10.6	10.6	10.6	
Day laborer	5.9	5.5	5.7	
Student	6.8	7.6	7.6	
Unemployed	2.3	2.4	2.4	
Fishing	0.8	0.9	0.8	
Service in defense/police	0.5	0.3	0.4	
Others*	6.3	8.3	7.3	0.02

*Mechanics/builders/carpenters/painter/village doctors/missionary

Table 5 shows the proportion of subjects staying outside home in the last one year preceding the date of interview and the duration of stay outside home. About one-fourth of the respondents had not stayed outside home in the past one year. One-third were mess dwellers. About 41% traveled inland and nearly 2% traveled overseas in the past one year. Excluding mess dwellers, of the respondents who stayed outside home, above 80% stayed outside for less than or equal to 15 days. Staying outside home for more than 30 days in the last one year was rare among the respondents. No statistically significant difference was found between the methods in terms of duration of stay outside home and the proportion of the respondents staying outside home as expected.

Table 5 : Percentage of respondents stayed outside home in the last one year who were interviewed for sensitive questions on sexual behavior by modes of interview

Staying outside home	% of respondents			
	FTFI	MBBM	Total	p value
Experience of staying outside home	n=3623	n=3499	n=7122	
Did not stay outside	25.2	25.2	25.2	
Mess/hostel dwellers	32.2	29.1	30.7	
Traveled inland				
Social visit	22.6	23.9	23.2	
Business tour	17.4	18.3	17.9	
Traveled overseas	1.2	2.3	1.8	
Others*	1.4	1.2	1.3	0.22
Longest duration of stay	outside			
home (in days)	n=2495	n=2465	n=4960**	
<=7	73.1	72.4	72.8	
8-15	11.4	9.5	10.4	
16-30	10.4	12.9	11.7	
31-90	3.6	3.6	3.6	
>90	1.5	1.5	1.5	0.41

*Seeking job/studying abroad/in jail/for treatment/camping/training

**Non-response = 367

Prevalence of non-marital sex by modes of interview

About 19% of the respondents interviewed by the MBBM had at least one non-marital sex in the last one year, compared to nearly 16% in FTFI (Figure 7). For sex with female sex workers or males/transgenders, this response was substantially higher in the MBBM than in FTFI ($p<=0.05$). However, there was no difference between the interview methods in response to sex with casual female partners. Overall 17.5% of the respondents reported ever having non-marital sex in the past one year. For sex with female sex workers, casual female partners and males/transgenders, the corresponding figures were 9.9%, 8.6% and 2.2% respectively.

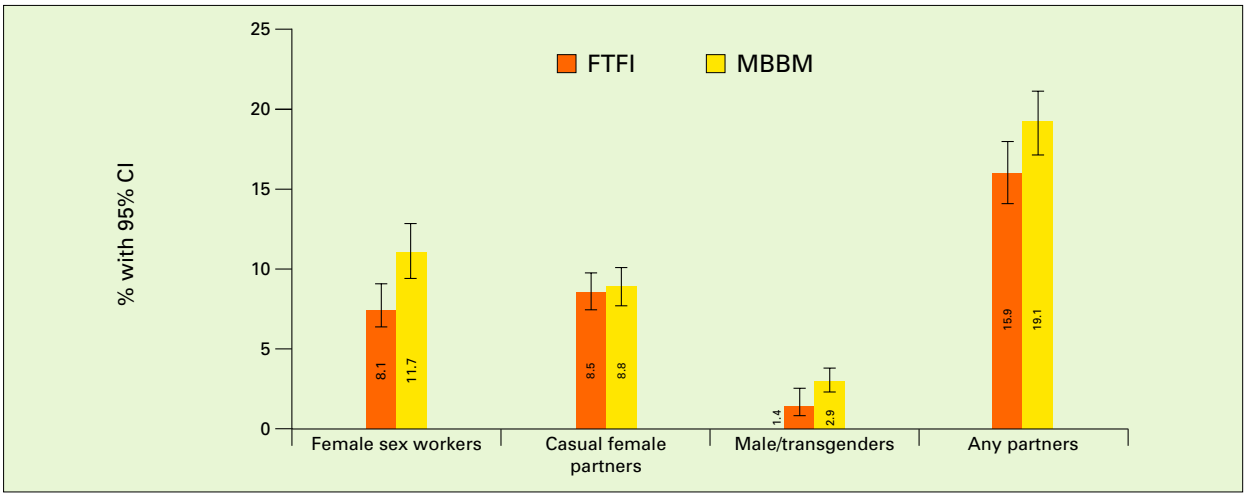

Figure 7 : *Percentage of males (aged 18-49 years) who had non-marital sex in the last one year by type of partner, and by modes of interview*

When stratified by marital status, significantly higher proportion of ever-married respondents in MBBM (14.9%) had non-marital sex in the last one year compared to FTFI (10.7%) as shown in **Table 6**. However, among the never-married respondents, the method did not make any difference in this response (about 27% in each method). In response to having sex with casual female partners, a higher proportion (16.7%) of never-married respondents in FTFI mentioned having such sex compared to the MBBM (13.8%), but this difference was not statistically significant.

Table 6 : Percentage of respondents who had non-marital sex with different types of partners in the past one year by marital status, and by modes of interview

Marital status	% of respondents			
	FTFI	MBBM	Total	p value
Never-married	n=1106	n=1140	n=2246	
Female sex workers	11.0	13.6	12.3	0.25
	(8.2-14.5)	(10.5-17.5)	(10.1-14.9)	
Casual female partners	16.7	13.8	15.2	0.16
	(13.9-19.9)	(11.7-16.3)	(13.5-17.1)	
Males/transgenders	3.9	5.9	4.9	0.10
	(2.3-6.5)	(4.3-8.1)	(3.6-6.7)	
Any type of partners	26.5	27.2	26.8	0.83
	(22.3-31.2)	(23.8-30.8)	(24.1-29.8)	
Ever-married	n=2517	n=2359	n=4876	
Female sex workers	6.7	10.7	8.6	<0.01
	(5.3-8.5)	(8.9-12.7)	(7.4-10.1)	
Casual female partners	4.5	6.1	5.3	0.05
	(3.4-5.9)	(5.0-7.5)	(4.4-6.3)	
Males/transgenders	0.3	1.3	0.8	<0.05
	(0.1-0.7)	(0.8-2.1)	(0.5-1.2)	
Any type of partners	10.7	14.9	12.7	<0.05
	(9.0-12.7)	(12.8-17.3)	(11.3-14.3)	

For having non-marital sex with any type of partner in the last one year, in each area, the MBBM elicited higher positive responses compared to FTFI (Figure 8). The difference of these responses between the two methods was the highest in Bogra town (24.3% vs. 15.9%), followed by Cox's Bazar rural (24.6% vs. 17.4%), Rajshahi rural (19.2% vs. 13.9%), Faridpur rural (19.3% vs. 13.8%), Chittagong metropolitan (19.3% vs. 15.5%) than Dhaka metropolitan (17.7% vs. 16.6%). In district town and rural areas, the MBBM was more sensitive in producing higher positive responses compared to FTFI than in the metropolitan cities.

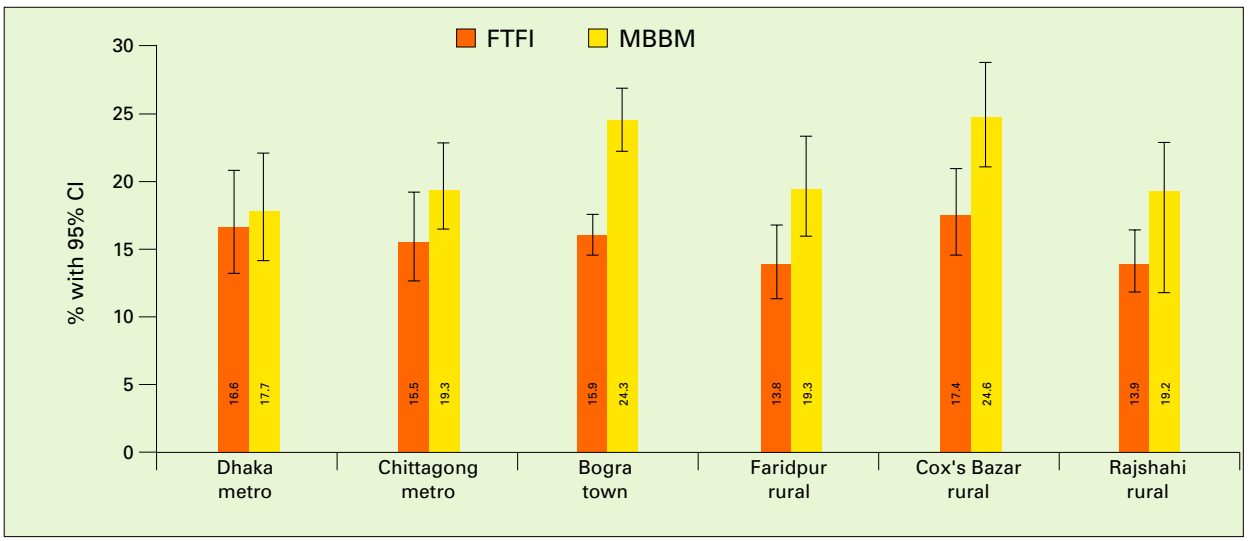

Figure 8 : *Percentage of males (aged 18-49 years) who had non-marital sex in the last one year by study area, and by modes of interview*

Crude association of non-marital sex with socio-demographic characteristics

Table 7-10 show the crude association of non-marital sexual exposure with selected socio-demographic and economic characteristics with each interview method. Overall, the non-marital sexual exposure was associated with study area, age, marital status, schooling and religion of the respondents **(Table 7)**.

Table 7 : Percentage of respondents who had non-marital sex in the last one year by selected demographic characteristics, and by modes of interview

Demographic characteristics	% of respondents					
	FTFI		MBBM		Total	
	n	%	n	%	n	%
Study area						
Dhaka	624	16.6	603	17.7	1227	17.2
Chittagong	634	15.5	610	19.3	1244	17.4
Bogra	621	15.9	582	24.3	1203	20.0
Faridpur	527	13.8	528	19.3	1055	16.5
Cox's Bazar	602	17.4	595	24.6	1197	21.0
Rajshahi	615	13.9	581	19.2	1196	16.5
p value		0.35		0.01		0.01
Age (years)						
<=19	337	26.2	340	23.7	677	24.8
20-29	1398	21.8	1352	24.8	2750	23.2
30-39	1107	11.0	1047	15.5	2154	13.2
>=40	781	7.2	760	11.1	1541	9.1
p value		<0.01		<0.01		<0.01
Marital status						
Never-married	1106	26.5	1140	27.2	2246	26.8
Ever-married	2517	10.7	2359	14.9	4876	12.7
p value		<0.01		<0.01		<0.01
Schooling (years)						
0	901	14.5	821	20.7	1722	17.5
1-4	575	18.9	603	23.7	1178	21.4
5-9	1133	17.8	1097	22.4	2230	20.1
>=10	1014	13.4	978	12.0	1992	12.7
p value		0.05		<0.01		<0.01
Religion						
Islam	3269	16.3	3150	19.6	6419	17.9
Others*	354	12.0	349	13.8	703	12.9
p value		0.12		0.04		0.02

*Hinduism/Christianity/Buddhism

In the six study areas overall, the non-marital sexual exposure was the highest in Bogra (20.0%) and the lowest in Faridpur and Rajshahi (16.5% in each). Of the respondents aged 19 years or below, 24.8% had at least one non-marital sex in the last one year that decreased consistently with increased age. Only about 9% of the respondents aged 40 years or above had such a relationship in the last one year. Of the ever-married respondents about 13% had non-marital sex in the last one year, compared to about 27% of the never-married respondents. A bell shaped relationship was

observed between non-marital sexual exposure in the last one year and completed years of schooling. About 42% of the respondents who had 1-9 year of schooling, had non-marital sex in the last one year. For each interview method, the patterns of these relationships were similar.

In the MBBM, consistently lower sexual exposure with increased monthly family expenditure and wealth quintile was observed **(Table 8)**. This relationship was significant only for wealth quintile. In FTFI the relationship was rather bell-shaped.

Table 8 : Percentage of respondents who had non-marital sex in the last one year by socio-economic characteristics, and by modes of interview

Socio-economic characteristics	% of respondents					
	FTFI		MBBM		Total	
	n	%	n	%	n	%
Monthly family expenditure						
<=3000	1334	14.0	1265	20.3	2599	17.1
3001-5000	1161	16.7	1070	20.2	2231	18.3
5001-10000	893	18.3	920	19.5	1813	18.9
>10000	235	11.2	244	12.9	479	12.1
p value		0.06		0.20		0.02
Wealth quintile						
Most poor	728	14.6	685	23.1	1413	18.7
More poor	735	21.2	702	22.4	1437	21.8
Poor	727	18.5	701	20.7	1428	19.6
Less poor	730	14.8	690	19.9	1420	17.3
Least poor	703	9.7	721	10.2	1424	9.9
p value		<0.01		<0.01		<0.01

No significant association was found between non-marital sex and occupation of the respondents **(Table 9)**. Overall, the exposure was highest (27.3%) among the fishermen, followed by the unemployed (24.2%). The farmers had the lowest exposure (14.8%).

Table 9 : Percentage of respondents who had non-marital sex in the last one year by occupation, and by modes of interview

Occupation	FTFI		MBBM		Total	
	n	%	n	%	n	%
General service holder	799	16.3	778	18.6	1577	17.4
Service in defense/police	11	27.1	8	0.0	19	17.3
Businessman	900	14.2	786	20.8	1686	17.4
Farming	655	12.4	656	17.3	1311	14.8
Fishing	42	25.0	45	29.3	87	27.3
Transport laborer	360	19.4	306	20.2	666	19.8
Day laborer	282	16.1	269	18.0	551	17.0
Student	303	15.3	341	17.0	644	16.2
Unemployed	75	33.2	68	15.4	143	24.2
Other*	196	12.9	242	21.6	438	17.8
p value		0.10		0.50		0.20

*Mechanics/builders/carpenters/painter/village doctors/missionary

When we explored the relationship between sexual exposure and experience of staying outside home in the last one year, respondents who traveled overseas had the highest (26.7%) non-marital sexual exposure (Table 10). Of the respondents who did not stay outside in the last one year, overall, about 14% engaged in non-marital sex. By interview method there was a large difference in response to this question: 11.2% and 17.2% in FTFI and MBBM respectively. For the duration of staying outside home from <=7 days to 31-90 days, the exposure of non-marital sex consistently increased from nearly 16% to about 27%. However, of the respondents who stayed outside longer than 90 days, about 18% had non-marital sex in the last one year.

Table 10 : Percentage of respondents who had non-marital sex in the last one year by staying outside home, and by modes of interview

Staying outside home	FTFI		MBBM		Total	
	n	%	n	%	n	%
Experience of staying outside home						
Did not stay outside	1010	11.2	969	17.2	1979	14.2
Mess/hotel dwellers	726	18.3	660	21.2	1386	19.6
Traveled inland						
Business tour	777	19.1	729	21.2	1506	20.2
Social visit	987	14.4	999	16.8	1986	15.6
Traveled overseas	60	30.5	79	24.6	139	26.7
Others*	63	17.2	63	12.7	126	15.2
p value		<0.01		0.24		<0.05

Staying outside home	FTFI		MBBM		Total	
	n	%	n	%	n	%
Longest duration of stay outside home in the last one year (in days)						
<=7	1753	14.8	1722	17.1	3475	15.9
8-15	268	19.6	238	20.3	506	19.9
16-30	287	21.9	327	30.3	614	26.6
31-90	132	31.2	119	22.3	251	26.8
>90	55	20.0	59	15.0	114	17.5
	p value	<0.05		0.07		<0.01

*Seeking job/studying abroad/in jail/for treatment/camping/training

Determinants of non-marital sexual exposure among males aged 18-49 years

To identify the determinants of non-marital sexual exposure, we estimated the Odds Ratios (OR) for different socio-demographic factors. The odds ratios were estimated from logistic regression model considering dichotomous responses on having or not having sexual contact with any type of non-marital partner in the last one year as the outcome variable. Among different socio-demographic characteristics, those found to be associated with the outcome variable were included in the model as the explanatory variables for adjustment with each other. The output of logistic regression is shown in **Table 11**.

After adjustment, we found that marital status, education, age, and wealth quintiles were strong determinants of non-marital sexual exposure. Area variation in sexual exposure was also observed. Compared to the Dhaka metropolitan area, the non-marital sexual exposure of males aged 18-49 years, in district town Bogra, in the last one year was 33% higher (OR=1.33, 95% CI 1.05-1.70). In other areas, the difference was not significant. Compared to males aged >=40 years, in all other age groups, the respondents were significantly more likely to have sexual exposure. For the respondents aged 20-29 years, the magnitude of odds ratio was highest (OR=1.98, 95% CI: 1.52-2.58) and was relatively low in the extremes age groups. Low education was associated with increased exposure to non-marital sex. Compared to respondents having >= 10 years of schooling, those who had no formal education (OR=2.10, 95% CI: 1.59-2.72) and had 1-4 years of schooling (OR=2.21, 95% CI: 1.63-2.98) were more than two times likely in having non-marital sexual contact in the last one year. The never-married respondents were about 2.5 times more likely to have sexual exposure than the ever-married respondents (OR=2.49, 95% CI: 2.00-3.09). Compared to the poorest, in all other wealth quintiles, the respondents were significantly more likely (1.5-2.0 times) to have non-marital sex. Respondents who served in defense/police were above two times more likely to be exposed to non-marital sex compared to those who were in regular service. Farmers and students were significantly less likely to have non-marital sex as compared to general service holder. After adjustment, no other occupations were significantly associated with sexual exposure.

