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In 2012, HIV/AIDS was the sixth leading cause of death world-wide, fifth in the middle-income countries, and third in the low-income countries. In 2012, more than 1.5 million people died of HIV/AIDS (WHO, 2012). Approximately 34 million people are living with HIV. However, the human immunodeficiency virus (HIV) epidemic continues to be associated with misconceptions and misinformed opinions, which increase the risk of HIV transmission. Therefore, the present study aimed to identify the determinant factors among different socioeconomic and demographic factors affecting misconceptions about HIV transmission among ever-married women in Bangladesh. Data and necessary information of 9,272 ever-married women were extracted from the Bangladesh Demographic and Health Survey 2011. Three types of misconceptions were considered. Both bivariate and multivariate analyses were used as the statistical tools to determine the factors affecting misconceptions about HIV transmission. The results revealed that misconceptions are more prevalent among women who are older, less educated, have husbands who are less educated, live in rural areas, have poor economic conditions, and have less access to mass media. The respondent's age, education, husband's education, place of residence, wealth index, and exposure to mass media are significantly associated with the misconceptions. Finally, logistic regression analysis identified age, education, place of residence, wealth index, and exposure to mass media as significant predictors. Because socioeconomic factors are the key determinants of misconceptions about HIV transmission, intervention programs should be aimed at HIV prevention via education and awareness programs to reduce misconceptions as important parts of the prevention strategy.

Keywords: HIV/AIDS, misconception, Bangladesh Demographic and Health Survey (BDHS), transmission, sociodemographic.

Introduction

Human immunodeficiency virus (HIV) causes acquired immune deficiency syndrome (AIDS) and has become one of the world's most serious healthcare challenges. The first cases were reported in the United States in 1981, and since then, it is increasing steadily. Epidemiological studies have identified the main routes of HIV transmission to be unsafe sexual intercourse, intravenous injections with contaminated needles, unscreened or contaminated blood

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transfusions, and transmission from an infected mother to a child during pregnancy, delivery, or breastfeeding. Approximately 34 million people currently live with HIV, and nearly 30 million people have died of AIDS-related causes since the beginning of the epidemic. Although cases have been reported in all regions of the world, almost all those living with HIV (97.0%) reside in low- and lower-middle-income countries (UNAIDS 2011). Sub-Saharan Africa has been hit the hardest; however, other regions also face serious AIDS epidemics. Most people living with HIV or at risk for HIV infection do not have access to prevention, care, and treatment, and there is still no complete cure (WHO 2010). HIV infection weakens an individual's immune system and makes the body susceptible to and unable to recover from other opportunistic diseases. HIV primarily affects individuals in their most productive years; approximately half of new infections occur among those aged under 25 years (UNAIDS 2011). HIV not only affects the health of individuals but also impacts households, communities, and the development and economic growth of nations. Countries that have been hit hard by the AIDS epidemic have seen a mortality surge and life expectancy drop in the last decade (Mondal and Shitan 2013).

Bangladesh is in a precarious position with regard to the HIV/AIDS epidemic. HIV prevalence rates are currently low compared with those in the rest of South Asia, and the disease is relatively confined to small, high-risk groups among the population. HIV/AIDS prevention programs in Bangladesh started in 1985, although the first case was detected in 1989 (UNAIDS 2004). Since then, 2,533 HIV cases, 1,101 AIDS cases, and 325 AIDS-related death cases have been reported (as of December 2011). In 2011, 445 new cases of HIV infection, 251 new AIDS cases, and 84 AIDS-related death cases were reported. The reported number of HIV-positive people in Bangladesh markedly increased from 363 in 2003 to 1,207 in 2007. The overall prevalence of HIV in Bangladesh is less than 1.0%; however, high levels of HIV infection have been found among injecting drug users (IDUs) (7.0% in one part of the capital city, Dhaka) (Bangladesh, MHFW 2011). IDUs are very vulnerable to an HIV epidemic, and this is the group in which the virus has been detected repeatedly. IDUs, sex workers, and men having sex with men are considered to be the most at-risk groups for HIV infection in Bangladesh (Bangladesh, MHFW 2011; Mondal et al. 2009). Importantly, the HIV prevalence among the general population is not fully known because currently available surveillance data cover only the high-risk groups. Because of the limited access to voluntary counseling and testing services, very few Bangladeshis are aware of their HIV status. Although Bangladesh is still considered to be a low-prevalence country, it remains extremely vulnerable to an HIV epidemic because of its dire poverty, misconceptions about HIV transmission, overpopulation, in migration and international migration, gender inequality, and high levels of transactional sex. If steps are not taken quickly to keep the epidemic in check, it could easily spread to the general population, as it has in the neighboring countries. This would increase the negative impact of HIV/AIDS and make it much harder to target for control. The emergence of a generalized HIV epidemic would be a disaster that poverty-stricken Bangladesh can ill afford. It is estimated that without any intervention, the HIV prevalence in the general adult population could be as high as 2% in 2012 and 8% by 2025 (Mondal et al. 2008).

