

## The impact of HIV/AIDS education through formal curriculum and texts in Bangladesh: A study on Secondary and Higher Secondary students

Md. Nazmul Huda<sup>1</sup>  
Afsana Ferdous<sup>2</sup>

<sup>1</sup>School of Public Health and Community Medicine, University of New South Wales, Sydney, Australia

<sup>2</sup>Department of Political Science, Dhaka University, Bangladesh

**Citation:** Huda, M. N. & Ferdous, A. (2018). The impact of HIV/AIDS education through formal curriculum and texts in Bangladesh: A study on Secondary and Higher Secondary Students. *International Journal of Perceptions in Public Health*, 2(2):94-107.

DOI:10.29251/ijpph.201831

\* Corresponding author:

Md. Nazmul Huda  
PhD Researcher  
School of Public Health and  
Community Medicine, University of  
New South Wales, Sydney, Australia  
E-mail: nazmulsoc2008@gmail.com

### Abstract

**Background:** The education sector in Bangladesh provides students with information about HIV/AIDS which may emerge as a major public health and socioeconomic problem affecting students. **Objective:** The purpose of this study was to assess the impact of HIV/AIDS education through Formal Curriculum and Texts (FCT) on secondary and higher secondary students in Bangladesh. **Methods:** Using multistage cluster sampling technique, a total of 384 students aged between 11-19 years were chosen from four secondary and higher secondary institutions in Bangladesh and interviewed through a predesigned structured questionnaire. For triangulation of the quantitative findings, the study employed Key Informant Interview (KII) technique to collect qualitative data from the teachers. **Results:** The findings of the study show that a little more than half of the students (53.1 percent) reported that HIV/AIDS education prevented students from having unprotected intercourse while 52.60 percent of them stated that it helped to increase self-efficacy. Again, a significant proportion of the students (70.1 percent) said that HIV/AIDS education removed their misconceptions. It can be said that the textbooks of secondary and higher secondary students lack sufficient information about HIV/AIDS. **Conclusion:** Therefore, the Government of Bangladesh may take an initiative to include more information about HIV/AIDS in the textbooks of secondary and higher secondary students.

**Keywords:** HIV/AIDS, Curriculum, Education, School student, Bangladesh

## Introduction

The existence of HIV/AIDS poses a serious challenge to humankind. According to UNAIDS (2017, 2013, 2008), no disease in history has prompted a comparable mobilization of political, financial, and human resources, and no development challenge has led to such a strong leadership by communities and countries that are most heavily affected. By reducing life expectancy, increasing child mortality, and proliferating the number of orphans, HIV/AIDS impoverishes individuals, communities, and nations by eroding the capacities of socio-economic systems through loss of human resources, the most important resources for meaningful and sustainable development (Amanullah & Huda, 2012; UNAIDS, 2008).

The devastating effect of the HIV/AIDS pandemic especially on the young generation is a major impediment to development. Accordingly, education can be used as a tool to create awareness regarding HIV/AIDS among the youth and students across the world (Bekeny, 2009; UNAIDS, 2013). It is observed that students are reluctant to talk about HIV/AIDS and STDs (Sexually Transmitted Diseases) to teachers or doctors or nurses, for they either are embarrassed or are worried that confidentiality will not be respected (Baxen, 2004; Sarma, Islam, Khan, Chowdhury, & Gazi, 2017). Again, they may feel equally uncomfortable talking to their parents, and their parents in turn may also be embarrassed or lack the confidence to discuss the subject with their children (Huda 2011, 2013). There are two main reasons for HIV/AIDS education through FCT for secondary and higher secondary students. First, students must be aware of HIV in order to avert HIV infection. This consists of two processes: (a) giving students information about HIV—what HIV and AIDS are, how they are transmitted, and how students can protect themselves from infection, and (b) teaching students how to put this information to use and act on it practically.

Second, students need AIDS education through formal curriculum and texts to reduce stigma and discrimination (Huda 2011, 2013). In many countries including Bangladesh, there is a great deal of fear and stigmatization of people who are HIV positive. This fear is too often accompanied by ignorance, resentment, and ultimately anger (Amanullah & Huda, 2012). Therefore, HIV/AIDS education for secondary and higher secondary students through FCT may play a vital role in reducing this discrimination. Though information is an important component of any effort to change behaviour and the foundation for all HIV prevention, youths and students do not have sufficient access to information related to sexual health and HIV/AIDS.

