



**Knowledge and Attitudes Regarding HIV/AIDS Prevention Among Adolescents
in Bangladesh**

Md. Abbas Uddin

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Author Md. Abbas Uddin

Major Program Nursing Science (International Program)

Major Advisor:

Examining Committee:

.....Chairperson
(Assist. Prof. Dr. Sang-arun Isaramalai) (Assist. Prof. Dr. Wongchan Petpichetchian)

Co-advisor:

.....
(Assist. Prof. Dr. Sang-arun Isaramalai)

.....
(Assoc. Prof. Dr. Jeranoun Thassri)

.....
(Assoc. Prof. Dr. Jeranoun Thassri)

.....
(Assist. Prof. Dr. Umaporn Boonyasopun)

.....
(Dr. Supaporn Wannasuntad)

The Graduate School, Prince of Songkla University, has approved this thesis as partial fulfillment of the requirements for the Master of Nursing Science (International Program).

.....
(Assoc. Prof. Dr. Kerkchai Thongnoo)

Dean of Graduate School

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Author	Md. Abbas Uddin
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ABSTRACT

Adolescents are generally vulnerable to HIV/AIDS infection due to their lack of knowledge and risky sexual behaviors. Understanding their perspective is key in defining strategies for HIV/AIDS prevention. This study aimed to assess Bangladeshi adolescents' knowledge and attitudes regarding HIV/AIDS prevention. A descriptive correlational study was conducted among 88 adolescents. Data were collected by a self-administered questionnaire, which had been validated by three experts. Internal consistency of the knowledge and attitude questionnaires were tested by using Kuder-Richardson (KR-20) reliability and Chronbach's alpha coefficient yielding a value of .81 and .87, respectively. The study showed that the adolescents had a high level of knowledge ($M = 0.82$, $SD = 0.15$) and a positive level of attitude ($M = 2.20$, $SD = 0.39$). The relationship between their knowledge and attitudes was at a low level ($r = .35$, $p < .01$). In addition, a fair level of knowledge on HIV/AIDS non-transmittable routes ($M = 0.61$, $SD = 0.39$) and a neutral attitudes toward infected persons ($M = 1.95$, $SD = 0.31$) were revealed. Preventive strategies to enhance the knowledge on HIV/AIDS non-transmittable routes in order to develop positive attitudes toward infected persons were also recommended.

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CHAPTER 1

INTRODUCTION

Background and Significance of the Problem

The number of people infected with the Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) has been increasing all over the world. The HIV/AIDS incidence rate is higher in developing countries when compared to developed countries. In Bangladesh, the first HIV/AIDS case was reported in 1989, by December 2008, the total number of reported cases was 1,495 (UNICEF, 2009). The prevalence of HIV/AIDS is less than one percent in the general population (Azim et al., 2008). However, the actual count is unknown due to limited and ineffective surveillance facilities (Mondal Takaku, Ohkusa, Sugawara, & Okabe, 2009). The National AIDS/STD Programme (NASP) (2008) has an estimate of 7,500 cases, whereas UNAIDS reports the number to be as high as 12,000 (UNAIDS, 2008).

Adolescents are the highest-risk group to be infected by HIV/AIDS worldwide (Henry, Kaiser Family Foundation, 2008). Transitioning from childhood to adulthood, adolescents go through significant physiological, cognitive and emotional changes (Gillies, 2000). The most common changes include development of sexual characteristics, abstract thought, fantasy in role changes, along with increasing sexual interest as well as peer influence (Smith & Maurer, 2000). In developed countries, adolescents are often educated on sex and reproductive health. As a result, they are equipped with the knowledge to have safe sex which facilitates prevention of sexually transmitted diseases, including HIV/AIDS. Moreover, they are also expected to be

able to establish healthy and respectful relationships with their partners and avoid sexual abuse. On the other hand, in developing countries, adolescents have less opportunity to receive education on sex and reproductive health. With limited exposure and knowledge, they are thus more vulnerable to HIV/AIDS infection (Forrest, Swanson, & Beckstein. as cited in Ahmed, Kabir, Islam, & Rouf, 2008).

In Bangladesh, the number of adolescents (15–24 years of age) is one–sixth of the total population (NASP, 2008). Those who belong to low–income families are likely to not complete high school and are forced to work to earn a living. In urban areas, large numbers of adolescents are employed in garment factories, confectionery factories, hotels, markets, restaurants, transportation, and household work. In the district areas, most male adolescents find work in restaurants and confectionery factories while females are hired to do household work.

Reproductive health education, including HIV/AIDS, is in fact a part of Bangladeshi high school curriculum. Lacking such knowledge, high school dropouts are therefore considered vulnerable to HIV/AIDS infection. Moreover poverty, unemployment, social traditions, migration, inadequate health and reproductive health services also contribute to adolescents' risky sexual behaviors (Mondal et al., 2009).

There are many other risk factors which are directly responsible for increasing HIV/AIDS infection among Bangladeshi adolescents. These risk factors include gender inequality, social stigma, inconsistent or no use of condoms, multiple sexual partners, high rate of sexually transmitted diseases, high number of sex service patrons, sharing of needles, unsafe blood transfusions and risk of transmission from returning migrants (Azim et al., 2008; Mondal et al., 2009).

Another factor that indirectly affects the people of Bangladesh is the prevalence of HIV/AIDS infections in its neighboring countries. Bangladesh shares a large part of its border with India, Myanmar and Nepal. India is currently home to 2.4 million people with HIV/AIDS. Myanmar and Nepal are also among the countries with a high number of the infected. Intermigration between Bangladesh and these countries occurs in large numbers daily for regional, cultural, and commercial purposes. This migration movement increases risk of HIV/AIDS infections among Bangladeshi adolescents (Chan & Khan, 2007; Mondal et al., 2009; Rahman, Kabir, & Shahidullah, 2007).

For these reasons, Bangladesh is a high-risk zone for HIV/AIDS infection. If the Bangladesh government fails to control the spread of HIV/AIDS infection by influencing a change in its adolescents' sexual behaviors, there is a greater risk of this deadly disease spreading to the general population (Mondal et al).

Because AIDS is incurable and its treatment is extremely expensive, preventing the spread of HIV infection, especially in a developing country like Bangladesh, seems to be the most effective public health approach (Mahat & Scoloveno, 2006). Raising awareness and creating motivational activities are key strategies. It has been shown that appropriate counseling and sex education help promote careful decision making, better health conditions, healthy lifestyle, and ultimately prevention of HIV/AIDS infection (Sendir & Acaroglu, cited in Acaroglu, 2007). Providing knowledge and promoting positive attitudes about prevention are important for adolescents all over the world.

Adolescents in developing countries like Iran and Taiwan have a good understanding about HIV/AIDS transmission as well as certain misconceptions about

its non-transmittable routes such as mosquito bites, toilet seats, swimming pools, coughing and sneezing (Hedayati, 2008; Tavoosi, Zaferani, Enzevaei, Tajik, & Ahmadinezhad, 2004; Tung, Ding, & Farmer, 2008). Studies also found that adolescents' feelings toward HIV/AIDS were positive, which meant that they acknowledged AIDS as a serious disease. Their negative feelings toward an infected person, such as not to sit together, not shake hands, and discontinue interaction were also discovered.

Bangladeshi adolescents, on the other hand, exhibit a low level of knowledge about HIV transmission and non-transmittable routes. They also show a non-alarming perception toward HIV/AIDS (Islam & Conigrave, 2008; Islam, Mostafa, Bhuiya, 2002; Larson et al., 2007; Rahman et al., 2007). Studies revealed that the majority of adolescents had positive attitudes toward HIV/AIDS. No study explored the adolescents' attitudes toward an infected person or HIV/AIDS prevention methods. In order to reduce unsafe sexual behaviors, adolescents need to enhance their knowledge and develop correct attitudes toward HIV/AIDS, including transmission, prevention, treatment, motivation and behavioral skills (Haider, Ahmed, & Jaha, 2008; Islam & Conigrave; World Health Organization : WHO, 2005).

There is limited information regarding the relationship between the knowledge of HIV/AIDS prevention and the attitudes among the Bangladeshi adolescents. Thus, the present study identified and examined such relationships. The results of this study would be helpful to create prevention strategies which translate to an increase in the adolescents' knowledge of and positive attitudes toward HIV/AIDS prevention.

Objectives of the Study

1. To identify the level of knowledge regarding HIV/AIDS prevention among Bangladeshi adolescents.
2. To identify the level of attitudes regarding HIV/AIDS prevention among Bangladeshi adolescents.
3. To examine the relationship between knowledge and attitudes regarding HIV/AIDS prevention among Bangladeshi adolescents.

Questions of the Study

1. What is the level of knowledge regarding HIV/AIDS prevention among Bangladeshi adolescents?
2. What is the level of attitudes regarding HIV/AIDS prevention among Bangladeshi adolescents?
3. Is there a relationship between knowledge and attitudes regarding HIV/AIDS prevention among Bangladeshi adolescents?

Hypothesis

There is a positive relationship between knowledge and attitudes regarding HIV/AIDS prevention among Bangladeshi adolescents.

Conceptual Framework of the Study

The conceptual framework of this study was constructed based on Bloom (1956), which explains the relationship between knowledge and attitudes that the knowledge which one has gained will likely contribute to one's attitudes. In addition,

Hedayati also added that participants' knowledge was significantly associated with their attitudes. Moreover, literature about knowledge and attitudes regarding HIV/AIDS (Al-Serouri, Takioldin, Oshish, Aldobaibi, & Abdelmajed, 2002; Ayranci, 2005; Hedayati, 2008; Montazeri, 2005; Shirin, & Ahmed, 2007) were studied and analyzed to develop the conceptual structure of the study variables.

Knowledge is described in Webster's dictionary (1996) as an understanding of science, art or technique. It is the body of truth, information, and principles. In this study, knowledge regarding HIV/AIDS prevention refers to adolescents' general knowledge of HIV/AIDS infection such as basic information, causative organism, types of the disease, effects of the virus on the human body, vaccines, and detection. Knowledge also includes an understanding of routes of transmission and non-transmittable routes. Routes of transmission are unprotected sex, sharing of needles or shaving blades, infected blood transfusion, transmission from an infected mother to her unborn baby as well as through birth and breastfeeding. Non-transmittable routes include mosquito bites, shaking hands, coughing and sneezing, sharing food, belongings, toilets and bath ponds. In addition, knowledge of prevention methods which are moral commitment, religious rules, avoid sharing shaving blade and used needles, safe blood transfusion, avoid participating in any unprotected sex and consistently using condoms is also observed.

An attitude is defined as the mental network of concepts, beliefs, feelings and actions associated with a given object/issue (Thomas & Zanieki as cited in Doyle, 1987). Attitudes are developed based on acquired knowledge and experience (Bloom, 1956).