Knowledge about HIV transmission is vitally important in the prevention of an HIV/AIDS epidemic. Correct knowledge about HIV transmission increases safer sexual behavior and is considered an important step toward behavioral change (UNICEF 2009). At the same time, misconceptions can prevent individuals from safer sexual behavior and taking appropriate action against HIV acquisition and transmission. HIV and AIDS continue to be associated with many misconceptions and misinformed opinions. Knowledge is an important prerequisite for

preventing HIV transmission and for behavioral change (Tenkorang 2013). Consequently, it is important to understand how accurate and inaccurate knowledge can contribute to HIV transmission (UNAIDS 2000). Although many people have heard of HIV, their knowledge is limited with regard to how it is transmitted and how they can protect themselves. Many esteemed studies have been conducted in both developing and developed regions to identify the relations between misconceptions and sociodemographic risk factors among women or the general population (UNAIDS 2000; Letamo 2007; Rahman et al. 2009; Miondal et al. 2012; Rauf et al. 2010; Ochako et al. 2011; Mondal et al. 2012). Nevertheless, such studies require continuous revision because they are related to women's health issues. To the best of our knowledge, no sound study has concentrated on misconceptions about HIV transmission in Bangladesh using nationally representative data, particularly Bangladesh Demographic and Health Survey (BDHS) data. Therefore, present study aimed to identify the determinant factors among different socioeconomic and demographic factors affecting misconceptions about HIV infection and transmission among ever-married women in Bangladesh. Hopefully, the findings of this empirical study will contribute to the development of an enhanced ever-married women's health framework in Bangladesh, including recommendations for the development of educational interventions to decrease misconceptions and enhance empowerment with respect to HIV prevention strategies.