Table 11 : Determinants of non-marital sexual exposure in the last one year of general male population in selected areas in Bangladesh

Determinants	Partially adjusted OR** (95% CI)	Adjusted OR* (95% CI)
Area of residence		
Dhaka metropolitan	1.0	1.0
Chittagong metropolitan	1.02 (0.76-1.35)	0.93 (0.69-1.25)
Bogra town	1.20 (0.95-1.52)	1.33 (1.05-1.70)
Faridpur rural	0.95 (0.73-1.25)	0.90 (0.61-1.33)
Cox's Bazar rural	1.28 (0.99-1.66)	1.00 (0.69-1.44)
Rajshahi rural	0.95 (0.72-1.25)	0.99 (0.68-1.44)
Age (years)		
<=19	3.29 (2.53-4.28)	1.61 (1.13-2.30)
20-29	3.02 (2.37-3.85)	1.98 (1.52-2.58)
30-39	1.52 (1.15-1.99)	1.44 (1.10-1.91)
>=40	1.0	1.0
Marital status		
Never-married	2.51 (2.13-2.96)	2.49 (2.00-3.09)
Ever-married	1.0	1.0
Schooling (years)		
0	1.45 (1.11-1.89)	2.10 (1.59-2.72)
1-4	1.86 (1.43-2.41)	2.21 (1.63-2.98)
5-9	1.72 (1.42-2.09)	1.72 (1.40-2.12)
>=10	1.0	1.0
Wealth quintile		
Most poor	2.10 (1.45-2.99)	1.86 (1.15-3.00)
More poor	2.52 (1.84-3.44)	2.10 (1.44-3.01)
Poor	2.20 (1.54-3.14)	1.83 (1.24-2.70)
Less poor	1.90 (1.35-2.66)	1.55 (1.09-2.20)
Least poor	1.0	1.0
Ever stayed outside residence		
Yes	1.39 (1.12-1.72)	1.36 (1.10-1.69)
No	1.0	1.0
Occupation		
General service holder	1.0	1.0
Service in defense/police	0.99 (0.42-2.37)	2.63 (1.14-6.04)
Businessman	1.00 (0.78-1.28)	1.10 (0.83-1.45)
Farming	0.83 (0.65-1.05)	0.70 (0.53-0.93)
Fishing	1.78 (1.18-2.67)	1.20 (0.81-1.78)
Transport laborer	1.17 (0.86-1.59)	1.04 (0.73-1.49)
Day laborer	0.97 (0.71-1.33)	0.80 (0.57-1.12)
Student	0.92 (0.66-1.27)	0.67 (0.46-0.96)
Unemployed	1.52 (0.81-2.82)	1.21 (0.66-2.22)
Other	1.03 (0.76-1.39)	0.79 (0.58-1.09)

**Adjusted for clustering and weight

* Adjusted for clustering, weight and modes of interview

Comparison of responses to sensitive questions between modes of interview :

To assess whether the MBBM elicited higher response-rates on non-marital sex compared to FTFI, odds ratios were estimated. The odds ratios were estimated from logistic regression model. Four different logistic regression models were fitted to assess whether the new method produced higher response-rates for sex with (a) female sex workers (b) casual female partners (c) males/transgenders (d) any of the three types of partner. For each model, dichotomous response to sensitive question for having or not having sex with specific type of partner was considered as an outcome variable. The odds ratios of having sex in the MBBM compared to FTFI were estimated adjusted for other socio-demographic characteristics that were associated with the outcome variables **(Table 12)**.

Table 12 : Odds ratios of non-marital sex with different types of partners in the last one year of general male population in Bangladesh

Type of partner	Partially adjusted OR** (95% CI)	Adjusted OR* (95% CI)
Model 1: For sex with female sex workers		
Face-to-face	1.0	1.0
Modified ballot-box	1.50 (1.21-1.84)	1.54 (1.25-1.90)
Model 2: For sex with casual female partners		
Face-to-face	1.0	1.0
Modified ballot-box	1.04 (0.85-1.30)	1.10 (0.87-1.30)
Model 3: For sex with males/transgenders		
Face-to-face	1.0	1.0
Modified ballot-box	2.04 (1.16-3.60)	2.16 (1.24-3.75)
Model 4: For sex with any type of partners		
Face-to-face	1.0	1.0
Modified ballot-box	1.25 (1.07-1.46)	1.29 (1.11-1.52)

**Adjusted for clustering and weight

* Adjusted for clustering, weight and other socio-demographic factors

Models 1 and 3 demonstrates that, in the MBBM, the respondents were about 1.5 and 2.0 times more likely to report on having sexual contact with sex with female sex workers (OR=1.54, 95% CI: 1.25-1.90) and males/transgenders (OR=2.16, 95% CI: 1.25-3.75) compared to FTFI. As shown in model 2, in response to sex with casual female partners, the method did not make any difference. However, model 4 established, that for sex with any of the aforesaid three types of partner, the response on non-marital sex was significantly higher in the MBBM compared to FTFI (OR=1.29, 95% CI: 1.11-1.52).

Prevalence of condom-use by modes of interview

The overall condom-use rate in last penetrative sex in the past one year with a female sex worker or a casual female partner or a male/transgender was 40%, 30% and 9% respectively **(Figure 9)**. There was no substantial variation in response to condom use between the interview methods for each of the three types of non-marital partner. However, the overall condom-use rate for sex with males/transgenders (8.7%) was significantly lower compared to those for sex with female sex workers (40.1%) and casual female partners (30.0%).

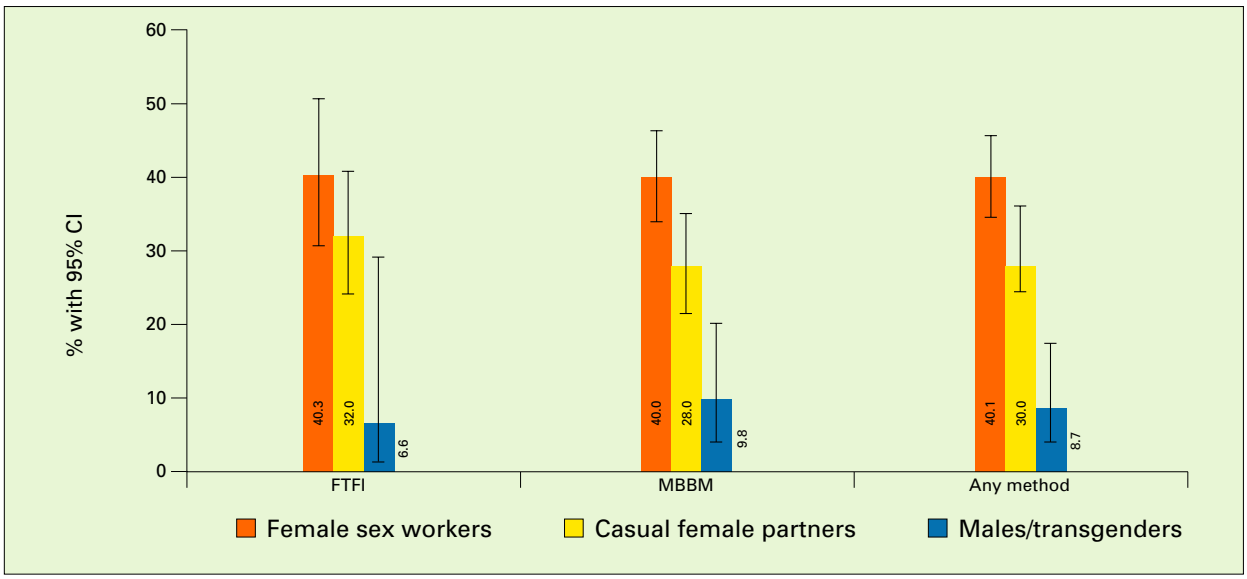

Figure 9 : *Condom-use rates in last sex among males with different types of non-marital partners by modes of interview*

Crude association of condom-use with socio-demographic characteristics of subjects

Results of crude analysis showed that overall condom-use rate was relatively higher in urban areas than in rural areas **(Figure 10)**. Pooled data from the interview methods demonstrated that the overall condom-use rate was highest in Dhaka metropolitan (40.2%) and lowest in Cox's Bazar rural area (23.5%). In Cox's Bazar, the condom-use rate was substantially lower than each of the three other rural areas of the study. In each study area, the condom-use rate was highest for sex with female sex workers, followed by for sex with casual female partners than with males/transgenders. The relatively higher positive response rates in districts towns and in rural areas compared to those in metropolitan cities may be related to simplicity of the population in less-urbanized areas who merely trusted the confidentiality mechanism of the MBBM.

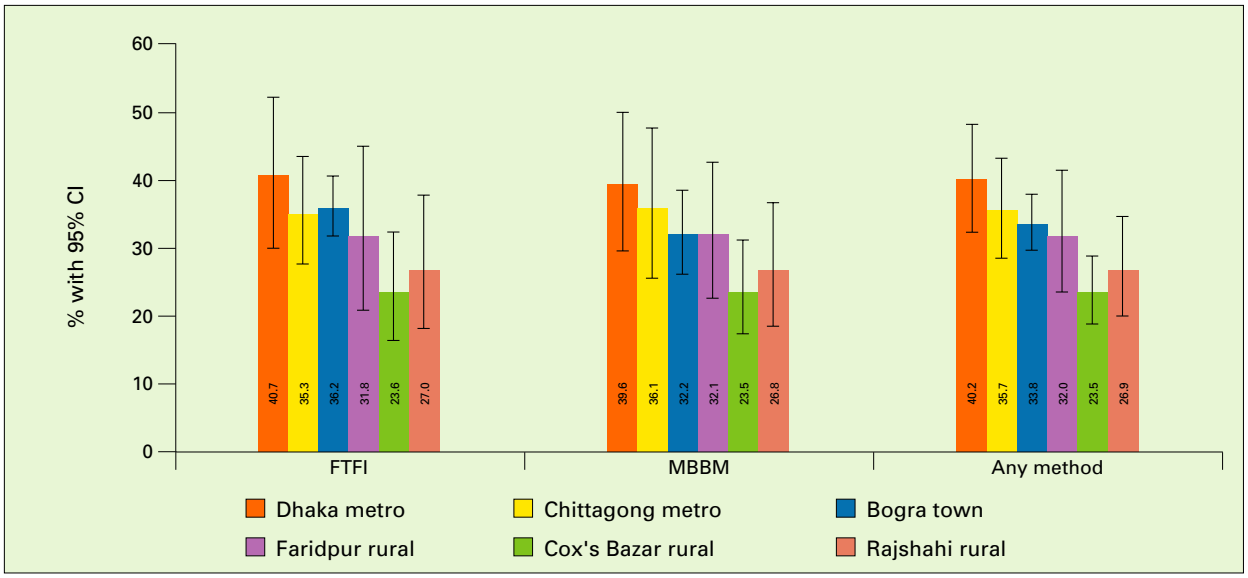

Figure 10 : *Condom-use rates in last sex among males in different study areas by modes of interview*

The never-married respondents used condom at a significantly higher rate than the ever-married respondents (40.3% vs. 29.5%) **(Figure 11)**. These rates were similar by the interview methods.

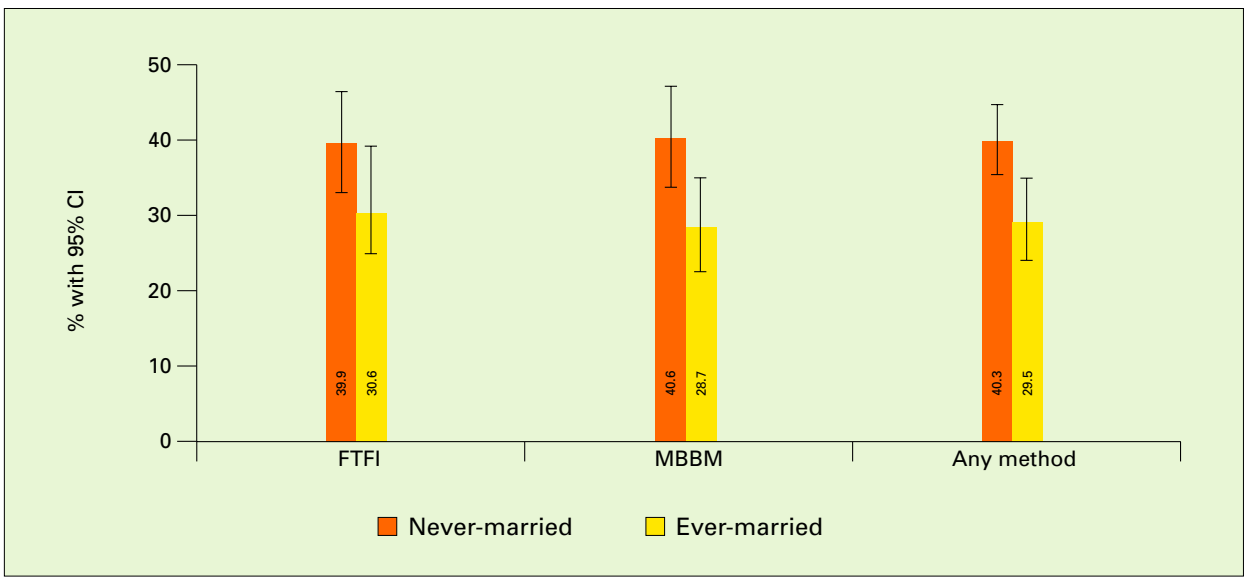

Figure 11 : *Condom-use rates in last sex among males by marital status, and by modes of interview*

Table 13 shows that the higher level of condom-use was associated with increased years of schooling and wealth quintile ($p<0.05$). The condom-use rates were consistently lower for both lower-education level and wealth quintiles. About 49% of the respondents who had completed 10 years of schooling reported of using condom in the last sex in the past one year. This was substantially lower (21.7%) among the respondents who had no formal education.

Table 13 : Percentage of respondents used condom in last non-marital sex by types of partners in the past one year by demographic characteristics, and by modes of interview

Demographic characteristics	% of respondents					
	FTFI		MBBM		Total	
	n	%	n	%	n	%
Age (years)						
<=19	90	36.4	86	46.9	176	41.9
20-29	310	34.6	377	35.8	687	35.2
30-39	116	42.9	159	31.6	275	36.4
>=40	44	24.5	84	23.9	128	24.2
p value		0.26		0.21		0.08
Schooling (years)						
0	122	19.5	171	23.4	293	21.7
1-4	114	35.4	144	27.5	258	30.9
5-9	190	38.3	254	36.3	444	37.2
>=10	134	45.0	137	52.4	271	48.5
p value		0.01		<0.01		<0.01
Wealth quintile						
Most poor	108	19.9	158	21.8	266	21.0
More poor	122	30.8	147	31.1	269	30.9
Poor	138	41.7	150	36.2	288	38.9
Less poor	117	37.3	142	40.6	259	39.2
Least poor	75	58.7	109	55.0	184	56.7
p value		<0.01		<0.01		<0.01
Religion of respondents						
Islam	510	35.9	645	34.1	1155	34.9
Other*	50	32.1	61	45.7	111	39.9
p value		0.72		0.18		0.55

*Hinduism/Christianity/Buddhism

The majority (56.7%) of the respondents of the highest socio-economic quintile used condom in last sex compared to about 21% of the respondents of the lowest socio-economic quintile. Although the condom-use rates tended to increase with lower age, this association was not significant. Overall, about 42% of the respondents aged <=19 years reported of using condom in last sex in the past one year compared to only 24% who were aged 40 years and above.

Table 14 shows variation in condom-use rates for occupation by modes of interview. No specific pattern was observed in response to condom-use for occupation in each FTFI and MBBM. In FTFI, compared to the MBBM, the response to condom-use was higher among the unemployed (60.9% vs. 30.1%), general service holders (42.7% vs. 28.6%), farmers (30.6% vs. 18.8%), and day laborer

(21.1% vs. 14.3%). On the other hand, in the MBBM, compared to FTFI, the response to condom-use was higher among students (64.4% vs. 29.0%), businessmen (50.6% vs. 41.2%), and fishermen (23.9% vs. 17.7%).

