Knowledge and perceptions of sexually transmitted diseases, HIV/AIDS, and reproductive health among female students in Dhaka, Bangladesh

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ABSTRACT

Background: Young people are most vulnerable to sexually transmitted diseases (STDs) and human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) in Bangladesh. Lack of knowledge about reproductive health issues is also common in this group. Aims: This study aimed to assess the knowledge and perceptions of STDs, HIV/AIDS, and reproductive health of young female university students (19-27 years) in Dhaka, Bangladesh. Methods: A cross-sectional study was carried out among 402 female students from seven universities in Dhaka, Bangladesh. Data were collected through face-to-face interviews using a structured questionnaire on sociodemographic information, knowledge, and perceptions of STDs, HIV/AIDS, and reproductive health. Descriptive analysis was used, and data were presented as frequencies and percentages. Results: The majority of the participants were young, unmarried, undergraduate students. Most of the participants reported that they knew about STDs (79%) and HIV/AIDS (66%). However, knowledge about the modes of transmission and prevention of the diseases was poor. HIV/AIDS was considered by 90% participants as a public health threat to Bangladesh, mostly due to illiteracy (76%), increased mortality (20%), existence of risky sexual behavior (18%), and aggression of Western culture (31%). About 65% of the participants mentioned that AIDS can be prevented by safe sexual practice, 55% mentioned prevention through upholding religious values and moral education, and 59% mentioned that education about AIDS would help prevent transmission. Conclusions: Although a majority of young Bangladeshi female students reported knowing about HIV/AIDS, their knowledge regarding transmission and prevention of the diseases was poor. Strategies for creating reproductive health education targeted at young female students are essential for the prevention of STDs and HIV/AIDS.

Key words: Acquired immunodeficiency syndrome (AIDS), Bangladesh, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), knowledge, perception, reproductive health, sexually transmitted diseases (STDs)

INTRODUCTION

Sexually transmitted diseases (STDs) impose a tremendous health burden on women, including young women, who are at the highest risk for STDs.¹ In Southeast Asia, young people do not typically have access to sex education and are poorly informed about how to protect themselves from unwanted pregnancies, STDs, and human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS).¹ Women
suffer more adverse consequences from STDs than men because generally it is easier for STDs to be transferred from a man to a woman. Women’s reproductive organs are more susceptible to harm if an infection is left untreated, and STDs in women often remain undetected and untreated as women are less likely to experience symptomatic disease. In addition, women are more prone to STDs and HIV infections due to social factors such as inability to insist on condom use during sex, dependence on men, lower social status, difficulties in gaining control over their own reproductive lives, and other, biological factors.

In Bangladesh, young women comprise one-fourth of the total population. The country has made significant progress toward meeting many Millennium Development Goals (MDGs), such as reducing maternal and child morbidity and mortality, promoting gender equality, and empowering women. However, young women are at risk for a wide variety of reproductive health problems, such as unwanted pregnancies and STDs, including HIV/AIDS – particularly if information on reproductive health and services is inadequate or unused. In general, knowledge about reproductive health among young women is poor in Bangladesh. Previous studies in Bangladesh have reported that young women often do not visit health care providers for their reproductive health problems, due to lack of appropriate information, fear, and stigma.

The patriarchal family structure in Bangladesh is a major obstacle to the acquisition of knowledge through sex education, and is a barrier to meeting the reproductive health information needs of young women. Although parents think that they should serve as role models for their daughters, they are imperfect and often fail to protect their children from diseases. The occurrence of lack of information among young women is higher in rural areas, where females have less access to education, which can help protect young women from the spread of STDs. Previous studies have shown that sexual health education for children and young people promotes safe sexual practices and does not increase their sexual activity. Lack of access to sex education is also a barrier for young women from taking control of their own health, whether they are married or not.

Adolescents in Bangladesh often do not have access to proper health information and health care services. The lack of knowledge about reproductive health among young women in Bangladesh makes them vulnerable to STDs and HIV/AIDS. Bangladesh is a high-risk country for HIV/AIDS, and young women are considered a potential vulnerable group. There is a need to understand the sociodemographic and cultural factors that render young women in Bangladesh vulnerable to STDs and HIV/AIDS. However, information about young women’s knowledge about STDs, HIV/AIDS, and reproductive health care is scarce in Bangladesh. The assessment of knowledge and perceptions among young women is important to determine the impact of previous awareness programs and develop preventive strategies in Bangladesh and other countries in Southeast Asia. We therefore conducted this study to determine the knowledge and perceptions of STDs, HIV/AIDS, and reproductive health among young female students in Dhaka, Bangladesh.