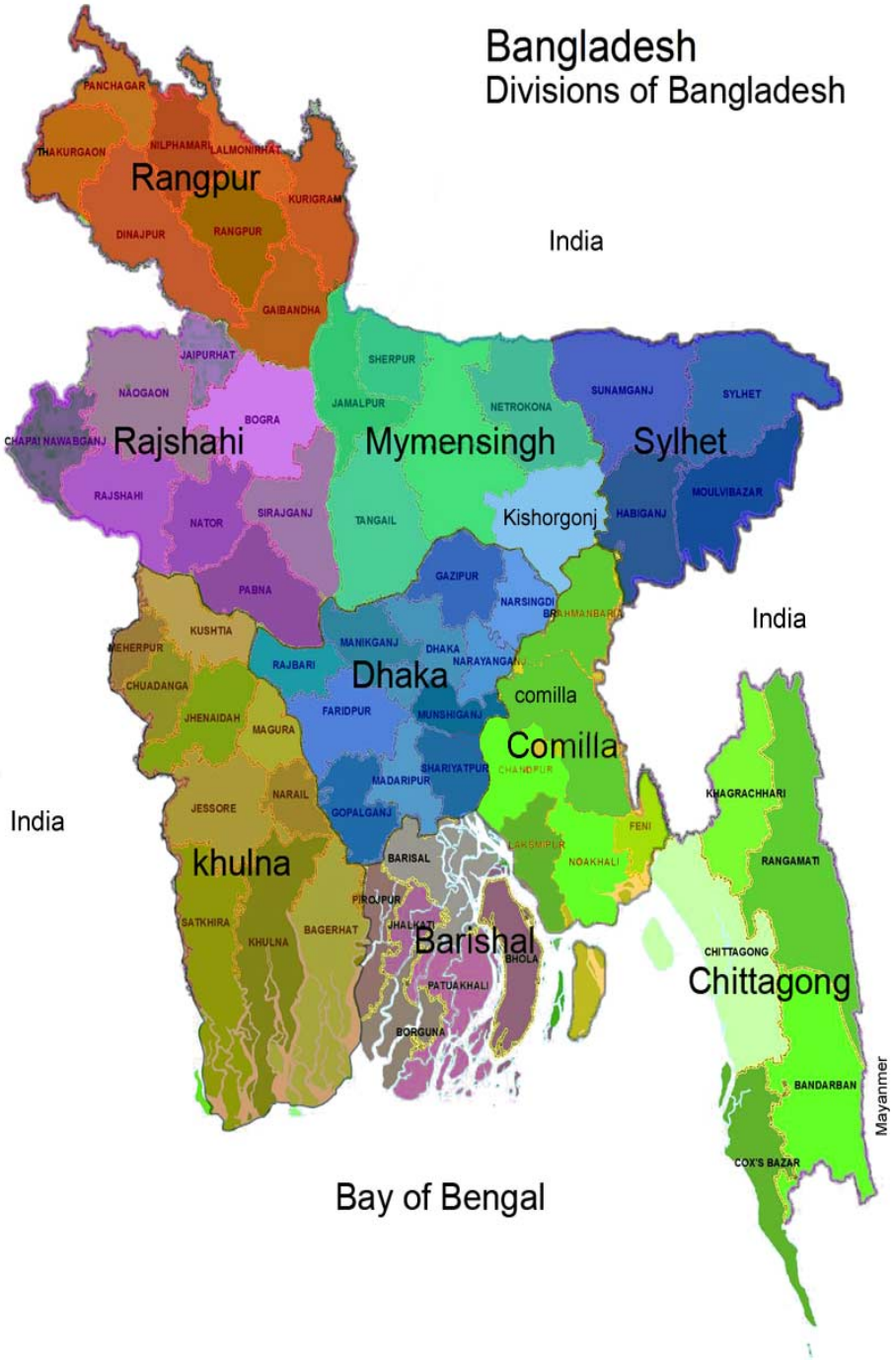
Materials and Methods

Source of data: The study used a nationally representative set of cross-sectional data extracted from the BDHS 2011 (NIPORT 2011). The survey was conducted under the authority of the National Institute of Population Research and Training (NIPORT) of the Ministry of Health and Family Welfare (MOHFW), Bangladesh. The BDHS 2011 is the sixth national Demographic and Health Survey (DHS) conducted in Bangladesh. Previously, BDHS was conducted in 1993-94, 1996-97, 1999-2000, 2003-04, and 2007-08. It was designed to produce representative results for the country as a whole, for urban and rural areas separately, and for each of the 7 administrative divisions of the country. All ever-married women aged 12-49 years who were usual members of the selected households and those who spent the night before the survey in the selected households were eligible to be interviewed in the survey. The details of the sampling survey design, survey instruments, and quality control are reported elsewhere (NIPORT 2011). However, a brief description is provided in the following subsections.

Sampling: The sample for the BDHS 2011 is nationally representative and covers the entire population residing in non-institutional dwelling units in the country. The survey used the list of enumeration areas (EAs) prepared for the 2011 Population and Housing Census (provided by the Bangladesh Bureau of Statistics [BBS]) as a sampling frame. The primary sampling unit (PSU) for the survey was EA created to have an average of approximately 120 households. Bangladesh has 7 administrative divisions namely, Barisal, Chittagong, Dhaka, Khulna, Rajshahi, Rangpur, and Sylhet. Each division is subdivided into zilas and each zila is subdivided into upazilas. Each urban area in an upazila is divided into wards and into mohallas within a ward. A rural area in an upazila is divided into union parishads (UP) and mouzas within UP. These divisions allow the country as a whole to be easily separated into rural and urban areas. The samples were stratified and selected in 2 stages. Each division was stratified into urban and rural areas. The urban areas of each division were further stratified into 2 strata: city corporations and other than city

corporations. Because Rangpur Division had no city corporations, 20 sampling strata were created. Samples of EAs were independently selected in each stratum in 2 stages. In the first stage, 600 EAs were selected with probability proportional to the EA size, with 207 clusters in urban areas and 393 in rural areas. The survey was conducted in 18,000 residential households, 6,210 in urban areas and 11,790 in rural areas. In total, 18,222 ever-married women aged 12–49 years were identified in these households, and 17,842 were interviewed, yielding a response rate of 98%. Data were collected from respondents from July 8, 2011 to December 27, 2011.

