Knowledge of HIV/AIDS, Social Networks, and Determinants of Risky Sexual Behavior among Male Migrant Workers in Rajshahi City, Bangladesh

Abstract

This paper examines the relationship of social networking, knowledge of HIV, and sexual risk behaviors of male migrant workers in Rajshahi City, Bangladesh. Data for this study came from a random sample of 200 male migrant workers residing in Rajshahi City of Bangladesh. Both bivariate and multivariate analyses were performed for this study. The findings of this study confirmed that migrant populations are more likely to engage in sexual relationship that may result in increased risk of HIV infections. The predicted variables, educational status, watched adult movie or pornographic materials, smoking habit and taking illegal drugs have shown the significant effects on the likelihood of engaging in risky sexual behavior. While having knowledge that HIV/AIDS causes death does significantly reduce the likelihood of engaging in risky sexual behavior it does not completely mediate the effects of viewing pornographic material, smoking, consuming illegal drugs and being illiterate.

Key words: HIV/AIDS, risky sexual behavior, male migrants, logistic regression

Introduction

The Acquired Immunodeficiency Syndrome (AIDS) is one of the major public health concerns in developed and developing countries. AIDS began in the 1980s and expended into a pandemic in the 1990s. Globally, an estimated 34 million [31.6 million–35.2 million] people were living with HIV/AIDS in 2010. An estimated 2.7 million people became newly infected with the virus and 2.0 million people died of AIDS related causes in 2007 (UNAIDS, 2010). National HIV infection levels in Asia are low compared with those in Africa. However, even though prevalence rates may be low, the large populations of many Asian nations mean that a high numbers of people with HIV infection (USAID, 2009). In Asia, the total number of people living with HIV is thought to be nearly 4.9 million. Around half (2.4 million) of these were in India followed by China (740,000), Thailand (530,000) and Myanmar (240,000). Every day almost 1000 persons become infected with HIV and over 800 persons die from AIDS mostly because of inadequate access to HIV prevention and treatment services in Asia (1, 2, 3). In Bangladesh, the overall HIV prevalence is 0.01%. It is estimated that currently there are 12,000 [7,700-19,000] people living with HIV in Bangladesh (1, 2). Although the HIV prevalence rates remain low, the HIV prevalence rate has increased from 1.4 percent in 2000 to 7.0 percent in 2007 among people who inject drugs. The National AIDS/STD Program (NASP) of Bangladesh reports that between 2.2 and 3.9 million people are estimated to be at increased risk of acquiring HIV (3).

There is increasing recognition that both young people and the migrant population are at the center of the AIDS pandemic regardless of whether they are living in countries with generalized or concentrated epidemics. Not only are they carrying a disproportionately high burden of infection but they also consistently face conditions and circumstances that make them vulnerable to new infection. Migration is a phenomenon of growing significance worldwide. The twentieth century was a period of massive transfer of population due to changing socio-economic and demographic milieu of both developed and developing countries. In developing countries, development projects in urban areas and poverty in rural areas have resulted in a large number of migrant workers in urban areas. The scale of population movements currently experienced by developing countries is a growing concern for the spread of sexually transmitted diseases (STDs) and HIV/AIDS (4, 5). National and international migration may be accelerating due to shifting economic opportunities, which can lead to migrant relocation to multiple places within a short span of time thus extending the territorial spread of these diseases.

Migration increases vulnerability to HIV/AIDS, as the migrants are far away from their families and partners, living in poverty and all too often exploited. Many migrants travel without partners; therefore, to address their basic need, they tend to develop new sexual relationships, which in turn may result in increased risk of HIV infection (9). Separation from family and socio-cultural norms and a sense of anonymity that offers more sexual freedom, and availability of some disposal income in hand leads to the adoption of high-risk behavior such as alcohol and drug-use and unprotected sex with a person with unknown sexual history, making migrants a vulnerable group for HIV infection (10). Moreover, because most migrants live away from their families they tend to feel an increased sense of isolation. The resulting isolation leads migrants to seek companionship and sexual intimacy, which may increase vulnerability to HIV (11). In addition to individual risk-factors of HIV/AIDS infections, migrant laborers are also exposed to various environmental risk-factors, such as easy availability of commercial sex workers, exposure to pornographic materials, etc., which also increase their vulnerability to HIV infection.

