

Level of Awareness about HIV Transmission among Married Men in Bangladesh

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Abstract:

The human immuno deficiency 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 married men in Bangladesh. Data and necessary information of 2778 married men 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 men who are older, less educated, live in rural areas and have poor economic conditions. The respondent's age, region, residence, education, wealth index, and occupation are significantly associated with the misconceptions. Finally, logistic regression analysis identified age, region, place of residence, education, wealth index, and occupation media as significant predictors. 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, Chi-Square analysis, logistic regression, odds ratio

1. Introduction:

Human Immuno Deficiency Virus (HIV) Infection And Acquired Immune Deficiency Syndrome (AIDS) Is A Spectrum Of Conditions Caused By Infection With The HIV Become One Of The World's Most Serious Healthcare Challenges [1]. The First Cases Were Reported In The United States In 1981, And Since Then, It Is Increasing Steadily [2]. Epidemiological Studies Have Identified The Main Routes Of HIV Transmission To Be Unsafe Sexual Intercourse, Intravenous Injections With Contaminated Needles, Unscreened Or Contaminated Blood Transfusions, And Transmission From An Infected Mother To A Child During Pregnancy, Delivery, Or Breastfeeding.

In 2013, There Were 35 Million People Living With HIV; Since The Start Of The Epidemic, Around 78

Million People Have Become Infected With HIV And 39 Million People Have Died Of AIDS-Related Illnesses [3]. 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 [4]. 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 [3]. 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 [5]. 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 [6]. 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 1.00%; However, High Levels Of HIV Infection Have Been Found Among Injecting Drug Users (Idus) (7.00% In One Part Of The Capital City, Dhaka) [7]. 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 [8-9]. 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 [8]. 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 [9]. 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 [10]. Consequently, It Is Important To Understand How Accurate And Inaccurate Knowledge Can Contribute To HIV Transmission [11].

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 Men Or The General Population [12]. 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 Married Men In Bangladesh. Hopefully, The Findings Of This Empirical Study Will Contribute To The Development Of An Enhanced Married Men'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.

2. Materials and Methods:

2.1 Source Of Data:

The Study Used A Nationally Representative Set Of Cross-Sectional Data Extracted From The BDHS 2011 [13]. 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. 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 Married Men Aged 15–54 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 [13]. However, A Brief Description Is Provided In The Following Subsections.

2.2 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: Barisal, Chittagong, Dhaka, Khulna, Rajshahi, Rangpur, And Sylhet. Each Division Is Subdivided Into Districts And Each District Is Subdivided Into Upzilla (Sub Districts). Each Urban Area In An Upzilla 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. Data Were Collected From Respondents From July 8, 2011 To December 27, 2011.

2.3 Sample Size Selection:

The Survey Collected Socio-Demographic, 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 2778 Married Men Aged 15–54 Years Both In Urban And Rural Areas.

2.4 Measurement Of Variables:

2.4.1 Outcome Variable:

The Unit Of Analysis Of The Study Was Measuring Awareness Level. To Assess Awareness Level About HIV Transmission Among Married Men, 3 Misconception-Related Question Were Selected From The BDHS 2011 data (13). The Questions Were As Follows: (I) Can Get HIV From Mosquito Bite? (ii) Can Get HIV By Sharing Food With A Person Who Has AIDS? (iii) Can Get HIV By Witchcraft Or Supernatural Means? The Respondents Answered In A Dichotomous Form As Yes And No. A New Variable (Awareness) Was Made By Adding Above Three Variables Aiming To Measure Awareness. It Was Defined That An Individual Having Value Above 2 Or Equal 2 Are Unaware And Having Value Less Than 2 Are Aware.

2.4.2 Predictor Variables:

This Study Used 7 Explanatory Variables With Categories Shown In Parentheses : Age In Years (15–24, 1; 25–34, 2; 35–44, 3; 45–54, 4); Education (No Education, 0; Primary, 1; Secondary, 2; Higher, 3); Residence (Urban,1; Rural, 2); Region(Barisal,1; Chittagong, 2; Dhaka, 3; Khulna, 4; Rajshahi,5; Rangpur, 6; Sylhet,7) Wealth Index (Poor, 1; Middle, 2; Rich, 3); Occupation (Agriculture,1; Business,2;

Service,3; Others,4) And Religion (Muslim, 0; Non-Muslim, 1).

