Knowledge on AIDS among Female Adolescents in Bangladesh: Evidence from the Bangladesh Demographic and Health Survey Data

Author(s): M. Asaduzzaman Khan

Source: *Journal of Health, Population and Nutrition*, Vol. 20, No. 2 (June 2002), pp. 130-137
Published by: Springer
Stable URL: https://www.jstor.org/stable/23498934
Accessed: 15-04-2020 06:20 UTC

J HEALTH POPUL NUTR 2002 Jun;20(2):130-137
ISSN 1606-0997 $ 5.00+0.20

Knowledge on AIDS among Female Adolescents in Bangladesh: Evidence from the Bangladesh Demographic and Health Survey Data

M. Asaduzzaman Khan*

School of Health, University of New England, Australia

ABSTRACT

To assess the knowledge on acquired immunodeficiency syndrome (AIDS) among female adolescents in Bangladesh, this study used data extracted from the Bangladesh Demographic and Health Survey (BDHS) 1996-1997. Of 1,446 ever-married women included in the study, most were currently married (96%), Muslims (92%) and from rural areas (91%). Only one in six adolescents had ever heard of AIDS. Of them, 57% reported AIDS as a fatal disease almost always, while only 22% believed that AIDS could be avoided. Multivariate analysis revealed that knowledge on AIDS was strongly and positively associated with education of female adolescents and their husbands and varied significantly across different parts of the country. Knowledge on AIDS was higher among relatively older and urban residents who had access to television or radio and whose husbands were using condom. Strong efforts are needed to improve awareness and to clarify misconceptions about AIDS. Improved access to education, mass-media, and promotion of condom use could prevent AIDS among female adolescents in Bangladesh.

Key words: Acquired immunodeficiency syndrome; HIV; HIV infections; Knowledge, attitudes, practice; Health education; Bangladesh

INTRODUCTION

Human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) has increasingly become a major public-health concern in many developing countries. It is estimated that globally about 34.3 million people are currently infected with HIV. Of these, about 5.6 million are from South and Southeast Asia, with most infections occurring in India. After a slow start in the mid-1980s, India has now about 3.7 million people infected with HIV, with an infection rate of 0.7% (1). The infection rates in Thailand, Cambodia, and Myanmar are as high as 2-4% of their adult population.

Bangladesh, unlike its neighbours, still have low infection rates, with an HIV prevalence of 0.02% in adult population at the end of 1999 (1). The third round of the sentinel surveillance, conducted in Bangladesh during 2000-2001, showed an HIV prevalence of less than 1% among the high-risk groups, such as injecting drug users (IDUs), female sex workers, men having sex with men, and patients with sexually-transmitted infection (STI) (2). The prevalence of HIV among IDUs ranges from 0% to 3.9% in different parts of the country. In addition, the pattern of behaviours that favours the spread of HIV infection is well-established in the Bangladesh society. For example, a substantial proportion of youth has multiple sex partners; drug users share and re-use their needles; and poor condom use, unscreened blood transfusion, and increasing high-risk sexual behaviours are common (3). Evidence suggests that men who have sex with men are highly vulnerable to HIV/STIs, especially those who sell sex (4). Furthermore, Bangladesh has many epidemiological and social factors that could produce a devastating epidemic. These are significant cross-border trade and movements of population, including the high-risk groups to and from

Correspondence and reprint requests should be addressed to: M. Asaduzzaman Khan
School of Health, University of New England
Armidale, NSW 2351
Australia
Email: akhan@pobox.une.edu.au
Fax: 61 2 6773 3666

*Assistant Professor in Statistics on leave from University of Dhaka, Bangladesh, and currently pursuing his PhD with University of New England, Australia

the neighbouring countries India and Myanmar, large commercial sex industry with poor condom use, and high rates of STIs (5). These, coupled with limited opportunities of user-friendly reproductive health services, place Bangladesh in a position where HIV infections could spread rapidly if appropriate actions are not taken urgently.

