

## Awareness and knowledge of HIV/AIDS among married women in rural Bangladesh and exposure to media: a secondary data analysis of the 2011 Bangladesh Demographic and Health Survey

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### ABSTRACT

The aims of this study were to describe awareness and knowledge of HIV/AIDS among Bangladeshi married women in rural areas and to examine associations between exposure to mass media and their awareness and comprehensive knowledge of HIV/AIDS where mass media has been suggested to be vital sources of information. From the original dataset of the sixth Bangladesh Demographic Health Survey in 2011, the data of 11,570 rural married women aged 15–49 years old were extracted. Logistic regression analyses were performed to estimate odds ratios (ORs) and 95% confidence intervals (CIs). We found that approximately two-thirds of women (63.0%) aged 15–49 years had heard about HIV/AIDS. Exposure to each type of media was significantly associated with awareness of HIV/AIDS. Comparing to those who were not exposed to each of the investigated media, the adjusted ORs of comprehensive knowledge of HIV/AIDS were significantly high for those exposed to newspapers/magazines less than once a week (1.34, 95% CI 1.09–1.65), newspapers/ magazines at least once a week (1.44, 95% CI 1.07–1.94), television at least once a week (1.41, 95% CI 1.18–1.68). It was suggested that television can be utilized to increase awareness and comprehensive knowledge of HIV/AIDS through effective programs. Although the level of exposure was still low, significant associations between exposure to newspapers/magazines and comprehensive knowledge of HIV/AIDS suggested potential of written messages to promote knowledge of HIV/AIDS.

Key Words: HIV/AIDS, awareness, knowledge, rural population, mass media, Demographic and Health Surveys

### INTRODUCTION

The problem of HIV transmission among women still constitutes high figures in the global trends. In 2012, it was estimated that 17.7 million women were infected with HIV/AIDS in the world and HIV/AIDS was the major cause of death for women aged 15–44 years.<sup>1)</sup>

The prevalence of HIV/AIDS in Bangladesh is still low, at less than 0.2% among the general population,<sup>2)</sup> and less than 0.1% among female aged 15–49 years old.<sup>3)</sup> However, Bangladesh

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has seen a more than 25% increase over the past ten years, while present global trends indicate that many high prevalence countries are combating epidemics of HIV/AIDS.<sup>4)</sup> According to a national survey in 2008, it was revealed that people aged 15–49 years lacked awareness and knowledge about HIV/AIDS. Only 38% of people surveyed could identify two or more routes of HIV transmission, and only 40 % could recognize two or more methods of prevention. It was revealed that there were substantial differences in knowledge of HIV/AIDS transmission in Bangladeshi related to wealth, gender, and education and rural versus urban settings. The lowest awareness about HIV/AIDS was found among rural uneducated women; only 20% of them were aware of HIV/AIDS.<sup>5)</sup>

Women in Bangladesh are considered a high-risk group due to lack of opportunity for general and health education. In addition, Bangladesh has large commercial sex industry made up mostly of women.<sup>6)</sup> Women are often the victims of HIV/AIDS because of gender inequality and male dominance. From this standpoint, HIV/AIDS is a gender issue.<sup>7)</sup> Sexual behaviour of married men living away from home may put their wives at risk for HIV/AIDS infections.<sup>8)</sup> Adolescent marriage, which may deprive girls of educational opportunities, is still a social concern in Bangladesh.<sup>9)</sup> In addition, women in Bangladesh often have limited or almost no power to practice their rights regarding safe sexual behaviour.<sup>10)</sup> According to a UNICEF country report profile for Bangladesh 2011, about 40% of hotel-based and 70% of brothel-based female sexual workers used a condom for vaginal sex with their most recent client.<sup>11)</sup> Although there is a possibility that married women are given sexually transmitted diseases by their husbands, only 6% of them are able to avail themselves of condoms.<sup>12)</sup> The situation in Bangladesh may turn into an epidemic as a result of the low rate of condom usage.<sup>13)</sup> In such critical conditions, increasing public awareness may be a first step to prevent HIV/AIDS.<sup>14)</sup>

The importance of mass media for health promotion and disease prevention is well known. Routine exposure and strategic use of mass media play a vital role in promoting awareness, increasing knowledge and changing health behaviours.<sup>15-17)</sup> Mass media channels, radio, television, and newspapers for example, have been suggested to be vital sources of information about HIV/AIDS for ordinary people. In Bangladesh, HIV/AIDS-related health promotion has mainly targeted high risk groups so far, and less emphasis has been made on the general population. Therefore, this study aimed to assess awareness and knowledge of HIV/AIDS and to examine the associations of exposure to mass media with awareness and comprehensive knowledge of HIV/AIDS, targeting ever-married rural women in Bangladesh who are considered as a potentially high risk group.