Figure 1. Map of Survey Areas



Sample size selection: The survey collected sociodemographic, health, and lifestyle information from each subject. As part of the effort to assess HIV and AIDS knowledge, the BDHS 2011 collected information about common misconceptions about HIV transmission. For convenience to analyze the data, misconceptions about HIV transmission were recorded. Missing values were excluded from the study because these values can affect the interpretation of the result. Finally, the samples were adjusted for only 9,272 ever-married women aged 15-49 years both in urban and rural areas.

Measurement of variables: (i) Outcome variable: The unit of analysis of the study was misconception. To assess misconceptions about HIV transmission among ever-married women, three misconception-related indicators were selected from the BDHS 2011data (NIPORT, 2011). The indicators were as follows: (i) can get HIV from mosquito bite? (ii) can get HIV by sharing food with a person who has AIDS?, and (iii) can get HIV by witchcraft or supernatural means?. The respondents answered in a trichotomous form as (i) yes, (ii) no, and (iii) do not know. These indicators were subsequently categorized to the dichotomous form as (i) yes and (ii) no by removing the last category (do not know). (ii) Explanatory variables: This study used 7 explanatory variables with categories shown in parentheses: age in years (1 = 15-24; 2 = 25-34; 3 = 35-4; 4 = 45-49); education (0 = no education; 1 = primary; 2 = secondary; 3 = higher); husband's education (0 = no education; 1 = primary; 2 = secondary; 3 = higher); place of residence (1 = urban; 2 = rural); wealth index (1 = poor; 2 = middle; 3 = rich); exposure to mass media (1 = yes; 0 = no); and religion (1 = Muslim; 2 = non-Muslim).

Statistical analysis: Statistical analyses concentrated on 9,272 sample size because of the availability of required data. Ecological data have been used for univariate analysis to describe the variables in a list, for bivariate analysis to determine the association among the variables, and for binary logistic regression analysis to determine the relative risk of the independent variables to the dependent variables. To examine the relationship between misconceptions and sociodemographic characteristics of the respondents, both quantitative and qualitative statistical techniques were applied in this study. For statistical analyses, each misconception was made a binary response. Bivariate analysis (chi-square test) was used to determine the association between misconceptions and sociodemographic factors. The 3 sets of binary logistic regression models were fitted for the 3 types of misconceptions separately to identify the determinants of misconceptions among ever-married women. In logistic regression analysis, misconception (Y) is treated as the dependent variable and seven sociodemographic variables are selected as independent variables (X_i, $i = 1, 2, \ldots, 7$). In this model, the dependent variables (Y_j, $j = 1, 2, 3$) are classified in the following manner:

$$\textit{Item}\ 1: \begin{cases} 1; & \text{Can get HIV from mosquito bite?} \\ 0; & \text{otherwise.} \end{cases}$$

$$\textit{Item}\ 2: \begin{cases} 1; & \text{Can get HIV by sharing food with person who has AIDS?} \\ 0; & \text{otherwise.} \end{cases}$$

$$\textit{Item}\ 3: \begin{cases} 1; & \text{Can get HIV by witchcraft or supernatural means?} \\ 0; & \text{otherwise.} \end{cases}$$

The multicollinearity in this regression analysis was checked by examining the standard error (SE) for the regression coefficient (β). However, there is no exact method to detect the multicollinearity problem in logistic regression analysis. In this study, the magnitude of SE was

used to detect the multicollinearity problem. If the magnitude of SE lies between 0.001 and 0.5, it can be considered that there is no evidence of multicollinearity (Chan 2004). In this study, the magnitudes of SE were less than 0.10, indicating an absence of multicollinearity. Statistical significance was accepted at $p < 0.05$. The results of regression analysis are presented by odds ratios (OR) with a 95% confidence interval (CI) for easy understanding of the effect of the corresponding factor, net of other confounders. Statistical Package for Social Sciences version 17.0 (SPSS Inc., Chicago, IL, USA) was used for statistical analysis.