Table 14 : Percentage of respondents used condom in last sex with non-marital partners in the last one year by occupation, and by modes of interview

Occupation	FTFI		MBBM		Total	
	n	%	n	%	n	%
General service holder	119	42.7	145	28.6	264	35.6
Service in defense/police	3	72.2	0	0.0	3	72.2
Businessman	125	41.2	174	50.6	299	46.6
Farming	83	30.6	107	18.8	190	23.8
Fishing	11	17.7	13	23.9	24	21.2
Transport laborer	68	17.8	76	20.7	144	19.3
Day laborer	47	21.1	52	14.3	99	17.7
Student	56	29.0	63	64.4	119	49.4
Unemployed	21	60.9	14	30.1	35	50.9
Other*	27	23.4	62	37.2	89	32.8
p value		<0.05		<0.01		<0.01

*Mechanics/builders/carpenters/painter/village doctors/missionary

Table 15 shows that increased knowledge level of the respondents for prevention of HIV infection was associated with increased condom-use. For sex with female sex workers, overall, about 72% of the respondents in the highest knowledge quintile used a condom in last sex compared to only about 17% of those in the lowest knowledge quintile. For sex with casual female partners, increased condom-use was also associated with increased knowledge level ($p<0.05$). However, for males/transgenders, the association was not significant, may be due to small number of respondents in this category.

Table 15 : Percentage of respondents used condom in last non-marital sex by types of partners in the past one year by knowledge of HIV infection, and by modes of interview

Knowledge quintile	FTFI		MBBM		Total	
by partner-type	n	%	n	%	n	%
Female sex workers						
Poor knowledge	56	20.5	88	14.1	144	17.1
2	59	20.6	91	30.0	150	26.6
3	60	29.4	89	37.4	149	34.5
4	50	53.4	85	40.8	135	46.1
High knowledge	56	67.7	64	76.2	120	72.1
p value		<0.01		<0.01		<0.01
Casual female partners						
Poor knowledge	63	15.2	60	10.0	123	12.8
2	50	25.2	68	24.2	118	24.7
3	51	47.4	67	34.1	118	39.4
4	61	31.1	90	18.9	151	24.1
High knowledge	77	39.8	56	58.0	133	46.3
p value		0.04		<0.01		<0.01
Males/transgenders						
Poor knowledge	8	0.0	34	7.6	42	6.0
2	9	0.0	22	3.7	31	2.0
3	12	0.0	21	8.8	33	5.1
4	8	8.1	24	20.8	32	17.5
High knowledge	8	48.6	20	4.9	28	18.5
p value		0.64		0.75		0.40
Any type of partners						
Poor knowledge	112	18.9	144	12.2	256	15.4
2	104	22.6	148	29.7	252	26.6
3	114	35.3	141	35.9	255	35.7
4	107	41.5	159	31.6	266	35.8
High knowledge	123	53.0	114	65.5	237	58.6
p value		<0.01		<0.01		<0.01

Socio-demographic determinants of condom-use

Logistic regression analysis was done to estimate odds ratios, adjusted for different socio-demographic characteristics. Variables found to be associated with condom-use in last non-marital sex in the past one year are shown in **Table 16**. Respondents in the highest wealth quintile were about 2 times more likely to use condom (OR=2.21; 95% CI: 1.14-4.28) compared to those in the lowest quintile. This difference was not significant for the other wealth quintiles.

Table 16 : Determinants of condom-use in last non-marital sex in the past one year of general male population in selected areas in Bangladesh

Determinants	Partially adjusted OR** (95% CI)	Adjusted OR* (95% CI)
Area of residence		
Dhaka metropolitan	1.0	1.0
Chittagong metropolitan	0.83 (0.53-1.30)	1.01 (0.61-1.70)
Bogra town	0.80 (0.55-1.14)	0.74 (0.47-1.20)
Faridpur rural	0.72 (0.43-1.20)	1.14 (0.57-2.30)
Cox's Bazar rural	0.46 (0.30-0.70)	0.76 (0.40-1.43)
Rajshahi rural	0.60 (0.34-0.90)	1.03 (0.51-2.05)
Age (years)		
<=19	2.27 (1.17-4.40)	2.04 (0.85-4.84)
20-29	1.70 (1.06-2.74)	1.35 (0.69-2.62)
30-39	1.80 (1.02-3.20)	1.70 (0.87-3.31)
>=40	1.0	1.0
Marital status		
Never-married	1.60 (1.21-2.10)	1.30 (0.83-1.90)
Ever-married	1.0	1.0
Schooling (years)		
0	0.30 (0.16-0.51)	0.99 (0.53-1.85)
1-4	0.50 (0.29-0.80)	1.23 (0.73-2.07)
5-9	0.63 (0.39-1.02)	0.99 (0.61-1.61)
>=10	1.0	1.0
Wealth quintile		
Most poor	1.0	1.0
More poor	1.70 (1.10-2.57)	1.20 (0.74-1.96)
Poor	2.40 (1.46-3.92)	1.60 (0.90-2.80)
Less poor	2.42 (1.46-4.02)	1.37 (0.77-2.45)
Least poor	4.93 (2.46-9.88)	2.21 (1.14-4.28)
Knowledge quintile		
Poor knowledge	1.0	1.0
2	1.98 (1.14-3.45)	1.55 (0.83-2.90)
3	3.04 (1.65-5.56)	2.15 (1.06-4.38)
4	3.06 (1.69-5.53)	2.06 (1.04-4.10)
High knowledge	7.76 (4.37-13.8)	5.42 (2.49-11.8)
Occupation		
General service holder	1.0	1.0
Service in defense/police	4.70 (0.43-51.6)	10.50 (0.51-212.8)
Businessman	1.60 (1.01-2.50)	1.86 (1.10-3.13)
Farming	0.57 (0.37-0.86)	0.83 (0.48-1.42)
Fishing	0.50 (0.26-0.92)	1.32 (0.54-3.21)
Transport laborer	0.33 (0.27-0.70)	0.75 (0.42-1.32)
Day laborer	0.40 (0.21-0.74)	0.76 (0.35-1.63)
Student	1.80 (1.04-3.00)	1.20 (0.61-2.32)
Unemployed	1.90 (0.70-5.30)	1.42 (0.49-4.05)
Other	0.82 (0.46-1.70)	1.07 (0.56-2.04)

**Adjusted for clustering and weight

* Adjusted for clustering, weight and modes of interview

Respondents who had highest knowledge level for prevention of HIV infection were above 5 times more likely to use condom. Respondents in the 3rd and 4th knowledge quintiles were about twice as likely to use condom compared to the lowest knowledge quintile. After adjustment, condom-use by businessmen was about twice more likely compared to general service holders (OR=1.86; 95% CI: 1.10-3.13). Although the unadjusted odds ratios of condom-use by fisherman, transport workers, and daily laborers were significantly lower compared to the general service holders, but after adjustment these effects were eliminated.

Distribution of number of non-marital sexual partners

Of the respondents who had any non-marital sex in the last one year, the majority (55.6%) had more than one non-marital partner **(Figure 12)**. There was no variation in distribution of the number of non-marital partners for the interview methods. Overall, one-fifth of the respondents had >3 and another one-third had 2-3 non-marital partners.

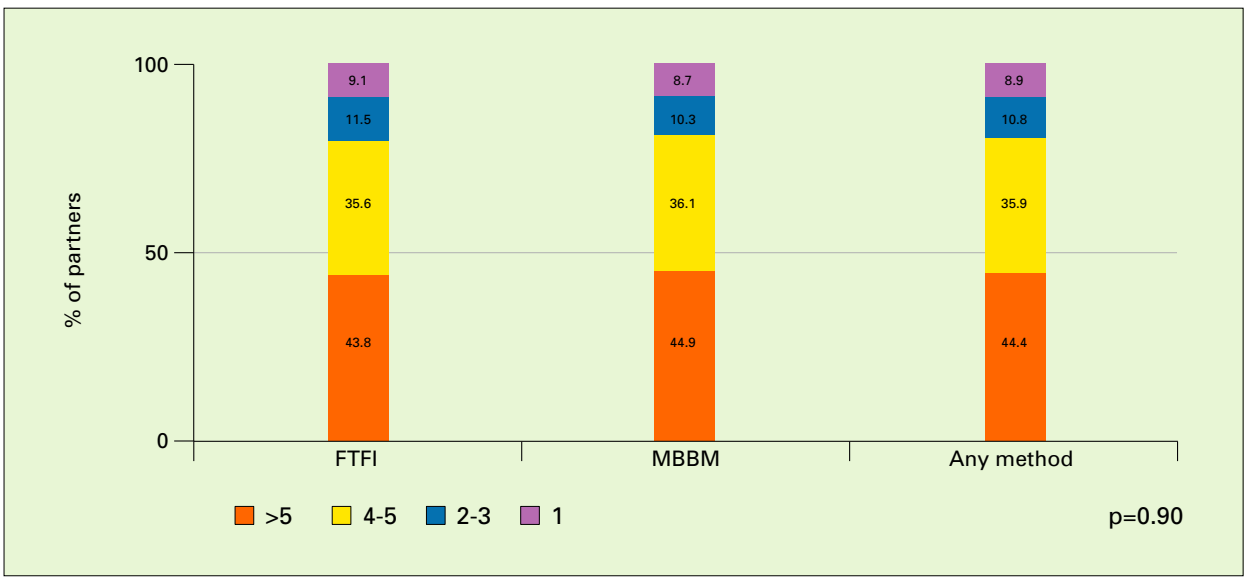

Figure 12 : *Distribution (%) of the number of non-marital sexual partner in the last one year by modes of interview*

When segregated by type of non-marital partner, of the respondents who had sex with female sex workers, about 62% had sex with more than one female sex workers. Similarly, 35% and 49% had sex with more than one casual female partners and males/transgenders respectively **(Figure 13)**.

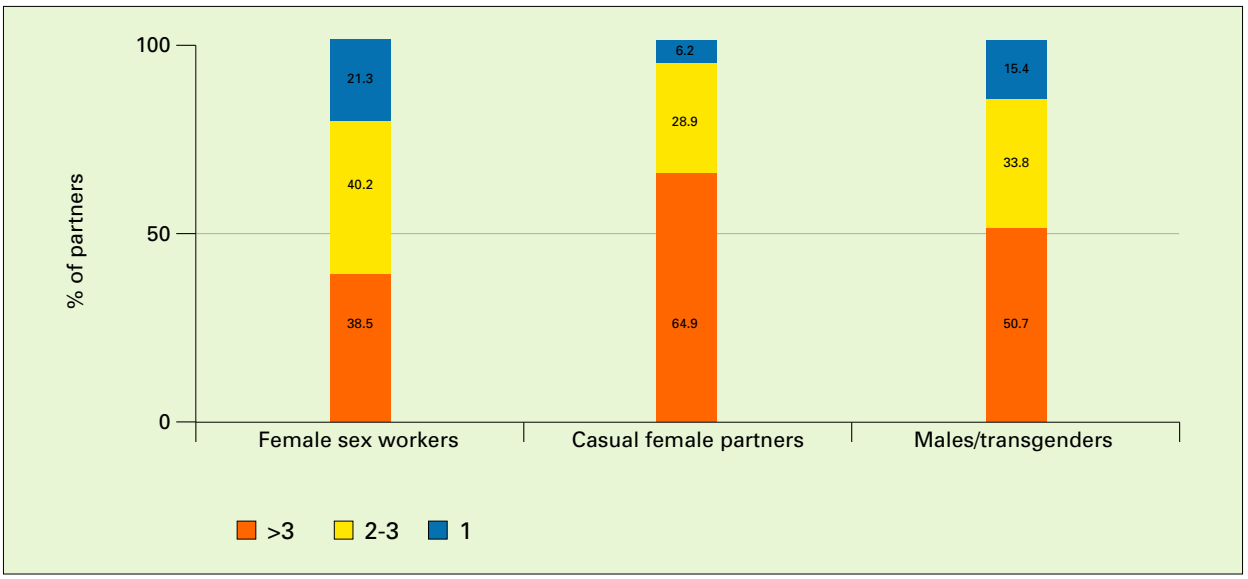

Figure 13 : *Distribution (%) of the number of different types of non-marital sexual partner in the last one year*

Of the respondents who had sex with casual female partners, about 65%, 29% and 6% had 1, 2-3 or >3 casual female partner respectively, and this distribution was similar in the case of both never- and ever-married respondents **(Figure 14)**.

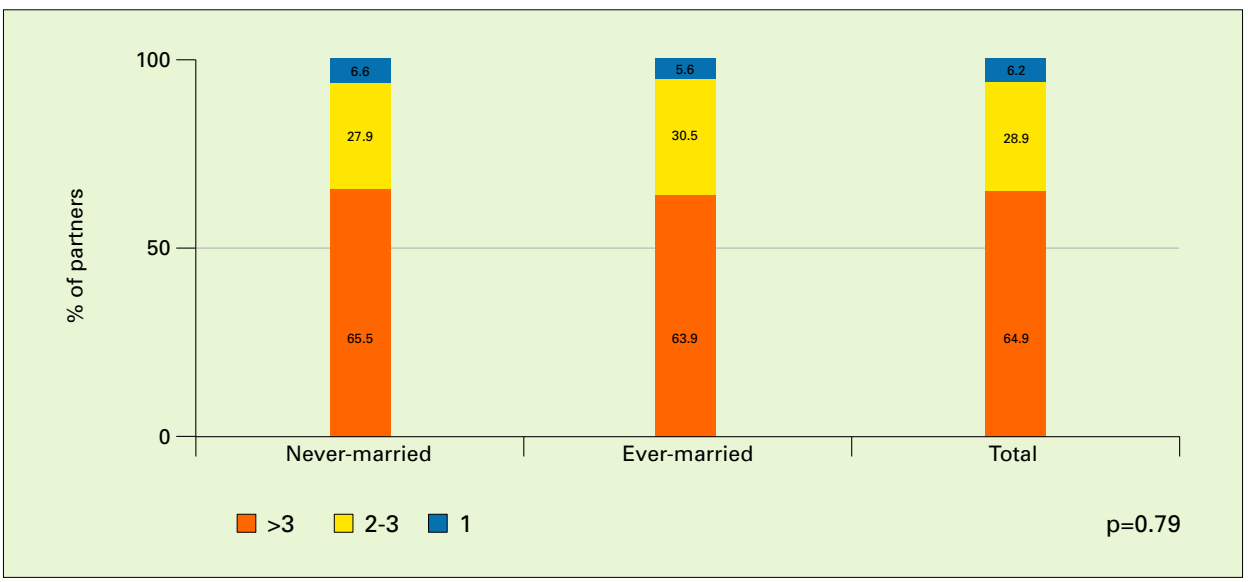

Figure 14 : *Distribution (%) of the number of casual female sexual partners in the last one year by marital status*

Figure 15 shows the lack of association between distribution of the number of non-marital partners and the study areas. Except in Faridpur, in all other areas, the majority of the respondents had more than one non-marital sexual partner in the last one year.

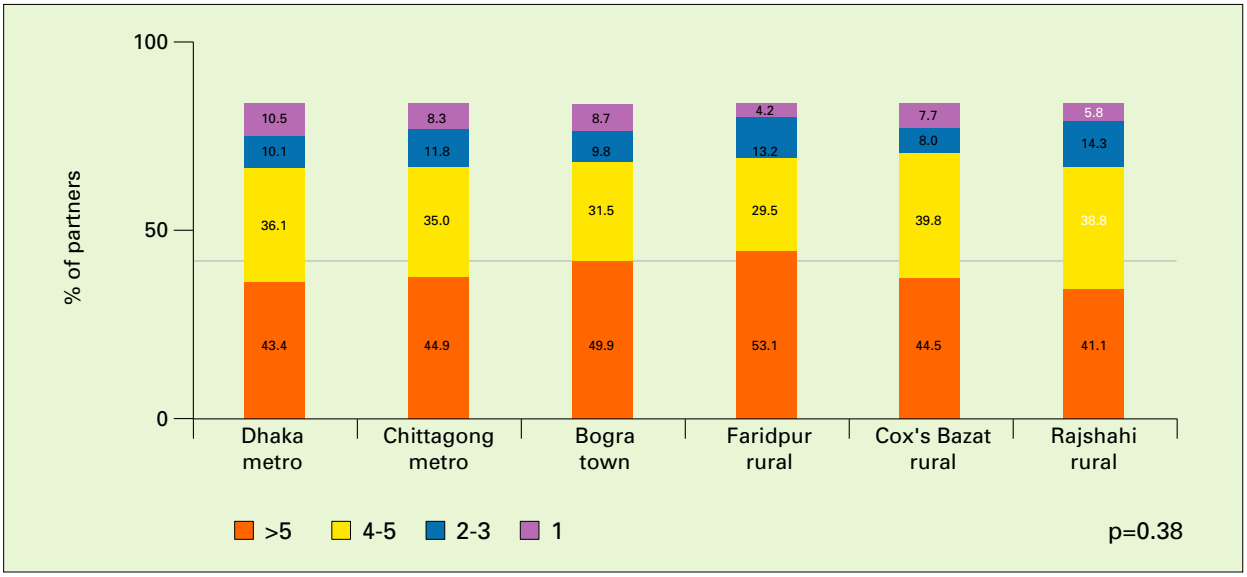

Figure 15 : *Distribution (%) of respondents had number of partners in the last one year by study areas*

Table 17 shows the association between distribution of the number of non-marital partners and selected socio-demographic characteristics. There was no substantial variation in the number of non-marital sexual partner by age. However, the less educated respondents had the higher number of partners. Respondents in the most and least poor wealth quintiles tended to have an increased number of partners.