## MATERIALS AND METHODS

### *Secondary data analysis of Bangladesh Demographic and Health Survey*

This study was based on secondary data obtained with permission from the sixth Bangladesh Demographic and Health Survey (BDHS) conducted in 2011. The Demographic and Health Surveys (DHSs) are nationally representative surveys which were designed to collect data from households on socioeconomic and demographic variables, such as birth and death history of children, child health, newborn health, child mortality, maternal mortality, fertility, domestic violence, and nutrition, and others.<sup>12)</sup>

The BDHS 2011 was conducted by the Bangladesh Ministry of Health and Family Welfare's National Institute of Population Research and Training in collaboration with the International Coach Federation (USA), Mitra and Associates, and the United States Agency for International Development. Data for rural married women aged 15–49 years were extracted from the original

BDHS 2011 dataset. The study sample size was 11,570.

#### *Dependent variable*

In this study, two types of dependant variables were used. These variables were based on responses to a series of questions which were designed to evaluate awareness and knowledge. Awareness of HIV/AIDS was based on the question, “Have you ever heard of HIV/AIDS?” Knowledge of HIV/AIDS was measured with a series of eleven questions asking whether each of the given statements were true. These questions were given only to those who had heard of HIV/AIDS. The statements were: 1) the risk of HIV transmission can be reduced by having sex with only one uninfected partner, who has no other partners; 2) a person can reduce the risk of getting HIV by using a condom every time they have sex; 3) a healthy-looking person can have HIV; 4) a person can get HIV from mosquito bites; 5) a person can get HIV by sharing food with someone who is infected; 6) a person can get HIV by an unsterilized needle/syringe; 7) a person can get HIV by unsafe blood transfusion; 8) a person can get HIV by witchcraft or supernatural mean; 9) HIV can be transmitted from mother to child during pregnancy; 10) HIV can be transmitted from mother to child during delivery; and 11) HIV can be transmitted from mother to child during breastfeeding. Because the first five questions were used for Millennium Developing Goals Indicator 6.3 (percentage of women aged 15–24 years with comprehensive knowledge of HIV/AIDS), “comprehensive knowlege of HIV/AIDS” in this study was also defined as correctly answering all five of these questions.

#### *Independent variable*

The BDHS questionnaire included questions on the frequency of media usage, such as television, radio, and newspapers/magazines, using three categories; “not at all”, “less than once a week” and “at least once a week”. An additive variable of media exposure was created which was defined as the frequency of exposure to any type of three media. For this combined variable, no use of any type of media was coded as “not at all”. Use of any type of media at least once a week was coded as “at least once a week,” and answers in between were coded as “less than once a week”.

#### *Statistical analysis*

Socio-demographic characteristics of the respondents were descriptively summarized by awareness of HIV/AIDS. Logistic regression analyses were performed to estimate odds ratios (ORs) of awareness or comprehensive knowledge and 95% confidence intervals (CIs) adjusted by respondent’s age, education, current working status, current marital status, and household’s wealth index. A P-value of less than 0.05 was considered statistically significant. SPSS version 21.0 was used for the analyses.

## RESULTS

The median age of the respondents was 29 years with an interquartile range of 23–38. Most of the women (93.9%) were currently married. About 30% had no education at all. Most of the women (89.6%) were not working. Islam was the most commonly reported religion (88.3%). Background characteristics of the respondents are shown in Table 1.

Approximately, two-thirds (63.0%) of the respondents had heard about HIV/AIDS. The proportion was slightly higher among pregnant women (68.5%). The number of respondents who had comprehensive knowledge of HIV/AIDS was only 902 out of 11,570 women (7.8%).