In this study, attitudes regarding HIV/AIDS prevention refer to attitudes toward the HIV/AIDS infection itself, attitudes toward prevention methods, such as moral commitment, religious rules, education on the disease in school, family class, and discussion with friends, available AIDS information, and lastly, attitudes toward the infected person, such as sympathy, continuation of relationship, maintaining confidentiality, sharing of desks, toilet seats, bath ponds, separating hospital, discontinuation of employment, pursuing a normal life, living without fear and anxiety including toward family member.

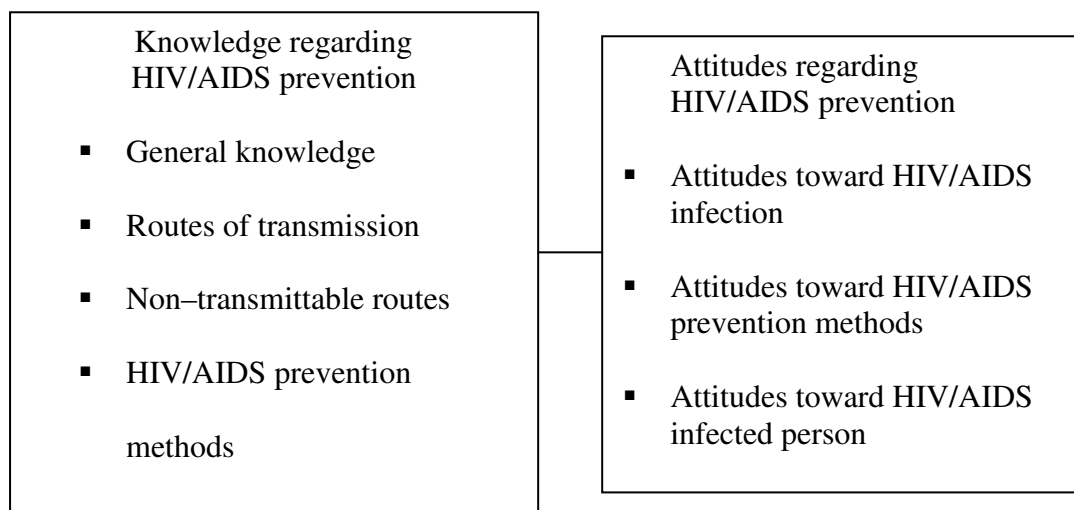


Figure 1

Conceptual Framework of the Study

Definition of Terms

Knowledge regarding HIV/AIDS prevention refers to adolescents' understanding of general knowledge about HIV/AIDS, routes of transmission, non-transmittable routes, and prevention methods.

General knowledge about HIV/AIDS refers to basic understanding of AIDS, causative organism, types of the disease, effects of the virus in human body, available vaccines, and detection of HIV infection.

Knowledge about routes of transmission refers to an understanding that HIV/AIDS can be transmitted through unprotected sex, shared needles and razor blades, blood transfusions, as well as between mother and child, either in utero or via delivery and breastfeeding.

Knowledge about non-transmittable routes refers to an understanding that HIV/AIDS cannot be transmitted through mosquito bites, shaking hands, coughing and sneezing, sharing food, belongings, toilets and bath ponds.

Knowledge about prevention methods refers to an understanding that HIV/AIDS can be prevented by moral commitment, religious rules, avoiding the sharing of shaving blades and injection needles, blood screening before transfusion, and protected sexual encounters.

Attitudes regarding HIV/AIDS prevention refer to adolescents' beliefs and feelings toward HIV/AIDS infection, prevention methods, and infected persons.

Attitudes toward HIV/AIDS infection refer to feelings about HIV/AIDS disease. For example AIDS is a threat (could be positive or negative feeling about HIV/AIDS).

Attitudes toward HIV/AIDS preventive methods refer to feelings about HIV/AIDS preventive methods such as accessibility and availability of HIV/AIDS-prevention resources (knowledge, condoms, counseling, etc.), moral commitment, religious rules, AIDS educational in school and family, discussion with friends about

AIDS, available health information, self-protection guided by morality and religious rules.

Attitudes toward HIV/AIDS infected persons refers to beliefs and feelings in terms of living and caring for such individuals, such as showing sympathy, continuing relationship, maintaining confidentiality, sharing of desks, toilet seats, bath ponds, separating hospital, pursuing a normal life, living without fear and anxiety, discontinuing job, and living with family.

In this study, all components of knowledge and attitudes were measured by two questionnaires which were developed by the investigator. A high score was an indicator of a higher level of knowledge and a positive attitudes regarding HIV/AIDS prevention.

Significance of the Study

This study described Bangladeshi adolescents' knowledge and attitudes regarding HIV/AIDS prevention. The results of this study will contribute significantly to the implementation of an HIV/AIDS prevention program, particularly for adolescents who are at high risk.

CHAPTER 2

LITERATURE REVIEW

The purpose of this study is to describe the knowledge and attitudes that Bangladeshi adolescents have about HIV/AIDS prevention and to examine the relationship between them. The following literatures were reviewed:

1. HIV/AIDS situation
2. Influencing factors of HIV/AIDS among Bangladeshi adolescents
3. Knowledge regarding HIV/AIDS prevention among the adolescents
4. Attitudes regarding HIV/AIDS prevention among the adolescents
5. Relationship between knowledge and attitudes regarding HIV/AIDS prevention
6. Factors impacting to knowledge and attitudes regarding HIV/AIDS prevention

HIV/AIDS Situation

Since the first HIV/AIDS case was identified in 1980, the number has drastically increased. According to the UNAIDS (2008), there are 33 million people living with HIV/AIDS worldwide. The incidence rate is low in developed countries because of their effective prevention strategies and sophisticated medical services. On the other hand, the rate is high in developing countries due to ineffective prevention methods and inadequate medical services. Ignorance, poverty and unemployment also cause people living in developing countries to be more vulnerable to HIV/AIDS infection.

In Bangladesh, HIV/AIDS incidence is lower among the general people compared to its neighboring countries. The situation, however, is worse among adolescents (Khosla, 2009). Their risky sexual behavior is generally the blame for their HIV infection. However, the limited access to the knowledge and attitudes on HIV/AIDS prevention also contributes to the problem.

Incidence

HIV/AIDS incidence is continuously rising in Bangladesh. The first case was identified in 1989, by 1997, the number of reported cases was 102 (Gibney, Choudhury, Khawaja, Sarker, & Vermund, 1999). In December 2008, the count reached 1,495, among which 165 died (UNICEF, 2009). These identified cases were reported based on an incomprehensive surveillance system, which focused mainly on specific at-risk groups. The exact count is actually unknown due to the lack of an extensive investigation system. Other risk factors contributing to the increase in HIV/AIDS incidence among the Bangladeshi adolescents include illiteracy, migration, inadequate health-related information and reproductive health care services (Mondal et al., 2009; Haider et al., 2008).

Prevention strategies

Prevention strategies are one of the most important elements to control the spread of HIV/AIDS infection. In Bangladesh, the National AIDS Committee (NAC) was formed in 1985, with a mission to take serious measure in implementing HIV/AIDS prevention through collaborative effort among government and non-government organizations. The organization's fundamental strategies include providing HIV/AIDS information through mass media and print media, HIV

orientation training for health care providers, blood screening, voluntary counseling and testing (VCT) services, youth friendly health services, and condoms.

In addition, an emphasis on HIV/AIDS education in schools' and colleges' curriculum as well as advocacy by religious leaders, focus groups, parents and policy makers also contribute to the prevention tactics (Larson, Aboud, & Huq, 2007). About 75.0% of the NAC's strategies focus on specific at-risk groups such as commercial sex-workers (CSWs), injecting drug users (IDUs), males who have sex with males (MSM) and male transgender (Hijra). However, the success rate of the NAC strategies is low which is attributed by the lack of an extensive structure, differences of geographical areas, the lack of prioritization and coordination of information sharing. Moreover, the adolescents, which should also be considered a high-risk group, are not receiving as much attention as they should (UNGASS, as cited in Haider et al., 2008).

Prevention practices

HIV/AIDS prevention methods are not practiced much among the Bangladeshi people. Inconsistent or no use of condoms and sharing of injection needles are common among the high-risk adolescents. The use of condom among this group is low, but it is said to be improving to 79.0% in places where preventive practices have been introduced (Hosain & Chatterjee, 2005). Meanwhile, seventy-seven percent of IDUs share needles freely (Haider et al., 2008). Today, many factors place adolescents in risky situations, such as nuclear family system, urbanization, industrialization, improvement of communication technology, influences of peer and mass media on sex, and degradation of traditional values. Moreover, early initiation of sexual activity is also common among adolescents (Tan, Pan, Zhou, Wang, & Xie, 2007;

WHO, 2006). Therefore, neglecting preventive practices makes adolescents more vulnerable to HIV/AIDS infection.

Influencing Factors of HIV/AIDS Among Bangladeshi Adolescents

The factors contributing to the Bangladeshi adolescents' vulnerability to HIV/AIDS infection can be categorized into intrapersonal and extra personal factors.

Intrapersonal factors

The (influencing) intrapersonal factors, which influence adolescents' risky behaviors, are the lack of knowledge, attitudes and preventive practices regarding HIV/AIDS. Therefore, an effective strategy is to increase the adolescents' knowledge, which helps develop positive attitudes and encourages preventive practices.

Knowledge about HIV/AIDS. The Bangladeshi people lack an adequate knowledge of HIV/AIDS (Gibney et al., 1999). Knowledge is important for the adolescents to save themselves from HIV/AIDS. The majority of the adolescents have heard of AIDS (Khan, 2002; Larson et al., 2007). Larson et al. also found that adolescents' knowledge about HIV/AIDS transmission and non-transmittable routes, disease conditions is very little. Hossain, Alamgir and Ferdous (2007) showed that less than fifty percent (43.6%) of students in Bangladesh believed there is a preventive vaccine against HIV/AIDS and 39.8% reported that HIV/AIDS can be cured if it is diagnosed early. Shirin and Ahamed (2007) conducted a study of adolescents in Dhaka, the capital city of Bangladesh, with results that the majority of adolescent students knew about routes of transmission such as unprotected sex, blood transfusions, and sharing of needles as well as preventive measures such as avoiding unprotected sex and screening of blood before transfusion. In addition, the study also

reports that fifty percent of these adolescents knew that using condoms is a preventive measure. More than fifty percent of them knew that HIV/AIDS can be transmitted from infected mothers to unborn babies through pregnancy. Meanwhile, less than fifty percent stated that obeying social and religious custom is a preventive measure. Because the study was conducted in a capital city, where the targeted adolescents were in college and had close contact with the mass media and other educational materials, therefore the adolescents were equipped with knowledge on some aspects of transmission and prevention. On the same token, adolescents that are not educated, have no access the HIV/AIDS-related information from educational materials, and are not in close contact with the mass media, are found to have a low level of knowledge on the topic. Evidently, knowledge is a key intrapersonal factor to successful prevention strategies.

