

Full Length Research Paper

Determinants of knowledge and awareness about AIDS: Urban-rural differentials in Bangladesh

Mosieur Rahman

Department of Population Science and Human Resource Development, University of Rajshahi, Rajshahi-6205, Bangladesh. E-mail: swaponru_2000@yahoo.com.

Accepted 22 August, 2009

This study utilized data from Bangladesh Demographic and Health Survey 2004 to identify the determinants of knowledge about AIDS for women of urban and rural areas of Bangladesh, bi-variate and multivariate logistic regression methods were employed in analyzing data. This study found that a wider gap exists between urban and rural areas regarding knowledge about AIDS, where every 8 out of 10 urban women know about AIDS but almost half of the rural women still do not know about AIDS. Mass media play a major role for growing awareness about AIDS in both of these areas. In the urban area 61.6 percent women knew at least one correct way to avoid AIDS but rural women are in miserable condition because the corresponding figure for rural women was only 31.3% that means 37.7 and 67.7% among urban and rural women respectively still did not know how to avoid AIDS. Binary logistic regression method shows that education, occupation, ever use of contraception, currently using condom, permission to go to hospital/health center, mass media exposure, region of residence and wealth index significantly influence the knowledge about AIDS among rural women, whereas, in the urban areas except occupation and currently using condom all these remaining variables appear as the significant predictors of knowledge about AIDS.

Key words: AIDS, mass media, Bangladesh, logistic regression analysis.

INTRODUCTION

Bangladesh with its 127 million populations is still considered as a low HIV/AIDS prevalent country. However, it is at a critical moment in the course of its AIDS epidemic. It is estimated that there are 13,000 HIV-positive people in the country and that HIV prevalence in the adult population is less than 0.01 percent (UNAIDS, 2002). However, the country's vulnerability is very high. The presence of covert multi-partner sexual activity and denial, the low level of knowledge and low condom use, unsafe professional blood donations, lack of a desirable environment and violation of Human Rights, all contribute to the spread of HIV in Bangladesh (Khan, 2002).

Since the first detection of HIV in Bangladesh in 1989, the rate of infection has not been increased in comparison to our neighbors as India where according to UNAIDS it is estimated that between 1.75 - 3.15 million Indians are living with HIV/AIDS at the end of 2004. UN AIDS estimated that approximately 11,000 Bangladeshi

adults and children could be living with HIV and AIDS at the end of 2004. Indeed, there is a host of factors that render the country highly vulnerable to a surge in the epidemic (Khairul, 2007). These include the overall poverty levels, the documented risk behaviors including drug injections, growing sex work, considerable population movements in and out of the country, persisting gender disparities and inequalities, especially low levels of general awareness and knowledge about HIV/AIDS among the population in general and critically, among those who are most vulnerable and/ or engaged in risk behaviors. Meanwhile, most of the people of the country are unaware about the deadly disease. The 1999 - 2000 Bangladesh Demographic and Health Survey found that only 31% of married women and 50% of newly married men had heard of AIDS (BDHS, 2000). Over 90% of rickshaw pullers could not identify a single method of HIV prevention. There is also a relative lack of availability and

access to relevant services (sexual and reproductive health, HIV counseling and testing). There is also HIV/AIDS-related stigma and discrimination prevalent in the society. Bangladesh is therefore geographically vulnerable to HIV and AIDS and at risk due to the prevalence of high-risk behaviors like injecting drug use, commercial unprotected sex with an overlap between more vulnerable and bridging populations and high rates of sexually transmitted infections (STIs). There are also low levels of HIV and AIDS awareness; migration and trafficking; poverty gaps; low nutritional status; gender inequalities that place women and young girls at risk and gaps in the healthcare delivery system. To meet the targets and goals of AIDS prevention and control, there is a strong need to assess the current levels of specific knowledge about AIDS transmission and prevention by urban rural residence and other key socioeconomic factors. Therefore, the purpose of this study is to examine the knowledge and awareness about AIDS of urban and rural women of Bangladesh.

MATERIALS AND METHODS

Data source

This study utilizes the data extracted from Bangladesh Demographic and Health Survey (BDHS) 2004, which were conducted by Mitra and Associates under the authority of the National Institute of Population Research and Training (NIPORT), Ministry of Health and Family Welfare, Bangladesh. A nationally representative sample of 11,440 ever-married women aged 10 - 49 years were selected using a multistage probability proportional-to-size sample design. The survey collected household information as well as individual characteristics of women, including a complete birth history and information on contraceptive use. Data on antenatal and delivery care, vaccinations and the knowledge about AIDS were also collected. Out of 11,440 ever-married samples, 2586 and 8854 women are taken from urban and rural areas respectively. The data has been collected from six administrative divisions of the country-Barisal, Chittagong, Dhaka, Khulna, Rajshahi and Sylhet. Data collection took place over a five-month period from 1st January to 25th May, 2004.