Recognizing its significance, PIACT Bangladesh began introducing for the first time in Bangladesh, an evidence-based curriculum for HIV/AIDS education for government schools of classes six to twelve throughout the country as part of the Government of Bangladesh's project entitled 'Prevention of HIV/AIDS among young people in Bangladesh' in 2007 (PIACT Bangladesh, 2009; Sarma, Islam, Khan, Chowdhury, & Gazi, 2017). Since then, textbooks play a significant role in disseminating HIV/AIDS related information among the secondary and higher secondary students in Bangladesh. The present study has been carried out among the secondary and higher secondary students in Bangladesh for several important reasons. First, the students in Bangladesh are susceptible to HIV and STDs. However, they lack useful information about the taboo subject (Huda, 2013; Huda & Amanullah, 2013). Second, students and teachers in Bangladesh, a predominantly conservative Muslim society, are very reluctant to talk to each other about HIV/AIDS. Therefore, textbooks can be an excellent medium to address and disseminate information about these sensitive issues (Huda, 2011). Third, no study has been conducted yet among

the secondary and higher secondary students to evaluate the impact of HIV/AIDS education through FCT in Bangladesh. It is one of the seriously neglected issues in Bangladesh. The findings of this study will help contribute to the research literature on how HIV/AIDS education through FCT results in positive effects among the secondary and higher secondary students. Thus, it may assist other researchers, policy makers, and those involved in implementing HIV/AIDS education through FCT in Bangladesh. Also, the results of the study will contribute to the knowledge base on demographic and socio-economic characteristics of secondary and higher secondary students.

### Information about HIV/AIDS in the text books of secondary and higher secondary institutions

Age appropriate information on HIV/AIDS was incorporated in the curriculum of

grades six to twelve. In most of the cases, the information was given in general science textbooks. The following table shows a review of the existing curriculum and texts containing information on HIV/AIDS for secondary and higher secondary students in Bangladesh.

## Data and Methods

### Study design and data collection methods

The study employed a mixed-method design, where both quantitative and qualitative data collection techniques, namely survey and KII were utilized to collect data from the study respondents. The decision to use both quantitative and qualitative methods of data collection was because of their appropriateness for examining different facets of the phenomena under study, for triangulation

**Table 1. HIV/AIDS information currently available in text books of secondary and higher secondary institutions**

Grades	Name of the Books	Information on HIV/AIDS and STDs
Grade 6	General Science	An introduction to AIDS: HIV virus, how does HIV spread, how it does not spread and how we can save ourselves from this disease
Grade 7	General Science	What is HIV/AIDS, how does HIV spread, how it does not spread (some pictorial presentations), self-consciousness to prevent spread of HIV/AIDS, what students should do
Grade 8	General Science	Structure of HIV, how does it spread, symptoms of AIDS, STDs and HIV, prevention of AIDS, self-consciousness of controlling AIDS, HIV/AIDS: global situation (e.g. Cambodia, Indonesia, Vietnam, Nepal, Thailand) and Bangladesh
Grade 9 & 10	Social Science	What is HIV /AIDS, symptoms of AIDS, AIDS prevention: saying 'No', adolescents are risky in transmitting HIV/AIDS; STDs (Gonorrhoea, Syphilis, Chlamydia, Trichomoniasis, Genital Sore, Genital herpes, Hepatitis B etc.);
	General Science	AIDS prevention: saying 'No', adolescents are risky in transmitting HIV/AIDS; STDs and HIV; nursing of HIV/AIDS; HIV/AIDS: global situation and Bangladesh
Grade 11 & 12	Bangla Sankalon	Aporanher Golpo (story of the 'Last Moment of Life') a telefilm written by Humayun Ahmed: who invented HIV, AIDS day, UNAIDS, statistics of HIV infected people in the world specially Bangladesh, three ways of transmitting HIV: through semen, blood and breast feeding, how to prevent its spread

of the data, and for adding breadth and depth to the examination of the issues being studied. These purposes are consistent with the suggestions made by Green, Caracelli, and Graham (1989) and Patton (1990) about the use of the both quantitative and qualitative methods of research in a singular study.

### Sampling Procedure

The study was carried out among the students of grades six to twelve in some educational institutions in Bangladesh. The current study utilized multistage cluster sampling design to choose the students from secondary and higher secondary institutions in Bangladesh. First of all, we randomly selected three divisions (e.g., Dhaka, Ranpur and Barisal) out of seven. In the second stage, three districts namely Dhaka, Dinajpur and Barisal were chosen from the aforementioned divisions in the same way. After collecting the lists of secondary and higher secondary institutions of each of the three districts from the office of Directorate General of Secondary and Higher Education, Bangladesh, we randomly selected four secondary and higher secondary institutions including Engineering University School and College, Agailjhara Bhegai Halder Public Academy, Birampur Adarsha Business Management College, and Paise Secondary School and College.

Then, 96 students from each of the institutions were picked out using lottery method from the student list of each institution. Once the desired 96 respondents from each institution were selected, the researchers then moved to the next sampled institution. Overall, 384 students from grades six to twelve from the four sampled institutions were chosen for the current study.

The probability proportion of the impact of HIV/AIDS education through FCT made students aware of unprotected intercourse is one of the main indicators in the current

study. As such, that proportion from a recent study (Sarma, Islam, Khan, Chowdhury, & Gazi, 2017) has been used in the calculation of sample size for the survey. The study suggested that 51 percent of the student reported that HIV/AIDS formal education program among students made them aware of unprotected intercourse. In other words, approximately 49 percent of the students stated that HIV/AIDS education program among students did not make them aware about unprotected sex. There were 2,789 students in the four selected secondary and higher secondary institutions. Based on all information (confidence level=95%, confidence interval= 0.04650, population size=2,789, standard error=0.02372, proportion (p) =0.51), we have calculated a sample size of 384 students for the study using a sample size calculator (Australian Bureau of Statistics, n.d).