METHODS

Study population and location
A cross-sectional study was carried out among 402 female students from seven universities in Dhaka, Bangladesh between May and September, 2012. Participants were selected from two public universities: Dhaka University (n = 116) and Eden University College (n = 55); and five private universities: North South University (n = 26), East West University (n = 76), University of Asia Pacific (n = 69), Darul Ihsan University (n = 28), and American International University-Bangladesh (n = 32), which represent most of the female university students in Dhaka, Bangladesh.

Female students ≥18 years of age studying at the universities mentioned above, from undergraduate to postgraduate levels, and who provided written informed consent were selected for this study. Participants were excluded from the study if they were not enrolled in the listed universities or if they were guests, faculty members, and/or staff. The participants were selected purposively for this study, as we could not perform any randomization due to time constraints.

Sample size
To estimate an appropriate sample size, it was assumed that 50% of the young people had an understanding of reproductive health issues. We used Raosoft® (Raosoft Inc. Seattle, WA, USA) online sample size calculator to estimate our required sample size. The sample size within five percentage points of 50% with a 95% confidence interval for the study was 377. To increase precision, a total of 402 participants were interviewed.

Data collection
A seven-page structured questionnaire was developed by the study team using previously used tools and questionnaires. The questionnaire was translated into Bengali and pretested in similar fields in another private university (BRAC University). Based on the field tests, the questionnaire was reviewed to adopt cultural sensitivity.
The questionnaire contained both open- and close-ended questions. Data were collected on the following: Sociodemographic information (age in years, marital status, education background), self-reported knowledge and perceptions of STDs (whether STDs are infectious or not; whether the STDs HIV/AIDS, syphilis, gonorrhea, and chancroids have been heard of; knowledge of the transmission of STDs; and how to build awareness to prevent STDs), knowledge and perceptions of HIV/AIDS (causes, routes of transmission, homosexuality, signs and symptoms, measures to prevent HIV/AIDS, and why HIV/AIDS is a public health threat in Bangladesh). The questionnaire also contained questions on knowledge and perceptions of reproductive health (sources of knowledge, discussion with parents about sex, whether sex education should be included in texts, at what levels and what should be included). Data were collected through face-to-face interviews by the principal investigator (SZM).

**Ethical considerations**
We informed the authorities of all participating institutes about the objective of our study and obtained the permission to collect data. Before questionnaire administration, the purpose of the study was explained and instructions for answering the questionnaire were elaborated to all the participants. Participation in this study was voluntary and names, contact details, and responses were kept confidential. Data collection took place at each selected institute in a free classroom where the confidentiality of the participants could be maintained. Written informed consent was obtained from all the participants prior to data collection. The study was approved by the Institutional Review Board of the Department of Pharmacy, University of Dhaka.

**Statistical analysis**
Data were collected using paper-based questionnaires. After completion of data collection, the questionnaires were reviewed, organized, tabulated into a spreadsheet with built-in range checks, and analyzed using Microsoft Excel program (Microsoft Corporation, Seattle, WA, USA). The questions that were not answered were shown in the tables as nonresponses. Data were presented by frequency \((n)\) and percentage \( (%)\) in the tables.

**RESULTS**
A majority of the participants \((47\%)\) were 20-22 years old and only a few \((3\%)\) were above 25 years of age. Almost all of the participants were unmarried \((93\%)\); 73\% were undergraduate students; and more than half \((61\%)\) had completed previous education in girls’ schools, and 39\% in coeducation.

**Knowledge and perceptions of STDs**
A great majority of the participants \((79\%)\) were familiar with the term “STDs” or had heard of it, 19\% did not know about STDs, and 2\% provided no response. Of all the participants, 72\% mentioned that STDs were infectious, 24\% mentioned that STDs were not infectious, and 4\% were confused as to whether STDs were infectious. Almost all the participants \((98\%)\) had heard about HIV/AIDS, 23\% about syphilis, 17\% about gonorrhea, and 2\% about chancroids. However, only 27\% of all participants had any knowledge about syphilis, gonorrhea, and chancroids. When asked about the transmission of STDs, 26\% mentioned sexual intercourse, 4\% mentioned virus, 3\% mentioned bacteria, and 73\% had no knowledge. When asked about the preferred method of building awareness within the general population for prevention of STDs, 61\% of the participants mentioned advertisements, 37\% mentioned textbooks, and 29\% mentioned campaigns [Table 1].