Results

HIV/AIDS is a pandemic disease that has created severe public health problem all over the world, and Bangladesh is no exception to this adverse effect. In total, 9,272 ever-married women were included in this study. Univariate, bivariate, and multivariate (binary logistic regression model) analyses have been applied as the statistical tools. Here, effects of the determinant factors on the 3 items of misconceptions were examined.

The background characteristics of 9,272 ever-married women are presented in Table 1. The results revealed that most of the women (70.18%) were very young (< 35 years) and only one-fourth (25.36%) had completed primary-level education. The economic conditions of the respondents was satisfactory (57.49% rich) and their access to mass media was also good (77.44%). We paid attention to 3 misconception indicators, namely “can get HIV from mosquito bite,” “can get HIV by sharing food with a person who has AIDS,”' and “can get HIV by witchcraft or supernatural means,”' having misconceptions of 45.29%, 36.34%, and 11.82%, respectively.

Bivariate analysis (chi-square test) identified that the respondents’ age, education, husbands’ education, place of residence, wealth index, and exposure to mass media were statistically significantly associated with all the 3 misconception indicators (Table 2).

Table 1. Background characteristics of the respondents

Characteristics	Number (*n*)	Percentage (%)
Age (years)		
15–24	3144	33.91
25–34	3363	36.27
35–44	2056	22.17
45–49	709	7.65
Education		
No education	1,250	13.48
[1)]Primary	2,351	25.36
[2)]Secondary	4,383	47.27
Higher	1,288	13.89
Husband's education		
No education	1,652	17.82
[1)]Primary	2,274	24.53
[2)]Secondary	3,263	35.19
Higher	2,083	22.47
Place of residence		
Urban	3,957	42.68
Rural	5,315	57.32
Wealth index		
Poor	2,167	23.37
Middle	1,775	19.14
Rich	5,330	57.49
Exposure to mass media		22.56
No	2,092	77.44
Yes	7,180	
Religion		88.74
Muslim	8,228	11.26
Non-Muslim	1,044	
Can get HIV from mosquito bites		
No	5,073	54.71
Yes	4,199	45.29
Can get HIV by sharing food with person who has AIDS		
No	5,903	63.66
Yes	3,369	36.34
Can get HIV by witchcraft or supernatural means		
No	8,176	88.18
Yes	1,096	11.82
Total	9,272	100.00

[1)] Primary complete is defined as completing grade 5.
[2)] Secondary complete is defined as completing grade 10.

Table 2. Association between misconceptions about HIV transmission with sociodemographic factors

Independent factor	Can get HIV from mosquito bites		Can get HIV by sharing food with person who has AIDS		Can get HIV by witchcraft or supernatural means	
	Yes (%)	*P* value	Yes (%)	*P* value	Yes (%)	*P* value
Age (years)						
15–24	1,436 (45.67)		1,119 (35.59)		355 (11.29)	
25–34	1,436 (42.70)	0.001	1,140 (33.90)	0.001	366 (10.88)	0.008
35–44	989 (48.10)		816 (39.69)		281 (13.67)	
45–49	338 (47.67)		294 (41.47)		94 (13.26)	
Education						
No education	716 (57.28)		639 (51.12)		266 (21.28)	
Primary[1)]	1,253 (53.30)	0.001	1,059 (45.04)	0.001	363 (15.44)	0.001
Secondary[2)]	1,908 (43.53)		1,488 (33.95)		415 (9.47)	
Higher	322 (25.00)		183 (14.21)		52 (4.04)	
Husband's education						
No education	931 (56.36)		813 (49.21)		306 (18.52)	
Primary[1)]	1,207 (53.08)	0.001	959 (42.17)	0.001	301 (13.24)	0.001
Secondary[2)]	1,427 (43.73)		1,179 (36.13)		353 (10.82)	
Higher	634 (30.44)		418 (20.07)		136 (6.53)	
Place of residence						
Urban	1,499 (37.88)	0.001	1,138 (28.76)		395 (9.98)	
Rural	2,700 (50.80)		2,231 (41.98)	0.001	701 (13.19)	0.001
Wealth index						
Poor	1,220 (56.30)		1,091 (50.35)		372 (17.17)	
Middle	919 (51.77)	0.001	779 (43.89)	0.001	253 (14.25)	0.001
Rich	2,060 (38.65)		1,499 (28.12)		471 (8.84)	
Exposure to mass media						
No	1,062 (50.76)		979 (46.80)		345 (16.49)	
Yes	3,137 (43.69)	0.001	2,390 (33.29)	0.001	751 (10.46)	0.001
Religion						
Muslim	3,736 (45.41)		2,992 (36.36)		990 (12.03)	
Non-Muslim	463 (44.35)	0.581	377 (36.11)	0.873	106 (10.15)	0.079

[1), 2)]: See foot notes in Table 1.