### Data Analysis

All data were entered using the Statistical Package for the Social Sciences (SPSS) software. The analysis was done in two stages: descriptive statistics, and bivariate analysis. In this study, descriptive statistics were used to examine the students' socio-demographic characteristics and the impact of HIV/AIDS education through FCT on secondary and higher secondary students. The scores on the socio-demographic characteristics and impact of HIV/AIDS education through FCT were in frequency and percentage form of categorized responses. In the process of analysis, relationships supporting or refusing the pre-formulated hypothesis were subjected to statistical tests of significance. Test statistics like Pearson Chi-square was used to measure the magnitude/strength of relationships among the variables. In addition, qualitative data was coded manually and analysed using thematic discourse analysis which refers to a wide range of pattern-type analysis of data (Blair, 2015; Braun & Clarke, 2006).

## Ethical considerations

In this study, ethical standards have been maintained at every stage. While collecting information, the respondents were informed clearly that the information they provided would be kept in strict confidence. Only the researcher would have access to the questionnaires. Anonymity of the participants was maintained in the data analysis of the study. Besides, participation of the respondents was voluntary. Respondents could agree to answer questions or refuse to participate at any time.

## Results and discussion

### Students' socio-demographic and economic profile

This study examined the socio-demographic and economic profile of students of secondary and higher secondary institutions in Bangladesh. The findings of the study demonstrated that a considerable proportion of students (51.30 percent) belonged to the age group of less than 16 years. The average age of the respondents was 15.10 years with a standard deviation of 2.006. Most of the respondents were male (71.10 percent) and unmarried (97.0 percent). In terms of students' level of education, a majority of the students were at the secondary level. Location of the educational institution was another key determinant of the impact of HIV/AIDS education through FCT on the secondary and higher secondary students in Bangladesh.

The results of the current study demonstrated that the percentage of students from urban institutions were slightly greater than those of rural institutions, because the sampled urban educational institutions comprised a greater number of respondents of the total sample. Again, of the respondents surveyed, three-fourths of them were Muslims (75.30 percent) while the rest of

the participants were the followers of other religions such as Hinduism, Buddhism, and Christianity. Irrespective of religious affiliation, more than half of the students (54.2 percent) regularly performed religious activities, such as offering prayer or worshipping, fasting, etc. This finding is consistent with the study conducted by Sheeran et al. (2002). With regards to the monthly household income, a considerable number (37.2 percent) of the students' household income was less than 10,000 BDT (Bangladeshi taka) monthly. Service, including government and private service, was their major source of income as stated by a considerable number of students (36.7 percent) followed by agriculture (32 percent) and business (31.3 percent). These findings are moderately in line with those of the study done by Huda (2013).

### Impact of HIV/AIDS education through FCT on secondary and higher secondary students

The word HIV/AIDS was an unknown and alien word to most of the students until it appeared in the textbooks in 2007. Since then, students of different grades more or less know about the deadly disease. Thus, AIDS education through FCT has become one of the effective means of making students aware of the taboo subject. This study evaluated the impact of HIV/AIDS education through FCT on the secondary and higher secondary students in Bangladesh. In order to measure the impact, students of grades six to twelve were asked some questions relating to the contribution of HIV/AIDS education through FCT. The results of the current study suggest that more than half of the students (53.1 percent) reported that HIV/AIDS education prevented students from having unprotected intercourse, while 52.60 percent of them stated that it helped increase their self-efficacy. These findings are in line with those of studies conducted by Caillods, Michael, and Barbara (2008), Kohler, Manhart, and William (2008) and Kirby & Laris (2009). Their results showed

that adolescents who received comprehensive sex education were significantly less likely to report teen pregnancy and also had a lower likelihood of engaging in vaginal intercourse. Again, as many as 70.1 percent of the students claimed that HIV/AIDS education through FCT removed misconceptions and 76.0 percent said it made them more conscious of the taboo subject. The above results match with those of 83 studies reviewed by Kirby, Laris, and Roller (2007) on the impact of sex and HIV/AIDS education on sexual behaviour of young people throughout the world. They concluded that there is positive impact of curriculum-based sex and HIV/AIDS education on the behaviour of adolescents and young adults. On the contrary, the findings of the current study contradict with a study conducted by Hyera et al. (2005) on students in South Korea. In the current study, the following quotation from a KII participant depicts the contribution of HIV/AIDS education through FCT in Bangladesh:

*“When a chapter on HIV/AIDS education was incorporated into the textbooks of*

*secondary school students, it earned much appreciation from the teachers’ communities. However, some of us opposed the initiative and faced challenges to teach the sensitive issue. Despite resistance from a section of teachers and guardians, it can be said that HIV/AIDS education through FCT is the best tool to disseminate the message about the taboo subject among the students in Bangladesh.”*

These findings of the current study are consistent with those of studies conducted by Sarma, Islam, and Gazi (2013) and Sarma, Islam, Khan, Chowdhury, & Gazi (2017).