**Knowledge and perceptions of HIV/AIDS**
The majority of the participants \((66\%)\) knew the cause of HIV/AIDS. When asked about the route of HIV/AIDS transmission, 48\% mentioned HIV/AIDS transmission through blood products, 42\% the sharing of contaminated needles, 38\% sexual intercourse, 36\% the sharing of shaving blades in saloons, and 31\% about breast feeding. About 54\% of all the participants thought that homosexuality causes HIV/AIDS; and 61\% mentioned weight loss as a sign/symptom for HIV/AIDS. Regarding precautions about HIV/AIDS, 73\% of participants mentioned being careful about the choice of partner, 49\% about personal hygiene, 33\% about health education, and 20\% about contraceptives. Of all the participants, 90\% thought HIV/AIDS is a public health threat to Bangladesh. The reasons mentioned were mostly illiteracy \((76\%)\), increased mortality \((20\%)\), risky sexual behavior \((18\%)\), and the reasons for HIV/AIDS to be a threat for Bangladesh were mostly illiteracy \((76\%)\), increased mortality \((20\%)\), risky sexual behavior \((18\%)\), and aggression of Western culture \((31\%)\).

Reporting about how HIV/AIDS can be prevented, 65\% of the participants mentioned safe sexual practice, 55\% mentioned upholding religious values and moral education, and 59\% mentioned education about HIV/AIDS. The participants also showed poor knowledge about the management of HIV/AIDS [Table 2].

**Knowledge and perceptions of reproductive health**
Of the participants, 43\% had knowledge about reproductive health, but only 19\% ever had discussions with their parents about sex. Most of the participants \((87\%)\) thought sex education should be included in the academic curriculum either at the secondary level \((41\%)\) or at the higher secondary level \((39\%)\), while the rest of the participants thought that it should be included at the...
primary (7%) or university level (24%) [Table 3].

**DISCUSSION**

This study presents the knowledge and perceptions of STDs, HIV/AIDS, and reproductive health among...
female students in Dhaka, Bangladesh. The majority of the participants had heard about STDs including HIV/AIDS. Similar findings were reported by other studies in Bangladesh, India and South Africa.[18-20] However, knowledge about the transmission and prevention of STDs and HIV/AIDS was poor among our study participants. The study participants did consider HIV/AIDS a major public health threat to Bangladesh due to illiteracy, risky sexual behavior, as well as low levels of awareness, and believed that reproductive health should be included in the academic curriculum.

The United Nations (UN) Conference on Population and Development defined reproductive health as “a state of complete physical, mental and social well being and not merely the absence of diseases or infirmity in all matters relating to the reproductive system and to its function and processes.” The concept of reproductive health is comprehensive, and includes all health events relating to reproduction in the lifespan of a person. From this study, it is clear that young women in our country do not have adequate knowledge about STDs and reproductive health.

A recent study using data from the Bangladesh Demographic and Health Survey (BDHS) 2011, involving 10,966 women across Bangladesh, reported that knowledge and awareness of STDs among women was significantly higher in urban areas, among women aged 20-29 years who listened to radio, watched television, and was associated with level of education.[16] Most of our participants were from urban areas in Dhaka city, aged 20-25 years, having completed higher secondary education and likely to have access to radio and television. Thus, the actual level of knowledge and awareness among young women in other parts of Bangladesh is likely to be less than that reported by our study participants. In addition, the lack of information makes young women susceptible to several STDs, including HIV/AIDS. Studies from neighboring countries also reported similar findings.[18,21] A study among youth in India showed that although a majority of the participants had good knowledge about HIV/AIDS and were aware of its mode of transmission, there were several misconceptions among them about the disease.[18]

To increase knowledge among young women regarding prevention of STDs, HIV/AIDS, and reproductive

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**Table 2: (Continued)**

| Variables | Frequency | Percentage (%) |
|-----------|-----------|----------------|
| Awareness can prevent AIDS | | |
| Yes | 314 | 78 |
| No | 69 | 17 |
| No response | 19 | 5 |
| How can we prevent AIDS | | |
| Upholding religious values and moral education | 224 | 55 |
| Safe sexual practice | 264 | 65 |
| Educating people about AIDS | 239 | 59 |
| Others | 21 | 5 |
| No response | 24 | 6 |
| AIDS is managed by- | | |
| Combination therapy | 32 | 8 |
| Management of malignancy and infections | 45 | 11 |
| Using antiviral agents | 43 | 10 |
| Detection of antibody of HIV | 132 | 32 |
| No response | 178 | 44 |