Results of the regression analysis are given in Table 3. In logistic regression analysis, 3 models were fitted for the 3 misconception indicators. Logistic regression analysis used 7 explanatory variables: women's age, education, husband's education, place of residence, wealth index, exposure to mass media, and religion. The 3 response variables were as follows: (i) can get HIV from mosquito bite, (ii) can get HIV by sharing food a with person who has AIDS, and (iii) can get HIV by witchcraft or supernatural means, for items 1, 2, and 3, respectively. The respondent's age, education, husband's education, place of residence, and wealth index were statistically significant predictors for both items 1 and 2. However, for item 3, the respondent's education, husband's education, wealth index and exposure to mass media were the statistically significant predictors.

In item 1, women's age (25-34 years), education, husband's education, wealth index, and exposure to mass media had an inverse relationship, while place of residence and religion had a similar relationship with the misconception "can get HIV from mosquito bites." In this item, women aged 25-34 years were 0.906 times (OR = 0.906, 95% CI = 0.817–1.004) less likely of having the misconception than those aged 15-24 years. Respondents who completed secondary-

level (OR =0.737, 95% CI = 0.632–0.859) and higher (OR =0.431, 95% CI = 0.347–0.534) education were less likely of having the misconception than those who had no education. Similar results were found in the case of husband's education. Women in rural areas were 1.356 times (OR = 1.356, 95% CI = 1.234–1.491) more likely of having the misconception than those in urban areas. The respondents who were rich had a lower probability (OR = 0.729, 95% CI = 0.641–0.828) of having the misconception than those who were poor.

In item 2, women's age (25-34 years), education, husband's education, wealth index, and exposure to mass media had an inverse relationship, while place of residence and religion had a similar relationship with the misconception "can get HIV by sharing food with a per son who has AIDS." In this item, women aged 35-44 years and 45-49 years were 1.176 times (OR = 1.176, 95% CI = 1.035–1.337) and 1.210 times (OR = 1.210, 95% CI = 1.008–1.452) more likely of having the misconception, respectively, than those aged 15-24 years. Respondents who completed secondary-level (OR =0.679, 95% CI = 0.582–0.793) and higher (OR =0.315, 95% CI = 0.249-0.399) education were less likely of having this misconception than those who had no education. Similar results were found in the case of husband's education. The probability of having the misconception was 1.276 times (OR = 1.276, 95% CI =1.154-1.410) higher for women in rural areas than those in urban areas. Women in the middle-income and rich groups were 0.878 times (OR = 0.878, 95% CI =0.770–1.002) and 0.611 times (OR = 0.611, 95% CI =0.537–0.696) less likely of having this misconception, respectively, than those in the poor group.

In Item 3, women's age (25-34 and 45-49 years), education, husband's education, wealth index, exposure to mass media, and religion had an inverse relationship, while place of residence had a similar relationship with the misconception "can get HIV by witchcraft or supernatural means."' In this item, respondents who completed primary-level, secondary-level, and higher education were 0.729 times (OR = 0.729, 95% CI = 0.605–0.879), 0.456 times (OR = 0.456, 95% CI = 0.369–0.563), and 0.211 times (OR = 0.211, 95% CI =0.145–0.307) less likely of having this type misconception, respectively, than those who had no education. The women whose husband's education level was primary were 0.847 times (OR = 0.847, 95% CI =0.705–1.016) less likely of having this type misconception than those whose husband had no education. The probability of having this misconception was 0.719 times (OR = 0.719, 95% CI = 0.596–0.867) less likely among women who were rich than in those who were poor. With regard to exposure to mass media, women who had access to mass media were 0.873 times (OR =0.873, 95% CI = 0.746-1.022) less likely of having the misconception than those who had no access to mass media.