Table 17 : Number of any type of non-marital partners of respondents in the past one year, and by demographic characteristics

Demographic characteristics	Number of non-marital partners				
	n	1	2>3	>3	p value
Age (years)					
<=19	176	46.3	30.2	23.5	
20-29	687	46.4	35.0	18.6	
30-39	276	41.1	38.5	20.3	
>=40	127	40.4	42.1	17.6	0.86
Schooling (years)					
0	293	33.7	37.2	29.1	
1-4	259	49.1	36.5	14.4	
5-9	443	45.6	35.6	18.8	
>=10	271	49.7	34.8	15.5	0.09
Wealth quintile					
Most poor	353	46.4	33.4	20.2	
More poor	358	45.0	36.1	18.9	
Poor	281	41.5	41.1	17.4	
Less poor	186	40.4	39.3	20.3	
Least poor	88	53.6	24.2	22.2	0.20

National estimates of total number of non-marital sex, sexual contacts, and unprotected sex

Table 18 demonstrates national estimates of total number of non-marital sex, sexual contacts and unprotected sex with different types of partners by males 18-49 years of age by modes of interview. According to this estimate about 5.1-6.5 million males (18-49 years of age) indulge in non-marital sex in the last one year time period as reported by two interviewing methods. This group of population participates in about 27.2-36.6 million sexual contacts over a year. Of these sexual contacts, about 11.4-16.5 million take place with female sex workers, 11.8-12.2 million with casual female partners and 4.0-8.0 million with males/transgenders. A vast majority (6.8-10.0 million with female sex workers, 8.1-8.8 million with casual female partners and 3.7-7.2 million with males transgenders) of these sexual contacts are unprotected. MBBM gives about one-third higher total contacts and 38-40% higher unprotected contacts than FTFI. This is true for all types of partners. MBBM also has greater effect in estimation of total number of sexual contacts for the ever-married than the never-married.

Table 18 : National estimates of total number of non-marital sex, sexual contacts, and unprotected sex in the past one year by marital status, and by modes of interview

Modes of interview	Never-married (total # of males 18-49 years = 8,780,776)		Ever-married (total # of males 18-49 years = 20,025,824)		Total
FTFI					
Type of partner	% had sex	# had sex	% had sex	# had sex	# had sex
Female sex workers	11.0	965,885	6.7	1,341,730	2,307,615
Casual female partners	16.7	1,466,390	4.5	901,162	2,367,552
Males/transgenders	3.9	342,450	0.3	600,77	402,527
Any type of partners		2,774,725		2,302,969	5,077,694
	Mean # of contacts*	# of contacts	Mean # of contacts	# of contacts	# of contacts
Female sex workers	5.0	4,829,427	4.9	6,574,478	11,403,905
Casual female partners	4.9	7,185,308	5.1	4,595,927	11,781,235
Males/transgenders	9.6	3,287,522	11.6	6,968,99	3,984,421
Any type of partners		15,302,257		11,867,304	27,169,561
	% used condom	#unprotected contacts	% used condom	#unprotected contacts	#unprotected contacts
Female sex workers	50.4	2,395,396	32.3	4,450,922	6,846,317
Casual female partners	35.7	4,620,153	25.2	3,437,753	8,057,907
Males/transgenders	7.5	3,040,958	0.0	6,968,99	3,737,857
Any type of partners		10,056,507		8,585,574	18,642,081

Modes of interview	Never-married (total # of males 18-49 years = 8,780,776)		Ever-married (total # of males 18-49 years = 20,025,824)		Total
MBBM					
Type of partner	% had sex	# had sex	% had sex	# had sex	# had sex
Female sex workers	13.6	1,194,185	10.7	2,142,763	3,336,948
Casual female partners	13.8	1,211,747	6.1	1,221,575	2,433,322
Males/transgenders	5.9	518,066	1.3	260,336	778,402
Any type of partners		2,923,998		3,624,674	6,548,672
	Mean # of contacts	# of contacts	Mean # of contacts	# of contacts	# of contacts
Female sex workers	5.0	5,970,927	4.9	10,499,540	16,470,467
Casual female partners	4.9	5,937,560	5.1	6,230,034	12,167,594
Males/transgenders	9.6	4,973,431	11.6	3,019,894	7,993,325
Any type of partners		16,881,918		19,749,468	36,631,386
	% used condom	#unprotected contacts	% used condom	#unprotected contacts	#unprotected contacts
Female sex workers	53.2	2,794,394	31.0	7,244,682	10,039,076
Casual female partners	32.3	4,019,728	22.9	4,803,356	8,823,085
Males/transgenders	10.1	447,1115	8.8	2,754,144	7,225,259
Any type of partners		11,285,237		14,802,182	26,087,419

*Number of sexual contacts collected in FTFI method only

Cost of MBBM

Table 19 demonstrates item-wise and total cost for logistics in MBBM needed in this study. This incurred an additional cost of Taka 25 per interview, equivalent to US$ 0.37 (1 US$=68 Taka) at the time of the study. Each of the 24 interviewers in our study were provided with one set of instruments for MBBM that included one wooden ballot-box, one portable audio cassette player, 2 pairs of headphones, audio cassettes with standardized recording and related accessories. On an average, for every 4 interviews one pair of pencil batteries was consumed. The instruments were found to be durable during 8-month data collection period and the cost of spare parts/ maintenance was low. In addition to cost of instruments, one interview in MBBM required 20 minutes more time than that in FTFI (average time of interview: MBBM=60 minutes; FTFI=40 minutes).

Table 19 : Cost of increments in MBBM*

Item	Quantity	Unit cost (Taka)	Total cost (Taka)
Wooden ballot-box	24	255.00	6120.00
Portable cassette player	24	1935.00	46440.00
Head phones (pairs)	48	250.00	12000.00
Micro cassettes	48	45.00	2100.00
Pencil battery	2000	7.00	14000.00
Audio recording**	2	10000.00	20,000.00
Spare parts/maintenance	-	-	2000.00
Grand total (in Taka)			100560.00

*Estimated for total 4000 interviews in main study, pilot study, pre-testing and training
**One in standard Bangla language and one in local dialect of Cox's Bazar

Knowledge about AIDS and other STIs

The results showed that 91.5% have heard about AIDS, 85.6% knew that some diseases are transmitted by sexual intercourse, and 84.6% knew that a healthy man might be infected by HIV, 34.9% knew that symptoms might be different among men and women, and 13.7% mentioned that AIDS is curable.

About 20% of the respondents mentioned discharge from penis as a symptom of STIs, 42% mentioned ulcer, 20% mentioned burning sensation, and 20.6% mentioned itching in penis, while 7.0% mentioned weight-loss as a symptom of STIs.

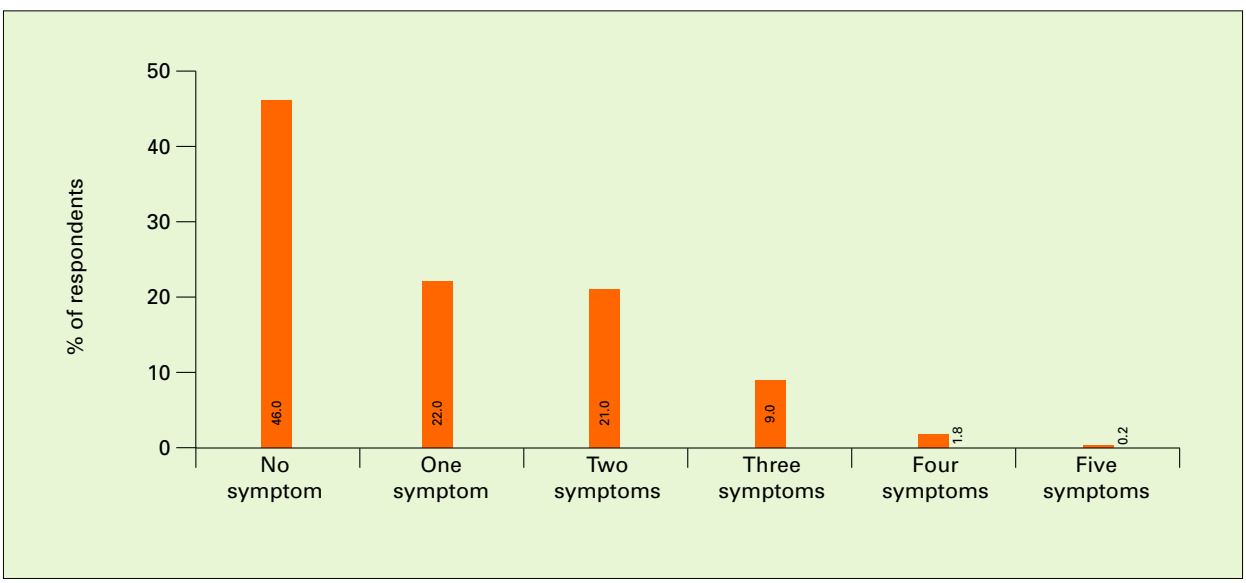

Figure 16 : *Percentage of respondents who had knowledge about symptoms of STIs*

When analyzed by the number of correct response on knowledge of STIs, it was found that 46% of the respondents could not mention any symptom of STIs, 22% could mention one symptom STIs and the remaining 32% could mention two or more symptoms of STIs **(Figure 16)**.

When asked about knowledge of prevention of AIDS, 74.6% mentioned spontaneously that avoiding sex with female sex workers can prevent AIDS and 36.3% spontaneously mentioned that AIDS can be prevented by avoiding infected blood, while 36.8% spontaneously mentioned that AIDS can be prevented by avoiding syringe or needle-sharing **(Table 20)**.

Table 20 : Percentage of respondents who had knowledge on ways of prevention of HIV infection

Ways of prevention of HIV infection	n	% of spontaneous response	% of prompted response	Don't know (%)
Abstinence from sex	7122	7.8	67.2	25.0
Use condom always	7122	29.0	51.8	19.2
Confine sex with wife	7122	11.6	70.6	17.8
Avoid sex with FSWs	7122	74.6	12.3	13.1
Avoid male to male sex	7122	2.8	62.9	34.3
Refrain from taking infected blood	7122	36.3	47.7	16.0
Avoid syringe/needle-sharing	7122	36.8	45.3	17.9
Avoid blade/razor sharing	7122	8.9	65.0	26.1
Refrain from deep kissing	7122	0.8	40.4	58.8
Confine sex with reliable and uninfected persons	7122	0.7	71.8	27.5
Others	7122	0.0	12.3	87.7

Similarly, when asked about ways of transmission, 18.4% could not mention any correct way of transmission of HIV infection and 26.2% could mention one way of transmission, while 55.3% could mention two or more ways of transmission of HIV infection **(Table 21-23)**.

In bivariate analysis when knowledge variables were examined by socio-economic variables such as asset quintiles, education, and area of residence, all these socio-economic covariates had significant association with most knowledge variables.

Table 21 : Percentage of respondents who had heard about AIDS by socio-demographic characteristics

Socio-demographic Characteristics	n	Heard about AIDS	Know ways of transmission	Symptoms differ from male to female	AIDS could be cured	Healthy man can be infected
Study area						
Dhaka metro	1227	97.2	88.7	32.7	12.1	86.5
Chittagong metro	1244	96.5	86.8	37.0	14.4	84.1
Bogra town	1203	98.4	94.2	45.8	8.8	87.8
Faridpur rural	1055	81.9	84.0	32.7	17.2	82.4
Cox's Bazar rural	1197	73.0	66.9	36.7	17.1	78.8
Rajshahi rural	1196	82.9	87.1	40.6	15.2	82.3
Total	7122	91.5	85.6	34.9	13.7	84.6
Age (Years)						
<= 19	677	92.5	75.5	29.9	12.7	79.7
20-29	2750	95.3	85.3	36.0	13.0	86.0
30-39	2154	91.2	89.7	34.5	15.6	84.6
>= 40	1541	83.7	83.9	35.2	12.4	83.8
Total	7122	91.5	85.6	34.9	13.7	84.6
Marital status						
Never-married	2246	96.6	85.1	33.1	11.9	86.0
Ever-married	4876	88.9	85.8	35.8	14.6	83.9
Total	7122	91.5	85.6	34.9	13.7	84.6
Schooling (Years)						
0	1722	72.8	74.9	27.7	19.2	76.6
1-4	1178	89.2	80.7	33.8	15.8	78.3
5-9	2230	97.2	87.1	33.2	14.5	85.5
>=10	1992	99.9	94.1	41.3	8.9	90.8
Total	7122	91.5	85.6	34.9	13.7	84.6
Wealth quintile						
Most poor	1957	72.0	75.4	31.6	19.1	76.6
More poor	1717	90.7	85.3	35.4	17.5	80.5
Poor	1429	96.7	88.2	34.9	13.5	81.9
Less poor	1187	98.6	88.1	32.4	13.2	91.4
Least poor	832	99.6	91.0	39.8	6.8	90.2
Total	7122	91.5	85.6	34.9	13.7	84.6
Religion						
Islam	6419	91.3	85.2	34.7	14.0	84.3
Others*	703	94.2	90.4	37.1	10.1	88.8
Total	7122	91.5	85.6	34.9	13.7	84.6

*Hinduism/Christianity/Buddhism

Table 22 : Percentage of respondents who had knowledge of symptoms of sexually transmitted diseases by socio-demographic characteristics

Socio-demographic characteristics	n	Discharge from penis	Ulcer in penis	Burning mictura-tion	Itching in penis	Lower abd. pain	Weight loss	Hae-mturia	Scrotal swelling	Any symp-tom
Study area										
Dhaka metro	1091	20.9	42.6	18.2	21.0	0.9	7.6	4.4	1.6	7.2
Chittagong metro	1082	17.6	37.3	20.5	23.7	0.9	5.7	4.3	0.6	9.1
Bogra town	1133	27.3	43.6	24.3	29.4	1.7	8.5	6.4	2.7	13.2
Faridpur rural	885	22.3	49.0	17.0	17.5	0.9	4.9	4.3	1.2	9.3
Cox's Bazar rural	806	19.5	29.0	24.0	16.9	0.9	4.2	5.6	1.5	11.9
Rajshahi rural	1043	20.2	49.6	26.0	17.8	0.8	10.0	4.2	3.1	5.6
Total	6040	20.4	42.0	19.9	20.6	0.9	7.0	4.5	1.6	8.0
Age (Years)										
<= 19	510	5.1	28.5	13.6	14.1	1.3	9.4	2.2	1.4	11.4
20-29	2340	17.6	37.8	18.6	21.9	0.8	6.9	4.4	1.6	10.0
30-39	1907	26.7	47.4	22.1	21.6	1.0	6.3	4.8	1.5	6.5
>= 40	1283	21.5	47.3	21.6	18.5	0.9	7.4	5.0	1.7	5.1
Total	6040	20.4	42.0	19.9	20.6	0.9	7.0	4.5	1.6	8.0
Marital status										
Never-married	1890	14.7	33.5	16.3	17.8	1.3	9.4	3.6	1.5	11.1
Ever-married	4150	23.2	46.3	21.8	22.0	0.7	5.8	4.9	1.6	6.5
Total	6040	20.4	42.0	19.9	20.6	0.9	7.0	4.5	1.6	8.0
Schooling (Years)										
0	1255	20.1	39.4	18.1	20.4	0.8	3.1	2.7	1.0	8.4
1-4	932	17.5	39.9	20.9	21.1	0.4	5.5	2.2	2.2	10.0
5-9	1950	17.3	42.0	18.5	19.7	0.7	5.9	4.9	1.2	9.0
>=10	1903	24.9	44.5	22.1	21.3	1.4	11.1	6.1	1.9	6.0
Total	6040	20.4	42.0	19.9	20.6	0.9	7.0	4.5	1.6	8.0
Wealth quintile										
Most poor	1455	18.3	35.1	16.8	15.6	0.6	4.5	4.4	1.6	11.4
More poor	1444	22.0	43.7	21.1	21.6	0.7	6.5	4.9	1.6	9.9
Poor	1289	21.1	41.1	21.1	24.5	1.1	6.6	3.5	2.2	9.3
Less poor	1084	19.1	43.3	19.0	18.3	0.6	7.4	4.3	0.5	4.8
Least poor	768	21.2	45.9	21.2	22.3	1.6	9.4	5.4	1.8	5.5
Total	6040	20.4	42.0	19.9	20.6	0.9	7.0	4.5	1.6	8.0
Religion										
Islam	5408	20.2	42.3	20.1	20.4	1.0	7.1	4.5	1.6	8.5
Others	632	21.8	39.0	17.7	22.4	0.4	6.2	4.7	1.6	3.4
Total	6040	20.4	42.0	19.9	20.6	0.9	7.0	4.5	1.6	8.0

Table 23 : Percentage of respondents who could mention number of ways of HIV transmission by socio-demographic characteristics