Attitudes toward HIV/AIDS. Bangladeshi people's attitudes toward HIV/AIDS are positive because they recognize that HIV/AIDS is fatal. Demographic and health surveys (2007) found that among people with STI or STI symptoms, forty three percent (43.0%) of the women and twenty eight percent (28.0%) of the men insisted that they needed no advice or treatment. Only thirty one percent (31.0%) of the women and thirty six percent (36.0%) of the men admitted that they needed advice or treatment from a clinic, hospital, private doctor, or other health professional. Khan (2002) reported that majority of adolescents have stated that AIDS could not be avoided. Some adolescents exhibited symptoms of sexually transmitted infections (STI) but did not consider them as a threat for HIV/AIDS infection.

Based on these studies, it can be concluded that Bangladeshi adolescents have a feeling that HIV/AIDS is a serious disease, but do not consider it a threat.

As a consequence, adolescents are more likely to contract HIV due to their negative, if not also ignorant, attitudes toward STIs, including HIV/AIDS.

HIV/AIDS Prevention Practices. Preventive practices are effective ways to prevent HIV/AIDS infection. However, the problem is the preventive methods are not practiced widely among the Bangladeshi adolescents (Larson et al., 2007). It was stated that condom is used as contraceptive, although some adolescents informed that condoms are useful to prevent STIs (Khan, 2002). Use of condoms is low among the high-risk adolescents, but consistent use of condoms is increasing in places where preventive practices have been introduced (Hosain & Chatterjee, 2005). It was also reported that inconsistent or no use of condoms is common among general and street-based adolescents, just as how sharing needles is common among the IDUs (Haider et al., 2008; Khan, 2002; Mondal, Khan, Islam, & Mamun, 2005; Mondal et al., 2009).

Extrapersonal factors

There are many extrapersonal factors which influence Bangladeshi adolescents' HIV/AIDS-related risky sexual behaviors. Migration, health care system and geographical locations are considered the most significant ones.

Migration. In Bangladesh, migration is among the leading causes of increased HIV/AIDS infection (Azim et al., 2008) along side with unemployment and poverty. Generally, huge number of adolescents moves from rural to urban areas, and also abroad, for employment. These intra and inter migrants often engage in risky sexual behaviors (Mercer, Khanam, Gurley, & Azim, 2007). High rates of intrastate mobility also increase the vulnerability of HIV/AIDS infection, as many migrants may have contracted and traveled with the disease (Mondal et al., 2005; Mondal et al., 2009).

It was also stated that commercial sex workers (CSWs), living along the border areas, often cross the border to provide commercial sex services. For this reason, CSWs are likely to spread HIV from their patrons in the bordering countries to Bangladeshi adolescents, who are also their clients (Gibney et al., 1999).

Furthermore, natural disasters often cause large-scale damages to Bangladeshi communities. These disasters create a shortage of food and employment, which then influence the interstate and intrastate migration. In 1998, the National AIDS Committee (NAC) identified 102 HIV/AIDS cases in Bangladesh, the majority of which was Bangladeshis who had previously worked abroad (Gibney et al., 1999). A recent report by the Voluntary Counseling and Testing (VCT) Unit (Jagori) of the International Center for Diarrheal Disease Research, Bangladesh (ICDDR, B) has identified 54% of HIV cases to be returned migrants (Azim et al., 2008).

Health care system. Bangladesh's health care system is mostly hospital-based. The number of government hospitals, patient beds, physicians, nurses, and other amenities are too small to satisfy the needs of the populations. In addition, there are many private health care organizations that are also providing health care services. Due to economic crisis and certain limitations, the poor tend to have the least access to health-related information and health services, including reproductive health service. Adolescents also share the same fate (Khosla, 2009; Mondal et al., 2009).

With already limited resources, HIV/AIDS is considered an extra burden for the health care sector and thus a public health crisis. To overcome this problem, the Bangladesh government has formulated HIV/AIDS prevention strategies such as providing care for infected people. Most of these preventive strategies, however, are implemented by non-governmental organizations, which as aforementioned focus

more on other high-risk groups and less soon the adolescents (UNGASS as cited in Haider et al., 2008). To make matters worse, reluctance to admit infected adolescents into the hospitals, unavailability and high cost of antiretroviral drugs, complicated medical care system and treatment support, and economic crisis left most infected adolescents untreated and thus likely to spread the infection further (Azim et al., 2008).

Geographical location. HIV/AIDS infection is increasing in the cities along the borders (Azim et al., 2008). Bangladesh is bordered with India, Myanmar, and Nepal, where HIV/AIDS is prevalent among adolescents. The possible sexual encounters between interstate workers or visitors, who consistently traveled between Bangladesh and these neighboring countries, and Bangladeshi adolescents definitely increases the risk of HIV/AIDS (Gibney et al., 1999; Mondal et al., 2009).

Knowledge Regarding HIV/AIDS Prevention Among the Adolescents

Knowledge regarding HIV/AIDS prevention is essential to prevent adolescents from the destructive disease. The knowledge includes four domains as follows:

General knowledge

General knowledge is the most important domain for prevention (WHO, 2005). It can be gained from the existing and surrounding sources like peer, friends, radio, television, newspaper, health professionals and teachers (Acaroglu, 2007; Shirin, & Ahamed, 2007).

AIDS is the advanced stage of a long continuum of HIV infection. It may be caused by HIV, cancers, or opportunistic organism (Heymann, 2004). The viral infection attacks and weakens the body's immune system. This disease can be

diagnosed by a blood test, however, there is no curative management. Pharmacological medicine can slow down the infection, but this treatment option is not available in most developing countries including Bangladesh. Therefore, prevention is the only and most optimal means to control HIV transmission. To assess adolescents' general knowledge in this study, the investigator used topics on basic information about HIV/AIDS to test the targeted adolescents' general knowledge. For example, AIDS is a disease, and caused by a virus (Negash, Gebre, Benti, & Bejiga, 2003), "effect of HIV in human body", and there is "available vaccine and detection of disease" (Ayranci, 2005).

Knowledge on routes of transmission

Understanding routes of transmission is key for adolescents to prevent HIV/AIDS infection (Henry, 2008; WHO, 2006). HIV is a blood-borne virus which is transmitted through exposure and exchange of body fluids such as blood, semen, vaginal secretions, breast milk by way of sexual contacts, sharing or reusing needles and syringes with infected persons (Heymann, 2004).

This study assessed the adolescents' understanding about routes of transmission by asking about unprotected sexual relationships, "sharing injection needles and shaving blades", "infected blood transfusion", "and transmission from a mother to her baby through pregnancy, delivery and breastfeeding". Study in Iran showed vast majority of people knowing that sharing injection needles and having sexual relationships with HIV infected persons can cause AIDS (Montazeri, 2005).

Knowledge on non-transmittable routes

Understanding about non-transmittable routes of HIV/AIDS infection helps adolescents to be aware of their social interaction with infected persons. HIV/AIDS

is not transmitted by insects, coughing, sneezing, sharing toilets, bath ponds, using belongings, sitting next to or eating with someone who has HIV/AIDS infection (Heymann, 2004).

This study assessed the adolescents' understanding about the non-transmittable routes by asking about items like mosquito bites, shaking hands, coughing and sneezing, sharing food, belongings, toilets and bath ponds. People generally have misconceptions that HIV/AIDS can be transmitted through "hugging", "shaking hands", "mosquito bites", "sharing cloths", "toilets and swimming pools", "coughing and sneezing" (Acaroglu, 2007; Ayranci, 2005; Hedayati, 2008; Tung et al., 2008). Hedayati also found that people believe that infected people can transmit the infection if they exhibit the symptoms. About 37.5% of the people think that mosquitoes are vectors of HIV/AIDS (Montazeri, 2005). In Bangladesh, common misconceptions about HIV/AIDS are such that the virus can be transmitted through mosquito bites or by sharing food with someone who has HIV/AIDS (Demographic and Health Survey, 2007; Islam et al., 2002). Accurate information about non-transmittable routes not only increases the adolescents' confidence but also helps them to appropriately interact with infected persons in the same community.

Knowledge on HIV/AIDS prevention methods

A clear understanding of prevention methods and selecting proper methods are useful tools to prevent HIV/AIDS infection. Preventive measures focus on establishing a healthy lifestyle because maintenance of a healthy behavior is more cost effective than changing deep-rooted risky behaviors (Mahat, & Scoloveno, 2006). HIV/AIDS can be prevented by obeying religious rules, maintaining moral

commitment, modifying sexual practices, preventing transmission from mother to child, and screening of donated blood (Rashid, Khabir & Haider, 2004).

This study assessed the adolescents' understanding on HIV/AIDS prevention methods by presenting religious rules, moral commitment, avoid using other's shaving blades or reusing injection needles, screening of blood before transfusion, abstaining from unprotected sexual relationship including using condoms. Due to common misconceptions, many still believe that HIV/AIDS can be prevented by "avoiding public toilets", "bathrooms", "swimming pools", not "eating with infected people", and "discontinuing interaction with HIV/AIDS infected person" (Acaroglu, 2007; Hedayati, 2008; Montazeri, 2005).

Attitudes Regarding HIV/AIDS Prevention Among the Adolescents

Accurate attitudes regarding HIV/AIDS prevention can help adolescents to prevent the HIV/AIDS infection and share activities with infected person without any fear.

Attitudes toward HIV/AIDS infection

HIV/AIDS is a life-threatening disease as it affects population growth, mortality rates and life expectancy. Because of HIV/AIDS, individuals die prematurely or during their most productive and reproductive years (Henry, 2008).

In this study, the investigator used "AIDS is a threatening illness among adolescent age group" to measure adolescents' feelings. If the adolescents agree with this statement, it indicates that their feelings about the disease are positive. An attempt to avoid HIV/AIDS is fairly common (Hedayati, 2008); students feel that HIV/AIDS is a threat to their country (Tavoosi et al., 2004). Positive feelings increase

adolescents' interests to learn more about the infection, which is key to HIV/AIDS prevention.

Attitudes toward HIV/AIDS prevention methods

The prevention of HIV/AIDS transmission is one of the most important elements in the effort by WHO and many other international organizations (Taechaboonsermsak, Tuan, & Apinuntavech, 2008). To assess the adolescents' feelings toward HIV/AIDS prevention methods in this study, the investigator measured the adolescents' attitudes about "religious rules and moral commitment" (Montazeri, 2005), "HIV/AIDS education in school" (Nwokocha & Nwakoby, 2002), "discussion with friends about the infection", "available HIV/AIDS information and self-protection" (Merakou & Kourea-Kremastinou, 2006). Positive beliefs and feelings toward HIV/AIDS prevention methods translate to an interest to learn more about the disease, through both formal and non-formal means such as school and discussion with friends. The adolescents will hopefully carry the knowledge over to their daily lives and ultimately save themselves from HIV/AIDS.