2.4.3 Statistical Analysis:

Statistical Analyses Concentrated On 2778 Data Because Of The Availability Of Required Data. Data Have Been Used For Univariate Analysis To Describe The Variables In A List, For Bivariate Analysis To Determine The Associations 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 Statistics 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 Binary Logistic Regression Model

$$Y = \frac{e^{x\beta}}{1 + e^{x\beta}}$$

where, $X = (X_1, X_2, \dots, X_7)'$, $\beta = (\beta_1, \beta_2, \dots, \beta_7)$,

Fitted To Identify The Determinants Of Awareness Among Married Men. In Logistic Regression Analysis, Awareness (Y) Is Treated As The Dependent Variable And Other Variables Are Selected As Independent Variables (X_i , $i = 1, 2, \dots, 6$). In This Model, the Dependent Variable (Y) Is Defined As

$$Y = \begin{cases} 1, & \text{Unaware;} \\ 0, & \text{Aware.} \end{cases}$$

The Multicollinearity In This Regression Analysis Was Checked By Examining The Standard Error (SE) For The Regression Coefficient (B). 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 [14]. In This Study, The Magnitudes Of SE Were Less Than 0.339, Indicating An Absence Of Multicollinearity. Statistical Significance Was Accepted At P -Value < 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. Statistical Package For Social Sciences (SPSS) Version 20.0 Was Used For Statistical Analysis.

3. 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, 2778 Married Men Were Included In This Study. Univariate, Bivariate, And Binary Logistic Regression Analyses Have Been Applied As The Statistical Tools. Here, Effects Of The Determinants On Awareness Through 3 Items Of Misconceptions Were Examined. The Background Characteristics Of 2778 Married Men Are Presented In Table 1. The Results Revealed That Most of the Men (73.47%) Were Young (<45 Years) and only (33.05%) Had Completed Primary-Level Education.

Table 1. Background Characteristics of the Married Men in Bangladesh

Factors	Frequency	Percentage (%)
Age (Years)		
15 -24	162	5.83
25 – 34	926	33.33
35 – 44	953	34.31

45 – 54	737	26.53
Region		
Barisal	318	11.45
Chittagong	365	13.14
Dhaka	475	17.10
Khulna	510	18.36
Rajshahi	417	15.01
Rangpur	384	13.82
Sylhet	309	11.12
Residence		
Urban	1109	39.90
Rural	1669	60.10
Education		
No Education	526	18.93
Primary ¹	918	33.05
Secondary ²	844	30.38
Higher	490	17.64
Religion		
Muslim	2410	86.80
Non-Muslim	368	13.20
Wealth Index		
Poor ³	847	30.50
Middle	551	19.50
Rich ⁴	1390	50.00
Occupation		
Agriculture	820	29.52
Business	1538	55.36
Service	221	7.96
Others	199	7.16
HIV Awareness		
Unaware	855	30.8
Aware	1923	69.2

¹Primary Complete Is Defined As Completing Grade 5.

²Secondary Complete Is Defined As Completing Grade 10.

³Poor Include Poor And Poorer,

⁴Rich Include Rich And Richest.

The Economic Condition Of The Respondents Was Satisfactory (50.00% Rich). There Are 69.20 % People Are Aware And 30.80 % People Are Unaware. Bivariate Analysis (Chi-Square Test) Identified That The Respondents' Region, Education, Residence, Religion, Wealth Index And Occupation Were Statistically Significantly Associated With Awareness.

Table 2. Association among Awareness of HIV and Socio-Demographic Factors

Factors	Awareness Of HIV		P-Values
	Aware (%)	Unaware	

		(%)	
Age (Year)			
15 -24	106(65.43)	56(34.57)	0.178
25 - 34	648(69.98)	278(30.02)	
35 - 44	677(71.04)	276(28.96)	
45 - 54	492(66.76)	245(33.24)	
Region			
Barisal	174(54.72)	144(45.28)	0.000
Chittagong	256(70.14)	109(29.86)	
Dhaka	336(70.74)	139(29.26)	
Khulna	377(73.92)	133(26.08)	
Rajshahi	298(71.46)	119(28.54)	
Rangpur	271(70.57)	113(29.43)	
Sylhet	211(68.28)	98(31.72)	
Residence			
Urban	825(74.39)	284(25.61)	0.000
Rural	1098(65.79)	571(34.21)	
Education			
No Education	294 (55.89)	232(44.11)	0.000
Primary	550(59.91)	368(40.09)	
Secondary	622(73.70)	222(26.30)	
Higher	457(93.27)	33(6.73)	
Religion			
Muslim	274(26.47)	761(73.53)	0.021
Non-Muslim	1649(94.61)	94(5.39)	
Wealth Index			
Poor	484 (57.14)	363(42.86)	0.000
Middle	350(64.70)	191(35.30)	