**Table 3: Knowledge and perceptions of reproductive health**

| Variables | Frequency | Percentage (%) |
|-----------|-----------|----------------|
| Knowledge about RH | | |
| Yes | 175 | 43 |
| No | 160 | 39 |
| No response | 67 | 16 |
| Sources of knowledge about RH | | |
| Book | 48 | 11 |
| Radio/Television | 37 | 9 |
| Newspaper | 29 | 7 |
| Friend | 45 | 11 |
| Video | 8 | 2 |
| Other | 12 | 3 |
| Discussed sex with parents | | |
| Yes | 76 | 19 |
| No | 320 | 79 |
| No response | 6 | 1 |
| Should sex education be included in the text | | |
| Yes | 352 | 87 |
| No | 40 | 10 |
| No response | 10 | 2 |
| Sex education should be included in the level of | | |
| Primary | 30 | 7 |
| Secondary | 168 | 41 |
| Higher secondary | 157 | 39 |
| University | 98 | 24 |
| Types of knowledge that should be included in the text | | |
| Reproductive organs and their functions | 168 | 41 |
| Sexual behavior with partner | 115 | 28 |
| Family planning/contraceptive | 159 | 39 |
| Protection from unwanted sex | 184 | 45 |
| Sexually transmitted disease | 80 | 20 |
| Drug abuse | 165 | 41 |
| Menstruation | 110 | 27 |

*RH = Reproductive health*
health, they must be exposed to different mass media such as television, radio, and newspaper along with the traditional school-based education. Media exposure attracts attention more easily than other sources and might help to increase awareness among young women about the hazards of STDs and HIV/AIDS. Successful STDs and HIV/AIDS prevention programs in India have adopted similar approaches. These reports suggest that it is necessary to take into account the opinions of young women in order to create awareness among them and develop culturally appropriate education materials.

The present study findings show that young women believe homosexuality to be a causal factor for HIV/AIDS. Previous studies also showed positive association between homosexuality and HIV/AIDS. However, homosexuality is more common among men in Bangladesh than women. The AIDS epidemic in women is mostly because of heterosexual sexual practice in Southeast Asia, with a low proportion of women infected through sex with a bisexual or by injecting drug use (IDU).

STDs cause a silent epidemic that can devastate the lives of both men and women, causing unnecessary suffering and creating a large health-care burden for the nation. STDs comprise one of the top causes of morbidity in developing countries, which can be easily prevented through awareness and low-cost treatments. A great majority of the global burden of STDs are from Southeast Asia. A previous study in Bangladesh reported the estimated number of STDs in Bangladesh to be 2.3 million in 1996. Another study showed that the prevalence of STDs among married women in Dhaka city was 32%. A study in Bangladesh on AIDS awareness and associated factors in men showed that a large majority of the participants (85.9%) had heard of AIDS and that awareness was higher in urban areas and among those with easy access to the media.

In recent years, HIV/AIDS has increased in epidemic proportion in many countries in Southeast Asia. Although Bangladesh is a low-prevalence country for HIV/AIDS, the high prevalence of HIV/AIDS among IDU individuals, and high rates of STDs among female sex workers are concerns regarding an HIV/AIDS epidemic in Bangladesh. High-risk behavioral factors that facilitate the rapid spread of the infection are widely present in Bangladesh. Around one-third of the current population in Bangladesh are youth and are vulnerable to the acquisition of STDs and HIV/AIDS. Thus, HIV/AIDS prevention programs need to focus on the unmet needs of young women, and develop programs and strategies to reach this segment of the population.

Our study had several limitations. First, our study participants were female students from different universities in Dhaka and thus might not represent all female students in Bangladesh. As this study was conducted only in Dhaka, the results represent the views of urban female students, which might be different from female students in other parts of the country. The presence of recall bias in this study is also likely. Larger population-based studies with adequate power and sample sizes are required to validate the results of our study.

Although the majority of young Bangladeshi female students reported that they knew about HIV/AIDS, their knowledge regarding the transmission and prevention of HIV/AIDS was poor. Strategies for achieving reproductive health education targeted at young female students are essential for the prevention of HIV/AIDS and other STDs.

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