#### **Association between some socio-demographic variables and impact of HIV/AIDS education through FCT on secondary and higher secondary students**

Measures of association were calculated in order to examine the relationship between a set of socio-demographic and economic characteristics and some dependent variables such as whether HIV/AIDS

**Table 2: Impact of HIV/AIDS education through FCT on secondary and higher secondary students in Bangladesh (n=384)**

Impact of HIV/AIDS education through FCT on secondary and higher secondary students	Number	Percent
Whether HIV/AIDS education through FCT prevents from having unprotected intercourse		
Yes	204	53.1
No	124	32.3
Do not know	56	14.6
Whether HIV/AIDS education through FCT increases ‘self-efficacy		
Yes	202	52.6
No	78	20.3
Do not know	104	27.1
Whether HIV/AIDS education through FCT removes misconceptions about HIV/AIDS		
Yes	269	70.1
No	58	15.1
Do not know	57	14.8
Whether HIV/AIDS education through FCT makes them more conscious than before		
Yes	292	76.0
No	41	10.7
Do not know	51	13.3

In the present study, the term self-efficacy was used to refer to students’ beliefs about their abilities to perform positive health-related behaviours (Bandura, 1977).

education through FCT prevents students from having unprotected sex, whether it increases their self-efficacy, whether it removes misconceptions about HIV/AIDS, and whether it makes them more conscious of HIV/AIDS than before.

### Association between socio-demographic and economic factors and whether HIV/AIDS education through FCT helps to prevent students from having unprotected sex

The results of the study as described in Table 3 show that age and education have a strong association with whether HIV/AIDS education through FCT prevents students from having unprotected sex. It implies that older students and those of secondary

level education showed greater propensity to state that AIDS education contributed to reduce unprotected sex among the students. The crucial reasons behind this type of association are that older students were more cautious of risky behaviour like unprotected sex and students of secondary level education (especially those of grades nine and ten) had two textbooks, namely Social Science and General Science, containing information about HIV/AIDS compared with those of higher secondary level education. These quantitative findings are supported by those of a KII conducted on a teacher of a secondary school.

*“Older students are more intending to learn and respond to HIV/AIDS related subjects.”*

**Table 3. Association between selected socio-demographic factors and whether HIV/AIDS education through FCT help prevent students from having unprotected intercourse**

Socio-demographic variables	Whether HIV/AIDS education through FCT help prevent from having unprotected intercourse				Chi-square and p values	
	Yes	No	DK**	Total		
Age (in years)	<16	72 (18.8)	74 (19.3)	51 (13.3)	$\chi^2=6.55^*$ , $p=0.03$	
	>16	90 (23.4)	50 (13.0)	47 (12.2)		
	Total	162 (42.2)	124 (32.3)	98 (25.5)		384 (100.0)
Education level	Secondary level	140 (36.5)	111 (28.9)	87 (22.7)	$\chi^2=7.71^*$ , $p=0.04$	
	Higher secondary level	22 (5.7)	13 (3.4)	11 (2.9)		46 (12.0)
	Total	162 (42.2)	124 (32.3)	98 (25.5)		384 (100)
Location of institution	Rural	75 (19.5)	64 (16.7)	39 (10.2)	$\chi^2=8.07^*$ , $p=0.02$	
	Urban	87 (22.7)	60 (15.6)	59 (15.4)		206 (53.6)
	Total	162 (42.2)	124 (32.3)	98 (25.5)		384 (100)
Religion	Muslim	118 (30.7)	96 (25)	75 (19.5)	$\chi^2=3.07$ , $p=0.22$	
	Non-Muslim	44 (11.5)	28 (7.3)	23 (6)		95 (24.7)
	Total	162 (42.2)	124 (32.3)	98 (25.5)		384 (100)
Source of income	Agriculture	46 (12)	44 (11.5)	33 (8.6)	$\chi^2=4.79$ , $p=0.2$	
	Business	53 (13.8)	40 (10.4)	27 (7)		120 (31.3)
	Service	63 (16.4)	40 (10.4)	38 (9.9)		141 (36.7)
	Total	162 (42.2)	124 (32.3)	98 (25.5)		384 (100)
Monthly household income (in taka)	<10,000	55 (14.3)	44 (11.5)	44 (11.5)	$\chi^2=8.24^*$ , $p=0.01$	
	10,000 to 20,000	52 (13.5)	38 (9.9)	22 (5.7)		112 (29.2)
	>20,000	55 (14.3)	42 (10.9)	32 (8.3)		129 (33.6)
	Total	162 (42.2)	124 (32.3)	98 (25.5)		384 (100)

\* $p<0.05$

\*\*DK stands for don't know

Figures in the parentheses are percentages

*Irrespective of the location of institutions, level of education, their monthly household income, each and every student will acknowledge that HIV/AIDS education through FCT has made them cautious of risk behaviours.”*

These results of the present study are in line with those of a qualitative study carried out by Ado and Mensah (2015) among Ivorian school students. According to their study, HIV/AIDS education through FCT made students cautious of the taboo subject and led them to practice safe sex behaviours. Again, the dependent variable has a robust relationship with the location of educational institutions. This implies that students of urban institutions, compared with those of rural institutions,

were more likely to report that HIV/AIDS education through FCT helped prevent unprotected sex. Bivariate results of the study also suggest that students having a lower level of household income were more likely to say that HIV/AIDS education helped them in averting unprotected sex. However, no association has been detected between religion as well as source of income and the dependent variable.