Socio-demographic characteristics	Mentioned number of ways of HIV transmission								
	n	0	1	2	3	4	5	6	7
Study area									
Dhaka metro	1227	10.5	23.4	24.8	25.2	12.2	3.8	0.2	0.0
Chittagong metro	1244	14.0	29.3	25.4	20.9	8.5	1.8	0.1	0.0
Bogra town	1203	7.9	23.5	23.3	25.7	14.2	4.8	0.6	0.0
Faridpur rural	1055	33.1	28.8	15.6	15.7	5.0	1.6	0.2	0.0
Cox's Bazar rural	1197	39.6	31.3	15.5	9.6	3.4	0.7	0.0	0.0
Rajshahi rural	1196	29.3	27.2	19.6	15.3	6.7	1.6	0.2	0.1
Total	7122	18.4	26.2	22.4	20.7	9.3	2.7	0.2	0.0
Age (Years)									
<= 19	677	20.0	19.9	22.8	19.9	15.0	2.5	0.1	0.0
20-29	2750	12.7	24.6	24.4	22.8	11.6	3.7	0.2	0.0
30-39	2154	18.8	28.7	22.3	20.3	7.5	2.1	0.2	0.0
>= 40	1541	29.1	28.6	18.4	17.4	5.0	1.4	0.1	0.0
Total	7122	18.4	26.2	22.4	20.7	9.3	2.7	0.2	0.0
Marital status									
Never-married	2246	11.6	19.9	24.0	25.3	14.7	4.3	0.3	0.0
Ever-married	4876	21.9	29.51	21.6	18.4	6.6	1.8	0.1	0.0
Total	7122	18.4	26.2	22.4	20.7	9.3	2.7	0.2	0.0
Schooling (Years)									
0	1722	45.8	34.4	13.9	4.9	0.8	0.1	0.0	0.0
1-4	1178	24.8	34.2	26.6	11.3	3.0	0.1	0.0	0.0
5-9	2230	12.3	30.2	26.9	20.9	7.1	2.4	0.1	0.0
>=10	1992	2.2	11.8	21.5	36.8	21.2	6.0	0.4	0.0
Total	7122	18.4	26.2	22.4	20.7	9.3	2.7	0.2	0.0
Wealth quintile									
Most poor	1957	43.7	30.9	16.4	6.6	1.6	0.8	0.0	0.0
More poor	1717	23.1	29.2	20.9	17.9	6.8	1.9	0.1	0.0
Poor	1429	13.4	29.1	27.6	19.2	8.6	2.0	0.1	0.0
Less poor	1187	8.5	25.8	26.1	26.0	10.8	2.7	0.0	0.0
Least poor	832	3.3	16.0	21.0	34.2	19.0	5.9	0.6	0.0
Total	7122	18.4	26.2	22.4	20.7	9.3	2.7	0.2	0.0
Religion									
Islam	6419	18.8	25.9	22.8	20.5	9.3	2.5	0.2	0.0
Others	703	14.3	30.1	18.4	23.2	9.5	4.4	0.0	0.0
Total	7122	18.4	26.2	22.4	20.7	9.3	2.7	0.2	0.0

For multivariate analysis (multiple ANOVA), when a summary knowledge variable was computed and examined against the socio-demographic factors, asset quintiles, education, and area of residence were significant predictors for overall knowledge of the respondents **(Table 24)**. A respondent is likely to be more knowledgeable if he is educated, rich, or from an urban area of the country.

Table 24 : Multivariate analysis (multiple ANOVA) of knowledge with the socio-demographic factors

Source	df	Type III sum of squares[a]	Mean square	F	p-value
Area	1	2.83	2.83	4.22	0.040
Age (Years)	1	15.11	15.11	22.51	0.000
Schooling (Years)	1	694.18	694.18	1034.18	0.000
Wealth quintile	4	178.24	44.56	66.38	0.000
Occupation	1	14.26	14.26	21.24	0.000
Religion	1	0.86	0.86	1.28	0.259
Error	7112	4773.82	0.67	-	-
Total	7122	7121.00	-	-	-
Corrected Total	7121	7121.00	-	-	-

a. R Squared=330 (Adjusted R Squared=329)

Risk-perceptions on acquiring HIV infection

In the survey, a question was asked about the respondent's perceptions about his risk of acquiring HIV infection. Most respondents considered a low level of risk for acquiring the disease themselves (76.0%), while only 1.6% considered at high level of risk for acquiring the disease themselves, and 9.4% considered at moderate level of risk for acquiring the disease **(Table 25)**.

Table 25 : Percentage distribution of level of risk-perceptions of HIV/AIDS of the respondents by socio-demographic characteristics

Socio-demographic characteristics	Level of risk-perceptions of HIV infection				
	n	High	Medium	Low	Don't know
Study area					
Dhaka metropolitan	1195	1.8	9.2	79.1	9.9
Chittagong metropolitan	1200	1.3	10.5	72.6	15.6
Bogra town	1183	0.7	5.9	84.0	9.4
Faridpur rural	865	0.5	7.1	77.6	14.8
Cox's Bazar rural	879	1.1	10.9	67.0	21.0
Rajshahi rural	1000	3.0	9.7	70.5	16.7
Total	6322	1.6	9.4	76.0	13.0
Age (Years)					
<= 19	611	0.7	13.1	70.5	15.8
20-29	2561	2.2	9.8	76.5	11.6
30-39	1891	1.7	8.5	76.5	13.2
>= 40	1259	0.6	8.3	76.3	14.8
Total	6322	1.6	9.4	76.0	13.0
Marital status					
Never-married	2128	2.1	11.2	76.5	10.2
Ever-married	4194	1.4	8.4	75.7	14.6
Total	6322	1.6	9.4	76.0	13.0
Schooling (Years)					
0	1184	0.5	9.7	64.2	25.7
1-4	1011	1.5	9.2	67.9	21.4
5-9	2138	2.1	10.5	75.2	12.2
>=10	1989	1.8	8.2	86.6	3.4
Total	6322	1.6	9.4	76.0	13.0
Wealth quintile					
Most poor	1380	1.7	8.1	65.7	24.5
More poor	1551	1.9	10.2	71.8	16.1
Poor	1389	0.7	7.2	78.7	13.3
Less poor	1172	2.8	12.9	75.2	9.2
Least poor	830	1.0	8.2	85.4	5.3
Total	6322	1.6	9.4	76.0	13.0
Religion					
Islam	5665	1.5	9.6	75.8	13.1
Others	657	2.8	7.1	77.6	12.4
Total	6322	1.6	9.4	76.0	13.0

Of those who considered at high or moderate level of risk, 63.5% thought so, because they thought that anybody might develop the disease, and 14.5% thought so because they do not use condom, while 9.2% stated that they were at higher risk as they had more than one partner **(Table26)**.

Table 26 : Percentage of respondents mentioning reasons for considering themselves at high-risk of HIV infection by socio-demographic characteristics

Socio-demographic characteristics	n	Had >1 sex partner	Not used condom	Anybody might be infected	Used injecting drugs	Didn't know how to prevent	Had blood transfusion
Study area							
Dhaka metro	126	7.9	12.7	64.9	0.0	1.6	1.6
Chittagong metro	146	13.0	17.5	66.2	0.3	5.6	1.1
Bogra town	80	18.1	23.7	53.5	0.0	5.2	1.3
Faridpur rural	62	7.9	17.4	61.8	0.0	0.0	0.0
Cox's Bazar rural	105	9.2	17.7	59.8	0.0	0.0	0.0
Rajshahi rural	119	8.1	12.8	57.0	0.0	0.0	0.0
Total	638	9.2	14.5	63.5	0.1	2.0	1.1
Age (Years)							
<= 19	67	18.3	15.7	69.6	0.0	0.0	4.0
20-29	300	6.5	16.3	68.0	0.1	1.8	0.3
30-39	171	9.6	10.5	63.1	0.0	2.6	0.2
>= 40	100	10.2	15.6	45.3	0.0	2.9	3.0
Total	638	9.2	14.5	63.5	0.1	2.0	1.1
Marital status							
Never-married	250	7.9	17.6	67.5	0.2	0.9	1.3
Ever-married	388	10.1	12.2	60.5	0.0	2.8	0.9
Total	638	9.2	14.5	63.5	0.1	2.0	1.1
Schooling (Years)							
0	105	16.4	18.4	41.1	0.0	6.2	0.0
1-4	101	19.4	27.2	64.6	0.0	5.9	3.0
5-9	254	7.3	16.1	62.4	0.0	0.4	0.0
>=10	178	2.8	4.1	76.5	0.2	0.0	2.2
Total	638	9.2	14.5	63.5	0.1	2.0	1.1
Wealth quintile							
Most poor	126	7.8	12.6	62.8	0.0	0.8	0.0
More poor	188	8.0	17.0	55.6	0.0	0.7	0.0
Poor	112	18.5	21.6	57.4	0.0	4.9	0.0
Less poor	138	11.4	16.9	66.2	0.2	3.2	2.1
Least poor	74	0.0	2.8	74.0	0.0	0.1	2.3
Total	638	9.2	14.5	63.5	0.1	2.0	1.1
Religion							
Islam	579	9.4	14.6	62.6	0.1	2.0	1.1
Others	59	6.1	13.0	75.1	0.0	2.3	0.9
Total	638	9.2	14.5	63.5	0.1	2.0	1.1

And those who considered themselves at low level of risk for acquiring the disease were mostly because they never practiced sex with female sex workers (58.7%), and 27.3% considered themselves at low risk because they knew how to prevent the disease, while 26.0% considered they were at low risk, as they did not have multiple sex partners **(Table 27)**.

Table 27 : Percentage of respondents mentioning reasons for considering themselves at low-risk of HIV infection by socio-demographic characteristics

Socio-demographic characteristics	n	Abstained from non-marital sex	Not had >1 sex partner	Always used condom	Know how to prevent	Never had sex with SW*	No AIDS in Bangladesh
Study area							
Dhaka metro	955	9.7	28.2	4.9	31.0	58.0	0.2
Chittagong metro	870	9.7	23.0	3.8	24.4	56.5	0.2
Bogra town	1001	23.6	33.0	6.9	31.7	49.2	1.0
Faridpur rural	675	6.7	25.2	4.6	23.3	61.3	0.6
Cox's Bazar rural	588	7.3	22.5	1.9	14.4	58.3	0.9
Rajshahi rural	719	6.9	21.3	2.8	24.3	65.9	1.3
Total	4808	9.2	26.0	4.5	27.3	58.7	0.4
Age (Years)							
<= 19	456	25.5	3.6	3.0	29.2	63.8	1.0
20-29	1939	13.8	18.5	5.6	28.5	57.6	0.5
30-39	1447	3.1	35.8	4.2	27.1	59.7	0.2
>= 40	966	1.6	37.2	3.0	24.0	57.5	0.3
Total	4808	9.2	26.0	4.5	27.3	58.7	0.4
Marital status							
Never-married	1648	23.3	5.4	5.7	32.3	57.9	0.4
Ever-married	3160	1.3	37.5	3.8	24.5	59.1	0.4
Total	4808	9.2	26.0	4.5	27.3	58.7	0.4
Schooling (Years)							
0	783	4.9	29.1	3.6	12.6	62.6	0.5
1-4	685	7.5	28.9	4.1	16.8	58.2	0.3
5-9	1592	8.3	22.8	6.0	20.4	58.3	0.6
>=10	1748	12.3	26.8	3.6	43.2	57.7	0.2
Total	4808	9.2	26.0	4.5	27.3	58.7	0.4
Wealth quintile							
Most poor	914	8.6	23.1	3.5	12.0	63.0	0.9
More poor	1131	8.7	24.7	6.2	23.9	57.1	0.7
Poor	1113	7.9	28.7	5.4	23.6	58.2	0.4
Less poor	932	8.2	23.9	4.0	28.2	59.7	0.2
Least poor	718	12.0	28.1	3.3	41.1	57.0	0.2
Total	4808	9.2	26.0	4.5	27.3	58.7	0.4
Religion							
Islam	4294	9.4	26.4	4.5	27.0	58.0	0.4
Others	514	7.2	21.5	4.2	30.5	66.5	0.2
Total	4808	9.2	26.0	4.5	27.3	58.7	0.4

*Sex worker (SW)

Prevalence of STI symptoms and care-seeking

In the survey three separate questions on STI symptoms were asked to the respondents on whether had discharge from penis, pain or burning sensation during micturation, ulceration in/around penis in the last 12 months.

Figure 17 : *Percentage of respondents who had symptoms of STIs in the last one year*

In response, 2.0% of the respondents reported that they suffered from discharge from penis, 4.4% suffered from pain or burning sensation, and 3.6% suffered from ulceration of penis, while 7.9% suffered from any of these three symptoms **(Figure 17)**. When asked about care-seeking for these symptoms, 41.5% mentioned that they did not go for any treatment, and 58.8% received some treatment for STI symptoms. Of those who received treatment for STI symptoms, 36.7% received treatment from qualified medical professionals, 2.7% received treatment from paramedics, and the remaining 60.6% went to informal providers for the treatment of their STI symptoms **(Table 28)**.

Table 28 : Percentage of respondents with their care-seeking behavior by their socio-demographic characteristics

Socio-demographic characteristics	n	Informal providers	Qualified MBBS doctors	Paramedics	Homeopaths
Study area					
Dhaka metro	40	52.9	42.5	1.7	2.9
Chittagong metro	75	44.8	41.9	3.8	9.4
Bogra town	100	47.5	38.6	4.2	9.7
Faridpur rural	50	64.4	22.9	2.1	10.6
Cox's Bazar rural	75	54.6	33.8	2.8	8.8
Rajshahi rural	47	64.3	18.9	4.4	12.5
Total	387	53.4	36.7	2.7	7.2
Age (Years)					
<= 19	46	51.7	39.2	2.5	6.5
20-29	191	54.4	33.0	3.4	9.2
30-39	95	57.1	35.7	1.6	5.6
>= 40	55	44.0	51.8	2.1	2.0
Total	387	53.4	36.7	2.7	7.2
Marital status					
Never-married	156	48.8	40.7	3.2	7.3
Ever-married	231	57.3	33.3	2.3	7.1
Total	387	53.4	36.7	2.7	7.2
Schooling (Years)					
0	100	61.5	30.0	1.9	6.7
1-4	81	47.7	44.4	2.5	5.5
5-9	129	56.9	28.6	4.5	10.0
>=10	77	44.1	51.7	0.4	3.8
Total	387	53.4	36.7	2.7	7.2
Wealth quintile					
Most poor	112	68.6	23.8	2.4	5.2
More poor	111	58.8	28.3	3.3	9.6
Poor	95	40.6	45.8	2.7	10.9
Less poor	43	40.4	52.7	4.8	2.1
Least poor	26	43.4	53.3	0.0	3.3
Total	387	53.4	36.7	2.7	7.2
Religion					
Islam	358	53.4	36.5	2.9	7.3
Others	29	53.3	41.7	0.0	5.0
Total	387	53.4	36.7	2.7	7.2

Care-seeking for STI symptoms varied significantly by socio-economic status, education, and area of residence of the respondents. Men with STI symptoms were more likely to visit a qualified professional if they were rich, educated, or from an urban area. Care-seeking varied significantly by knowledge of the respondents as well. Thirty-three percent of the respondents had sex while having symptoms; 51% of them did not mention about their symptoms to their partners while symptomatic, and only 15% used condoms during sex while symptomatic.

Drug abuse

When asked about the use of recreational drugs in the last one year, 15% mentioned that they used some form of drugs in the last one year. Of those who abused drug, 64% used alcoholic beverages, 40% marijuana, 7% phensidyl, 3.5% sleeping pills, 1.1% heroine, and 0.8% pethidine.

Participation in AIDS-related communications program

Only 7% of the respondents participated in some AIDS-related Behavior Change Communication (BCC) programs in the last one year, but mostly in NGO-organized educational programs.

Chapter 4

Discussion

It is important to note that the HIV/AIDS epidemic, as it is evolving in Asia, is different from the African epidemic in that it is not being spread predominantly through heterosexual sex among couples in long-term partnerships (N'Galy and Ryder, 1988; Chin and Mann, 1990). Tim Brown, who does HIV modeling for the East-West Center, Hawaii, has observed in his work, it is 'clients and sex workers which drive the epidemics in Asia' and it is the total number of men who visit sex workers that determine how quickly HIV spreads (Cohen, 2004).

Two important issues arise from this study: (a) do the findings reveal anything new about the levels of interaction between the two populations of clients and female sex workers, and (b) does the MBBM produce findings which are significantly different and more accurate, valid, and reliable than alternative FTFI.

If the MBBM has produced findings indicating that levels of interactions between clients and female sex workers are higher than previously believed, what are the implications for the speed of expansion of the HIV/AIDS epidemic in Bangladesh?

This survey has revealed higher levels of non-marital sex - almost 27% of never-married men, and 13% of ever-married men reporting non-marital sex in the past one year–compared to reported rates of non-marital sex in the 12 months preceding the survey ranging from 8-24% (Bhuiya et al., 2004). On the other hand, several small sub-national surveys have found 47% (Caldwell et al., 1999) and 56% (Hawkes et al., 2002) of males ever had pre-marital and extra-marital sex respectively. These data are either too scanty or not nationally representative for modeling HIV.

Can the rates in our study be relied on for HIV modeling purposes? The respondents for each of the two methods used here were quite similar, so there is no obvious selection bias, except that the MBBM respondents were slightly better off economically, and slightly more traveled. The findings show the MBBM producing significantly higher rates of non-marital sex among ever-married men, compared to never-married men. This may be expected as extra-marital sex is presumably less socially acceptable than pre-marital sex for males. Among the never-married, the higher response in FTFI (16.7%) for sex with casual female partners than MBBM (13.8%), although not significant (p=0.16). It is consistent with other study findings that for young men social desirability bias leads to frequent over reporting of selected behaviors (Mensch et al., 2003; Potdar et al., 2005). It is not within the scope of the current study to explore this relationship, for which further qualitative research could be undertaken.