According to the World Population Prospectus, Bangladesh, with 164.4 million people, is the 7th most populous country in the World. Almost 52 percent of the population is less than 25 years of age. Bangladesh is also one of the major labor sending countries in the world. Most of the labor migrants go to the Middle East. Bangladesh is the fifth highest remittance-earning country in the world. In 2005, 6.0 percent of the GDP came from remittance (12). There is also large scale internal migration throughout the country. In Bangladesh, majority of the migrants are poor and illiterate and come from rural areas. Most migrants work as laborers on construction sites, factory workers or in other informal activities in cities, earning too little to have formal housing in the cities. Most of them live in slums in sub-human living conditions. The vulnerability to HIV infection is often greatest when people find themselves living and working in conditions of poverty, powerlessness and social instability, conditions which apply to most of the migrants in Bangladesh. Poor economic conditions make it difficult for cities to adequately manage the increasing population, thus leading to economic and social inequality that makes poor people vulnerable to acute health problems thereby creating challenges for health care and over-stretching existing infrastructure (6, 7). Additionally, young people represent a large proportion of the urban population and the sexual behavior of this group is associated with deteriorating living conditions, pervasive poverty and the urban character of the HIV epidemic (8). As mentioned before, the overall HIV prevalence is low in Bangladesh. However, given the increasing migrant population, concentration of population in urban areas, pervasive poverty, unsanitary living conditions, and large youth population, it has all the ingredients to become a large epidemic.

The first case of HIV infection in Bangladesh was recorded in 1989 (14). It is very difficult to pinpoint the exact figure of HIV infected patients in Bangladesh. In 2010, the National AIDS/STD Program (NASP) reported a cumulative total of 2,088 HIV cases, and a total of 343 new cases, 231 AIDS cases and 37 AIDS-related deaths (15). Yet, estimates of the HIV affected population in Bangladesh could be much higher. Different organizations and professionals working in the field of HIV/AIDS hold the opinion that the actual figure of HIV/AIDS infection is much higher than the figure reported by the government. More than a decade on, Bangladesh continues to be classified as a low HIV prevalence country (<.01%) (1). While Bangladesh is in what is considered to be the early stages of an HIV epidemic, there are a number of worrying signs. Sex between men and sex workers in Bangladesh are illegal, which has a significant impact on HIV prevention. Sex workers, both brothel and street-based, have reported high client turnover, by Asian standards. It is believed that most of the HIV infected people do not disclose the fact that they are infected with the HIV virus, and are hardly interested to ask for treatment and health care due to the social stigma associated with HIV/AIDS and the fear of discrimination. According to the United Nations Development Program (UNDP), 67 percent of identified HIV positive cases in Bangladesh are returned migrants and their spouses. So, the HIV/AIDS situation in Bangladesh should be analyzed in this context. There are few studies that have looked at the HIV/AIDS situation in the capital city (Dhaka) of Bangladesh, and none has examined the situation in the City of Rajshahi, Bangladesh. Therefore, our study was conducted in order to assess the impact of social networking and high risk behavior of HIV infection on male migrant workers (especially low income professional groups) in Rajshahi city, Bangladesh. For those who are not familiar with Bangladesh, Rajshahi City, with an estimated population of little over one million people, is the fourth largest city in Bangladesh.