Table 3. Effects of sociodemographic factors on misconceptions about HIV transmission

Independent factor	Item 1		Item 2		Item 3	
	β	Odds ratio (95% CI)	β	Odds ratio (95% CI)	β	Odds ratio (95% CI)
Age (years)						
15–24 (RC)		1.000		1.000		1.000
25–34	−0.099*	0.906 (0.817–1.004)	−0.047	0.954 (0.856–1.063)	−0.119	0.888 (0.756–1.044)
35–44	0.092	1.097 (0.970–1.240)	0.163*	1.176 (1.035–1.337)	0.007	1.007 (0.838–1.212)
45–49	0.039	1.040 (0.871–1.241)	0.191*	1.210 (1.008–1.452)	−0.113	0.893 (0.687–1.161)
Education						
No education (RC)		1.000		1.000		1.000
Primary[1)]	−0.089	0.915 (0.791–1.059)	−0.124	0.884 (0.764–1.023)	−0.316*	0.729 (0.605–0.879)
Secondary[2)]	−0.305*	0.737 (0.632–0.859)	−0.387*	0.679 (0.582–0.793)	−0.785*	0.456 (0.369–0.563)
Higher	−0.843*	0.431 (0.347–0.534)	−1.155*	0.315 (0.249–0.399)	−1.556*	0.211 (0.145–0.307)
Husband's education						
No education (RC)		1.000		1.000		1.000
Primary[1)]	−0.017	0.983 (0.860–1.124)	−0.097	0.908 (0.794–1.039)	−0.166*	0.847 (0.705–1.016)
Secondary[2)]	−0.223*	0.800 (0.697–0.919)	−0.104	0.901 (0.784–1.036)	−0.108	0.897 (0.740–1.088)
Higher	−0.420*	0.657 (0.551–0.783)	−0.416*	0.660 (0.548–0.794)	−0.140	0.869 (0.661–1.144)
Place of residence						
Urban (RC)		1.000		1.000		1.000
Rural	0.305*	1.356 (1.234–1.491)	0.243*	1.276 (1.154–1.410)	0.004	1.004 (0.866–1.165)
Wealth index						
Poor (RC)		1.000		1.000		1.000
Middle	−0.086	0.917 (0.804–1.046)	−0.130*	0.878 (0.770–1.002)	−0.038	0.963 (0.803–1.155)
Rich	−0.316*	0.729 (0.641–0.828)	−0.492*	0.611 (0.537–0.696)	−0.330*	0.719 (0.596–0.867)
Exposure to mass media						
No (RC)		1.000		1.000		1.000
Yes	−0.004	0.990 (0.878–1.148)	−0.065	0.937 (0.837–1.049)	−0.135*	0.873 (0.746–1.022)
Religion						
Muslim (RC)		1.000		1.000		1.000
Non-Muslim	0.159	1.172 (1.048–1.311)	0.043	1.044 (0.907–1.202)	−0.108	0.898 (0.723–1.114)
Constant	0.168*	1.183	0.086	1.090	−0.991*	0.371

[1), 2)]: See footnotes in Table 1.
*: significance at 5% level.
β, coefficient; CI, confidence interval; RC, reference category.

Discussion

Despite increasing concern among women about HIV/AIDS in Bangladesh, there were widespread misconceptions among women about HIV transmission. The present study aimed to explore socio-demographic factors affecting misconceptions about HIV transmission among ever-married women in Bangladesh. The study results revealed that the misconception indicators, HIV transmitted from mosquito bites, HIV transmitted by sharing food with a person who has AIDS, and HIV transmitted by witchcraft or supernatural means showed 45.29%, 36.34%, and 11.82% misconceptions, respectively. The sociodemographic factors have shown significant effects on all 3 types of misconceptions about HIV transmission to the general population. Misconceptions about HIV are prevalent all over the world. The findings of this study supported a good number of recent studies conducted in the developing world. A study conducted in Thailand among tuberculosis (TB) patients with HIV surprisingly highlighted that a