The wide range of these estimates has major implications for the rate of epidemic expansion. So it is vital to try to determine how accurate these estimates are. One approach is to check the consistency of numbers of sexual contacts using available data from the 'provider side' and from the 'consumer side'.

From various sources, estimates of numbers of street-based, hotel-based, and brothel-based sex workers, and numbers of MSMs, and numbers of other types of sex workers (brothel-based sex workers : 3,600-4,000; street-based sex workers : 37,000-66,000; hotel-based sex workers:14,000-20,000) are available (NAC, 2006,). For each of these, there are estimates of frequency of client-contact (brothel-based sex workers : 17 clients/week; street-based sex workers : 10 clients/week; hotel-based sex workers : 20 clients/week) over time (Brown, 2006; Chowdhury et al., 2005). Combining these estimates result in 37.0-58.7 million sexual contacts every year, by members of the female commercial sex trade, excluding casual female sex partners and male-to-male sex.

Extrapolation of behaviors from the present survey, to the general male population in the same age-groups, and if this sample was representative, will result in some 11.4 million (FTFI) to 16.4 million (MBBM) sexual contacts, annually, between clients and female sex workers. This survey did not, however, include representatives from all age-groups of the general male population, but did cover what is believed to be the most sexually active age-groups. Even the inclusion of men aged below 18 and over 50 years are unlikely to explain this gap.

If the above-mentioned assumptions hold, the estimated number of contacts with female sex workers based on the 'consumer side' information is 28-44% of the estimated number of contacts based on the 'provider side' information. There are two possible explanations for this underestimate. Firstly, specific groups of male population who are not equally distributed in the general population are the clients of the female sex workers. Therefore information on number of contacts from the 'provider side' give an over estimate when multiplied by the total number of eligible males. Secondly, the total number of female sex workers used in these estimates, particularly those in hotels and streets, are over estimated which is also supported by wide range of numbers in these two groups. This discrepancy suggests that further work is needed on refining estimates from both the sides, especially from the 'provider side'.

A finding, which should be concern, is that among the sexual contacts reported in this survey, some three-fourths (26.1 million in MBBM) were unprotected by condom-use although 8.8 million of these were with casual female partners and 7.2 million with males/transgenders rather than female sex workers. This behavior clearly places a large number of young men at risk once HIV starts circulating at higher levels among the female sex workers.

There are two usual approaches for responding to this situation. One is to encourage men to limit their number of sex partners, and avoid multiple sex partners. The other one is to increase the use of condom during sex with non-spousal partners. Experiences from other countries suggest that

reducing the numbers of multiple sex partners is the more likely response in the short-term at least (Kajubi et al., 2005; Hearst and Chen, 2004; Shelton et al., 2004).

Reported condom-use overall did not vary by modes of interview, which is somewhat surprising (discussed below). Although reported condom-use in subgroups, e.g. by occupation, was erratic, producing very different levels according to method, but without any consistent pattern by method. What is clear is that condom-use is strongly determined by knowledge of how HIV and STDs are transmitted. This does not appear to be a linear relationship, so that behavior does not change positively until individuals possess quite good levels of knowledge–a little knowledge does not produce desirable change in condom-use.

Another noteworthy aspect of knowledge is that overall levels are low. While a majority is aware that sex with female sex workers is associated with increased risk of HIV, only a minority recognizes the risks associated with receiving infected blood, or sharing needles. It may be that injecting drug use is still uncommon among the general male population, but awareness needs to be raised among this group. Awareness of abstinence and of maintaining a monogamous marital relationship as means of avoiding infection, is also worryingly low.

The study also demonstrated that incorrect knowledge is relatively widespread, and correction of these wrong beliefs about potential sources of HIV infection, should be part of any BCC campaigns. Importantly, the issue of self-assessment of risk, suggests that many of the sexually active respondents in this study seriously underestimate their level of risk of contracting STDs and HIV. The combination of high levels of commercial and other non-marital sexual activity detected, combined with very limited condom protection, points to a potentially explosive situation. Further analysis of these study data should explore actual versus perceived risk, along with other aspects of behavior.

What limited knowledge there is in this group is concentrated among the better-educated and wealthier members of the community. This suggests that community wide awareness campaigns are needed, but numbers reporting any contact or input from HIV behavior change programs are extremely low. Much more urgently needs to be done to raise awareness.

Although our new interviewing method is technology dependent, still it is simple and easy to use in community settings in developing countries. Our interviewers rarely faced technical difficulty in the use of the battery-operated audio system. However, additional training is needed for interviewers for properly administering this method. The additional cost involved in this study is not so high. In our study the additional cost was Taka 25 (US$ 0.37) per interview where we used one unit of audio-system for each of the 24 interviewers. Cost could be further reduced by decreasing the number of audio-systems and allocating those among different interviewers during the study period. Depending on the study population, there might be a need of recording questions in more than one dialect which will further increase the amount of additional cost. On average the

MBBM needed 20 minutes more time to complete an interview as compared to FTFI, but the time-difference can be minimized with the use of the system by the experienced interviewers.

A major strength of this new interviewing method is that it is equally acceptable and administrable among different socio-demographic classes. One major problem in administering the SBBM in developing countries is the low literacy level of the study population (Gregson et al., 2002). We could overcome this problem with the use of simple ballot-slips and incorporation of a demonstration section of the MBBM before the final interview. During this session the interviewer uniformly demonstrated the instruments to all the respondents. In this exercise, the respondents had an opportunity to get acquainted with the audio system by hearing a simple narrative and answering several questions using ballot-slips. This demonstration could break the fear of the respondents of the new methods. In our study although 21% of the respondents had never attended school, almost all of them could successfully participate in the MBBM. This is indicated by very low overall refusal rate of 0.5% in MBBM as compared to 0.3% in FTFI. On the other hand, unlike highly technical methods like Audio-CASI which has some operational difficulty and thus suffers from producing inconsistent results among the respondents who are unfamiliar with the computer technology (Potdar and Koenig, 2005), our simple technology-based method, succeeded in generating consistent results across different social classes. In our study, the respondents with different education levels, consistently reported higher on having non-marital sex in MBBM as compared to FTFI.

In summary, this study has demonstrated that, compared to the FTFI, the MBBM produces significantly higher levels of non-marital sex (15.9% vs 19.1%; $p<0.05$) as reported by members of the general male population. It is assumed that the higher levels of non-marital sex are not over-estimates, rather are closer to the true levels.

Once the respondents have answered positively to an interviewer that they have participated in non-marital sex in the past one year using either of these two methods, the choice of interview method makes little difference to the likelihood of answering further questions on the use of condom, numbers of partners, etc.

So, it seems that the MBBM 'opens the door' for respondents to discuss this issue, but once that door is open, the choice of methodology no longer plays a vital role. Overall, the conclusion of the study must be that the MBBM is well worth the small additional effort and cost in achieving the important goal of making respondents feel more secure to answer the sensitive survey questions openly and honestly.

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Acronym

AIDS	Acquired Immune Deficiency Syndrome
ANOVA	Analysis of Variance
BBS	Bangladesh Bureau of Statistics
BCC	Behavior Change Communication
CI	Confidence Interval
FHI	Family Health International
FTFI	Face-to-Face Interview
HIV	Human Immunodeficiency Virus
ICDDR, B	International Center for Diarrhoeal Disease Research, Bangladesh
MBBM	Modified Ballot-Box Method
MSM	Male Who Have Sex With Male
NGO	Non-Government Organization
OR	Odds Ratio
PSU	Primary Sampling Unit
SFRO	Senior Field Research Officer
STI	Sexually Transmitted Infection
STD	Sexually Transmitted Disease
SBBM	Simple Ballot-Box Method
USAID	United States Agency for International Development

Appendix A

Questionnaire (face-to-face-interview)
Non-marital sexual behavior of general male population in Bangladesh
ICDDR,B: Centre for Health and Population Research
Mohakhali, Dhaka 1212

Ques. Serial No : ☐☐☐☐ **Ques. ID :** ☐☐☐☐☐☐☐

Study area :

Dhaka Metropolis = 1, Faridpur Rural = 2, Chittagong Metropolis = 3
Cox's Bazar Rural = 4, Bogra Municipal = 5, Rajshahi Rural = 6 ☐

Thana Name : _____ Union/Ward Name : _____

Cluster (Mohalla / Mauza) Name : _____

Detailed address of household : _____ ☐☐

_____

_____

Type of dwelling :

1. Household 2. Mess 3. Institution, specify _____ ☐

Date of interview :

First visit	Second visit	Third visit	Final visit
☐☐ ☐☐ ☐☐	☐☐ ☐☐ ☐☐	☐☐ ☐☐ ☐☐	☐☐ ☐☐ ☐☐
DD MM YY	DD MM YY	DD MM YY	DD MM YY

Interview result : ☐

Completed interview =1

Partly completed, reason _____ =2

Refused, reason _____ =3

Could not contact after the scheduled visits =4

On short travel =5

Travel within country for studies =6

Travel within country for work =7

Travel outside the country =8

How often does he come home in a year (number) : _____

=9 ☐☐

Others (specify) _____

Interviewer's Name & code : _____ ☐☐

Supervisor's signature : _____ Date :

Data Entry personnel's name & code : _____ ☐

CONSENT FORM

Assalamualaikum/Adab. I (specify your name) come from ICDDR,B (Cholera Hospital), an International Research Organization, located in Mohakhali, Dhaka. We are currently conducting a study to understand reproductive health of men in Bangladesh and you have been selected to participate in this survey. As you probably know that HIV/AIDS is a major health problem in the world, which has already made a serious negative impact on humanity. Fortunately, Bangladesh is still in a position to prevent an HIV/AIDS epidemic in the country. Therefore, it is very important for the government and others concerned to understand the HIV/AIDS related risk situation and risk behaviors in our population to design appropriate prevention programs.

I am inviting you to participate an interview session, which usually takes about one-hour to complete. Some of the survey questions will be related to your personal reproductive health and sexual behaviors. We assure you that the information you provide us will be maintained with strict confidentiality and, except the study investigators; nobody will have access to it. We make sure that your name or any personal identification will not be recorded. Participation in this survey is voluntary and you can choose not to answer any individual question or stop interview at any point in time. However, we hope that you will participate in this survey since your views and ideas are important.

Now please ask me if you have any query about the survey? (Attention interviewers: listen to the question/s and respond appropriately). If you agree to give the interview, it is really important that you are willing to be very truthful.

Is it all right to begin now? Not agreed ⟶ End

Signature of Interviewer _____

Date : / /

For further query please contact: **Reproductive Health Unit**
PHSD, ICDDR,B
Mohakhali, Dhaka 1212
Phone: 8860523-32/2247

SECTION 1 : RESPONDENT'S BACKGROUND CHARACTERISTICS

(Don't read out the listed answers unless otherwise indicated. Please follow the skip rules in the Skip column)

NO	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
A	RECORD THE STARTING TIME	HOUR ☐☐ MINUTE ☐☐	
101	How long have you been living in this residence?	☐☐ Year ☐☐ Month	
102	How old are you? (In completed years)	☐☐	
103	What is the highest class you have passed?	Number of year of completed schooling ☐☐ (Put '00' for no schooling)	
104	What is your religion?	Islam ---------- 1 Hinduism ---------- 2 Buddhism ---------- 3 Christianity---------- 4 Other (specify)---------- 5 ☐	
105a	What is your (primary) occupation?	Farmer (agriculture, forestry)-- 01 Fisherman---------- 02 Day labourer ---------- 03 Transport worker---------- 04 Army/BDR/ policeman/Anser--- 05 Other services---------- 06 Business---------- 07 Student ---------- 08 Unemployed---------- 09 Other (specify) ---------- 10 ☐☐	
105b	During the last 1-year have you ever lived away from your home?	Yes ---------- 1 ☐ No ---------- 2 →	105f
105c	What was the reason/s for your staying away home? (Multiple answers accepted)	Own home ---------- 1 ☐ Profession related travel within Bangladesh ---------- 2 ☐ Profession related travel outside Bangladesh ---------- 3 ☐ Tourism within Bangladesh ------- 4 ☐ Tourism outside Bangladesh ------ 5 Travel to relative/family/friends -- 6 Others (specify) ---------- 7	105e
105d	At what interval do you visit your own home?	☐☐☐ Number of days _____	
105e	What was the longest duration you stayed away from home during the last one year? (**Except own home for residents living in mess or institution**)	☐☐☐ Number of days _____	

105f	How many members are there in your household?	☐☐	
105g	What is your average monthly expenditure of your family? Write in number : Tk	☐☐☐☐☐☐ For don't know or code 999999	
105h	What is the total yearly income of your family? (This information will be used only for this study purpose and will not be used for taxation) Write in number: Tk	☐☐☐☐☐☐☐ For don't know or non-response code 9999999	
106	**Do your household possess these articles (in good condition)? (Read each point)** i) Chair ii) Table iii) Quilt/Lep iv) Television v) Radio/cassette player vi) Electricity vii) Refrigerator viii) Bicycle ix) Motorcycle x) Almirah/Wardrobe	Yes----1, No----2 i. ☐ ii. ☐ iii. ☐ iv. ☐ v. ☐ vi. ☐ vii. ☐ viii. ☐ ix. ☐ x. ☐	
107	What are the construction materials for your main dwelling house? **(Observe and code. For residents of mess and institutions write information about own home)** i) Roof ii) Wall iii) Floor	Concrete (brick, cement) ---- 1 Tin ---------- 2 Straw/leaf/Bamboo --------- 3 Concrete (break, cement) --- 1 Tin/wood ---------- 2 Straw/leaf/bamboo ---------- 3 Mud ---------- 4 Concrete / Brick ---------- 1 Semi concrete ---------- 2 Wood/Bamboo ---------- 3 Mud ---------- 4	☐ ☐ ☐
108	What type of latrine do the adult family members use?	Septic tank/Water Carraige System ---------- 1 Water seal/slab latrine ------ 2 Pit latrine ---------- 3 Hanging ---------- 4 Field/bush ---------- 5 Other (specify) ---------- 6	☐
109	What is the source of household drinking water?	Tap water ---------- 1 Tubewell ---------- 2 Pond/river/canal ---------- 3 Other (specify) ---------- 4	☐

SECTION 2 : MARRIAGE AND SEXUAL ACTIVITY

201	What is your current marital status?	Unmarried ---------- 1 → **206a** Currently Married ---------- 2 ☐ Divorced/separated ---------- 3 → **206a** Widowed ---------- 4 → **206a**	
202	Are you currently living with your wife in this residence?	Live with me ---------- 1 Live elsewhere ---------- 2 ☐	
203	Are you currently using any contraceptive method?	Yes ---------- 1 ☐ No ---------- 2 → **206a**	
204	Which method are you using now? (Multiple response acceptable)	Oral pill ---------- 1 ☐ Hormonal injection ---------- 2 ☐ IUD ---------- 3 ☐ Condom ---------- 4 ☐ Safe period ---------- 5 Withdrawal ---------- 6 Norplant ---------- 7 Sterization (male/female) --- 8 Other (specify) _____ 9	

206a	**(At times, men during their youth shows interest in sex)** During the last 12-months/1 year have you had penetrative sex with any female sex workers (FSW)?	Yes ---------- 1 ☐ No ---------- 2 → **207a**	
206b	How many different FSWs have you had penetrative sex with during the last 12-months/1 year?	Number ---------- ☐☐	
206c	How many times have you had penetrative sex with FSW within the last 12-months/1 year?	Number ---------- ☐☐	
206d	Have you had penetrative sex with FSWs outside of your own village/moholla within the last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2 → **206f**	
206e	If yes, last time, where (out side of your village) you have had penetrative sex with a FSW within the last 12-months/1 year?	District Name : ---------- ☐☐ Foreign country : ---------- ☐☐	
206f	What type of FSWs have you had penetrative sex within the last 12-months/1 year? (Multiple answers accepted)	Brothel based ---------- 1 ☐ Hotel based ---------- 2 ☐ Street based ---------- 3 ☐ Residence based ---------- 4 Parlour girl ---------- 5 Launch/dockyard based ----- 6 Other (specify) ---------- 7	
206g	Did you use condom during the last intercourse when you had sex with a FSW within the last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2	

206h	Did you use condom all the time during penetrative sex with FSWs within the last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2	

207a	Have you had penetrative sex with any women (lover, girl-friend, relative, neighbor) other than your wife and 'sex workers' within the last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2 →	**208a**
207b	How many such women have you had penetrative sex with during the last 12-months/1 year?	Number ---------- ☐☐	
207c	How many times have you had penetrative sex with such women within the last 12-months/1 year?	Number ---------- ☐☐	
207d	Did you use condom all the time during penetrative sex with FSWs within the last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2	
207e	Did you use condoms all the time during penetrative sex with such women within the last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2	
208a	Have you ever had anal sex with man/ boy/hijras within the last 12-months/1 year? (Collect information on both active and passive participation)	Yes ---------- 1 ☐ No ---------- 2 →	**209a**
208b	How many different man/boy/hijras have you had sex within the last 12-months/1 year?	Number ---------- ☐☐	
208c	How many times you have had sex with man/boy/hijras within the last 12-months/1 year?	Number ---------- ☐☐	
208d	Did you pay money for sex with men/ boy/hijras within the last 12-months/ 1 year?	Yes ---------- 1 ☐ No ---------- 2	
208e	Did you use condom the last time you had anal sex with man/boy/hijras within the last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2	
208f	Did you use condoms all the time during such sex within the last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2	