**Table 1** Background characteristics of respondents (n=11,570)

Variables	HIV/AIDS				Total	
	Aware		Not aware		N	%
	N	%	N	%		
Age group (years)						
15–24	2,617	35.9	964	22.5	3,581	31.0
25–34	2,616	35.9	1,318	30.8	3,934	34.0
35–49	2,054	28.2	2,001	46.7	4,055	35.0
Current marital status						
Married	6,929	95.1	3,936	91.9	10,865	93.9
Single <sup>a)</sup>	358	4.9	347	8.1	705	6.1
Respondent's education level						
No education	1,195	16.4	2,246	52.4	3,441	29.7
Primary	2,171	29.8	1,517	35.4	3,688	31.9
Secondary	3,403	46.7	516	12.0	3,919	33.9
Higher	518	7.1	4	0.1	522	4.5
Pregnant						
Yes	510	7.0	235	5.5	745	6.4
No	6,777	93.0	4,048	94.5	10,825	93.6
Respondents currently working						
Yes	782	10.7	423	9.9	1,205	10.4
No	6,505	89.3	3,860	90.1	10,365	89.6
Religion						
Islam	6,447	88.5	3,775	88.1	10,222	88.3
Hinduism	792	10.9	494	11.5	1,286	11.1
Buddhism	25	0.3	8	0.2	33	0.3
Christianity	23	0.3	6	0.1	29	0.3
Wealth index <sup>b)</sup>						
Poorest	1,066	14.6	1,551	36.2	2,617	22.6
poorer	1,518	20.8	1,358	31.7	2,876	24.9
Middle	1,906	26.2	840	19.6	2,746	23.7
Richer	1,770	24.3	436	10.2	2,206	19.1
Richest	1,027	14.1	98	2.3	1,125	9.7
Region of residence						
Barisal	928	12.7	456	10.6	1,384	12.0
Chittagong	1,203	16.5	618	4.4	1,821	15.7
Dhaka	1,112	15.3	610	4.2	1,722	14.9
Khulna	1,306	17.9	408	9.5	1,714	14.8
Rajshahi	1,054	14.5	682	5.9	1,736	15.0
Rangpur	908	12.5	846	9.8	1,754	15.2
Sylhet	776	10.6	663	15.5	1,439	12.4

<sup>a)</sup> Single: divorced, widowed, separated/living with partner<sup>b)</sup> Wealth index: household living standard

**Table 2** Distribution of respondents exposed to mass media (n=11,570)

Variable	N	%
Frequency of radio listening (n=11,568)		
Not at all	10,411	90.0
Less than once a week	524	4.5
At least once a week	633	5.5
Frequency of reading newspapers/magazines (n=11,562)		
Not at all	10,294	89.0
Less than once a week	914	7.9
At least once a week	354	3.1
Frequency of watching television (n=11,566)		
Not at all	5,719	49.4
Less than once a week	1,555	13.4
At least once a week	4,292	37.2
Frequency of all media combined (n=11,570)		
Not at all	5,097	44.1
Less than once a week	1,758	15.2
At least once a week	4,715	40.7

When restricting samples from the respondents to the youngest age group (aged 15–24 years), the proportion was still found to be low (9.6%). The proportions were even smaller in older age groups: 9.1% among those aged 25–34 years, and 5.0% among those aged 35–49 years.

Television was found to be the most popular medium among women (Table 2). Of the respondents, 37.1% respondents watched television at least once a week, and 13.4% less than once a week. Radio was the least popular medium among respondents. Only 10.0% of the women listened to the radio in total. When three media were combined altogether, 40.8% of women used any of these media at least once a week.

Among 11 statements related to the knowledge of HIV/AIDS, the proportion of correct answers was highest for the question asking whether a person could get HIV by using unsterilized needle or syringe (57.7%). The lowest proportion of correct answers was obtained for the question asking whether a person could get HIV from mosquito bites (26.7%), as shown in Table 3.

Awareness of HIV/AIDS was significantly associated with exposure to each of three forms of media (radio, newspaper, and television), as well as with exposure to any type of media when they were combined together (Table 4). Adjusted OR of awareness of HIV/AIDS was significant (Adjusted OR = 2.68, 95% CI = 2.41–2.99,  $P < 0.001$ ) for those who were exposed to any type of media at least once a week relative to those who were not exposed at all.

Table 5 shows ORs of comprehensive knowledge of HIV/AIDS. The associations between comprehensive knowledge and exposure to newspaper, television or any type of media at least once a week were significant. Those who were exposed to newspaper less than once a week also showed a significantly high OR of comprehensive knowledge (1.34, 95% CI 1.09–1.65), while those who were less frequently exposed to television did not.