Attitudes toward HIV/AIDS infected person

Adolescents' beliefs and feelings toward HIV/AIDS infected persons, including their family members, is essential to prevent and control the infection. At the same time, infected persons need support from those around them to thrive in society. To assess the adolescents' attitudes toward infected persons, the investigator used "showing sympathy", "continuing relationships" (Ayranci, 2005), "maintaining confidentiality" (Montazeri, 2005), "sharing of same desks", "toilet seats", and "swimming pools" (Ayranci), and "separating hospital". Attitudes towards diagnosed

family members include “pursuing normal life”, “living without fear and anxiety” (Hedayati, 2008), “discontinuing job and living with family members”.

Positive attitudes toward infected persons indicate that adolescents are well informed about the infection. The majority of people chose to limit or discontinue interaction with infected people (Hedayati). About 91.0% of students agreed that being an HIV/AIDS carrier should not be an obstacle to obtain educational and employment, 93.0% believed that the community in which they lived was not protected from HIV/AIDS, 86.3% recommended that special hospitals should be built for HIV/AIDS patients, 72.50% declared that the community should be made aware of the people with HIV/AIDS for protection, and 25.5% was not interested in associating with the infected (Ghabili, Shoja, & Kamran, 2008). Students also believed that the infected persons should not be allowed in schools and prefer not to sit and shake hands with them (Tavoosi et al., 2004).

Relationship Between Knowledge and Attitudes Regarding HIV/AIDS Prevention

Some researchers attempted to examine the relationship between knowledge and attitudes regarding HIV/AIDS prevention. Hedayati (2008) conducted a study among 960 people, measuring knowledge by asking 14 questions, such as conditions related to infection, modes of transmission and prevention, and attitudes toward HIV/AIDS infected individuals by using 5 questions. The study showed a significant statistical correlation was found between people’s attitudes and knowledge ($r = .46$, $p < .0001$). In contrast, Tavoosi et al. (2004) found that attitudes among high school students was negatively correlated with knowledge ($r = -.38$, $p < .001$). The researchers revealed that students with less knowledge scores had more negative

attitudes toward HIV-positive patients. Study conducted by Mazloomi & Baghianimoghadam (2008) reported a relationship between the age of participants and their attitudes ($p < .001$), with younger participants having more positive attitudes. Moreover, there was a correlation between participants' scores on knowledge scores and scores on positive attitudes (Spearman's $\rho = .30, p < .001$).

Factors Impacting to Knowledge and Attitudes Regarding HIV/AIDS Prevention

Factors that have impacts on knowledge and attitudes regarding HIV/AIDS prevention include illiteracy, poverty and unemployment, lack of formal HIV/AIDS education, inadequate health information and reproductive health care services, inequality between rural and urban people as well as inequality of gender, and marital status. These factors contribute to a low level of knowledge and negative attitudes on HIV/AIDS among Bangladeshi adolescents.

Illiteracy

Bangladesh has a low literacy rate of 43.1 percent (Asian Cooperation Dialogue, 2006). Many adolescents have no access formal educational due to poverty and are thus illiterate, which influences their lifestyle. Uneducated adolescents cannot read or understand health-related information from written materials and also feel shy to learn from others. Education level has a significantly positive relationship with HIV/AIDS knowledge and attitudes (Demographic and Health Survey, 2009; Hedayati, 2008; Uddin & Choudhury, 2008). Illiteracy may lead to participation in HIV/AIDS-related risky behaviors.

Poverty and unemployment

Poverty and unemployment are related to each other, both are common in developing countries. In Bangladesh, 49 percent people are living below the national poverty line (Hunger Project). Family's income level has a significantly positive relationship with HIV/AIDS knowledge and attitudes (Demographic and Health Survey, 2009). Poverty and unemployment influence adolescents to engage in HIV/AIDS risky activities such as unprotected sex (Haider et al., 2008).

Lack of formal HIV/AIDS education

In Bangladesh, there is no education on HIV/AIDS provided outside of the formal education system. Traditionally, family members are reluctant and feel shy to discuss sexual and reproductive issues with adolescents. As a result, adolescents without formal education often find knowledge on such topics mainly from peer and mass media, which are not the most trustworthy source (Ahmed et al., 2008).

Inadequate health information and reproductive health care services

In Bangladesh, health information can be acquired via electronic media and written materials. However, the adolescents who are uneducated, poor, and live in rural area are not able to access such information due to their educational, financial and social limitations (Khosla, 2009). Moreover, the health care services are mainly provided at hospitals, which is not extensive enough to satisfy the high demand. Besides, reproductive health care service is also very limited.

Inequality between rural and urban communities

In Bangladesh, inequity between rural and urban communities is common. Most governmental prevention agencies are all located in urban areas (Azim, et al., 2008), leaving out the adolescents residing in rural area. This inequity explains less

awareness about HIV/AIDS infection and overall disadvantages among rural adolescents. For this reason, rural residents have a negative and urban residents have a positive relationship with knowledge of and attitudes toward HIV/AIDS (Demographic and Health Survey, 2007; Uddin & Choudhury, 2008).

Gender Inequality

Gender inequality, gender-based violence, socioeconomic disadvantage as well as social exclusion of females, low level of literacy and education among females is a reality in Bangladesh (UNICEF, 2006). The inequality definitely influences the disparity in knowledge of HIV/AIDS prevention between male and female populations – 59.0% of women and 80.0% of men know that the HIV/AIDS virus can be transmitted by using unsterilized needles or syringe, meanwhile, 60.0% of women and 82.0% of men know that HIV virus can be transmitted by unscreened blood transfusions. Among adolescents, 60.0% of male and 26.0% of females mentioned that faithful sexual relationships and use of condoms are one way to reduce the risk of HIV/AIDS infection (Demographic and Health Survey, 2007).

Marital status

Marital status has an effect on knowledge and attitudes on HIV/AIDS prevention. Married adolescents are more exposed to sexual relationships and sex-related experience such as contracting STI, acquiring treatments and information regarding sex and reproductive issues. This explains why the knowledge level about HIV/AIDS is higher among married couples, compared to those who are unmarried (Demographic and health survey, 2007). Moreover, married adolescents have the liberty to discuss reproductive health issues, including HIV/AIDS, as legitimate concerns with many people including health care professionals. In comparison,

unmarried adolescents tend to have limited opportunity, if not also being shy away, to discuss the same issues or concerns freely. They often chose to open up the issues with peer which is not an accurate source of information and advice (Ahmed et al., 2008).

Summary

HIV/AIDS incidence is continuously rising worldwide. Like other developing countries, Bangladesh is witnessing a rapid rise of the infected cases. The factors, which make Bangladesh more vulnerable to HIV/AIDS, are the ineffective preventive strategies, limited health and reproductive health care services, poverty, ignorance, unemployment, lack of education on HIV/AIDS, migration, and sharing border with countries that are plagued with the disease. Adolescents are most vulnerable to HIV/AIDS infection because of their risky sexual behaviors. Because HIV/AIDS is incurable, prevention seems to be the only, and most optimal, way to curtail its transmission. In order to implement an effective educational program for the high-risk adolescents, it is important to identify the specific needs based on the current situations.

In Bangladesh, several studies were conducted among adolescents, including effectiveness of a school-based intervention (as cited in Azim et al., 2008), demands for reproductive health (Nahar et al., 1999), knowledge on AIDS among the college students (Shirin & Ahmed, 2007), knowledge on AIDS among female adolescents (Khan, 2002), knowledge on reproductive health and prevention practices among adolescent males in Bangladesh (Ahmed et al., 2008), and baseline HIV/AIDS survey (Larson et al., 2007). These are useful resources to help improve the existing

HIV/AIDS preventive programs. Unfortunately, there is currently no study investigating adolescents' knowledge and attitudes regarding HIV/AIDS prevention and the relationship between them. Understanding the variables and their relationship is beneficial for adolescents' and also for society as a whole because the result would immensely contribute to the implementation of effective preventive strategies.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter describes the design of this study as well as its settings, population and sample, instrumentation, ethical consideration, data collecting procedures, and data analysis.

Design of Study

A descriptive correlational study was utilized to describe the Bangladeshi adolescents' knowledge and attitudes regarding HIV/AIDS prevention and to examine relationships between them.

Settings

The study was conducted in two high schools, two restaurants, two confectionery factories, and twenty-two households, where many adolescents concentrated. These institutions and organizations were located in a district of Lakshmipur, Bangladesh, whose total population was 63,995 (male 52.05%, female 47.95%) and literacy rate was 50.78%, (Statistical Yearbook of Bangladesh, 2007). According to the National AIDS/STD Programme (HIV data, 2009), there were seven HIV/AIDS cases identified in the district. Situated in southwestern part of Bangladesh, Lakshmipur is categorized as third class, based on the country's socioeconomic and social categorization system socioeconomic. It is bordered with Noakhali, Chandpur and Bhola districts, and with a river called Meghna. Due to lack

of educational facilities, coupled with an economic crisis, poor and uneducated adolescents traveled from remote areas to the district for employment, female adolescents mostly find household work while males work in restaurants and confectionary factories.

Population and Sample

Target population was the Bangladeshi adolescents in Lakshmipur district. Samples were purposefully selected from schools, restaurants, confectionary factories and households, where the adolescents concentrated. The distribution of samples was based on the quota of gender and employment status. School students were considered non-employee and educated, others were employee and low educated.

Sample size

The approximate sample size was calculated by using power analysis, with a significance level of .05, and a power of .80. The effect size had been determined from the two previous studies on knowledge and attitudes toward HIV/AIDS among students (Tavoosi et al., 2004), in Mashhad, Islamic Republic of Iran (Hedayati, 2008). These studies found a significant relationship between adolescents' knowledge and attitudes was .38 ($p < .001$) (Tavoosi et al.), and .46 ($p < .0001$) (Hedayati). The average effect size of both studies was .42. Therefore, the investigator used the medium effect size of .30, which required 85 samples (Cohen, 1988). In order to ensure that the investigator was able to detect the target relationships, the effect size retrieved from the other studies had to be decreased in order to increase power. However, the investigator took extra 3 samples to attain even number for equal distribution. So, the desired sample came down to 88 Bangladeshi adolescents.

Sampling method

Quota and purposeful sampling techniques were used in this study. The quota systems help to distribute the adolescents according to their gender and employment status. The employment status included non–employee (students) and employee (restaurants, confectionary factories and households), which considered as educated and low educated respectively. The desired sample size was 88 adolescents and they were equally divided between the employee and non–employee, 44 for each group. Then, each group was equally divided into male and female (22 male and 22 female adolescents). The following criteria were required:

1. Age of 14–19 years
2. Unmarried
3. Willing to participate

Instrumentation

This study used two self–administered questionnaires, developed by the investigator, based on literatures about knowledge and attitudes of HIV/AIDS among adolescents (Al–Serouri et al., 2002; Ayranci, 2005; Montazeri, 2005; Shirin, & Ahmed, 2007). The questionnaires consisted of three parts (Appendix B): Part 1 was Demographic Data Profile; Part 2 was Adolescents’ Knowledge Regarding HIV/AIDS Prevention Questionnaire (A–KAIDS); and Part 3 was Adolescents’ Attitudes Regarding HIV/AIDS Prevention Questionnaire (A–AAIDS).