209a	Before the last 12-months/1 year have you ever had penetrative sex with any FSW?	Yes (married) ---------- 1 Yes (unmarried) ---------- 2 No ---------- 3 ☐	
209b	Before the last 12-months/1 year have you had penetrative sex with any women (lover, girl-friend, relative, neighbor) other than 'your wife' and 'sex workers'?	Yes (married) ---------- 1 Yes (unmarried) ---------- 2 No ---------- 3 ☐	
209c	Before the last 12-months/1 year have you ever had anal sex with man/boy/ hijras? (Collect information on both active and passive participation)	Yes (married) ---------- 1 Yes (unmarried) ---------- 2 No ---------- 3 ☐	
209d	**Only applicable to married males.** If 209a, 209b & 209c is Yes, then ask, before marriage have you had any such penetrative sex?	Yes ---------- 1 ☐ No ---------- 2 →	**301a**
209e	**Only applicable to unmarried males.** If 209a, 209b & 209c is Yes or 209d is Yes, then ask, at what age have you had any first penetrative sex? (full year)	Age (in years) ---------- ☐☐ Not applicable ---------- 88	

SECTION 3 : OTHER RISK FOR HIV/AIDS

301a	Sometime people find pleasure in taking recreational drugs, have you taken any such drugs within the last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2 →	**302a**
301b	If yes, which ones? (Multiple answers possible)	Heroin ---------- 1 ☐ Pethidine/morphine/ TD Gesic ---------- 2 ☐ Alcohol/Wine ---------- 3 ☐ Sleeping pill/tablet ---------- 4 ☐ Marijuana/Opium/ Charash ---------- 5 Phensidyl ---------- 6 Others (specify) ---------- 7	
301c	Did you take any injectable addictive drugs in last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2 →	**302a**
301d	Last time (in last 12-months/1 year) when you injected addictive drugs, did you use a disposable/brand-new syringe and needle?	Yes ---------- 1 ☐ No ---------- 2	
301e	Did you share needle/syringe with others during the last time (last 12-month/1 year) you took injectable addictive drugs?	Yes ---------- 1 ☐ No ---------- 2	
302a	During the last 12-months/1 year, did you take any injection for treatment?	Yes ---------- 1 ☐ No ---------- 2 →	**303a**
302b	If yes, who pushed injection last time (the last 12-month/1 year)?	Qualified doctor/nurse --------1 ☐ Pharmacist/medicine Seller ---------- 2 Quack doctor ---------- 3 Relative/neighbor ---------- 4 Others (specifiy) ---------- 5	
302c	Did you use a brand new syringe and needle during the last time (the last 12-months/1year) you took injection for treatment?	Yes ---------- 1 ☐ No ---------- 2	
303a	Have you ever had blood transfusion or donated? Yes (received/donated)	Yes (received/donated) ---------1 ☐ No ---------- 2 →	**401a**
303b	If yes, do you know whether transfused/ donated blood was screened for HIV?	Yes, was screened ---------- 1 ☐ No, was not ---------- 2 Don't know ---------- 9	

SECTION 4: KNOWLEDGE AND ATTITUDE RELATED TO AIDS/OTHER STDs

401a	Do you know that some diseases can spread through penetrative sex?	Yes ---------- 1 ☐ No ---------- 2 → **402a**	
401b	If yes, in men what signs and symptoms would be associated with such diseases? (Don't read) (Multiple answers accepted)	Urethral discharge ---------- 01 Genital ulcers ---------- 02 Burning pain during micturation ---------- 03 Genital itching ---------- 04 Lower abdominal pain ----- 05 Loss of weight ---------- 06 Blood in urine ---------- 07 Testicular swelling ---------- 08 Other (specify) ---------- 09 Don't know (99) ---------- 99	☐☐ ☐☐ ☐☐ ☐☐ ☐☐
401c	Do you think signs/symptoms for sexually transmitted diseases would be different for men and women?	Yes ---------- 1 ☐ No ---------- 2	
402a	Have you heard about an illness called AIDS?	Yes ---------- 1 ☐ No ---------- 2 → **404a**	
402b	What are the ways the AIDS causing virus spread? (Multiple answers accepted) i. Multiple sex partners ii. Mosquito bite iii. Blood transfusion from infected person iv. Needle sharing v. Sex with sex workers vi. Unprotected sex/no condom use vii. From infected mother to child viii. Oral sex ix. Homosexual contacts x. Deep kissing xi. Share cloths xii. Share toilet xiii. Share bed xiv. Share utensils xv. Don't know xvi. Others (specify) ----------	☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐	
402c	Do you think AIDS can be cured?	Yes ---------- 1 ☐ No ---------- 2 Don't know ---------- 9	
402d	Do you think a healthy looking person can have HIV infection?	Yes ---------- 1 ☐ No ---------- 2 Don't know ---------- 9	

402e	What a person can do to prevent HIV infection? **(Once you record spontaneous responses in the 1st column then prompt the next answers to record in the 2nd column)** i. Abstain from sex ii. Use condom all the time iii. Limit sex within married partner only iv. Avoid sex with sex workers v. Avoid sex with other man vi. Avoid unsafe blood transfusion vii. Avoid needle/syringe sharing viii. Avoid sharing razors/blades ix. To keep oneself safe from mosquito bites x. Avoid kissing xi. Sex with faithful uninfected person xii. Other (specify)----------	If mention, Give code 1 ☐ Yes= 1 No= 2 Don't know= 9 **Spontaneous** / **Prompted** i. ☐ / i. ☐ ii. ☐ / ii. ☐ iii. ☐ / iii. ☐ iv. ☐ / iv. ☐ v. ☐ / v. ☐ vi. ☐ / vi. ☐ vii. ☐ / vii. ☐ viii. ☐ / viii. ☐ ix. ☐ / ix. ☐ x. ☐ / x. ☐ xi. ☐ / xi. ☐ xii. ☐ / xii. ☐	
403a	Do you consider yourself at high, moderate, low or no risk of getting HIV infection?	High risk ---------- 1 ☐ Moderate risk ---------- 2 Low or no risk ---------- 3 → **403c** Don't know ---------- 4 → **404a**	
403b	If high or moderate risk, why? (Multiple answers accepted)	Have multiple sex partners --1 Don't use condom with SW/other partners ---------- 2 Anyone has risk of HIV/ AIDS ---------- 3 Take injecting drugs ---------- 4 Don't know how to prevent it ---------- 5 Had blood transfusion ------- 6 Others (specifiy) ---------- 7 Don't know ---------- 9	☐ ☐ ☐ ☐ → **404a**
403c	If low or no risk, why? (Multiple answers accepted)	Abstain from sex ---------- 1 ☐ Don't have sex multiple partners ---------- 2 Always use condom ---------- 3 Know how to prevent HIV/AIDS ---------- 4 Don't have sex with SW ----- 5 Low HIV prevalent country - 6 Others (specify) ---------- 7 Don't know ---------- 9	

404a	Now I would like to ask you some questions related to your health during the last 12-months/1 year. During the last 12-months/1 year have you had discharge from your penis?	Yes ---------- 1 No ---------- 2 Don't want to answer --------- 7 ☐	
404b	During the last 12-months/1 year, have you had pain/burning sensation during urination?	Yes ---------- 1 No ---------- 2 Don't want to answer --------- 7 ☐	
404c	During the last 12-months/1 year, have you had sore or ulcer on or around penis?	Yes ---------- 1 No ---------- 2 Don't want to answer --------- 7 ☐	
405a	**If Yes for 404a, b or c then ask, if No, then** ↓ The last time you had symptoms/infections from any of the above, did you seek any advice or treatment?	→ **406a** Yes ---------- 1 ☐ No ---------- 2 → **406a**	
405b	Where did you go for advice/treatment at 1st step?	Qualified doctor/nurse/hospital /clinic ----------1 ☐ Paramedic/Health assistant--2 ☐ Pharmacist ----------3 Homeopath ----------4 Quack doctors ----------5 Traditional healers ----------6 Self treatment ----------7 Others (specify) ----------8	
405c	While you had any of the above symtoms/infections did you have sex with your wife/other partners?	Yes ---------- 1 ☐ No ---------- 2 → **406a**	
405d	Did you use condom at that time?	Yes ---------- 1 ☐ No ---------- 2	
405e	When you had any of the above symptoms/infections did you inform your wife/sex partners about your illness?	Yes ---------- 1 ☐ No ---------- 2	

406a	If a man has a sexually transmitted disease, would it be acceptable to you for his wife/sex partner to refuse having sex?	Yes ---------- 1 No ---------- 2 ☐	
406b	If a man has a sexually transmitted disease, would it be acceptable to you for his wife/sex partner to ask him to use condom?	Yes ---------- 1 No ---------- 2 ☐	
407a	Have you participated in any HIV/AIDS prevention programs in the past 12-months/1 year?	Yes ---------- 1 No ---------- 2 ☐	→**407c**
407b	If Yes, what type of program did you participate? (Multiple answers accepted)	NGO-run educational program ---------- 1 ☐ Partcipated seminar/ conference/rally ---------- 2 ☐ Discussed with Health workers ---------- 3 ☐ Participated in World AIDS day rally ---------- 4 Counselled in an STD clinic ---------- 5 Others(specify) ---------- 6	
407c	Have you ever seen the Bajee Quddus/ lagba bajee advertisement on TV, cinema hall, and hoarding?	Yes ---------- 1 No ---------- 2 ☐	
408	Are you circumcised?	Yes ---------- 1 No ---------- 2 ☐	
B	RECORD ENDING TIME	☐☐ **HOUR** ☐☐ **MINUTE**	

Thank you for giving us your valuable time

Appendix B

Questionnaire (Modified Ballot-Box Method)
Non-marital sexual behavior of general male population in Bangladesh
ICDDR,B: Centre for Health and Population Research
Mohakhali, Dhaka 1212

Ques. Serial No : ☐☐☐☐ **Ques. ID :** ☐☐☐☐☐☐☐

Study area :

Dhaka Metropolis = 1, Faridpur Rural = 2, Chittagong Metropolis = 3
Cox's Bazar Rural = 4, Bogra Municipal = 5, Rajshahi Rural = 6 ☐

Thana Name : _____ Union/Ward Name : _____
Cluster (Mohalla/Mauza) Name : _____
Detailed address of household : _____ ☐☐
_____
_____

Type of dwelling :
1. Household 2. Mess 3. Institution, specify _____ ☐

Date of interview :

First visit	Second visit	Third visit	Final visit
☐☐ ☐☐ ☐☐	☐☐ ☐☐ ☐☐	☐☐ ☐☐ ☐☐	☐☐ ☐☐ ☐☐
DD MM YY	DD MM YY	DD MM YY	DD MM YY

Interview result : ☐

Completed interview	=1
Partly completed, reason _____	=2
Refused, reason _____	=3
Could not contact after the scheduled visits	=4
On short travel	=5
Travel within country for studies	=6
Travel within country for work	=7
Travel outside the country	=8
How often does he come home in a year (number) : _____	=9 ☐☐

Others (specify)_____
Interviewer's Name & code : _____ ☐☐
Supervisor's signature : _____ Date :
Data Entry personnel's name & code : _____ ☐

CONSENT FORM

Assalamualaikum/Adab. I (specify your name) come from ICDDR,B (Cholera Hospital), an International Research Organization, located in Mohakhali, Dhaka. We are currently conducting a study to understand reproductive health of men in Bangladesh and you have been selected to participate in this survey. As you probably know that HIV/AIDS is a major health problem in the world, which has already made a serious negative impact on humanity. Fortunately, Bangladesh is still in a position to prevent an HIV/AIDS epidemic in the country. Therefore, it is very important for the government and others concerned to understand the HIV/AIDS related risk situation and risk behaviors in our population to design appropriate prevention programs.

I am inviting you to participate an interview session, which usually takes about one-hour to complete. Some of the survey questions will be related to your personal reproductive health and sexual behaviors. We assure you that the information you provide us will be maintained with strict confidentiality and, except the study investigators; nobody will have access to it. We make sure that your name or any personal identification will not be recorded. Participation in this survey is voluntary and you can choose not to answer any individual question or stop interview at any point in time. However, we hope that you will participate in this survey since your views and ideas are important.

Now please ask me if you have any query about the survey? (Attention interviewers: listen to the question/s and respond appropriately). If you agree to give the interview, it is really important that you are willing to be very truthful.

Is it all right to begin now? Not agreed ⟶ End

Signature of Interviewer _____

Date : / /

For further query please contact:

Reproductive Health Unit
PHSD, ICDDR,B
Mohakhali, Dhaka 1212
Phone: 8860523-32/2247

SECTION 1 : RESPONDENT'S BACKGROUND CHARACTERISTICS

(Don't read out the listed answers unless otherwise indicated. Please follow the skip rules in the Skip column)

NO	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
A	RECORD THE STARTING TIME	HOUR ☐☐ MINUTE ☐☐	
101	How long have you been living in this residence?	☐☐ Year ☐☐ Month	
102	How old are you? (In completed years)	☐☐	
103	What is the highest class you have passed?	Number of year of completed schooling ☐☐ (Put '00' for no schooling)	
104	What is your religion?	Islam ---------- 1 Hinduism ---------- 2 Buddhism ---------- 3 Christianity ---------- 4 Other (specify) ---------- 5 ☐	
105a	What is your (primary) occupation?	Farmer (agriculture, forestry)-- 01 Fisherman---------- 02 Day labourer ---------- 03 Transport worker---------- 04 Army/BDR/ policeman/Anser--- 05 Other services---------- 06 Business---------- 07 Student ---------- 08 Unemployed---------- 09 Other (specify) ---------- 10 ☐☐	
105b	During the last 1-year have you ever lived away from your home?	Yes ---------- 1 No ---------- 2 ☐	→ 105f
105c	What was the reason/s for your staying away home? (Multiple answers accepted)	Own home ---------- 1 Profession related travel within Bangladesh ---------- 2 Profession related travel outside Bangladesh ---------- 3 Tourism within Bangladesh ------- 4 Tourism outside Bangladesh ------ 5 Travel to relative/family/friends -- 6 Others (specify) ---------- 7 ☐ ☐ ☐	→ 105e
105d	At what interval do you visit your own home?	Number of days _____ ☐☐☐	
105e	What was the longest duration you stayed away from home during the last one year? (**Except own home for residents living in mess or institution**)	Number of days _____ ☐☐☐	

105f	How many members are there in your household?	☐☐	
105g	What is your average monthly expenditure of your family? Write in number : Tk.	☐☐☐☐☐☐ For don't know or code 999999	
105h	What is the total yearly income of your family? (This information will be used only for this study purpose and will not be used for taxation) Write in number : Tk.	☐☐☐☐☐☐☐ For don't know or non-response code 9999999	
106	**Do your household possess these articles (in good condition)?** **(Read each point)** i. Chair ii. Table iii. Quilt/Lep iv. Television v. Radio/cassette player vi. Electricity vii. Refrigerator viii. Bicycle ix. Motorcycle x. Almirah/Wardrobe	Yes----1, No----2 i. ☐ ii. ☐ iii. ☐ iv. ☐ v. ☐ vi. ☐ vii. ☐ viii. ☐ ix. ☐ x. ☐	
107	What are the construction materials for your main dwelling house? **(Observe and code. For residents of mess and institutions write information about own home)** i. Roof ii. Wall iii. Floor	Concrete (brick, cement) ---- 1 Tin ---------- 2 Straw/leaf/Bamboo --------- 3 ☐ Concrete (break, cement) --- 1 Tin/wood ---------- 2 Straw/leaf/bamboo ---------- 3 Mud ---------- 4 ☐ Concrete/Brick ---------- 1 Semi concrete ---------- 2 Wood/Bamboo ---------- 3 Mud ---------- 4 ☐	
108	What type of latrine do the adult family members use?	Septic tank/Water Carraige System ---------- 1 Water seal/slab latrine ------ 2 Pit latrine ---------- 3 Hanging ---------- 4 Field/bush ---------- 5 Other (specify) ---------- 6 ☐	
109	What is the source of household drinking water?	Tap water ---------- 1 Tubewell ---------- 2 Pond/river/canal ---------- 3 Other (specify) ---------- 4	

SECTION 2 : MARRIAGE AND SEXUAL ACTIVITY

201	What is your current marital status?	Unmarried ---------- 1 → **2B** Currently Married ---------- 2 ☐ Divorced/separated ---------- 3 → **2B** Widowed ---------- 4 → **2B**	
202	Are you currently living with your wife in this residence?	Live with me ---------- 1 ☐ Live elsewhere ---------- 2	
203	Are you currently using any contraceptive method?	Yes ---------- 1 ☐ No ---------- 2 → **2B**	
204	Which method are you using now? (Multiple response acceptable)	Oral pill ---------- 1 ☐ Hormonal injection ---------- 2 ☐ IUD ---------- 3 ☐ Condom ---------- 4 Safe period ---------- 5 Withdrawal ---------- 6 Norplant ---------- 7 Sterization (male/female) --- 8 Other (specify) _____ 9	

SECTION 2B : FOR BALLOT BOX WITH AUDIO

Demonstration Questions : Ques. No. 206 No-1 to Ques. No. 206 No-4

Now I would like to ask you some personal questions through this tape recorder. But before asking the questions, I would explain to you how to answer. I would tell you a small story and from there ask you some sample questions. Before starting the story, let me ask if you clearly hear and understand what is being asked in this tape recorder. If you do not hear properly or if there is any problem, please raise your hand.