Dependent variable

The dependent variable was the knowledge about AIDS.

Independent variables

The cut-off points for independent variables were chosen as: residence (rural or urban), the level of education of the women (illiterate, primary, secondary or higher), age of the women (< 20, 20 - 34 or 35 - 49), respondents occupation (worked or did not work), husbands occupation (manual, non-manual or did not work), religion (Muslims or non-Muslims), ever used contraception (yes or no), currently using condom (yes or no), discuss FP with partners (yes or no), mass media exposure (yes or no), has permission to go to hospital alone (no, alone or with someone),

region (Barisal, Chittagong, Dhaka, Khulna, Sylhet or Rajshahi) and the wealth index (poor, rich or middle).

Data analyses

Data were analyzed using the SPSS, Version 12.0, computer program. Bivariate analysis was performed to determine urban-rural differentials of knowledge about AIDS by explanatory variables. Pearson's Chi-square test of independence was performed to test the existence of significant association between knowledge about AIDS and selected risk factors. Considering the fact that among multivariate techniques the Cox's linear logistic regression model is algebraically simple, computationally straightforward and efficient with acceptable degree of precision for a binary dependent variable, this study applied Cox's linear logistic regression model (Cox, 1970) for multivariate analysis. The dependent variable, knowledge about AIDS, is dichotomized as follows Y = 1, who have ever heard about AIDS 0, otherwise. It is noted that logistic regression model has been run two times for urban and rural areas separately.

FINDINGS

Knowledge about AIDS

AIDS was recognized as a global problem by mid 1980s. Worldwide experience has suggested that public knowledge on AIDS is the most fundamental weapons against the AIDS pandemic as long as a vaccine or cure has not been developed (World Health Organization, 1999). The Table 1 presents the percentage distribution of urban and rural women according to their knowledge about AIDS.

Table 1 depicts that 82% among the urban women knew about AIDS. The results were more worrying especially for rural women where almost half of them (46%) did not hear about AIDS.

Knowledge about AIDS from different sources

Mass media that includes radio, television (TV), newspapers, magazine, cinema and press has been used primarily as the most effective methods for disseminating HIV/AIDS prevention messages worldwide (Myhre and Flora, 2000). These media are fighting against HIV/AIDS pandemic by raising awareness and knowledge, changing attitudes and behaviors (WHO/EMRO, 2001). However, mass media effectiveness on AIDS knowledge and condom use in Bangladesh is almost unknown. It also remains unclear whether the exposures to AIDS messages through multiple media/source have greater impact than exposure to only one media/source.

From Table 2 it appears that TV was the major source of AIDS information to both the urban (72.7% and rural (36.8%) women followed by Radio and friends / relatives. The use of other mass media such as newspapers/magazines, pamphlets/posters and bill board /sign board

Table 1. Percentage distribution of women according to their knowledge about AIDS.

Knowledge about AIDS	Urban		Rural	
	Number of women	Percentage	Number of women	Percentage
Heard about AIDS				
Yes	2113	81.7	4751	53.7
No	473	18.3	4103	46.3
Total	2586	100.0	8854	100.0

Table 2. Percentage distribution of urban-rural women according to the reported sources of AIDS information.

Sources of AIDS information	Urban		Rural	
	Number of women	Percentage	Number of women	Percentage
Radio	550	21.3	1971	22.3
TV	1881	72.7	3257	36.8
Newspaper / magazine	210	8.1	212	2.4
Pamphlets / posters	97	3.8	148	1.7
Health workers	217	8.4	465	5.3
Schools / teachers	20	0.8	32	0.4
Mosques/temples/churches	0	0.0	5	0.1
Community meeting	24	0.9	81	0.9
Friends /relatives	776	30	1971	22.3
Work place	18	0.7	37	0.4
Bill board /sign board	124	4.8	140	1.6
Others	12	0.5	53	0.6
Knowledge of AIDS from multiple sources				
No source	475	18.4	4108	46.4
1 source	854	33.0	2145	24.2
2 sources	819	31.7	1722	19.5
3 sources	338	13.1	749	8.5
4 and more sources	101	3.9	130	1.5