Part 1: Demographic Data Profile

The Demographic Data Profile was used to collect adolescents’ personal and family information. It consisted of eight items: age, gender, educational level,

occupation, type of residence, family's monthly income, knowledge on basic HIV/AIDS information and its sources.

Part 2: Adolescents Knowledge Regarding HIV/AIDS Prevention

Questionnaire (A –KAIDS)

The questionnaire on adolescents' knowledge regarding HIV/AIDS prevention (A–KAIDS) consisted of 27 items—19 positive and 8 negative items. Adolescents were asked to mark “Yes or No” for each question based on their knowledge. One point was given for each “Yes” and zero point for each “No” on positive items, and one point was given for each “No” and zero point for each “Yes” on negative items. A total score of A–KAIDS was 27, ranging from 0 – 27. The collected score was then converted into percentage. A higher score meant a higher level of knowledge. The levels of knowledge were categorized into three groups (low < 60%, fair = 60% – 80%, high > 80%). The total and subtotal scores, which range from 0 to 1, were classified into three levels (low = 0 – .60, fair = .61 – .80, high = .81 – 1.00).

Part 3: Adolescents Attitudes Regarding HIV/AIDS Prevention Questionnaire

(A –AAIDS)

Adolescents' attitudes regarding HIV/AIDS prevention questionnaire (A–AAIDS) consisted of 20 items – 16 positive and 4 negative items. Adolescents were asked to mark a number that accurately represent their feelings toward each question. The scores for positive items are: ‘0’ (strongly disagree), ‘1’ (disagree), ‘2’ (agree), ‘3’ (strongly agree). On the other hand, the scores for negative items are: ‘3’ (strongly disagree), ‘2’ (disagree), ‘1’ (agree), ‘0’ (strongly agree). A total score of A–AAIDS, the highest being 60, was categorized into three groups (negative < M – 1 SD, neutral = M – 1SD to M + 1SD, positive > M + 1SD). The total and subtotal scores, ranging

from 0 to 3, were classified into three levels (negative = 0 – 1, neutral = 1.1 – 2, positive = 2.1 – 3).

Validity and reliability of the instruments

The instruments, or questionnaires, of this study were translated by using a translation technique called back–translation method (Sperber, 2004). The Original English questionnaires were translated into Bengali by a translator. Then the Bengali questionnaires were translated back to English by another translator. After then, the two English versions were compared by a third translator who identified the incongruence between them.

A content validity refers to accuracy of the tool used to conduct an assessment. The investigator requested three experts to review the questionnaires to examine the content validity as well as cultural appropriateness. Two of the experts were from Faculty of Nursing at Prince of Songkla University (PSU) in Thailand and one other was from Department of Nursing at National Institute of Chest Diseases and Hospital in Bangladesh. The final version of the questionnaire was revised based on comments from all three experts.

The reliability of the questionnaires was pre–tested by 30 adolescents, who met all the required criteria's for the actual sample – 10 adolescents represented each of the settings (schools, factories, and households). The reliability of A–KAIDS, determined by Kuder–Richardson (KR–20) reliability coefficient (Waltz, Strickland, & Lenz, 2005), was .81. The A–AAIDS reliability, determined by Cronbach's alpha coefficient, was .87.

Ethical Consideration

The research process was approved by the Research Ethics Committee, Faculty of Nursing, PSU. A permission for data collection had been obtained from the owners or authorities of the selected households, schools, restaurants, and factories. Informed consents were acquired from the adolescents, who were 18 years or older, and from legal guardians for those who were under 18 years old. The investigator and assistant investigator explained the purpose and procedures of the study to the adolescents. They were informed that their participation was to be completely voluntary and would be kept confidential. Adolescents were assured that they had the rights to cancel their participation at any time during the process of the research. Adolescents, under 18 years old, who were willing to respond to the questionnaire, were considered consenting participants.

Data Collecting Procedures

Preparatory phase

In order to obtain an approval from the Research Ethical Committee, the investigator must submit a letter with a list of schools, restaurants, factories selected for the study as well as the authoritative figures of each setting. Once the approval was granted, Dean of Faculty of Nursing, PSU, issued a letter to allow data collection to proceed. Having obtained appropriate permission, the investigator then met with the teachers of target schools, managers of selected restaurants and factories, and household owners to inform them of the objectives and data collection procedures. The investigator provided a consent form to be signed by each participant or a legal guardian, for adolescents under 18 years old. The teachers informed the adolescents

directly about the purpose of the study and data collection procedures and also helped with the distribution and collection of questionnaires. The investigator appointed two registered nurses (a male and a female), who agreed to be research assistants. The investigator ensured that the research assistants thoroughly understood the aims of the study, the data collection procedures, and the questionnaire.

Implementation phase

The questionnaires were distributed to the target adolescents. The investigator then arranged so that the male research assistant collected data from male adolescents while the female assistant collected data from female adolescents, in order to avoid opposite gender influence. In schools, teachers helped collecting data by distributing and collecting the questionnaires. In restaurants, factories and households, the investigator and research assistants read and marked the responses for those adolescents who were illiterate. The literate participants were asked to complete the questionnaires themselves and were allowed to ask any questions about the questionnaires.

Data Analysis

Data were analyzed as follows:

1. Frequencies, percentages, means and standard deviations were used to analyze demographic data, adolescents' level of knowledge and attitudes regarding HIV/AIDS prevention.

2. The Pearson product moment correlation coefficient (r) was used to examine the relationship between adolescents' knowledge and attitudes regarding HIV/AIDS prevention. Before performing the Pearson's product moment correlation

statistics, assumptions of normality, and linear relationship of the tested variables were examined and found to support the hypothesis. The significance level was set at .05. The relationships between adolescent's knowledge and attitudes were classified according to Munro (2001) categories as the followings.

Little if any = .00 – .25

Low = .26 – .49

Moderate = .50 – .69

High = .70 – .89

Very high = .90 – 1.00.

CHAPTER 4

RESULTS AND DISCUSSION

The purpose of this study is to describe the Bangladeshi adolescents' knowledge and attitudes regarding HIV/AIDS prevention and to examine relationships between these two variables. This chapter presents the research outcome, including adolescents' personal characteristics, knowledge and attitudes regarding HIV/AIDS prevention, and ultimately their relationships. The chapter ends with a detailed discussion of the results.

Results

Adolescents' personal characteristics

In this study, the majority of the sample was the 15-year-old adolescents (34.1%). The group composed of an equal number of males (50.0%) and females (50.0%). Fifty percent (50.0%) of the adolescents were students and the rest worked in household (25.0%), restaurants (12.5%), and confectionery factories (12.5%). The majority has secondary education level (62.5%) and the minority at primary school level (37.5%). Seventy five percent (75.0%) of the adolescents lived in their houses. Approximately forty percent (40.9%) of adolescents earned less than 1,500 Taka monthly (< US\$ 22) and 38.6% had a monthly income of 5,001 – 10,000 Taka (US\$ 71 to US\$ 143). Most adolescents (97.7%) received information about HIV/AIDS prevention from television broadcast (Table 1).

Table 1

Frequency and Percentage of Adolescents Classified by Personal Characteristics, HIV/AIDS Information Receiving and Sources of the Information (N = 88)

Characteristics	Frequency	Percentage
Age (years old)		
14	6	6.80
15	30	34.10
16	16	18.18
17	12	13.64
18	12	13.64
19	12	13.64
Gender		
Male	44	50.00
Female	44	50.00
Education level		
Primary	33	37.50
Secondary	55	62.50
Occupations		
Student	44	50.00
Household employer	22	25.00
Confectionary employee	11	12.50
Restaurant employee	11	12.50
Residence		
House	66	75.00
Residence provided through employment	22	25.00

Table 1 (*Continued*)

Characteristics	Frequency	Percentage
Monthly income (Taka) 1 US\$ = 70 Taka		
>1,500	37	42.04
1,501 – 5,000	13	14.77
5,001 – 10,000	34	38.64
>10,000	4	4.55
Receiving HIV/AIDS information	88	100.00
Sources of information on HIV/AIDS		
Radio	2	2.30
Television	8	97.70

Adolescents' Knowledge and Attitudes Regarding HIV/AIDS Prevention

Table 2 shows that ninety-three percent (93.0%) of the target adolescents had a high level of knowledge on HIV/AIDS prevention and sixty-eight percent (68.0%) had neutral attitudes toward the same topic. Table 3 and 4 show that, based on the scores, adolescents had a high level of knowledge ($M = 0.82$, $SD = 0.15$) and a positive level of attitudes ($M = 2.20$, $SD = 0.39$). Based on knowledge domains, they had a high level in general knowledge as well as knowledge on the routes of transmission and prevention methods, but exhibited a fair level of knowledge regarding the non-transmittable routes. In attitudes domain, adolescents had a positive level of attitudes toward the HIV/AIDS infection and prevention methods, whereas the attitudes toward infected persons was found to be neutral.

Table 2

Frequency and Percentage of Adolescents Classified by the Level of Knowledge and Attitudes Regarding HIV/AIDS Prevention (N = 88)

Variables	Frequency	Percentage
Adolescents' Knowledge		
Fair	6	6.80
High	82	93.20
Adolescents' Attitudes		
Negative	12	13.60
Neutral	60	68.20
Positive	16	18.20

Table 3

Possible Score, Actual Score, Mean, Standard Deviation and Level of Total and Subtotal Scores of Knowledge Regarding HIV/AIDS Prevention (N = 88)

Knowledge regarding HIV/AIDS prevention	Possible score (Min– Max)	Actual score (Min– Max)	Mean	SD	Level
Total	0 – 1	0.50 – 1.00	0.82	0.15	High
General Knowledge	0 – 1	0.50 – 1.00	0.82	0.15	High
Routes of Transmission	0 – 1	0.57 – 1.00	0.91	0.12	High
Non –Transmittable Routes	0 – 1	0.00 – 1.00	0.61	0.39	Fair
Prevention methods	0 – 1	0.57 – 1.00	0.93	0.10	High

Table 4

Possible Score, Actual Score, Mean, Standard Deviation and Level of Total and Subtotal Scores Attitudes Regarding HIV/AIDS Prevention (N = 88)

Attitudes regarding HIV/AIDS prevention	Possible score (Min– Max)	Actual score		Level
		(Min– Max)	Mean SD	
Total	0 – 3	1.00 – 3.00	2.20 0.39	Positive
Attitudes toward infection	0 – 3	1.00 – 3.00	2.41 0.52	Positive
Attitudes toward prevention methods	0 – 3	1.62 – 3.00	2.24 0.33	Positive
Attitudes toward infected persons	0 – 3	1.09 – 2.45	1.95 0.31	Neutral

The Relationships Between Adolescents' Knowledge and Attitudes Regarding HIV/AIDS Prevention

Table 5 shows that the relationships between adolescent's knowledge and attitudes regarding HIV/AIDS prevention were positively correlated at low level ($r = .35, p < .01$). Considering the relationships of their subtotal scores, general knowledge was negatively correlated at a low level with attitudes toward infection and prevention methods ($r = -.27, p < .05, -.28, p < .01$, respectively). In addition, knowledge on the routes of transmission was negatively correlated at a low and little level with attitudes toward infection and prevention methods ($r = -.42, p < .01, -.24, p < .05$, respectively). Knowledge on prevention methods was negatively correlated at a low and little level with attitudes toward infection and prevention methods ($r = -.23, -.24, p < .05$, respectively). In contrast, knowledge of the non-transmittable routes

was positively correlated at a moderate level with attitudes toward infected persons ($r = .57, p < .01$), and at a low level with attitudes toward infection and prevention methods ($r = .46, .40, p < .01$, respectively).