There is evidence to suggest that women are more vulnerable than men with women becoming infected at younger age than men (6). The proportion of adults living with HIV/AIDS who are women has been steadily increasing: the rate of infection was 41% in 1997 and 47% in 2000. In addition, infection in women is skewed disproportionately toward young women and girls. Since most HIV-infected young women become ill during their most productive ages, the social and economic impacts of HIV/AIDS are devastating in resource-poor settings. Thus, the Plan of Action of the International Conference on Population and Development (ICPD) urges the government and non-government organizations to design appropriate programmes to meet special health needs of adolescents (7).

Adolescence, designated by the World Health Organization (WHO) as age-range of 10-19 years (8), is a vulnerable period when young adults are exposed to new experiences relating to sexuality and reproduction (9). For many reasons, female adolescents are more vulnerable than any others and are biologically more susceptible to some STIs, such as chlamydia and gonorrhoea, that could facilitate the transmission of HIV (10). In addition, early age-at-marriage and ignorance about sexuality and reproduction stimulate the risk of early pregnancy among female adolescents in Bangladesh. The source of information and advice on contraception are rarely available or accessible to the adolescents. Although sociocultural conditions are changing slowly, the mainstream attitude toward sexuality is still conservative in Bangladesh. Indeed, there are strong cultural prejudices and taboos against the discussion about sexuality in public. In addition, susceptibility of female adolescents to HIV infections is rooted in the traditional gender discrimination that denies them the power to protect their health. The traditional gender roles render women less able to control the nature and timing of their sexual activity as men are more able to determine how, when, and with whom sex will take place. This unequal gender role enhances the vulnerability of women to HIV infection, especially when women are economically dependent on men and have under-representation in the decision-making process. In such a situation, when men are the traditional authority of their families, women, particularly young women, are not likely to make independent decisions relating to their health and are often unable to seek crucial reproductive health information and services on their own (11).

To date, little is known about awareness of HIV/AIDS in Bangladesh. Various government and non-government agencies have conducted some limited studies in isolation. Most studies conducted so far focused on adult population, particularly on high-risk groups of people. A study conducted in 1994 in four rural thanas (subdistricts) of Bangladesh demonstrated a low-level awareness of STIs, including HIV/AIDS, among rural women, with a quarter of married women of reproductive age having heard of any STI, including HIV/AIDS. Knowledge on the mode of transmission and means of prevention was even lower among rural women investigated (12). Results of another study carried out during April-August 1995 in rural Bangladesh among 3,687 women and 2,272 men showed that only 7% of female and 16% of male population had heard of AIDS, but 70% of men and 80% of women who had heard of AIDS did not know how one gets AIDS and how to prevent it (13). According to the Bangladesh Demographic Health Survey (BDHS) 1996-1997, only 19% of ever-married women had ever heard of AIDS (14). One recent study conducted during November 1997-April 1999 among 203 commercial sex workers reported that 32% of them had ever heard of AIDS, while 11% had the knowledge of transmission of HIV/AIDS by unsafe sex (15). Awareness of AIDS among adolescents is yet to be explored. Given these circumstances, it is imperative to understand what female adolescents know about AIDS and fatality, and how to prevent the disease. The importance of the present study lies in the provision of information that the programme managers and policy-makers could use to support their ongoing programmes and to develop appropriate interventions to prevent AIDS epidemic by improving awareness among female adolescents of Bangladesh.

MATERIALS AND METHODS

Data for this study were extracted from the BDHS 1996-1997. The BDHS 1996-1997 employed a nationally-representative two-stage probability sample design where 9,127 ever-married women were interviewed successfully. This paper is based on 1,446 ever-married female adolescents aged 10-19 years, which is about 16% of the total sample. A module on awareness of AIDS was

included in the BDHS 1996-1997 for the first time, which was used for the present study. Knowledge on, and awareness of, AIDS were assessed by inquiring whether they had ever heard of AIDS, and if so, sources of knowledge, perceptions about the avoidance of the disease, and understanding of its consequences were also assessed.