#### **Association between socio demographic characteristics and whether HIV/AIDS education through FCT increases their self-efficacy**

Strong associations were found between whether HIV/AIDS education through FCT increases their self-efficacy and level of

**Table 4: Association between selected socio-demographic variables and whether HIV/AIDS education through FCT increases ‘self-efficacy’ of students**

Socio-demographic variables	Whether HIV/AIDS education through FCT increases ‘self-efficacy’				Chi-square and p values	
	Yes	No	DK**	Total		
Age (in years)	<16	83 (21.6)	48 (12.5)	66 (17.2)	$\chi^2=17.86^*$ , $p=0.00$	
	>16	119 (31)	30 (7.8)	38 (9.9)		
	Total	202 (52.6)	78 (20.3)	104 (27.1)		384 (100)
Education level	Secondary level	172 (44.8)	73 (19)	93 (24.2)	$\chi^2=4.07$ , $p=0.13$	
	Higher secondary level	30 (7.8)	5 (1.3)	11 (2.9)		46 (12)
	Total	202 (52.6)	78 (20.3)	104 (27.1)		384 (100)
Location of institution	Rural	81 (21.1)	41 (10.7)	56 (14.6)	$\chi^2=6.74^*$ , $p=0.03$	
	Urban	121 (31.5)	37 (9.6)	48 (12.5)		206 (53.6)
	Total	202 (52.6)	78 (20.3)	104 (27.1)		384 (100)
Religion	Muslim	153 (39.8)	65 (16.9)	71 (18.5)	$\chi^2=6.49^*$ , $p=0.04$	
	Non-Muslim	49 (12.8)	13 (3.4)	33 (8.6)		95 (24.7)
	Total	202 (52.6)	78 (20.3)	104 (27.1)		384 (100)
Source of income	Agriculture	52 (13.5)	28 (7.3)	43 (11.2)	$\chi^2=16.44^*$ , $p=0.002$	
	Business	61 (15.9)	32 (8.3)	27 (7)		120 (31.2)
	Service	89 (23.2)	18 (4.7)	34 (8.9)		141 (36.7)
	Total	202 (52.6)	78 (20.3)	104 (27.1)		384 (100)
Monthly household income (in taka)	<10,000	58 (15.1)	34 (8.9)	51 (13.3)	$\chi^2=17.08^*$ , $p=0.002$	
	10,000 to 20,000	60 (15.6)	24 (6.2)	28 (7.3)		112 (29.2)
	>20,000	84 (21.9)	20 (5.2)	25 (6.5)		129 (33.6)
	Total	202 (52.6)	78 (20.3)	104 (27.1)		384 (100)

\* $p<0.05$

\*\*DK stands for don't know

Figures in the parentheses are percentages



education as well as age of the respondents. The findings demonstrated that older respondents and those with urban institutions were more likely to report that AIDS education increased the self-efficacy of students. Likewise, religion had been emerged as two important determinants of self-efficacy of students. It implies that Muslim students showed greater tendencies to state that HIV/AIDS education helped increasing their self-efficacy. Similar relationships were also found between self-efficacy of students and sources of incomes as well as monthly household income. Bivariate results of the study demonstrated that respondents whose households' source of income was service (e.g., government and private

services) and students with higher level of household income were more likely to state that HIV/AIDS education through FCT increased their self-efficacy. This is consistent with the findings of studies conducted by Basen-Engquist and Parcel (1992), Joffe and Radius (1993), and Seal et al., (1997). These quantitative findings are supported by the findings of the KII carried out on a college teacher.

*"We know that adolescent boys and girls are at the most at risk of becoming infected with HIV. They may become engaged in risky sexual behaviours. HIV/AIDS education through FCT has encouraged them to say NO, thus increasing their self-efficacy to avert any risky sexual behaviour."*

**Table 5: Association between selected socio-demographic variables and whether HIV/AIDS education through FCT removes misconceptions about HIV/AIDS**