had a small contribution for growing consciousness of AIDS especially in rural areas as compared to urban areas, where as 8.4 and 8.1% urban women conscious about AIDS from health workers and newspapers/ magazines respectively the corresponding figure for rural counterparts were 5.3 and 2.4% respectively. Bill board/ sign board, pamphlets / posters was also found to have more contribution to grow consciousness about AIDS among urban women (4.8 and 3.8% respectively) than that of the rural women (1.6 and 1.7% respectively). Regarding the knowledge about AIDS from multiple sources, the Table 2 elucidates that the percentage of knowledge about AIDS from multiple sources was found to be higher among urban women than that of rural women. About 31.7% urban women knew about AIDS from at least 2 sources where as only 19.5% of the rural women knew about AIDS from at least 2 sources.

Knowledge of ways to avoid AIDS

To ascertain whether respondents have corrected knowledge about AIDS it is important to know whether the respondents have appropriate knowledge of ways to avoid AIDS. Table 3 provides the information regarding to the question 'what can a person do to avoid getting AIDS'. Table 3 reveals that in the urban area 61.6% women knew at least one correct way to avoid AIDS but the corresponding figure for rural women was only 31.3% that means 37.7 and 67.7% among urban and rural women respectively still did not know how to avoid AIDS. About 37.6% of the urban women reported that AIDS could be prevented by using condom during sex, followed by 26.4% by avoiding non-sterilized injections, 18.4% by avoiding sex with multiple partner, 17.4% by avoiding sex with prostitute, 14.4% by avoiding blood transfusion,

Table 3. Percentage distribution of women according to their knowledge about the ways to avoid AIDS.

Ways to avoid AIDS	Urban		Rural	
	Number of women	Percentage	Number of women	Percentage
Correct way				
Abstain from sex	248	9.6	512	5.8
Use condom during sex	972	37.6	1530	17.3
Only one sex partner	151	5.9	231	2.6
Avoid sex with prostitute	451	17.4	693	7.8
Avoid sex with homosexuals	14	0.5	20	0.2
Avoid blood transfusions	372	14.4	416	4.7
Avoid non-sterilized injection	683	26.4	934	10.6
Avoid partner who have many partners	475	18.4	744	8.4
Avoid sex with intravenous drug users	32	1.2	51	0.6
Incorrect way				
Avoid sharing razor blades with aids patient	22	0.8	31	0.4
Avoid kissing	6	0.2	6	0.1
Avoid mosquito bites	5	0.2	15	0.2
Seek protection from traditional healer	11	0.4	73	0.8
Others	24	0.9	57	0.6
Knowledge of ways to avoid AIDS				
Correct way	1594	61.6	2773	31.3
Incorrect way	17	0.7	84	0.9
Do not know	975	37.7	5994	67.7
Number of correct ways reported to avoid AIDS				
None	992	38.4	6078	68.7
1	507	19.6	1203	13.6
2	572	22.1	964	10.9
3	347	13.4	455	5.1
4+	167	6.5	151	1.7

9.6% by abstaining from sex and the remaining 5.9% urban women said that AIDS could be prevented by limiting sex with only one partner. On the other hand, the corresponding figures for rural women were found to be 17.3, 10.6, 8.4, 7.8, 4.7, 5.8 and 2.6% respectively. Misconception about getting AIDS through mosquito bites, kissing and sharing razors were also found.

Urban – rural differentials in knowledge about AIDS

The percentage distribution of urban-rural women who had heard about AIDS by some selected background characteristics are demonstrated in Table 4. The study reveals that knowledge about AIDS is higher among younger women both in the urban and rural area of Bangladesh. Here it is also notable that urban women were more conscious about AIDS than their rural counterparts in each age group. It is also found that as the women's level of education increases, the knowledge

about AIDS is also increased both in the urban and rural area of Bangladesh (Table 4). The Table also reflects that the illiterate women of Bangladesh especially in the rural area are in vulnerable condition because only 68.5% of them ever heard of AIDS.

An interesting finding is observed in case of women's occupation. Women, who worked for cash, have less knowledge of AIDS than their counterparts who did not work for cash both in the urban and rural area. Knowledge about AIDS was found to be higher among women whose husbands were non manual workers (professional/businessmen/managerial) than among the women whose husbands were manual workers (farmers/day labor/domestic servants etc.,) both in the urban and rural area. We also observed that non-Muslim were more conscious about AIDS than their Muslim counterparts both in the urban and rural area. Knowledge about AIDS was found to be higher in the urban area (84.7%) than that of rural area (57.5%) among women who have ever used contraception. Women who were

Table 4. Percentage distribution of women regarding AIDS Knowledge according to some background characteristics.