Because of exploratory nature of this study, the researcher did not want to rule out any variable that might have an effect on knowledge of the respondents about AIDS. Variables having potential association with knowledge on AIDS were identified using chi-square test. Variables initially considered for analyses included: age of respondents, area of residence (urban/rural), administrative division, religion, land ownership, access to television or radio, education, education of husband, membership in organization(s), employment status, discussion of family-planning issues with husband, current contraceptive use, and mobility. For this paper, mobility of women was defined as freedom of women and frequency of going outside their homes. Table 1 presents the sociodemographic characteristics of the study participants. Only those variables that have statistically significant relationship (at 5% level of significance) with knowledge on AIDS are presented in

Table 1. Sociodemographic characteristics of female adolescents (n=1,446), BDHS 1996-1997

Characteristics	Average/percentage
Mean age (years)	16.84
Average no. of children	0.63
Currently married (%)	96.4
Muslim (%)	92.3
Landless (%)	59.4
No formal education (%)	41.0
Rural residents (%)	90.6

BDHS=Bangladesh Demographic and Health Survey

Table 2. Table 3 shows the percent distribution of female adolescents who had ever heard of AIDS by some selected characteristics. Multivariate logistic regression analysis was carried out to identify possible predictors of knowledge on AIDS. Knowledge of adolescents on AIDS was considered an outcome variable which was dichotomous, taking the value 1 for those who had ever heard of AIDS and 0 otherwise. Thirteen variables, listed above, which were significant at $p \leq 0.20$, were included in the initial multivariate model, and only those variables significant at $p \leq 0.05$ were included in the final model. Results of logistic regression analysis are presented in Table 4 in the form of odds ratios (ORs) and their confidence intervals (CIs). In this paper, female adolescents are referred to simply as adolescents.

RESULTS

The mean age of the adolescents participated in the study was 16.84 years, and the mean number of children was

Table 2. Distribution of female adolescents (n=1,446) and percentage of those who had heard of AIDS by some selected characteristics, BDHS 1996-1997

Characteristics	Adolescents	
	No.	%
Overall (knowledge)	1,446	17.2
Age (years)†		
10-14	145	7.8
15-19	1,301	18.3
Area of residence¶		
Rural	1,309	14.1
Urban	137	46.7
Administrative division¶		
Rajshahi	402	7.9
Sylhet	55	16.1
Barisal	98	16.3
Khulna	185	16.5
Chittagong	265	22.2
Dhaka	441	23.3
Land ownership¶		
Own land	584	25.7
Do not own land	857	11.6
Education¶		
None	592	6.6
Primary	509	12.3
Secondary or above	345	42.8
Education of husband¶		
None	654	6.3
Primary	348	13.8
Secondary or above	424	37.3
Access to television/radio¶		
Yes	775	27.2
No	667	5.7
Going outside residence*		
Not allowed	518	16.2
Allowed–with someone	533	16.1
Allowed–alone	195	23.6
Current contraceptive use¶		
Not using	1,012	14.3
Using–condom	59	53.5
Using–any other methods	375	19.4
Discussion of family-planning issues with husband‡		
Yes	741	20.5
No	705	13.8

* $p<0.05$; † $p<0.01$; ‡ $p<0.001$; ¶ $p<0.0001$
BDHS=Bangladesh Demographic and Health Survey

0.63 (Table 1). Most adolescents were currently married (96%), Muslims (92%), and from rural areas (91%). Two-fifths (41%) of the adolescents did not have any formal education, while about three-fifths (59%) of adolescents' spouses did not own any land for cultivation.