Rich	1089(78.35)	301(21.65)	
Occupation			
Agriculture	482(58.78)	338(41.22)	0.000
Business	1122(72.95)	416(27.05)	
Service	208(94.12)	13(5.88)	
Others	111(55.78)	88(44.22)	

In Logistic Regression Analysis Model Is Fitted For Awareness. The Respondent's Region, Education, Religion, Wealth Index and Occupation Are Statistically Significant Predictors.

Table 3. Logistic Regression Results:

Factors	Coefficients(β)	SE(β)	OR	95 % CI For OR	
				Lower	Upper
Age (Year)					
15 -24			1.000		
25 - 34	-0.099	0.158	0.906	0.665	1.234
35 - 44	-0.158	0.157	0.854	0.628	1.161
45 - 54	-0.253	0.157	0.776	0.570	1.057
Region					
Barisal			1.000		
Chittagong	0.548*	0.164	1.729	1.254	2.383
Dhaka	0.490*	0.155	1.632	1.205	2.211
Khulna	0.812*	0.152	2.252	1.673	3.031
Rajshahi	0.664*	0.158	1.943	1.426	2.647
Rangpur	0.582*	0.159	1.789	1.310	2.444
Sylhet	0.481*	0.170	1.618	1.160	2.258
Residence					
Urban			1.000		
Rural	0.003	0.098	1.003	0.827	1.217
Education					

No Education			1.000		
Primary	0.049	0.109	1.050	0.848	1.301
Secondary	0.510*	0.124	1.666	1.307	2.122
Higher	1.833*	0.232	6.253	3.971	9.845
Religion					
Muslim			1.000		
Non-Muslim	-0.358*	0.123	0.699	0.550	0.889
Wealth Index					
Poor			1.000		
Middle	0.082	0.119	1.085	0.859	1.370
Rich	0.302*	0.120	1.352	1.070	1.709
Occupation					
Agriculture			1.000		
Business	0.332*	0.101	1.394	1.144	1.700
Service	0.896*	0.339	2.449	1.261	4.759
Others	0.002	0.165	1.002	0.724	1.385

OR, Odds Ratio

CI, Confidence Interval

*Significant At 5% Level Of Significance (P< 0.05)

Form Model Older Persons Are More Unaware; Dhaka, Khulna, Rajshahi, Rangpur And Sylhet Are More Aware Than Barisal. Rural And Urban People Are Approximately Same State. Primary, Secondary and Higher Educated People Are More Aware than People's No-Education. Poor And Middle Are Approximately Same But Rich Men Are More Aware. Business And Service Men Are More Aware Than Agriculture Category But Others Category Is Approximately Same.

4. Discussion and Conclusion:

Despite Increasing Concern Among Men About HIV/AIDS In Bangladesh, There Were Widespread Misconceptions Among Men About HIV Transmission. Bivariate And Multivariate Analyses Identified That The Sociodemographic Factors Such As The Age, Region, Residence, Education, Wealth

Index, And Occupation Were Significantly Associated With Awareness About HIV Transmission. Previous Studies Also Highlighted That Some Sociodemographic Factors Are Related To Misconceptions About HIV Transmissions But Did Not Found A Significant Proportional Difference .This Study Indicates That Many Bangladeshi Men Lack Accurate Knowledge About The Ways In

Which The AIDS Virus Can And Cannot Be Transmitted. The Men, 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.

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 Married Men Only. Further Studies May Be Conducted For Whole Population. Comparative Study May Have To Be Conducted.

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 Married Men.

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 And Lower Income Are Strongly Associated With And Have Significant Effects On Awareness About HIV Transmission. 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. Intervention Programs With A Focus On Eliminating Misconceptions About HIV Transmission Are Essential.

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