Methods

The data for this study come from a cross-sectional sample survey which was conducted in Rajshahi City of Bangladesh. The survey was conducted by using a self-administrated questionnaire. The questionnaire consisted of closed ended questions about demographic information, migration history and causes of migration, social networking, habits of smoking and drug abuse, condom use, sexual behavior and HIV/AIDS related knowledge. The sample size for the study was 200 male migrants of Rajshahi City aged 15 years and above. Multi-stage sampling methods were used to collect the sample. A cluster sampling method was used for interviewing the male migrants. The in-depth interviews of migrants were conducted

with the objective of understanding the dynamics of social network and to identify the relative influence of contextual, social network, and personal factors in contributing to sexual risk in the migrant population using a cross sectional design and targeted network sampling plan. To analyze the data, the statistical software SPSS 17.0 has been used. For descriptive statistics, frequencies and percentages were calculated. For hypotheses testing, multivariate (Binary Logistic Regression) analysis was carried out.

Statistical Analyses

In this research, much emphasis has been given to predictor variables that influence the risky sexual behaviors of the respondents. The predictor variables were categorized as: age, marital status, education, Occupation, Income, Occupation, Types of Household, Connection of Place of origin, knowledge of AIDS and Watching Pornographic materials. The response variable, "engaged in illegal sex" was used to determine whether or not the respondent engaged in risky sexual behavior, and was coded as 1 for yes and 0 otherwise. Both bivariate and multivariate analyses were performed for this study. In bivariate analysis, proportions were compared using the chi-square (χ^2) test to determine significant associations between knowledge and awareness of HIV/AIDS and risky sexual behaviors. The logistic regression techniques were used to evaluate the effect of a select group of variables on the probability of engaging in risky sexual behavior among male migrants in Rajshahi City in Bangladesh.

Results

Selective descriptive statistics of male migrant workers are given in Table 1. More than half of the migrants (53.50%) moved to the city for economic reason. The other important reasons stated were irregular work availability (24.00%), unemployment (11.00%) and landlessness (10.00%). As expected, an overwhelming majority of migrants in Rajshahi City were from rural areas. Of the total migrants, 41.50% migrants were $\leq$30 years of age, 39.50% were 31-40 years and 19.00% were $\geq$41 years of age. Among the male respondents 91.00% were married and the remaining are unmarried. More than half of the respondents (61.00%) were illiterate and the remaining 39.00% had little educational knowledge. 77.00% of the respondents were rickshaw pullers and labor, 19.50% were small scale business and 3.50% were in other professions. More than half of the migrants' (51.00%) earning was $\leq$ 5000 Tk. per month and the other 49.00% earm $\geq$5,001Tk. per month. A small number of migrants (16.50%) were living in their own house, while half (51.00%) were living in rented housing and one third (32.50%) were sharing the accommodation with the relatives. A majority of the migrants (58.00%) were living together with two to

four persons, 30.00% were living with five to eight persons, 8.00% were living with more than eight persons and 4.00% were living alone. 75.00% of the migrants were using tub well as a source of water. Most of the migrants (70.00%) were using electricity as the source of lighting. A large proportion of migrants (81.00%) were living in this city more than one year. Around half of the migrants (53.00%) meet their family members each month. More than half of the migrants (53.00%) stated that they do not remit money to their family members, while 30.00% remit ≤1,000 Tk. per month and 17.00% remit ≥1000 Tk. per month. Three-fourths of the migrants (75.00%) made their own decision to migrate to Rajshahi city, while 17.00% were inspired by family, and another 8% were inspired by friends. In the case of workplace environment, the majority of the migrants (56.50%) felt good about their workplace environment, 36.00% had moderate feelings about the workplace environment and a relatively small proportion felt that their workplace environment was bad (7.50%).