**Table 3** Number and proportions of correct answers about HIV/AIDS related knowledge (n=11,570)

*Statements related to the knowledge of HIV/AIDS	Correct answer	
	N	%
1. The risk of HIV transmission can be reduced by having sex with only one uninfected partner, who has no other partners (T)	5,312	45.9
2. A person can reduce the risk of getting HIV by using a condom every time they have sex (T)	4,481	38.7
3. A healthy-looking person can have HIV (T)	5,170	44.7
4. A person can get HIV from mosquito bites (F)	3,087	26.7
5. A person can get HIV by sharing food with someone who is infected (F)	3,641	31.5
6. A person can get HIV by using unsterilized needle/syringe (T)	6,678	57.7
7. A person can get HIV by unsafe blood transfusion (T)	6,596	57.0
8. A person can get HIV by witchcraft or supernatural mean (F)	5,583	48.3
9. HIV can be transmitted from mother to baby during pregnancy (T)	6,228	53.8
10. HIV can be transmitted from mother to baby during delivery (T)	5,163	44.6
11. HIV can be transmitted from mother to baby during breastfeeding (T)	6,001	51.9

\* (T) for true and (F) for false

**Table 4** Odds ratios (ORs) and 95% confidence intervals (CIs) for awareness of HIV/AIDS

Variable	Awareness		Crude			Adjusted <sup>a)</sup>		
	n	(%)	OR	95% CI	P-value	OR	95% CI	P-value
Radio (n=11,568)								
Not at all	6383	(87.6)	1	Reference		1	Reference	
Less than once a week	415	(5.7)	2.40	1.94–2.98	<0.01	1.84	1.28–2.09	<0.01
At least once a week	487	(6.7)	2.11	1.74–2.54	<0.01	1.45	1.17–1.80	<0.01
Newspapers/Magazines (n=11,562)								
Not at all	6094	(83.7)	1	Reference		1	Reference	
Less than once a week	848	(11.6)	8.86	6.87–11.41	<0.01	2.27	1.73–2.98	<0.01
At least once a week	339	(4.7)	15.58	9.27–26.16	<0.01	2.70	1.57–4.65	<0.01
Television (n=11,566)								
Not at all	2689	(36.9)	1	Reference		1	Reference	
Less than once a week	1048	(14.4)	2.33	2.07–2.62	<0.01	1.73	1.52–1.97	<0.01
At least once a week	3547	(48.7)	5.37	4.88–5.90	<0.01	2.62	2.34–2.93	<0.01
Combined all media (n=11,570)								
Not at all	2227	(30.6)	1	Reference		1	Reference	
Less than once a week	1201	(16.5)	2.78	2.48–3.18	<0.01	1.86	1.64–2.11	<0.01
At least once a week	3859	(53.0)	5.81	5.30–6.37	<0.01	2.68	2.41–2.99	<0.01

a) Adjusted for respondent's marital status, age, highest level of education, current working status and household wealth index

**Table 5** Odds ratios (ORs) and 95% confidence intervals (CIs) for comprehensive knowledge of HIV/AIDS

Variable	Comprehensive Knowledge		Crude			Adjusted <sup>a)</sup>		
	n	%	OR	95% CI	P-value	OR	95% CI	P-value
Radio (n=11,568)								
Not at all	788	(87.2)	1	Reference		1	Reference	
Less than once a week	50	(5.5)	1.29	0.95–1.74	0.10	0.93	0.68–1.27	0.64
At least once a week	66	(7.3)	1.42	1.09–1.85	0.01	1.02	0.77–1.34	0.91
Newspapers/Magazines (n=11,562)								
Not at all	668	(73.9)	1	Reference		1	Reference	
Less than once a week	158	(17.5)	3.01	2.49–3.64	<0.01	1.34	1.09–1.65	0.01
At least once a week	78	(8.6)	4.07	3.13–5.30	<0.01	1.44	1.07–1.94	0.02
Television (n=11,566)								
Not at all	278	(30.8)	1	Reference		1	Reference	
Less than once a week	96	(10.6)	1.29	1.01–1.64	0.04	0.93	0.73–1.20	0.59
At least once a week	530	(58.6)	2.76	2.37–3.21	<0.01	1.41	1.18–1.68	<0.01
Combined all media (11,570)								
Not at all	211	(23.3)	1	Reference		1	Reference	
Less than once a week	111	(12.3)	1.56	1.23–1.98	<0.01	1.02	0.80–1.30	0.87
At least once a week	582	(64.4)	3.26	2.77–3.84	<0.01	1.56	1.29–1.89	<0.01

a) Adjusted for respondent's marital status, age, highest level of education, current working status and household wealth index

## DISCUSSION

By using nationally representative data, a low level of awareness and knowledge about HIV/AIDS was found among rural married women in Bangladesh. The MDG indicator 6.3, which is defined as the proportion of respondents aged 15–24 years having comprehensive knowledge of HIV/AIDS, was less than 10%. It was also found that knowledge of HIV/AIDS transmission during pregnancy, delivery, and breast feeding was low. There were significant associations between awareness of HIV/AIDS and exposure to all types of the investigated mass media. Significant associations were also found between comprehensive knowledge of HIV/AIDS and exposure to newspapers/magazines and frequent exposure to television.