Table 2 shows the distribution of the adolescents who had heard of AIDS by some selected characteristics. Among the 13 variables initially considered, three variables, such as religion, employment status, and membership in organization(s), could not attain statistical significance, and the remaining 10 variables, significantly associated with knowledge on AIDS at 5% level, are presented in Table 2. The participants were asked whether they had ever heard of AIDS. Only about one (17%) in six adolescents had ever heard of AIDS. The results shown in Table 2 suggest a significant relationship between the age of the adolescents and their knowledge on AIDS; 18% of the adolescents aged 15-19 years had ever heard of AIDS compared to 8% of their counterparts aged 10-14 years. As expected, the urban adolescents were more aware of AIDS compared to their rural counterparts. About 47% of the urban adolescents had heard of AIDS compared to 14% of the rural adolescents. Knowledge on AIDS varied significantly in different parts of the country. Nearly a quarter of the adolescents of Dhaka and Chittagong divisions had ever heard of AIDS, while only 8% of the adolescents of Rajshahi division had heard of AIDS. Land ownership was positively associated with having knowledge on AIDS. A quarter of the adolescents whose spouses had owned land for cultivation had heard of AIDS compared to 12% of their landless counterparts. Education, either of respondents or of their husbands, had a linear and positive relationship with having knowledge on AIDS. About 43% of the adolescents with secondary or above education had heard of AIDS compared to 12% with primary education and 7% with no formal education. Similar scenario was also found in case of education of husbands. Access to radio or television played a significant role in having knowledge on AIDS. About 27% of the adolescents who had access to radio or television had ever heard of AIDS, while only 6% without such access had heard of AIDS. The results also articulate that about 24% of the adolescents who were allowed to go outside their residence by themselves had heard of AIDS compared to 16% who did not or were not allowed with someone to go outside. More than half (54%) of the adolescents whose husbands were using condom had heard of AIDS. However, one-fifth of the adolescents who were using other methods had ever heard of AIDS. Husband-wife communication was positively associated with having knowledge on AIDS. About 21% of the adolescents who discussed family-planning issues with their husbands had heard of AIDS compared to 14% who did not have any such discussion.

The adolescents who had heard of AIDS (n=249) were also asked from where they had learnt the most about AIDS? The major sources of information on AIDS were: television, radio, friends or relatives, and newspapers or pamphlets (Table 3). More than two-thirds who had heard of AIDS mentioned television as the major source of AIDS information (68%), followed by radio and friends or relatives (44% and 40% respectively). About 17% had learnt about AIDS from newspapers or pamphlets. The adolescents who had heard of AIDS were also asked whether they knew any way to avoid getting AIDS. About 44% of the adolescents reported that there was no way to avoid AIDS, while one-third did not know whether AIDS could be avoided. As shown in Table 3, 22% who had heard of AIDS said

Table 3. Percent distribution of female adolescents (n=249) who had ever heard of AIDS by some selected characteristics, BDHS 1996-1997

Characteristics	Percentage
Sources of AIDS information	
Television	68.1
Radio	44.2
Friends/relatives	39.7
Newspapers/pamphlets	17.1
Whether AIDS can be avoided?	
Yes, can be avoided	22.1
Avoid prostitutes	5.8
Use sterilized instruments	5.5
Use condom during sex	4.9
Only one sex partner	4.7
Abstain from sex	4.1
Avoid blood transfusion	2.0
Avoid kissing	1.4
Avoid mosquito bites	1.0
No way to avoid AIDS	44.2
Don't know	33.6
Is AIDS a fatal disease?	
Almost always	56.9
Sometimes	25.4
Almost never	1.3
Don't know	16.4
Can a healthy person have AIDS?	
Yes	64.7
No	13.5
Don't know	21.8

BDHS=Bangladesh Demographic and Health Survey

that there were some means of avoiding AIDS and some commonly-mentioned means were to avoid prostitution, use sterilized instruments, use condom during sex, and to have only one sex partner. Regarding the fatality of the disease, they were relatively well-informed. About 57% reported that people with AIDS almost always died of it, although a quarter of them did not know any definite information. About 16% did not have any idea about the fatality of AIDS. In response to the question "Can a healthy person have AIDS?," surprisingly about two-thirds of the adolescents who had heard of AIDS reported that a healthy-looking person could have AIDS, although a sizeable proportion of them had misconceptions (Table 3).