Socio-demographic variables	Whether HIV/AIDS education through FCT removes misconceptions about HIV/AIDS				Chi-square and p values
	Yes	No	DK**	Total	
Age (in years)	<16	120 (31.2)	42 (10.9)	35 (9.1)	$\chi^2=17.50^*$ , p= 0.00
	>16	149 (38.8)	16 (4.2)	22 (5.7)	
	Total	269 (70.1)	58 (15.1)	57 (14.8)	
Education level	Secondary level	230 (59.9)	55 (14.3)	53 (13.8)	$\chi^2=7.50^*$ , p= 0.04
	Higher secondary level	39 (10.2)	3 (0.8)	4 (1.0)	
	Total	269 (70.1)	58 (15.1)	57 (14.8)	
Location of institution	Rural	110 (28.6)	33 (8.6)	35 (9.1)	$\chi^2=11.01^*$ , p= 0.004
	Urban	159 (41.4)	25 (6.5)	22 (5.7)	
	Total	269 (70.1)	58 (15.1)	57 (14.8)	
Religion	Muslim	205 (53.4)	40 (10.4)	44 (11.5)	$\chi^2=1.48$ , p= 0.48
	Non-Muslim	64 (16.7)	18 (4.7)	13 (3.4)	
	Total	269 (70.1)	58 (15.1)	57 (14.8)	
Source of income	Agriculture	78 (20.3)	18 (4.7)	27 (7)	$\chi^2=16.20^*$ , p= 0.003
	Business	77 (20.1)	25 (6.5)	18 (4.7)	
	Service	114 (29.7)	15 (3.9)	12 (3.1)	
	Total	269 (70.1)	58 (15.1)	57 (14.8)	
Monthly household income (in taka)	<10,000	91 (23.7)	23 (6.0)	29 (7.6)	$\chi^2=20.20^*$ , p=0.00
	10,000 to 20,000	71 (18.5)	26 (6.8)	15 (3.9)	
	>20,000	107 (27.9)	9 (2.3)	13 (3.4)	
	Total	269 (70.1)	58 (15.1)	57 (14.8)	

\*p<0.05

\*\*DK stands for don't know

Figures in the parentheses are percentages

### Association between socio-demographic and economic factors and whether HIV/AIDS education through FCT removes their misconceptions about HIV/AIDS

Table 5 shows the statistical association between a set of socio-demographic and economic factors and whether HIV/AIDS education through FCT removes students' misconceptions about HIV/AIDS. The results reveal that age was found to be significantly associated with the dependent variable. It indicated that students with older age were more likely to comprehend that HIV/AIDS education through FCT removed their misconceptions about HIV/AIDS. Again, data on level of education displayed that students having secondary

level education were more likely to opine in the favor of the contribution of HIV/AIDS education in removing misconception. Quantitative findings of this study are in line with those of qualitative findings as given below:

*“There are some misconceptions about HIV/AIDS among the students. For example, one may say that HIV can be spread through hugging. Our students know that this is a kind of misconception. They have come to know some common misconceptions about HIV/AIDS through their textbooks.”*

Moreover, the location of educational institutions was significantly associated with whether HIV/AIDS education through FCT removes students' misconceptions

**Table 6. Association between selected socio-demographic factors and whether HIV/AIDS education through FCT makes them more conscious than before**

Socio-demographic variables	Whether HIV/AIDS education through FCT makes them more conscious than before				Chi-square and p values	
	Yes	No	DK**	Total		
Age (in years)	<16	144 (37.5)	20 (5.2)	33 (8.6)	$\chi^2=4.23$ , $p=0.12$	
	>16	148 (38.5)	21 (5.5)	18 (4.7)		
	Total	292 (76)	41 (10.7)	51 (13.3)		384 (100)
Education level	Secondary level	255 (66.4)	38 (9.9)	45 (11.7)	$\chi^2=0.98$ , $p=0.61$	
	Higher secondary level	37 (9.6)	3 (.8)	6 (1.6)		46 (12)
	Total	292 (76)	41 (10.7)	51 (13.3)		384 (100)
Location of institution	Rural	124 (32.3)	22 (5.7)	32 (8.3)	$\chi^2=8.17^*$ , $p=0.01$	
	Urban	168 (43.8)	19 (4.9)	19 (4.9)		206 (53.6)
	Total	292 (76)	41 (10.7)	51 (13.3)		384 (100)
Religion	Muslim	228 (59.4)	24 (6.2)	37 (9.6)	$\chi^2=7.61^*$ , $p=0.02$	
	Non-Muslim	64 (16.7)	17 (4.4)	14 (3.6)		95 (24.7)
	Total	292 (76)	41 (10.7)	51 (13.3)		384 (100)
Source of income	Agriculture	92 (24)	9 (2.3)	22 (5.7)	$\chi^2=11.65^*$ , $p=0.02$	
	Business	83 (21.6)	19 (4.9)	18 (4.7)		120 (31.2)
	Service	117 (30.5)	13 (3.4)	11 (2.9)		141 (36.7)
	Total	292 (76)	41 (10.7)	51 (13.3)		384 (100)
Monthly household income (in taka)	<10,000	95 (24.7)	19 (4.9)	29 (7.6)	$\chi^2=14.45^*$ , $p=0.006$	
	10,000 to 20,000	91 (23.7)	13 (3.4)	8 (2.1)		112 (29.2)
	>20,000	106 (27.6)	9 (2.3)	14 (3.6)		129 (33.6)
	Total	292 (76)	41 (10.7)	51 (13.3)		384 (100)

\* $p < 0.05$

\*\*DK stands for don't know

Figures in the parentheses are percentages

about HIV/AIDS, that is, students of urban educational institutions were more likely to report that HIV/AIDS education through FCT helped removing misconceptions about HIV/AIDS. With regard to monthly income and source of income, the findings of the study displayed that students whose households' income source was service and those with more income were more likely to confirm the contribution of HIV/AIDS in removing misconceptions about HIV/AIDS.