Table 5

Relationships Between Total and Subtotal Scores of Knowledge and Attitudes Regarding HIV/AIDS Prevention (N =88)

Knowledge	Attitudes			
	Infection	Prevention methods	Infected person	Total attitudes
Total knowledge	.20	.19	.42**	.35**
General Knowledge	-.27*	-.28**	-.17*	-.25*
Routes of Transmission	-.42**	-.24*	-.35	-.36**
Non –Transmittable Routes	.46**	.40**	.57**	.56**
Prevention methods	-.23*	-.24*	-.13	-.21

* $p < .05$, ** $p < .01$.

Discussion

The final part of the chapter is dedicated to a discussion on the levels of adolescent's knowledge and their attitudes regarding HIV/AIDS prevention as well as the relationships between these variables.

Knowledge Regarding HIV/AIDS Prevention

The total score of knowledge regarding HIV/AIDS prevention among Bangladeshi adolescents was at a high level ($M = 0.82$, $SD = 0.15$) (Table 3). Reasons are explained as follows:

Firstly, television in Bangladesh is a popular media and available to be watched freely in public spaces like markets, restaurants, and tea shops, not to mention in most households. Adolescents are undoubtedly faithful viewers of television programs not only because the accessibility of televisions but also the influence of their fantasy in different characters, which is part of the changes they go through at this stage (Smith & Maurer, 2000). Therefore, television can serve as an important tool to distribute information such as health, including HIV/AIDS. There is an overwhelming evidence for the effectiveness in utilizing mass media to raise awareness and increase knowledge on HIV/AIDS in developing countries (Bertrand, O'Reilly, Denison, Anhang & Sweat, 2006). Governmental and non-governmental organizations, nationally and internationally, take advantage of this tactic to educate the people on various social issues. Bangladesh government has established a project aiming to prevent such an epidemic as HIV/AIDS by using the influence of mass and print media (NASP, 2008). As stated earlier, the common source of HIV/AIDS information among the Bangladeshi adolescents is television (97.7%), which echoes with the findings of some previous studies (Nwokocha & Nwakoby, 2002; Montazeri, 2005; Wong, Chin, Low & Jaafar, 2008).

Secondly, HIV/AIDS prevention activities in Bangladesh are implemented up to a town level (NASP, 2008). Print media, especially billboards, are available in all of the towns, drawing attention to HIV/AIDS information. This study was conducted

in a town and most of the target adolescents had secondary education level (62.5%). The literacy level helped these adolescents to understand the provided HIV/AIDS information. Studies showed that town people had more HIV/AIDS knowledge than rural people (Demographic and Health Survey, 2007; Uddin & Choudhury, 2008) because they were exposed to the aforementioned print media. In addition, Hedayati (2008) found that education level was significantly associated with HIV/AIDS knowledge because education is a tool to access information.

This study found that adolescents had the highest subtotal score of knowledge on prevention methods, followed by the subtotal score of knowledge on the routes of transmission and then general knowledge (Table 3). In addition, Table 6 (Appendix C) shows that all adolescents correctly identified HIV/AIDS as a disease and is caused by virus, in that order.

As mentioned before, results proved that Bangladeshi adolescents acquire general knowledge on HIV/AIDS and its routes of transmission and prevention methods mainly from television and print media. However, those media often highlight on how the disease is transmitted (Nwokocha & Nwakoby, 2002). This type of knowledge, however, portrays HIV/AIDS to be as important as other infectious diseases and thus easily evades. According to Bloom (1956), a kind of knowledge which is organized and related to one's previous understanding or past experiences is better learned and retained than a kind of knowledge that is specific and isolated. Results of this study was comparable to the studies of Ayranci (2005) and Nwokocha and Nwakoby, which also found their participants receiving HIV/AIDS information from television.

However, a fair level of knowledge regarding HIV/AIDS non-transmittable routes (Table 3) was revealed among the Bangladeshi adolescents. The reason being that information broadcasted on television is generally too short hence incomprehensive and sometimes confusing to the adolescents (McManus & Dhar, 2008). The result thus showed that the adolescents did not have adequate understanding of the knowledge regarding HIV/AIDS non-transmittable routes, which include sharing objects and/or activities with or caring for infected persons. The result is similar to many of the previous studies (Tavoosi et al., 2004; Sheh and Tasanapradit, 2009; Tan et al., 2007; Montazeri, 2005; Li, Scott, and Li, (2008), which found that their participants had insufficient knowledge on non-transmittable routes of HIV/AIDS.

Attitudes Regarding HIV/AIDS Prevention

The total score of attitudes regarding HIV/AIDS prevention among the Bangladeshi adolescents was at a positive level ($M = 2.20$, $SD = 0.39$) (Table 4). The result was consistent with the study of Nagesh et al. (2003) whose participants had positive attitudes toward prevention of HIV/AIDS. The results can be explained by the following reasons:

Firstly, most adolescents in the study are literate which means they are able to access and stay up-to-date with necessary knowledge about the epidemic. This awareness and knowledge ultimately keeps themselves safe and promotes positive attitudes toward HIV/AIDS prevention as a result.

Table 7, (Appendix C) shows that more than ninety-eight percent of the adolescents agreed that HIV/AIDS is a threatening illness to their age group.

The result is consistent with the study done by Khan (2002), who stated that adolescence is a vulnerable period because young adults are exposed to new experiences, especially sexuality.

Secondly, the positive attitudes toward HIV/AIDS prevention are further strengthened by the adolescents' understanding that HIV/AIDS is an incurable disease. Table 6, shows that more than fifty–five percent of the adolescents confirmed the fact. This is also consistent to the study of Hossain et al. (2007), which found that more than sixty percent of their participants considered HIV/AIDS to be an incurable disease. This knowledge can have an indirect yet imperative impact on social development and economic growth in Bangladesh, at a local and national level, as it helps individuals to develop positive attitudes toward HIV/AIDS prevention.

This study found that the highest subtotal score in the attitudes domain is the attitudes toward HIV/AIDS infection, followed by the attitudes toward prevention methods. In addition, Table 7 shows that the highest percentage of adolescents strongly agreed that HIV/AIDS is a threatening illness among their age group. The result may stem from the feelings and believes they are at a vulnerable stage in life and is prone to be at risk due to their tendency to experiment sexually among other things. This result is consistent with the study by Maswanya et al. (2000), who reported that more than ninety seven percent participants gave the same feedback about HIV/AIDS. In addition, the attitudes and knowledge on the prognosis of disease, such as its incurability, also influenced the positive attitudes toward prevention methods. This result is consistent with the study of Li et al. (2008), in which ninety percent of the participants shared the same feelings about a statement: “There is no cure for AIDS at present”. The overall results are consistent with the

previous studies of Ayranci (2005) and Tan et al. (2007), which confirmed positive attitudes toward HIV/AIDS infection among their participants.

Despite the overall positive outcome in other attitudes domains, the Bangladeshi adolescents still demonstrated a neutral level of attitudes toward HIV/AIDS infected persons (Table 4). This result indicated that adolescent's feelings toward infected persons were not of supportive ones. Table 3 shows that adolescents had a fair level of knowledge on HIV/AIDS non-transmittable routes, which include sharing foods, toilets, and bath ponds with infected persons. Adolescent's attitudes toward infected persons are related to the knowledge on non-transmittable routes. The findings of this study are different from some other previous studies (Ghabili et al., 2008; Montazeri, 2005; Hedayati, 2008), which found that their participants had intolerant attitudes toward HIV/AIDS patients. Other factors that may influence the neutral attitudes are explained as follows:

Firstly, the majority of Bangladeshis is Muslim. The local culture and religious beliefs, which condemn pre-marital sexual relationship and falsely generalize it as one of the causes of HIV/AIDS infection, contribute greatly to the neutral attitudes. Furthermore, HIV/AIDS is known as a disease generally caused by unprotected sex. Consequentially, the persons diagnosed with HIV/AIDS are often identified as evil of the society and are treated with unfair scorn, if not also fear. This result is similar to the study of Hedayati (2008), which revealed that the majority of his/her participants would rather discontinue interaction with HIV/AIDS patients.

Secondly, religious, cultural, and family values limited the practice of HIV/AIDS preventive methods (Azim et al., 2008). Moreover, compared to other developing countries dealing with the epidemic, the number of infected cases in

Bangladesh is relatively low. For this reason, even though considered a high-risk group, the adolescents have less to no direct contact with HIV/AIDS patients and so can only showed their idea of having to deal with the infected persons.

In conclusion, adolescents' positive attitudes toward HIV/AIDS prevention are influenced by the available information through media. However, lack of adequately comprehensible information and direct experience to HIV/AIDS infected persons, coupled with religious and social values, contribute to the adolescents' a neutral attitudes toward infected persons.

Relationships Between Adolescent's Knowledge and Attitudes Regarding HIV/AIDS Prevention

The relationship between the Bangladeshi adolescents' total knowledge and attitudes regarding HIV/AIDS prevention was positively correlated though at a low level ($r = .35, p < .01$). The result is consistent with Hedayati (2008), which found that knowledge was significantly correlated with attitudes ($r = .46, p < .0001$). The explanation of the findings is as follows:

Firstly, the adolescents like to watch television, which also broadcast information on transmission and prevention of various infectious diseases, including HIV/AIDS. Moreover, literate adolescents can also receive helpful information from print media. Both types of media contribute to the development of knowledge and attitudes regarding HIV/AIDS prevention among Bangladeshi adolescents.

Secondly, knowledge on non-transmittable routes is only at a fair level because it is related to attitudes toward HIV/AIDS infected person. The relatively low number of HIV/AIDS infected persons in Bangladesh provides the adolescents little

to no exposure adolescents to actually form an attitudes toward them. Besides, the available sources of information do not focus on information about infected persons, which in turn limited the adolescents' knowledge and attitudes. According to Crano and Prislin (2006), "an attitudes represents an evaluative integration of cognitions", such as knowledge on HIV/AIDS non-transmittable routes, "and affects experienced in relation to an object", such as HIV/AIDS infected person.