Logistic regression analysis

Logistic regression analysis was carried out to assess the independent effect of the variable on the knowledge about AIDS after allowing for other variables that might have influences on the underlying relationship. Of the 13 variables initially considered in the model, seven were significant at 5% level and are presented in Table 4. Variables not entered in the model are not shown in the Table and are listed at its bottom. The analysis revealed that the adolescents aged 15-19 years were significantly more likely to know about AIDS than were the adolescents aged 10-14 years (OR=2.3; 95% CI: 1.1-4.6). Residence (urban-rural) was another significant predictor of knowledge on AIDS. The urban adolescents were nearly three times more likely to have knowledge on AIDS compared to their rural counterparts (OR=2.8; 95% CI: 1.8-4.5). Table 4 also shows that knowledge on AIDS varied significantly in different parts of the country. For example, compared to the adolescents of Rajshahi division, the adolescents of Dhaka and Sylhet divisions were almost four times more likely to have knowledge on AIDS. As expected, education was another significant predictor of knowledge on AIDS. The adolescents with secondary or above education were nearly four times more likely to have knowledge on AIDS compared to their uneducated counterparts (OR=3.7; 95% CI: 2.3-6.1). Similar findings were also observed for the adolescents whose husbands had secondary or above education (OR=2.8; 95% CI: 1.8-4.4). Another strong predictor of knowledge on AIDS was access to television or radio which were two major reported sources of knowledge on AIDS. As shown in Table 4, the adolescents who had access to such media were significantly more likely to have knowledge on AIDS compared to their counterparts without such access (OR=3.4; 95% CI: 2.3-5.1). Knowledge of the adolescents on AIDS was also significantly associated with their use of contraceptives. The adolescents whose husbands were using condom were more likely to know about AIDS compared to their counterparts who were not using any method of contraception (OR=3.8; 95% CI: 1.9-7.3). Finally, Hosmer and Lemeshow goodness of fit test indicated that the model fitted the data well (χ^2=5.57; df=8; p=0.70).

Table 4. Logistic regression estimates of odds ratios and confidence intervals for association between knowledge of female adolescents on AIDS and their sociodemographic characteristics, BDHS 1996-1997

Characteristics	Adjusted odds ratio	95% CI
Age (years)		
10-14	1.0§	
15-19	2.27*	1.13-4.55
Area of residence		
Rural	1.0§	
Urban	2.84¶	1.81-4.47
Administrative division		
Rajshahi	1.0§	
Sylhet	3.86†	1.52-9.81
Barisal	2.09*	1.01-4.37
Khulna	2.29†	1.26-4.18
Chittagong	2.77‡	1.62-4.47
Dhaka	4.03¶	2.46-6.61
Education		
None	1.0§	
Primary	1.22	0.76-1.95
Secondary or above	3.72¶	2.25-6.13
Education of husband		
None	1.0§	
Primary	1.51	0.93-2.44
Secondary or above	2.79¶	1.76-4.43
Access to television/radio		
No	1.0§	
Yes	3.39¶	2.27-5.07
Current contraceptive use		
Not using	1.0§	
Using–condom	3.77¶	1.94-7.34
Using–any other method	1.33	0.91-1.93

Hosmer-Lemeshow goodness of fit: χ^2=5.57; df=8; p=0.70
* Wald p<0.05
† Wald p<0.01
‡ Wald p<0.001
¶ Wald p<0.0001
§ Reference category
CI=confidence interval
BDHS=Bangladesh Demographic and Health Survey
Variables not entered in the model are not shown in the table; these include: religion, land ownership, discussion of family-planning issues with husband, membership in organization, mobility of women and their employment status