Descriptive statistics on knowledge and awareness of HIV/AIDS among the male migrants are given in Table 2. Most of the respondents (71.50%) have heard of HIV/AIDS, with the source of information reported as radio (7.50%), TV (34.00%), newspapers or magazines (4.00%), friends and relatives (28.00%) and others (26.50%). Two thirds of the respondents (66.50%) indicated that they were aware that death is the final consequence of HIV/AIDS and one third (33.50%) were not aware that death is a consequence of HIV/AIDS. Though there is risk of HIV/AIDS in Bangladesh, only 44.50% were aware of the risk, but 19.00% of the respondents did not know and 36.50% indicated they did not have any idea about it. Moreover, only 42.50% of the respondents were aware that HIV/AIDS is contagious. The (42.00%) respondents did not have any idea about the medicine of HIV/AIDS and only 28.00% respondents knew about HIV/AIDS. Over half of the respondents (56.50%) were informed that unsafe sexual activity is a mode of transmission of HIV/AIDS. As shown in Table 2, little over one-third (35.00%) of migrants regularly watch TV, while more than half of them (55.50%) watch TV but not on a regular basis and 9.50% watch no TV at all. Eighteen (18%) of the migrants reported watching adult movies on a regular basis, while 42.50% reported watching adult movies with irregularity, and another 39.50% report that they do not watch adult movies at all. Furthermore, over half (59.00%) of the migrants were involved in other pornographic materials. Similarly, a large proportion of migrants (81.50%) reported that they have a habit of smoking, and 74.50% of migrants indicated that they do use illegal drugs. Approximately half of the respondents (48.00%) have engaged in illegal sex with sex workers and 63.50% of them did not use a condom. These basic statistics suggest that there is heightened risk of HIV infection within the migrant population in Rajshahi City.

Table 3 presents descriptive statistics on migrant's knowledge and awareness of HIV/AIDS and risky sexual behavior. More than half of the respondents (60.20%) who are less than or equal to 30 years of age reported engaging in illegal sex with multiple sex worker, while 40.50% of those 31 to 40 years of age and 36.80% of those over age 40 reported to have engaged in illegal sexual behavior with multiple sex partner ($p<0.05$). Among migrants, those who are married accounted for the largest number of those engaging in illegal sex, but the difference between prevalence rates for married (47.80%) and unmarried (50.00%) was not statistically significant. Illiterate migrants have a significantly higher rate of participation in illegal sex with multiple partner ($p<0.01$) compared to migrants who are literate (35.90%). There is also an association between occupation type and illegal sex. Migrants who are rickshaw pullers (51.30%) and in service occupations (85.70%) have higher rates of engaging in illegal sex compared to those in business occupations (28.20%). Similarly, type of housing is related to illegal sex ($p<0.01$), where those who live with relatives (60.00%) have the highest rate of participation in illegal sex, followed by those who are renting (47.10%) and those who own their own house (27.30%). Likewise, migrants with native place visit within one month (56.60%) have the highest rate of illegal sex participation, while those with native place visit from 1 month to 12 months (45.70%) and after 1 year (31.20%) have illegal sex participation rates that are 10 to 25 percentage points lower ($p<0.05$). Income and duration of migration were not significantly associated with illegal sex. These data suggest that there are significant associations between illegal sex and age, educational status, occupation, type of housing and timeframe of native place visit.

Table 4 present data illustrating the associations between illegal sex and migrant's knowledge and awareness about HIV/AIDS, use of pornography, smoking, illegal drug consumption and condom use. While roughly three-forths of the migrants had knowledge about HIV/AIDS, surprisingly, there is no significant difference in the rate of illegal sex when compared to those who indicated they had no knowledge of HIV/AIDS (44.80% vs. 56.10%). However, migrants who reported that they know (41.40%) that AIDS results in death have a lower rate of illegal sexual behavior than those who are not aware (61.20%) that AIDS results in death ($p<0.01$). Knowledge of the causes of HIV/AIDS is also related to illegal sex, where migrants who know that the disease is transmitted through unsafe sexual relations (39.80%) have the lowest rate of illegal sex participation and those who know it is transmitted through blood have the highest rate of illegal sex participation at 65.40% ($p=0.05$). Migrants who report knowledge that HIV/AIDS is caused by sharing syringes and through other means have illegal sex participation rates of 52.20% and 57.90%, respectively. Interestingly, migrants who report involvement with pornographic material (33.10%) have a significantly lower rate of illegal sex participation than those