This study discovered that knowledge on non-transmittable routes was positively correlated with attitudes toward HIV/AIDS infected person at a moderate level ($r = .57, p < .01$). The finding is consistent to Hedayati (2008). The explanation is as follows:

Firstly, the available information regarding HIV/AIDS, via TV and print media, does not emphasize on certain aspects such as the prevention and infected persons. Therefore, the knowledge and attitudes on such topics are limited.

Secondly, knowing that HIV/AIDS is a fatal disease, adolescents are willing to seek more knowledge. However, due to moral and religious beliefs, HIV/AIDS is deemed as a threat to them and their community. This finding is consistent to the study of Montazeri (2005), who found that majority of his respondents agreed or strongly agreed with: "lack of religious and moral commitments could cause HIV/AIDS infection".

In addition, this study discovered that the knowledge on non-transmittable routes were positively correlated with attitudes toward HIV/AIDS infection and prevention methods at a low level ($r = .40, .46, p < .01$, respectively). The influencing factors of this finding are adolescents' awareness of HIV/AIDS as well as the importance of knowing more about prevention methods; the lack of comprehension

on non-transmittable routes; social and cultural values as well as strict religious rules discourages adolescents from interacting with infected persons, or even learning more about them. This may influence adolescents' neutral attitudes toward the infected.

However, negative correlations were found between the adolescents' knowledge and attitudes regarding HIV/AIDS prevention. General knowledge was negatively correlated with attitudes toward infection and prevention methods at a low level ($r = -.27, p < .05, -.28, p < .01$, respectively). Knowledge on routes of transmission was negatively correlated with attitudes toward infection and prevention methods at low and little level ($r = -.42, p < .01, -.24, p < .05$, respectively). Knowledge on prevention methods was negatively correlated with attitudes toward infection and prevention methods at little level ($r = -.23, -.24, p < .05$, respectively). These relationships are inconsistent with the proposed hypothesis. The reasons on these findings are explained as follows:

Firstly, in Bangladesh, there is no education on HIV/AIDS provided outside of the formal education system. The possible primary source like family members is often reluctant to discuss sexual issues with adolescents. As a result, adolescents rely on informal sources of information, media, peer, and friends, which may not always be accurate or comprehensive and is likely to be confusing to the adolescents.

Secondly, religious factor is likely to be most important in Bangladesh where common faith, Islam, binds the community. According to Islam's belief system, risky sexual behaviors – such as having multiple sexual partners, having sexual relationship with someone who is not one's legal spouse—are sin and thus prohibited. This religious influence contributes to positive attitudes toward HIV/AIDS infection and prevention methods, but creates social barriers toward infected persons.

This disparity, between the findings and the hypothesis, could be explained by the investigator's failure to explore and include adolescents' opinions and their realistic needs into the conceptual framework of the study. Furthermore, the fact that the two research assistants received inadequate training on data collection procedures could possibly alter the data hence the results. However, the outcome of this study is still parallel with the study of Tavoosi et al. (2004), which reported that attitudes was negatively correlated with knowledge ($r = -.38, p < .001$).

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary of the study, implications of the findings, limitations of the study, and recommendations for further investigation.

Conclusion

Summary of the Study

Based on the study's findings, Bangladeshi adolescents had a high level of total knowledge and a positive level of attitudes regarding HIV/AIDS prevention. Based on the knowledge domains, the adolescents were equipped with a high level of general (or basic) knowledge of HIV/AIDS, knowledge on the routes of transmission, and knowledge on prevention methods along with a positive level of attitudes on HIV/AIDS infection as well as prevention methods. However, they only had a fair level of knowledge on the non-transmittable routes of infection and a neutral level of attitudes toward infected persons. There was a low-level yet positive correlation between their knowledge and attitudes regarding HIV/AIDS prevention.

Limitations of the Study

1. A self-administered questionnaire was developed without any input from adolescents, who were the target group. Therefore, certain perspectives might have been overlooked. Also, the use of inadequately-trained research assistants may also affect the result.

2. Purposeful sampling technique and selected adolescents from a single district limits the generalization of the study's findings.

3. Cultural barriers, such as an open discussion about sex, during data collecting process may affect the quality of the acquired data.

Recommendations

Implications of the Findings

1. The study's finding showed that adolescents had a fair level of knowledge on HIV/AIDS non-transmittable routes. It is thus recommended that an effective HIV/AIDS preventive strategy must focus on improving the adolescents' knowledge on the non-transmittable routes.

2. The study's finding showed that adolescents had neutral attitudes toward HIV/AIDS infected persons. Therefore, the prevention programs must also focus on developing positive attitudes toward infected persons among the adolescents.

3. Reproductive health information, including HIV/AIDS, should be included in schools' curriculum in order to enhance adolescents' knowledge and attitudes regarding HIV/AIDS prevention.

Further Investigation

The study's results identified that adolescents had a fair level of knowledge on HIV/AIDS non-transmittable routes and a neutral level of attitudes toward infected persons. The following recommendations may be initiated:

1. Further study should incorporate adolescent's opinion into the development of a questionnaire, also provide adequate training to research assistants.

2. Further study should emphasize the adolescent's HIV/AIDS preventive practices.

3. Replication of this study in other settings, with more random and larger samples, is also recommended in order to ensure quality of the generalization in the study's findings.

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APPENDICES

APPENDIX A

INFORMED CONSENT (Authority)

Dear Sir/Madam,

My name is Md. Abbas Uddin. I am a master’s student in the Faculty of Nursing at Prince of Songkla University, Thailand. I am also a senior staff nurse at Lakshmipur Sadar Hospital. I am conducting a study to identify adolescents’ knowledge and attitudes regarding HIV/AIDS prevention among the members of your organization.

I am inviting your adolescent students and employees to participate in this study. Their answers regarding HIV/AIDS prevention will provide essential information to strengthen the HIV/AIDS prevention strategies in Bangladesh. They will be asked to complete a brief questionnaire. It will take approximately 20 minutes. Their participation in this study will be confidential and used only for the purpose of the study. They may withdraw from participating in this study at any time, and there will be no risks involve in the study.

.....
Name of researcher Signature of researcher Date

I greatly appreciate your cooperation in this regard. Regarding the above mentioned information, I grant permission to contact adolescent students and employees from this organization about participating in this study.

.....
Name of teacher/ manager Signature of teacher/ manager Date

If you have any inquiries, please contact me at 01818445831.

INFORMED CONSENT (Adolescent over 18 years)

Dear Student/ Participant,

My name is Md. Abbas Uddin. I am a master's student in the Faculty of Nursing at Prince of Songkla University, Thailand. I am also a senior staff nurse at Lakshmipur Sadar Hospital. I am conducting a study to identify adolescents' knowledge and attitudes regarding HIV/AIDS prevention in the Lakshmipur district town. I am inviting you to participate in this study. Your answers regarding HIV/AIDS prevention will provide essential information to strengthen the HIV/AIDS prevention strategies in Bangladesh.

Your participation in this study will be confidential and available only for the purpose of this study. You are free to ask any questions regarding questionnaire. You also have right to withdraw from the study at any time, and there will be no risks involve in the study. If you decide to participate in this study, please answer to the following questionnaire. It will take approximately 20 minutes. Please answer the questions honestly. After completion, return the questionnaire to your teacher/manager/house owner.

.....
Name of researcher

.....
Signature of researcher

.....
Date

I greatly appreciate your cooperation in completing answering this questionnaire. Regarding the above mentioned information, I agree to participate in this study.

.....
Name of participant

.....
Signature of participant

.....
Date

INFORMED CONSENT (Guardian)

Dear Sir/Madam,

My name is Md. Abbas Uddin. I am a master's student in the Faculty of Nursing at Prince of Songkla University, Thailand. I am also a senior staff nurse at Lakshmipur Sadar Hospital. I am conducting a study to identify adolescents' knowledge and attitudes regarding HIV/AIDS prevention in the Lakshmipur district town. I am inviting your adolescent to participate in this study. Their answers regarding HIV/AIDS prevention will provide essential information to strengthen the HIV/AIDS prevention strategies in Bangladesh.

Their participation in this study will be completely voluntary. The confidentiality of their answers will be maintained and available only for the purpose of this study. It will take approximately 20 minutes. They are free to ask any questions for filling the questionnaire and also have the right to withdraw from the study at any time, and there will be no risks involve in the study.

.....
Name of researcher

.....
Signature researcher

.....
Date

I greatly appreciate your kind cooperation in this regard. Regarding the above mentioned information, I grant permission to contact my adolescent about participating in this study.

.....
Name of legal guardian

.....
Signature of legal guardian

.....
Date

If you have any inquiries, please contact me at 01818445831

PARTICIPANT INFORMATION

Dear Student/ Participant,

My name is Md. Abbas Uddin. I am a master's student in the Faculty of Nursing at Prince of Songkla University, Thailand. I am also a senior staff nurse at Lakshmipur Sadar Hospital. I am conducting a study to identify adolescents' knowledge and attitudes regarding HIV/AIDS prevention in the Lakshmipur district town. I am inviting you to participate in this study. Your answers regarding HIV/AIDS prevention will provide essential information to strengthen the HIV/AIDS prevention strategies in Bangladesh.

Your participation in this study will be confidential and available only for the purpose of this study. You are free to ask any question regarding this participation or thing related to the questionnaire. You also have right to withdraw from the study at any time.

If you decide to participate in this study, please answer to the following questionnaire. It will take approximately 20 minutes. Please answer the questions honestly. After completion, return the questionnaire to your teacher/manager/house owner

I greatly appreciate your cooperation in completing answering this questionnaire.

.....
Name of researcher

.....
Signature of researcher

.....
Date

If you have any inquiries, please contact me at 01818445831

APPENDIX B
INSTRUMENT

Code.....

Date.....

Instruction: This instrument is divided into three parts: Part 1 is related to your personal and family data. Part 2 is related to your knowledge regarding HIV/AIDS prevention. Part 3 is related to your attitudes regarding HIV/AIDS prevention.

Part 1: Demographic Data Profile

Direction: Please mark \surd in () or write your answer in the blank space.

1. Age..... years
2. Gender: () Male () Female
3. Educational level () Primary () Secondary () College
4. Occupation: () Student () Restaurant employee () Confectionary employee
 () Household work () Other (please identify)
5. Living place () House () Mass () Factory
 () Restaurant () Dormitory
6. Estimated family monthly incomeTaka
7. Have you heard of HIV/AIDS? () Yes () No
8. Sources of the HIV information you have accessed?
 () Radio () Television () Newspaper/magazines
 () Friends () Family member () School teacher
 () Health professional () Other (please specify).....