DISCUSSION

There is ample evidence to suggest that creation of awareness and motivational activities are very important in the prevention of HIV/AIDS. The findings of this study suggest that the female adolescents in Bangladesh are not sufficiently aware of AIDS. Of great concern is that a sizeable proportion of the adolescents had misconceptions about the fatality and avoidance of AIDS. In addition, the prevalence of STIs among them is relatively high. One recent study, conducted in late 1996 with 2,100 married and unmarried adolescents, reported that 39% of husbands of adolescents had symptoms of syphilis, and 7% reported using condom, indicating that most of them were exposed to unsafe sex (16). Given these circumstances, the study has identified some important predictors of knowledge on AIDS, which deserve special attention for the prevention of AIDS among female adolescents in Bangladesh.

The findings of the study showed that the adolescents whose husbands were using condom were one of the most AIDS-aware groups in the adolescent community. Despite the multiple benefits of condom use, such as protection from STIs/HIV/AIDS and regulation of birth, only 4% of them reported that their husbands were currently using condom as a primary method of contraception. The most serious challenge for condom promotion is the full-scale campaigns on its use during pre- and extramarital sex (12). Furthermore, adolescents may have difficulties in obtaining condom and knowing how to use it correctly. Fortunately, family-planning campaigns have endeavours to popularize the use of condom as a method of contraception through behavioural change communication (BCC) activities. Nonetheless, adolescents need to have the skills to use condom consistently and correctly.

The findings of the study suggest that education, either of adolescents or their husbands, is positively contributing to knowledge on AIDS. As education is the pathway of communicating any messages, this deserves special attention. The study suggests a considerable scaling up of existing efforts in improving access to education, especially at least up to secondary level. In our study, the relatively older adolescents had higher knowledge of AIDS. It is understandable that increase in age increases the opportunities to sexual exposure and makes adolescents biologically more mature. As such, the older adolescents may have more options than their younger counterparts in terms of access to reproductive health information, use of healthcare services, and supports from peers. The analysis also indicated that the urban adolescents were more aware of AIDS than their rural counterparts. This could be the consequence of a complex interplay of various factors. Limited access to sexual health information and unavailability of adequate healthcare services, poor literacy coupled with poverty, and unemployment kept the rural adolescents lagged behind the awareness about AIDS. Nevertheless, the rural adolescents may be reluctant to seek help for diagnosis and treatment on sexual health matters.

The results of our study demonstrate that mass-media exposure, such as radio and television, was positively associated with having knowledge on AIDS among the adolescents. The exposure to such media can communicate knowledge on AIDS in music, news reports, songs, dramas, documentaries, and advertising and can profoundly influence attitudes and behaviours of people even in areas as traditionally imbedded as those surrounding sexuality and reproduction (17). A mass-media project using a television programme to teach adolescents in Zaire about AIDS issues resulted in more sexual abstinence, mutual fidelity, and condom use (18). Radio and television are by far the most common types of media exposure in Bangladesh (with about 45% and 28% respectively). However, less than half of the adolescents in our study reported of no regular exposure to either medium.

While comparing knowledge on AIDS among the neighbouring countries, it is evident that the Bangladeshi adolescents are less aware than Indian and Nepalese adolescents. When 17% of the adolescents of Bangladesh had ever heard of AIDS, the National Family Health Survey (NFHS-2) 1998-1999 of India reported 37% of ever-married women aged 15-24 years who had heard of AIDS (19). A quarter of the Nepalese women aged 15-19 years had ever heard of AIDS according to the Nepal Family Health Survey 1996 (20). More Bangladeshi adolescents (60%) have some formal education compared to their counterparts in India (41%) and Nepal (31%). Adolescents of Bangladesh and India have similar access to mass-media (55%), while Nepalese adolescents have less access to mass-media (38%). Whilst considering sources of information on AIDS, television was reported as a major source of information on AIDS by 68% of the Bangladeshi adolescents who had heard of AIDS compared to 80% of Indian adolescents and 23% of Nepalese adolescents. About 44% of the Bangladeshi adolescents who had