Let me start the story. Rahim is poor farmer. More than one-year back he got married for the first time. After a few months, his first wife died in an accident. Then he married for the second time, nearly one year back. But due to his poverty, this wife also left him. Three months back, he again got married for the third time. Presently he has no children.

Let me ask you the first sample question :

No.	Questions	Code
206 No-1	1st sample question : Is Rahim now married? If the answer is *'Yes'*, please circle the tick mark and if the answer is *'No'*, then circle the cross mark.	☐
206 No-2	2nd sample question : During the last one-year period, how many times did Rahim marry? Please cross number of given lines on the answer slip to indicate the number of times he married in the last one-year.	☐☐
206 No-3	3rd sample question : Does Rahim have any children now? If the answer is *'Yes'*, please circle the tick mark and if the answer is *'No'*, then circle the cross mark.	☐
206 No-4	4th sample question : How many children does Rahim have now? Cross the number of given lines on the answer slip to indicate the children he has now. If he is not having any children, then it is not necessary to cross any line.	☐☐

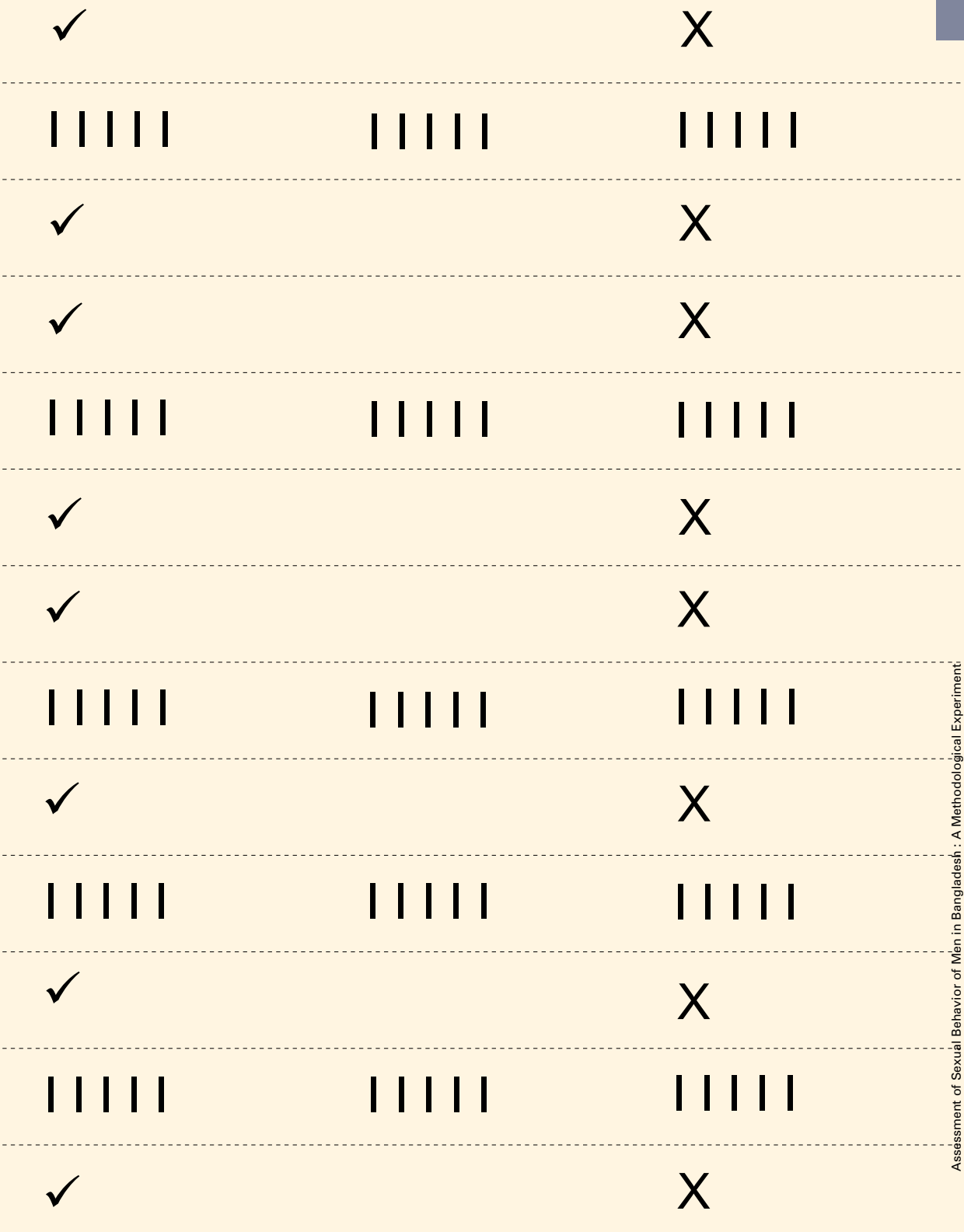
Main Questions : Ques. No. 206A to Ques. No. 208E

In this part of the interview, we are going to ask you the personal questions through the cassette player. Please listen to these questions carefully. After listening to the questions, please give the correct answer in the answer slip that I am going to give you one by one, as has been demonstrated to you. I believe, you would give the right answers to the questions that are being asked, thus assisting us in this research study. I again reassure you that strict confidentiality would be maintained for the information that you have provided. Let us listen to the questions now.

No.	Questions	Code
206A	During the last 12-months/one year period, did you have any penetrative sex with any women with payment? What I mean here is having sex with a sex worker. If you have performed penetrative sex with such a women with payment during the last 12-months/one year period, please circle the tick mark. And if not, then circle the cross	☐
206B	If you have performed penetrative sex with such women with payment during the last 12-months/one year period, then with how many such women you have had sexual contact, please cross the number of marks. And if you have not performed any penetrative sex with such women with payment during the last 12-months/one year period, then you do not have to cross the marks.	☐☐
206G	If you have performed penetrative sex with such women with payment during the last 12-months/one year period, then during the last sexual act, did you use a condom? If you have used a condom during the last sexual act, please circle the tick mark. And if not, then circle the cross mark.	☐
207A	Now let me ask you about your relationship with a lover, girlfriend, a relative, neighbor or any such women other than a sex worker. During the last 12-months/one year period did you have any penetrative sex with a lover, girlfriend, a relative, neighbor or any such women (other than your wife for the married)? If so, please circle the tick mark and if not, then circle the cross mark.	☐
207B	If you have performed penetrative sex with a lover, girlfriend, a relative, neighbor or any such women other than your wife during the last 12-months/one year period, then with how many such women you have had sexual contact, please cross the number of marks. And if you have not performed any penetrative sex with such women during the last 12-months/one year period, then you do not have to cross the marks.	☐☐
207D	If you have performed penetrative sex with a lover, girlfriend, a relative, neighbor or any such women other than your wife during the last 12-months/one year period, then during the last sexual act, did you use a condom? If you have used a condom during the last sexual act, please circle the tick mark. And if not, then circle the cross mark.	☐
208A	On many occasions, men perform sexual act with other men, boys or hijras. During the last 12-months/one year period, did you perform any anal sex with other men, boys or hijras? If you have actively or passively performed anal sex, please circle the tick mark and if not, then circle the cross mark.	☐
208B	If you have performed any anal sex with other men, boys or hijras during the last 12-months/one year period, then with how many men, boys or hijras you had such sexual act, please cross the number of marks. And if you have not performed any anal sex with other men, boys or hijras during the last 12-months/one year period, then you do not have to cross the marks.	☐☐
208E	If you have performed any anal sex with other men, boys or hijras during the last 12-months/one year period, then during the last such sexual act, did you use a condom? If you have used a condom during the last anal sex, please circle the tick mark. And if not, then circle the cross mark.	☐

Ballot sheet (Responses)

Instructions: First tear this sheet from the questionnaire.Then start tearing each ballot slip from down the page and before handing each ballot slip to the respondent, check the number on the opposite page.



Questionnaire Serial No	Question No.
	208E
	208B
	208A
	207D
	207B
	207A
	206G
	206B
	206A
	206 N-4
	206 N-3
	206 N-2
	206 N-1

SECTION 3 : OTHER RISK FOR HIV/AIDS

301a	**Sometime people find pleasure in taking recreational drugs**, have you taken any such drugs within the last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2 →	**302a**
301b	If yes, which ones? (Multiple answers possible)	Heroin ---------- 1 ☐ Pethidine/morphine/ TD Gesic ---------- 2 ☐ Alcohol/Wine ---------- 3 ☐ Sleeping pill/tablet ---------- 4 ☐ Marijuana/Opium/ Charash ---------- 5 Phensidyl ---------- 6 Others (specify) ---------- 7	
301c	Did you take any injectable addictive drugs in last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2 →	**302a**
301d	Last time (in last 12-months/1 year) when you injected addictive drugs, did you use a disposable/brand-new syringe and needle?	Yes ---------- 1 ☐ No ---------- 2	
301e	Did you share needle/syringe with others during the last time (last 12-months/1 year) you took injectable addictive drugs?	Yes ---------- 1 ☐ No ---------- 2	
302a	During the last 12-months/1 year, did you take any injection for treatment?	Yes ---------- 1 ☐ No ---------- 2 →	**303a**
302b	If yes, who pushed injection last time (the last 12-months/1 year)?	Qualified doctor/nurse --------1 ☐ Pharmacist/medicine seller ---------- 2 Quack doctor ---------- 3 Relative/neighbor ---------- 4 Others (specifiy) ---------- 5	
302c	Did you use a brand new syringe and needle during the last time (the last 12-months/1year) you took injection for treatment?	Yes ---------- 1 ☐ No ---------- 2	
303a	Have you ever had blood transfusion or donated?	Yes (received/donated) ---------1 ☐ No ---------- 2 →	**401a**
303b	If yes, do you know whether transfused/donated blood was screened for HIV?	Yes, was screened ----------1 ☐ No, was not ---------- 2 Don't know ---------- 9	

SECTION 4 : KNOWLEDGE AND ATTITUDE RELATED TO AIDS/OTHER STDs

401a	Do you know that some diseases can spread through penetrative sex?	Yes ---------- 1 ☐ No ---------- 2 →	**402a**
401b	If yes, in men what signs and symptoms would be associated with such diseases? (Don't read) (Multiple answers accepted)	Urethral discharge ---------- 01 Genital ulcers ---------- 02 Burning pain during micturation ---------- 03 Genital itching ---------- 04 Lower abdominal pain ----- 05 Loss of weight ---------- 06 Blood in urine ---------- 07 Testicular swelling ---------- 08 Other (specify) ---------- 09 Don't know (99) ---------- 99	☐☐ ☐☐ ☐☐ ☐☐ ☐☐
401c	Do you think signs/symptoms for sexually transmitted diseases would be different for men and women?	Yes ---------- 1 ☐ No ---------- 2	
402a	Have you heard about an illness called AIDS?	Yes ---------- 1 ☐ No ---------- 2 →	**404a**
402b	What are the ways the AIDS causing virus spread? (Multiple answers accepted) i. Multiple sex partners ii. Mosquito bite iii. Blood transfusion from infected person iv. Needle sharing v. Sex with sex workers vi. Unprotected sex/no condom use vii. From infected mother to child viii. Oral sex ix. Homosexual contacts x. Deep kissing xi. Share cloths xii. Share toilet xiii. Share bed xiv. Share utensils xv. Don't know xvi. Others (specify) ----------	☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐	
402c	Do you think AIDS can be cured?	Yes ---------- 1 ☐ No ---------- 2 Don't know ---------- 9	

402d	Do you think a healthy looking person can have HIV infection?	Yes ---------- 1 ☐ No ---------- 2 Don't know ---------- 9	
402e	What a person can do to prevent HIV infection? **(Once you record spontaneous responses in the 1st column then prompt the next answers to record in the 2nd column)** i. Abstain from sex ii. Use condom all the time iii. Limit sex within married partner only iv. Avoid sex with sex workers v. Avoid sex with other man vi. Avoid unsafe blood transfusion vii. Avoid needle/syringe sharing viii. Avoid sharing razors/blades ix. To keep oneself safe from mosquito bites x. Avoid kissing xi. Sex with faithful uninfected person xii. Other (specify)----------	If mention, Give code 1 ☐ Yes= 1 No= 2 Don't know= 9 **Spontaneous** i. ☐ ii. ☐ iii. ☐ iv. ☐ v. ☐ vi. ☐ vii. ☐ viii. ☐ ix. ☐ x. ☐ xi. ☐ xii. ☐ **Prompted** i. ☐ ii. ☐ iii. ☐ iv. ☐ v. ☐ vi. ☐ vii. ☐ viii. ☐ ix. ☐ x. ☐ xi. ☐ xii. ☐	
403a	Do you consider yourself at high, moderate, low or no risk of getting HIV infection?	High risk ---------- 1 ☐ Moderate risk ---------- 2 Low or no risk ---------- 3 → **403c** Don't know ---------- 4 → **404a**	
403b	If high or moderate risk, why? (Multiple answers accepted)	Have multiple sex partners --1 Don't use condom with SW/other partners ---------- 2 Anyone has risk of HIV/ AIDS ---------- 3 Take injecting drugs ---------- 4 Don't know how to prevent it ---------- 5 Had blood transfusion ------- 6 Others (specifiy) ---------- 7 Don't know ---------- 9	☐ ☐ ☐ ☐ → **404a**
403c	If low or no risk, why? (Multiple answers accepted)	Abstain from sex ---------- 1 ☐ Don't have sex multiple partners ---------- 2 Always use condom ---------- 3 Know how to prevent HIV/AIDS ---------- 4 Don't have sex with SW ----- 5 Low HIV prevalent country - 6 Others (specify) ---------- 7 Don't know ---------- 9	

404a	Now I would like to ask you some questions related to your health during the last 12-months/1 year. During the last 12-months/1 year have you had discharge from your penis?	Yes ---------- 1 ☐ No ---------- 2 Don't know ---------- 7	
404b	During the last 12-months/1 year, have you had pain/burning sensation during urination?	Yes ---------- 1 ☐ No ---------- 2 Don't want to answer--------- 7	
404c	During the last 12-months/1 year, have you had sore or ulcer on or around penis?	Yes ---------- 1 ☐ No ---------- 2 Don't want to answer--------- 7	
405a	**If Yes for 404a, b or c then ask, if No, then** ↓ The last time you had symptoms/infections from any of the above, did you seek any advice or treatment?	→ **406a** Yes ---------- 1 ☐ No ---------- 2 → **406a**	
405b	Where did you go for advice/treatment at 1st step?	Qualified doctor/nurse/hospital /clinic ---------- 1 ☐ Paramedic/Health assistant-- 2 ☐ Pharmacist ---------- 3 Homeopath ---------- 4 Quack doctors ---------- 5 Traditional healers ---------- 6 Self treatment ---------- 7 Others (specify) ---------- 8	
405c	While you had any of the above symtoms/infections did you have sex with your wife/other partners?	Yes ---------- 1 ☐ No ---------- 2 → **406a**	
405d	Did you use condom at that time?	Yes ---------- 1 ☐ No ---------- 2	
405e	When you had any of the above symptoms/infections did you inform your wife/sex partners about your illness?	Yes ---------- 1 ☐ No ---------- 2	
406a	If a man has a sexually transmitted disease, would it be acceptable to you for his wife/sex partner to refuse having sex?	Yes ---------- 1 ☐ No ---------- 2	

406b	If a man has a sexually transmitted disease, would it be acceptable to you for his wife/sex partner to ask him to use condom?	Yes ---------- 1 ☐ No ---------- 2	
407a	Have you participated in any HIV/AIDS prevention programs in the last 12-months/1 year?	Yes ---------- 1 ☐ No ---------- 2 →	**407c**
407b	If Yes, what type of program did you participate? (Multiple answers accepted)	NGO-run educational program ---------- 1 ☐ Partcipated seminar/ conference/rally ---------- 2 ☐ Discussed with Health workers ---------- 3 ☐ Participated in World AIDS day rally---------- 4 Counselled in an STD clinic ---------- 5 Others(specify) ---------- 6	
407c	Have you ever seen the Bajee Quddus/lagba bajee advertisement on TV, cinema hall, and hoarding?	Yes ---------- 1 ☐ No ---------- 2	
408	Are you circumcised?	Yes ---------- 1 ☐ No ---------- 2	
B	RECORD ENDING TIME	☐☐ **HOUR** ☐☐ **MINUTE**	

Thank you for giving us your valuable time.

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