Characteristics	Ever heard of AIDS			
	Urban		Rural	
	Yes	No	Yes	No
Respondent's age	***		***	
< 20	84.5	15.5	67.8	32.2
20 – 34	85.4	14.6	55.2	44.8
35-49	74.6	25.4	42.5	57.5
Respondent's education	***		***	
Illiterate	62.5	37.5	31.5	68.5
Primary	81.4	18.6	57.9	42.1
Secondary	96.9	3.1	83.8	16.2
Higher	99.7	0.3	97.9	2.1
Husband's education	***		***	
Illiterate	62.7	37.3	36.0	64.0
Primary	80.1	19.9	54.5	45.5
Secondary	90.2	9.8	72.5	27.5
Higher	98.1	1.9	86.3	13.7
Respondent's occupation	***		***	
Does not work	83.7	16.3	54.7	45.3
Work	75.8	24.2	49.8	50.2
Husband's occupation	***		***	
Manual	76.3	23.7	50.7	49.3
Non manual	90.5	9.5	63.7	36.3
Did not work	78.6	21.4	57.4	42.6
Religion	-		***	
Non Muslim	84.0	16.0	61.3	38.7
Muslim	81.5	18.5	52.8	47.2
Ever use any contraception	***		***	
Yes	84.7	15.3	57.5	42.5
No	64.7	35.3	39.3	60.7
Currently using condom	***		***	
Yes	98.0	2.0	81.6	18.4
No	80.4	19.6	52.9	47.1
Discussed FP with husband	***		***	
Yes	89.0	11.0	60.1	39.9
No	77.4	22.6	51.2	48.8
Goes to a hospital or health center	***		***	
No	69.6	30.4	46.0	54.0
Alone	85.3	14.7	58.1	41.9
With someone	80.3	19.7	53.1	46.9

Significant level: ***, ** and * indicate $p < 0.00$, $p < 0.01$ and $p < 0.05$ respectively.

Table 4. Contd.

Characteristics	Ever heard of AIDS			
	Urban		Rural	
	Yes	No	Yes	No
Mass media exposure	***		***	
Yes	89.1	10.9	70.1	29.9
No	37.7	62.3	24.9	75.1
Region	***		***	
Barisal	79.0	21.0	57.0	43.0
Chittagong	75.0	25.0	53.6	46.4
Dhaka	86.4	13.6	57.7	42.3
Khulna	90.8	9.2	67.6	32.4
Rajshahi	72.4	27.6	46.5	53.5
Sylhet	76.4	23.6	39.8	60.2
Wealth index	***		***	
Poor	51.6	48.4	35.0	65.0
Middle	69.3	30.7	56.9	43.1
Rich	92.2	7.8	78.3	21.7

Significant level: ***, ** and * indicate $p < 0.001$, $p < 0.01$ and $p < 0.05$ respectively.

currently using condom knew about AIDS more than their counterparts who were not currently using condom both in the urban and rural area. There is a clear difference is observed of having knowledge on AIDS between urban (89%) and rural (60%) area among women who have discussed about FP with their husband. Urban women who were permitted to go to hospital/health center alone knew (85.3%) more about AIDS than their rural counterparts (58.1%). Table 4 also elucidates that mass media plays an important role to grow consciousness of AIDS among urban (89%) and rural (70%) women. Rural-urban differentials of AIDS knowledge were undoubtedly notable for each divisions of Bangladesh. As the wealth index increases from the poor to the rich knowledge about AIDS is also increased evidently both among the urban and rural women of Bangladesh. We can conclude from this study that though urban women are more conscious about AIDS than their rural counterparts.

Determinants of knowledge about AIDS: A multivariate logistic regression analysis

Table 5 reveals that as the level of education rises respondents knowledge about AIDS also increases, both in the urban and rural area women with higher education have 35.379 and 26.161 times more knowledge about AIDS as compared with the illiterate women. Women, who have ever used any contraceptives, have 2 times in the urban area and 1.5 times in the rural area have more

knowledge about AIDS as against their counterparts who have never used contraception. Regarding women's mobility to go to hospital alone we found that women who have a permission to go to hospital or health center alone have 1.926 times more knowledge about AIDS in the urban area and have 1.353 times more knowledge about AIDS in the rural areas as against the women whose mobility is restricted. Urban and rural women, who have access to mass media, knew about AIDS 5.821 and 4.191 times more than those women who do not have access to mass media. Urban women living in Dhaka and Khulna divisions knew about AIDS 2.385 and 4.616 times more than their counterparts who lived in Barisal division, respectively. With regard to wealth index, Table 5 elucidates that both in the urban and rural area middle class and rich women have more knowledge on AIDS than their poor counterparts.