heard of AIDS mentioned radio as the second major source of knowledge on AIDS compared to 42% in India and 79% in Nepal. Newspapers/pamphlets were the third mass-media source of information on AIDS in all the three countries (17.1% in Bangladesh, 36.1% in India, and 26.1% in Nepal). This comparative discussion raises some important issues of why the Bangladeshi adolescents have lower awareness of AIDS than the neighbouring countries with similar, sometimes higher, access to mass-media and having slightly better education. This deserves further research to explore the insights.

The findings of the present study have some important policy implications. Promotion of condom use should be strengthened with special emphasis on how to use them effectively and on ensuring its availability and accessibility to the potential clients, particularly men. The BCC activities should be enhanced with extensive education on safe-sexual behaviours through culturally-appropriate messages. Improved access to education resources in conjunction with community-based peer education could also help raise awareness about AIDS. Use of mass-media could also be a successful strategy in reaching adolescents with information on AIDS, particularly those who are living in rural and remote areas. Programmes need to be strengthened for adolescents of rural areas and of Rajshahi division as a whole. Special youth centres could be operated within the existing healthcare facilities, with specific day(s) for youth, to provide comprehensive reproductive healthcare services, which include STIs/HIV/AIDS. The healthcare providers should be oriented on the mechanisms of transmission and prevention of HIV/AIDS, so that they can transfer their knowledge to their clients and to the community people. In addition, more holistic and realistic gender-sensitive programmes and interventions are needed to address the issues of gender inequality that is deeply rooted in the society.

The Government of Bangladesh has recognized adolescent health as a priority target area and has included it as part of the essential services package (ESP) (21). In addition, a multi-sectoral National AIDS Committee (NAC) is providing technical assistance in developing strategies for the control of HIV/AIDS (22). Nevertheless, the findings of the present study can help the healthcare providers in the successful implementation of the existing activities and in formulating appropriate interventions to improve awareness for the prevention of HIV/AIDS among female adolescents in Bangladesh.

ACKNOWLEDGEMENTS

The author is grateful to the National Institute of Population Research and Training (NIPORT), Dhaka, Bangladesh, for providing the BDHS data for the study. The views expressed herein do not necessarily reflect those of NIPORT.

REFERENCES

1. Joint United Nations Programme on HIV/AIDS. Report on the global HIV/AIDS epidemic. Geneva: Joint United Nations Programme on HIV/AIDS, 2000. 128 p. (UNAIDS/00/13E).
2. Second generation surveillance for HIV in Bangladesh; Round III, 2000-2001. Dhaka: National AIDS/STD Programme, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of Bangladesh, 2001. (URL: http://www.bangla-aids.org/document/surveillance-3.htm, accessed on 7 March 2002).
3. Sethi G. Bangladesh and HIV/AIDS. *Nirmul* (Official Journal of the Bangladesh AIDS Prevention Society) 1999;3:17-20.
4. Sexual health of males in south Asia who have sex with other males: results of situation assessments in four cities in India and Bangladesh. London: Naz Foundation International, 2000. (http://www.jsiuk.com/docs/MSM%20Naz%20report.pdf, accessed on 7 March 2002).
5. Bangladesh HIV/AIDS Update 2001. World Bank update: South Asia Region–Bangladesh. (http://wbln1018.worldbank.org/sar/sa.nsf/8b211d2239 d5691 3852567d7005d8e54/ba0cdbb55ccef28785256a9b0056d414?OpenDocument, accessed on 7 March 2002).
6. Gender and AIDS. Geneva: United Nations Programme on HIV/AIDS. (http://www.unaids.org/fact_sheets/files/GenderFS_en.pdf, accessed on 7 March 2002).
7. Program of action of the 1994 International Conference on Population and Development. *Pop Dev Rev* 1995;21:187-213.
8. World Health Organization. Young people's health—a challenge for society. Report of a WHO Study Group on Young People and "Health for All by the Year 2000." Geneva: World Health Organization, 1986. 117 p. (WHO technical report series no. 731).
9. Nahar Q, Amin S, Sultan R, Nazrul H, Islam M, Kane TT *et al.* Strategies to meet the health needs of adolescents: a review. Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 1999.