### **Association between location of institution, religion, source of income, monthly household income and whether HIV/AIDS education through FCT makes them more conscious than before**

From Table 6, it is observed that some significant associations exist between a set of socio-demographic factors and the dependent variable. The location of educational institution is significantly related to consciousness of HIV/AIDS. Findings indicated that students of urban educational institution were more likely to report that HIV/AIDS education through FCT made students more aware of HIV/AIDS than before. In the same vein, religion is found to have a robust relationship with the dependent variable. Results indicated that participants who were the followers of Islam demonstrated greater propensity to report that HIV/AIDS education made them more alert about HIV/AIDS. Results on source of income and monthly household income displayed that students whose household income source was service (e.g., government and private services) and those having more income showed greater propensity to report that AIDS education through formal curriculum and texts make them more conscious of HIV/AIDS. These findings are similar to the findings of the study conducted by Bennell, Karen, and Nicola (2002). However, no strong relationship was found between age as well as level of education and the dependent variable. The

quantitative findings of the present study are consistent with the following KII findings:

*“Textbooks are the best means of disseminating information about HIV/AIDS among the secondary and higher secondary students. No other means is as effective as textbooks to make them aware of the sensitive subject.”*

### **Limitations**

The current study has confronted some limitations. First, existing literature and research lack useful information on the impact of HIV/AIDS education through FCT on students across the world. More specifically, no study so far has been conducted on the impact of HIV/AIDS education through FCT on the students in Bangladesh. Therefore, it was difficult to provide useful literature and comparison with other studies. Second, because of the self-reported nature of the questionnaire, the honesty of respondents' responses may be questioned. However, the questionnaire was anonymous, which encouraged accurate and honest response.

### **Conclusions**

Secondary and higher secondary institution-based HIV/AIDS education is a common and well-proven intervention strategy for providing information on HIV/AIDS to students. Young people including students are at the centre of the HIV epidemic; almost half of all HIV-infected people are aged 15-24 years across the world (Huda & Amanullah 2013; Sarma & Oliveras 2013). Therefore, HIV/AIDS education through FCT can be considered one of the best mediums of disseminating information among students. This study was undertaken to examine the impact of HIV/AIDS education through FCT on the secondary and higher secondary students in Bangladesh. Quantitative findings of the study reveal that HIV/AIDS education through FCT may have helped students in

averting unprotected intercourse, improving their self-efficacy, removing misconceptions about HIV/AIDS, and making them more conscious of the taboo subject. In this study, quantitative findings are supported by the qualitative findings. It can be said that the textbooks of secondary and higher secondary students lack adequate information on HIV/AIDS. Therefore, the Government of Bangladesh may take an initiative to include more information on the same in the textbooks of secondary and higher secondary students.

### **Acknowledgments**

The paper was presented in an international conference on Social Science and Humanities, organized by Independent University, Bangladesh on 23-25 August, 2014. The author would like to express his heartfelt gratitude to all of the students and teachers who participated in the study.

### **Conflict of Interest**

The authors declared there are no conflict of interest.