DISCUSSIONS

This study was designed to make a comparative scenario of the differentials and determinants of knowledge about AIDS among the urban and rural women of Bangladesh and the impact of various sources on the knowledge of AIDS. The study found a wider gap between urban and rural areas regarding knowledge about AIDS, where as 82% among the urban women knew about AIDS only half of the rural women heard about AIDS. Mass media play a major role for growing awareness about AIDS. TV is the

Table 5. Logistic regression results for knowledge about AIDS.

Characteristics	Model 1 (Urban)		Model 2 (Rural)	
	Coefficient of β	Odds ratio	Coefficient of β	Odds ratio
Respondent's education				
Illiterate (Ref)	-	1.000	-	1.000
Primary	0.656	1.926***	0.709	2.033***
Secondary	1.917	6.801***	1.652	5.217***
Higher	3.566	35.379**	3.264	26.161***
Husband's education				
Illiterate (Ref)	-	1.000	-	1.000
Primary	0.241	1.273	0.248	1.281***
Secondary	0.620	1.859***	0.474	1.607***
Higher	0.706	2.026	0.475	1.608***
Respondent's occupation				
Does not work (Ref)	-	1.000	-	1.000
Work	-0.170	0.844	0.253	1.288***
Ever use any contraception				
No (Ref)	-	1.000	-	1.000
Yes	0.713	2.040***	0.413	1.511***
Currently using condom				
No (Ref)	-	1.000	-	1.000
Yes	0.850	2.339	0.617	1.852**
Goes to a hospital or health center				
No (Ref)	-	1.000	-	1.000
With someone	0.396	1.485	0.210	1.233*
Alone	0.655	1.926**	0.302	1.353**
Mass media exposure				
No (Ref)	-	1.000	-	1.000
Yes	1.762	5.821***	1.433	4.191***
Region				
Barisal (Ref)	-	1.000	-	1.000
Chittagong	0.133	1.143	-0.171	0.843
Dhaka	0.869	2.385**	0.247	1.280*
Khulna	1.530	4.616***	0.414	1.513***
Rajshahi	0.093	1.097	-0.368	0.692***
Sylhet	0.269	1.308	-0.429	0.651**
Wealth index				
Poor (Ref)	-	1.000	-	1.000
Middle	0.410	1.506*	0.410	1.507***
Rich	1.151	3.162***	0.970	2.638***
Constant	-3.022	0.049***	-2.518	0.081***

Note: Ref = Reference Category and ***, ** and * indicate $p < 0.001$, $p < 0.01$ and $p < 0.05$ respectively.

most influential source, by which 72.7% urban women and 36.8% rural women have known about AIDS. Radio and friends / relatives also play important role for growing consciousness of AIDS. In recent years, a number of governmental and non-governmental organizations have enriched their health related programmes on television, radio and newspapers which are likely to have increased the mother's knowledge on AIDS.

The study also reveals that in the urban area 61.6% women knew at least one correct way to avoid AIDS but rural women are in a miserable condition because the corresponding figure for rural women was only 31.3% that means 37.7% and 67.7% among urban and rural women respectively still did not know how to avoid AIDS. The study showed both in the urban and rural area knowledge about AIDS was found to be higher for those respondents who were highly educated and respondents whose husbands were engaged in non-manual works. This may be due to the fact that higher educated women and the professional men are usually more conscious about the health of their family members and thereby they have more knowledge about AIDS.

Logistic regression model is adjusted by education of husband and wife, occupation, ever use of contraception, currently using condom, permission for going to hospital/health center, mass media exposure, region of residence and wealth index for the knowledge about AIDS, because all these variables are found associated with knowledge about AIDS. All these predictor variables significantly influence the knowledge of AIDS among rural women, whereas among urban women, except occupation and currently using condom all these variables appear as the significant predictors of knowledge about AIDS.

Hopefully the findings of the study would help policy makers, executive agents and health managers to formulate appropriate strategies to improve the HIV/AIDS awareness and preventive activities. Although mass media plays an important role in gaining knowledge about AIDS, only mass media are not enough for disseminating the AIDS information especially in the rural area. Thus some additional program such as face-to-face communication and sexual education at institution may be effective. Government should encourage religious leaders, teachers, health workers, principles of mosques/church/temples and community leaders for achieving the success in HIV/AIDS both in the urban and rural area of Bangladesh.

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