38 p. (ICDDR,B special publication no. 91).

10. Brookman RR. Adolescent sexual behaviours. *In*: Holmes KK, Mardh P-A, Wasserheit J, editors. Sexually transmitted diseases. 2d ed. New York: McGraw-Hill, 1990:77-84.
11. Khan MA, Khanum PA. Influence of son preference on contraceptive use in Bangladesh. *Asia Pacific Popul J* 2000;15:43-56.
12. Khan MA, Rahman M, Khanam PA, Barkat-e-Khuda, Kane TT, Ashraf A. Awareness of sexually transmitted disease among women and service providers in rural Bangladesh. *Int J STD AIDS* 1997; 8:688-96.
13. Fulton EL, Kamal N, Ahmed SM, Khan MI. Determinants of AIDS awareness and knowledge among rural men and women in Bangladesh (abstract). *In*: Hawkes S, Qadri F, Rabbni GH, Rahim MA, Thwin AA, editors. Reproductive tract infections and sexually transmitted infections: programme and abstracts of the Sixth Annual Scientific Conference, Dhaka, 8-9 March 1997. Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 1997:30. (ICDDR,B special publication no. 57).
14. Mitra SN, Al-Sabir A, Cross AR, Jamil K. Bangladesh demographic and health survey 1996-1997. Dhaka: National Institute of Population Research and Training, 1997. 252 p.
15. Murshed M, Ullah AKMA. Preventives of HIV/AIDS among commercial sex workers in Bangladesh (abstract). *In*: Khan MSI, Brooks WA, Salam MA, editors. Health systems research—meeting the needs of populations in transition; programme and abstracts of the Ninth Annual Scientific Conference, Dhaka, 11-13 February 2000. Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 2000:76. (ICDDR,B special publication no. 108).
16. Haider SJ, Saleh SN, Kamal N, Gray A. Study of adolescents: dynamics of perception, attitude, knowledge and use of reproductive health care. Dhaka: Population Council, 1997. 44 p.
17. Westwoff CF, Bankole A. Mass media and reproductive behaviour in Pakistan, India, and Bangladesh. Calverton, MD: Macro International Inc., 1999. 32 p. (Demographic and health surveys analytical report no. 10).
18. Convisser J. The Zaire Mass Media Project: a model of AIDS prevention communications and motivation project. Washington, DC: Population Services International, 1992:16-17. (Population Service International special report no. 1).
19. International Institute for Population Sciences. National family health survey, 1998-99. Mumbai: International Institute for Population Sciences, 2000:230-39. (National family health survey, 2).
20. Pradhan A, Aryal RH, Regmi G, Ban B, Govindasamy P. Nepal family health survey, 1996. Kathmandu: Department of Health Service, Ministry of Health, His Majesty's Government, 1997:159-66.
21. Bangladesh. Ministry of Health and Family Welfare. Health and Population Sector Programme (HPSP) 1998-2003: programme implementation plan, part I. Dhaka: Ministry of Health and Family Welfare, Government of Bangladesh, 1998:21-4.
22. Akhter HH. Reproductive rights, reproductive health, morbidity and mortality. *In*: Barkat A, Howlader SR, editors. Population and development: national plan of action. Dhaka: Ministry of Health and Family Welfare, Government of Bangladesh, 1996:79-104.