## References

- Ado, G., & Mensah, F. M. (2015). The influence of cultural factors on HIV/AIDS education in Ivorian schools. *International Quarterly of Community Health Education*, 35(3), 227-243.
- Amanullah, A.S.M. & Huda, M. N. (2012). Commercial sex and vulnerability to HIV infection: a study among the children of sex workers (SWs) in Tangail brothel. In D. M. Sabet, T. Rahman, & A. S. (Eds.), *Sex workers and their children in Bangladesh: addressing risks and vulnerabilities* (pp. 59-81 ). Dhaka, Bangladesh: University of Liberal Arts Bangladesh and ActionAid Bangladesh.
- Australian Bureau of Statistics. (n.d). *National statistical service*. Australia Government. Retrieved from <http://www.nss.gov.au/nss/home.nsf/pages/Sample+size+calculator>
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, 84(2), 191.
- Basen-Engquist, K., & Parcel, G. S. (1992). Attitudes, norms, and self-efficacy: A model of adolescents' HIV-related sexual risk behavior. *Health education quarterly*, 19(2), 263-277.
- Baxen, A. (2004). Researching HIV/AIDS and education in Sub-Saharan Africa: examining the gaps and challenges. *Journal of Education*, 34(1), 9-30.
- Bekeny, Y. F., (2009). HIV/AIDS Education in Secondary Schools. Masters Thesis, University of Jyväskylä.
- Bennell, P., H. Karen, and S. Nicola. 2002. The Impact of the HIV/AIDS Epidemic on the Education Sector in Sub-Saharan Africa. A synthesis of the Findings and Recommendations of Three Country Studies. England: Centre for International Education, University of Sussex Institute of Education.
- Blair, E. (2015). A reflexive exploration of two qualitative data coding techniques. *Journal of Methods and Measurement in the Social Sciences*, 6(1), 14-29.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3 (2), 77-101.
- Caillods, F., Michael, J. K & Barbara, T. (2008). HIV and AIDS: Challenges for the education Sector. Paris, France: UNESCO/ International Institute for Education Planning.
- Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational evaluation and policy analysis*, 11(3), 255-274.
- Huda, M. N., Rawstorne, P., & Stephenson, N. (2016). *HIV/AIDS responses targeting female sex workers in Bangladesh: beyond individualistic approaches?* Paper presented at the The 12th International Congress on AIDS in Asia and the Pacific (ICAAP).
- Huda, M. N. (2013). Measuring Bangladeshi students' attitudes towards HIV/AIDS: A cross-sectional Study. Published as an e-poster in the 11th International Congress on AIDS in Asia and the Pacific (ICAAP) held in Bangkok, Thailand.
- Huda, M. N. (2011). AIDS education through formal curriculum and texts in Bangladesh: A formative study. Masters Thesis. University of Dhaka: Dhaka.
- Huda, M. N., & Amanullah, A. S. M., (2013). HIV/AIDS-related knowledge among The secondary school students in Bangladesh: A cross-sectional study. *Advances in Infectious Diseases* 3: 274-80.
- Hyera, Y., Lee, S. H., Kwon, B. E., Chung, S., & Kim. S., (2005). HIV/AIDS knowledge, attitudes related behaviours and sources of information among Korean adolescents. *School Health* 75 (10): 393-399.
- Yoo, H., Lee, S. H., Kwon, B. E., Chung, S., & Kim, S. (2005). HIV/AIDS knowledge, attitudes, related behaviors, and sources of information among Korean adolescents. *Journal of School Health*, 75(10), 393-399.
- Joffe, A., & Radius, S. M. (1993). Self-efficacy and intent to use condoms among entering college freshmen. *Journal of Adolescent Health*, 14(4), 262-268.
- Kirby, D. B., Laris, B. A., & Roller, L. A. (2007). Sex and HIV education programs: their impact on sexual behaviors of young people throughout the world. *Journal of Adolescent Health*, 40(3), 206-217.
- Kirby, D., & Laris, B. (2009). Effective curriculum-based sex and STD/HIV education programs for adolescents. *Child Development Perspectives*, 3(1), 21-29.
- Kohler, P. K., Manhart, L. E., & Lafferty, W. E. (2008). Abstinence-only and comprehensive sex education and the initiation of sexual activity and teen pregnancy. *Journal of Adolescent Health*, 42(4), 344-351.
- Patton, M. Q. (1990). *Sampling and triangulation in Qualitative Evaluation and Research Methods*. Newbury Park: Sage Publications.

## References

- PIACT Bangladesh. (2009). Rapid assessment of the role of teachers' training in HIV/AIDS prevention in two selected districts in Bangladesh. Dhaka.
- Rahman, M. M., Kabir, M., & Shahidullah, M. (2009). Adolescent knowledge and awareness about AIDS/HIV and factors affecting them in Bangladesh. *Journal of Ayub Medical College Abbottabad*, 21(3), 3-6.
- Sarma, H., & Oliveras, E. (2013). Implementing HIV/AIDS education: impact of teachers' training on HIV/AIDS education in Bangladesh. *Journal of Health, Population and Nutrition* 31 (1): 20-27.
- Sarma, H., Islam, M. A., & Gazi, R. (2013). Impact of training of teachers on their ability, skills, and confidence to teach HIV/AIDS in classroom: a qualitative assessment. *BMC public health*, 13(1), 990.
- Sarma, H., & Oliveras, E. (2013). Implementing HIV/AIDS education: impact of teachers' training on HIV/AIDS education in Bangladesh. *Journal of health, population, and nutrition*, 31(1), 20.
- Sarma, H., Islam, M. A., Khan, J. R., Chowdhury, K. I. A., & Gazi, R. (2017). Impact of teachers training on HIV/AIDS education program among secondary school students in Bangladesh: A cross-sectional survey. *PLoS one*, 12(7), e0181627.
- Seal, A., Minichiello, V., & Omodei, M. (1997). Young women's sexual risk taking behaviour: re-visiting the influences of sexual self-efficacy and sexual self-esteem. *International Journal of STD & AIDS*, 8(3), 159-165.
- Sheeran, P., Abrams, D., Abraham, C., & Spears, R. (2002). Religiosity and adolescents' premarital sexual attitudes and behavior: An empirical study of conceptual issues. *European Journal of Social Psychology* 23: 39-52.
- UNAIDS. (2017). UNAIDS data 2017. Geneva: Switzerland.
- UNAIDS. (2013). Report on the AIDS epidemic 2013. Geneva: Switzerland.
- UNAIDS. (2008). Report on the AIDS epidemic 2008. Geneva: Switzerland.