About two-thirds of the respondents had heard about HIV/AIDS. This finding was similar to the previous BDHS in 2007 and India's national family health survey in 2005–6.<sup>18,19)</sup> The finding was also similar to another study conducted in India.<sup>20)</sup> But, the figure was lower than that of a comparative study conducted in 13 sub-Saharan African countries, in which DHS data in each country was used; the overall HIV/AIDS awareness in the study was more than 90.0% among women. Prevention and transmission knowledge of HIV/AIDS was also much lower than that in some of the countries.<sup>21)</sup> The awareness and knowledge of HIV/AIDS in those countries was found very high, probably because they experienced HIV epidemic early. Many countries used mass communication through mass media to raise awareness of HIV/AIDS.<sup>17)</sup>

The percentage of the respondents with comprehensive HIV/AIDS knowledge was similar to other national health surveys in neighbouring countries, such as India and Pakistan.<sup>19,22)</sup> Our study findings of both awareness and comprehensive knowledge of HIV/AIDS were similar to Indonesia, a Muslim country with a low prevalence of HIV/AIDS, where proportions of awareness

and comprehensive knowledge of HIV/AIDS among rural married women were 65.6% and 7.1% respectively.<sup>23)</sup> The study revealed that there had been very little improvement in both awareness and comprehensive knowledge of HIV/AIDS among rural women from the 2007 BDHS<sup>18)</sup> to the 2011 BDHS although the government has been developed related policies and plans, such as the National HIV Strategic Plans.<sup>5)</sup>

Television was found to be the most popular and radio the least popular of the investigated mass media among women in rural Bangladesh. BDHS reports suggest that in the rural areas of Bangladesh the proportion of radio ownership decreased from 23.3% to 8.7%, whereas in case of television, ownership increased from 21.9% to 29.8% from 2007 to 2011.<sup>12,18)</sup> In general, a radio might always be more affordable than a TV set, but this doesn't necessarily mean that radio exposure is always more accessible than TV exposure; one TV might be shared by many people, such as neighbours and relatives who don't own TV sets. Television was becoming popular among women in emerging countries, for example in China, South Africa, and India.<sup>17,24,25)</sup> Other Asian Muslim countries like Indonesia and Maldives also reported television was the most popular mass media among rural married women; percentages of rural married women in Indonesia and Maldives who watched television at least once a week were 81.6% and 96.3% respectively.<sup>23, 26)</sup> Television's popularity in rural areas of Bangladesh may be due to increased purchasing ability among rural populations over the years. The high prevalence of television exposure implied a possible impact from utilizing television for health promotion if effective programs are provided.

This study revealed that there were significant associations between exposure to all three forms of mass media (radio, television, and newspapers/magazines) and awareness of HIV/AIDS. Regarding comprehensive HIV/AIDS knowledge, significantly higher OR was observed for those with frequent exposure to television than those with no exposure; however, those with less frequently exposure to television did not show a significant result. A dose-response effect on comprehensive knowledge was suggested regarding newspaper exposure.

To reduce the risk of HIV/AIDS spreading among rural women, it is very crucial to provide correct and specific HIV/AIDS knowledge suitable for them. Taking in account of the popularity of television among women in rural areas, it is an opportunity to utilize television to increase the impact of HIV/AIDS knowledge promotion. Currently ongoing HIV/AIDS education programs in Bangladesh are mainly targeted to the high risk groups. It is recommended to develop health promotion messages through mass media, firstly through television, especially designed to develop rural women's awareness and knowledge of HIV/AIDS. Effective ways to disseminate HIV/AIDS written messages through newspapers and magazines should be studied further. It is important to increase the literacy rate and prevalence of exposure to newspapers/magazines, especially to the rural inhabitants so that they can easily catch written messages from newspapers/magazines about HIV/AIDS and other health-related information.

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## CONFLICTS OF INTERSEST

The authors declare no conflict of interest.

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