Part 2: Adolescents Knowledge Regarding HIV/AIDS Prevention Questionnaire.

Direction: Please read the sentences and mark \surd (Yes or No) for each question based on your knowledge.

No	ITEMS	Mark	
1.	AIDS is a disease.	Yes	No
2.	AIDS is caused by a virus	Yes	No
3.	AIDS decreases body immunity.	Yes	No
4.	AIDS is a curable disease.	Yes	No
5.	There is a vaccine for AIDS.	Yes	No
6.	AIDS is diagnosed by a blood test.	Yes	No
7.	AIDS is transmitted by sharing belongings with an infected person.	Yes	No
8.	AIDS is transmitted by sharing infected razor blades.	Yes	No
9.	AIDS is transmitted through coughing and sneezing.	Yes	No
10.	AIDS is transmitted by receiving a blood transfusion from infected person.	Yes	No
11.	AIDS is transmitted from infected mothers to child through pregnancy.	Yes	No
12.	AIDS is transmitted from infected mothers to child during delivery.	Yes	No
13.	AIDS is transmitted from infected mothers to children through breastfeeding.	Yes	No
14.	Mosquitoes can transmit the AIDS disease.	Yes	No
15.	AIDS is transmitted by sharing bath ponds.	Yes	No

(Part 2 Continued)

No	ITEMS	Mark	
16.	AIDS is transmitted by shaking hands with infected people.	Yes	No
17.	AIDS is transmitted by sharing food with an infected person.	Yes	No
18.	AIDS is transmitted by unprotected sexual relationships.	Yes	No
19.	AIDS is transmitted by sharing public toilets.	Yes	No
20.	AIDS is transmitted by sharing injection needles.	Yes	No
21.	AIDS is prevented by maintaining moral commitment.	Yes	No
22.	AIDS is prevented by obeying religious rules.	Yes	No
23.	AIDS is prevented by not sharing razor blades.	Yes	No
24.	AIDS is prevented by not re-using needles.	Yes	No
25.	AIDS is prevented by blood screens.	Yes	No
26.	AIDS is prevented by abstaining from unprotected sexual relationships.	Yes	No
27.	AIDS can be prevented by using condoms.	Yes	No

Part 3: Adolescents' Attitudes Regarding HIV/AIDS Prevention Questionnaire.

Direction: Please read the sentences and mark (√) in any one (0, 1, 2, 3) for each question, based on your opinion. The meaning of numbers is as follows: 0 = strongly disagree, 1 = disagree, 2 = Agree, 3 = strongly agree.

No	ITEMS	0 = Strongly disagree	1 = Disagree	2 = Agree	3 = Strongly agree
1.	AIDS is a threatening illness among adolescent age group	0	1	2	3
2.	AIDS is commonly occurred with someone who have lacked of moral commitment.	0	1	2	3
3.	AIDS is commonly occurred with someone who have lacked of obedience to religious rules.	0	1	2	3
4.	It is necessary to learn about AIDS in school.	0	1	2	3
5.	It is necessary to learn about AIDS in family.	0	1	2	3
6.	Discussion with friends is helpful to prevent AIDS.	0	1	2	3
7.	There is enough available information to prevent AIDS.	0	1	2	3
8.	I can protect myself from AIDS by maintaining moral commitment.	0	1	2	3
9.	I can protect myself from AIDS by obeying religious rules.	0	1	2	3
10.	I will continue relationships with my relatives even if they are diagnosed with AIDS.	0	1	2	3

(Part 3 *Continued*)

No	ITEMS	0 = Strongly disagree	1 = Disagree	2 = Agree	3 = Strongly agree
11.	People should know the persons with AIDS	0	1	2	3
12.	I can sit at the same desk with a person diagnosed with AIDS.	0	1	2	3
13.	I can share a toilet with a relative diagnosed with AIDS.	0	1	2	3
14.	I can share a bath ponds with a relative diagnosed with AIDS.	0	1	2	3
15.	Anyone with AIDS can pursue a normal life.	0	1	2	3
16.	Anyone with AIDS can live without fear and anxiety.	0	1	2	3
17.	AIDS infected person need separate hospital	0	1	2	3
18.	Anyone with AIDS needs to discontinue from their jobs.	0	1	2	3
19.	Anyone with AIDS can live with their family members.	0	1	2	3
20.	I will empathetic to person with AIDS	0	1	2	3

Thank you for your kind cooperation.

If you have any inquiries, please contact me at 01818445831.

APPENDIX C

Table 6

Frequency and Percentage of Adolescents on Item Responses of Knowledge Regarding HIV/AIDS Prevention (N =88)

No	Items	Yes		No	
		n	%	n	%
1.	AIDS is a disease	88	100.0	0	0.0
2.	AIDS is caused by a virus	88	100.0	0	0.0
3.	AIDS decreases body immunity	80	90.9	8	9.1
4.	AIDS is a curable disease	39	44.3	49	55.7
5.	There is a vaccine for AIDS	50	56.8	38	43.2
6.	AIDS is diagnosed by a blood test	85	96.6	3	3.4
*7.	AIDS is transmitted by sharing belongings with an infected person	36	40.9	52	59.1
8.	AIDS is transmitted by sharing infected razor blades	63	71.6	25	28.4
*9.	AIDS is transmitted through coughing and sneezing	43	48.9	45	51.1
10.	AIDS is transmitted by receiving a blood transfusion from infected person	84	95.5	4	4.5
11.	AIDS is transmitted from infected mothers to child through pregnancy	86	97.7	22	2.3

Table 6 (Continued)

No	Items	Yes		No	
		n	%	n	%
12.	AIDS is transmitted from infected mothers to child during delivery	77	87.5	11	12.5
13.	AIDS is transmitted from infected mothers to children through breastfeeding	81	92.0	7	8.0
*14.	Mosquitoes can transmit the AIDS disease	42	47.7	46	52.3
*15.	AIDS is transmitted by sharing bath ponds	30	34.1	58	65.9
*16.	AIDS is transmitted by shaking hands with infected people	29	33.0	59	67.0
*17.	AIDS is transmitted by sharing food with an infected person	26	29.5	62	70.5
18.	AIDS is transmitted by unprotected sexual relationships	86	97.7	2	2.3
*19.	AIDS is transmitted by sharing public toilets	36	40.9	52	59.1
20.	AIDS is transmitted by sharing injection needles	86	97.7	2	2.3
21.	AIDS is prevented by maintaining moral commitment	86	97.7	2	2.3
22.	AIDS is prevented by obeying religious rules	80	90.9	8	9.1
23.	AIDS is prevented by not sharing razor blades	80	90.9	8	9.1
24.	AIDS is prevented by not re-using needles	82	93.2	6	6.8

Table 6 (Continued)

No	Items	Yes		No	
		n	%	n	%
25.	AIDS is prevented by blood screens	85	96.6	3	3.4
26.	AIDS is prevented by abstaining from unprotected sexual relationships	87	98.9	1	1.1
27.	AIDS can be prevented by using condoms	75	85.2	13	14.8

Table 7

Frequency and Percentage of Adolescents on Item Responses of Attitudes Regarding HIV/AIDS prevention (N = 88)

No	Items	Frequency			
		Percentage			
		Strongly disagree	Disagree	Agree	Strongly agree
1.	AIDS is a threatening illness among adolescent age group	0	1	50	37
		0.0	1.1	56.9	42.0
2.	AIDS is commonly occurred with someone who have lacked of moral commitment	0	2	62	24
		0.0	2.3	70.5	27.3
3.	AIDS is commonly occurred with someone who have lacked of obedience to religious rules	3	0	59	26
		3.4	0.0	67.0	29.6
4.	It is necessary to learn about AIDS in school	0	1	52	35
		0.0	1.1	59.1	39.8
5.	It is necessary to learn about AIDS in family	2	1	64	21
		2.3	1.1	72.7	23.9
6.	Discussion with friends is helpful to prevent AIDS	0	1	59	28
		0.0	1.1	67.0	31.9
7.	There is enough available information to prevent AIDS	3	5	58	22
		3.4	5.7	65.9	25.0
8.	I can protect myself from AIDS by maintaining moral commitment	1	4	60	23
		1.1	4.6	68.2	26.1
9.	I can protect myself from AIDS by obeying religious rules	0	3	57	28
		0.0	3.4	64.8	31.8

Table 7 (Continued)

No	Items	Frequency			
		Percentage			
		Strongly disagree	Disagree	Agree	Strongly agree
10.	I will continue relationships with my relatives even if they are diagnosed with AIDS	0 0.0	14 15.9	47 53.4	27 30.7
*11.	People should know the persons with AIDS	31 35.2	45 51.1	11 12.5	1 1.1
12.	I can sit at the same desk with a person diagnosed with AIDS	1 1.1	12 13.6	50 56.8	25 28.4
13.	I can share a toilet with a relative diagnosed with AIDS	1 1.1	16 18.2	51 58.0	20 22.7
14.	I can share a bath ponds with a relative diagnosed with AIDS	1 1.1	12 13.6	53 60.2	22 25.0
15.	Anyone with AIDS can pursue a normal life	2 2.3	18 20.5	49 55.7	19 21.6
*16.	Anyone with AIDS can live without fear and anxiety	11 12.5	40 45.5	31 35.2	6 6.8
*17.	AIDS infected person need separate hospital	5 5.7	40 45.5	39 44.3	4 4.5
*18.	Anyone with AIDS needs to discontinue from their jobs	10 11.4	48 54.5	20 22.7	10 11.4
19.	Anyone with AIDS can live with their family members	1 1.1	8 9.1	54 61.4	25 28.4
20.	I will empathetic to person with AIDS	0 0.0	3 3.4	57 64.8	28 31.8

APPENDIX D

LIST OF EXPERTS IN CONTENT VALIDITY OF THE QUESTIONNAIRE

In this study, three experts assisted the investigator in developing the instruments as follows.

1. Associate Professor Dr. Praneed Songwathana, RN, PhD
Faculty of Nursing, Prince of Songkla University
Hat-Yai, Thailand
2. Assistant Professor Dr. Kittikorn Nilmanat, RN, PhD
Faculty of Nursing, Prince of Songkla University
Hat-Yai, Thailand
3. Mr.Md. Nurul Anowar, RN, MSN, PhD Candidate
Faculty of Nursing, Prince of Songkla University
Hat-Yai, Thailand

VITAE

Name Md. Abbas Uddin

Student ID 5110420075

Educational Attainment

Degree	Name of Institution	Year of Graduation
Bachelor of Public Health Nursing	College of Nursing Dhaka, Bangladesh.	2005

Scholarship Award during Enrollment

Directorate of Nursing Services, Ministry of Health and Family Welfare, Bangladesh.

Work Position and Address

Senior Staff Nurse

Sadar Hospital Lakshmipur, Bangladesh.

Contact no +88-01818445831

E-mail: abbas_nursing@yahoo.com