large number of patients incorrectly thought that mosquito bites and sharing food with a person who has AIDS could transmit HIV (Jittimance et al. 2009). Another study was conducted among HIV-infected elderly women patients in South Africa, where most patients (74.0%) thought that they could acquire HIV if a mosquito bit them after biting an HIV-positive patient (14). In an extensive study across 4 countries, namely Ethiopia, Zambia, Vietnam, and Tanzania, there was a common fear that HIV could be transmitted by eating food prepared by an HIV-positive person, breathing infected air, and using objects such as clothing, bedding, or eating utensils that have been touched by HIV-positive patients (Ogden and Nyblade 2005). Another study in Ghana showed that 27.50%, 20.8%, and 37.9% women believed that mosquito bites, sharing food with a person who has AIDS, and witchcraft or supernatural means, respectively, are responsible for HIV transmissions (Tenkorang 2013). Another study in China found that misconceptions about HIV transmission were widespread. Most respondents (74.4%) thought that HIV was transmitted through mosquito bites (Qian, Wang, and Dong, 2007). The World Health Organization (WHO 2002) has identified that young people do not have proper knowledge to protect themselves from HIV infection.

Bivariate and multivariate analyses identified that the sociodemographic factors such as the respondent's age, education, husband's education, place of residence, wealth index, and exposure to media were significantly associated with misconceptions. Previous studies also highlighted that some sociodemographic factors are related to misconceptions about HIV transmissions but did not found a significant proportional difference (Tenkorang 2013; Letamo 2007). In this study, binary logistic regression analysis identified that the chances of having misconceptions were higher among women who are older, less educated, have husbands who are less educated, live in rural areas, have poor economic conditions, and have less access to mass media. Some other studies also support the findings of this study. One study in South Africa revealed that older women had comparatively higher levels of misconception than younger women (Rauf et al. 2010). Higher education was associated with better knowledge about HIV (Carey et al. 2000). A number of studies depicted that significant differences in misconceptions were observed among groups with differences in previous formal education (Kalichman and Simbayi 2004).

A study in Botswana showed that people with no formal education were 10 times more likely to harbor misconceptions about HIV transmission than those with a tertiary education (Letamo 2007). Further, the chance of having misconceptions decreased with improved wealth status and increased among rural participants and migrated populations (Tenkorang 2013; Mondal et al. 2009).

This study indicates that many Bangladeshi women lack accurate knowledge about the ways in which the AIDS virus can and cannot be transmitted. The women, particularly those in rural areas, are abandoned and neglected. Because of the lack of health education and poor socio-economic conditions, they mostly stay far away from the better healthcare facilities. Poor knowledge about HIV transmission sometimes affects their sexual and family life. In fact, women do not enjoy the same autonomy as men with regard to their status, roles, and material production. Women are often subjected to early marriage, sexual abuse, and violence in intimate and marital relationships. Women's lower social and cultural status also result in less access to education, mass media, employment opportunities, and health- care, including opportunities for HIV tests, counseling, and medical care. However, knowledge about HIV transmission and ways to prevent it are of little use if women feel powerless to negotiate safer sex practices with their husbands. In this regard, an educated husband could play an effective role.

A limitation of this study is that we only analyzed data for the most common determining

factors affecting misconceptions, i.e., those that were found to be significantly associated with misconceptions in previous studies. In addition, analysis was limited to ever-married women only. Further studies may be conducted forever-married men, and a comparative study may be conducted between the sexes.

Conclusion

The HIV/AIDS epidemic is one of the most destructive health crises of modern times, devastating families and communities throughout the world. Misconceptions and stigma surrounding HIV may make it difficult to focus on HIV as a "disease."' Therefore, the right conception about HIV transmission and ways to prevent it are the basic requirements for HIV prevention. This study identified the determinant factors affecting misconceptions about HIV transmission among Bangladeshi ever-married women. In fact, these misconceptions are widespread and heighten the chances of the HIV epidemic in Bangladesh. The socioeconomic factors such as older age, less education, husbands with less education, lower income, rural residence, and less access to mass media are strongly associated with and have significant effects on HIV misconceptions. Further research is required in this field of study. The present study suggests that necessary measures should be taken to strengthen health education programs through the participation and collaboration of different government and nongovernment organizations. Women should also be given special attention in HIV interventions in Bangladesh, given their social, economic, and political status. Intervention programs with a focus on eliminating misconceptions about HIV transmission are essential.

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