who are not involved (69.50%) with pornographic material ($p<0.01$). Migrants who report that they have a smoking habit (51.50%) have a higher rate of illegal sex participation than those who do not smoke (32.40%; $p<0.05$). However, migrants who take illegal drugs (36.20%) have a significantly lower rate of illegal sex participation than those who do not use illegal drugs (82.40%; $p<0.01$). No significant differences were observed in the rate of illegal sex participation between migrants who use condoms and those who do not.

A review of quantitative and qualitative studies shows that individuals are more likely to underestimate than to overestimate their risk of HIV infection regardless of the nature of their sexual behavior (16). For identifying the determinants of risk-behavior among migrants, logistic regression has been used. A set of independent variables relating to individual characteristics (age, marital status, educational status, occupation, monthly income, death as a result of HIV/AIDS); social networking (place of residence and frequency of visit to native place); and behavioral traits smoking, drinking, drug use and viewing of adult movies, are used as independent variables that may affect the likelihood of engaging in risky sexual behavior, measured as participation in illegal sex with a sex worker.

The results of logistic regression, including beta coefficients and odds ratios, are presented in Table 5. The odds ratio (OR) is interpreted as the proportionate change in the odds of an event occurring for a one unit change in the value of a given predictor variable. The odds ratio for the reference category is 1 by definition. The results show that among various individual level indicators, educational status is important predictor. The odds of risky sexual behavior are 63.30% (OR=0. 367, 95% CI=0.170-0.790) lower for literate migrants compared to illiterate migrants. It is interesting to note that educational status does not act as deterrent in adopting the risky sexual behavior; or it may be that those who are involved in risky sexual behavior are illiterate. Occupation is another important characteristic that influences the likelihood of engaging in risky sexual behavior. Migrants who are working in service occupations are 8.933 (OR=8.933, 95% CI=0.889-89.707) times more likely to engage in risky sexual behavior than migrants who are rickshaw pullers.

While income and frequency of visitation to native place were found to be non-significant, migrant's place of residence is significantly related to participation in risky sex. Migrants who are renting their place of residence or residing with relatives are 3.448 (OR=3.448, 95% CI=0.979-12.139) times and 3.529 (OR=3.529, 95% CI=1.003-12.414) times more likely to be involved in risky sexual behavior, respectively, compared to migrants who own their own home. The migrants who know that AIDS results

in death are 47.40 % (OR=0.526, 95% CI=0.250-1.109) less likely to be participate in risk sex than those who do not. The viewing of adult movies is one of the strongest predictors of risky sexual behavior. In fact, viewing adult movies increases the odds of risky sexual behavior by a factor of 4.109 (OR=4.109, 95% CI=1.880-8.978) times, compared to migrants who do not view adult movies. Those migrants who take illegal drugs have an 85.60% (OR=0.144, 95% CI=0.061-0.338) lower likelihood of risk sexual behavior than those who do not take illegal drugs.

Discussion

The main objective of this was to examine the relationships between knowledge and awareness of HIV/AIDS and risky sexual behavior among male migrants in Rajshahi City in Bangladesh. Findings from the bivariate analysis suggest that most of the variables selected for the study have significant effects on participation in risky sexual behavior (Tables 3 and 4). Bivariate analysis suggests that age is an important variable in predicting the relationships of knowledge and awareness of HIV/AIDS and Sexual behavior among male migrants in Rajshahi City in Bangladesh. However, multivariate analysis does not support these findings. Previous findings showed that age, educational attainment, marital status, urban residence, and social influence of family have significant effects on risky sexual behavior (17). Our results indicate that migrants less than 30 years of age (60.20%) had the highest rate of illegal/risky sexual behavior. However, the differences between age groups were not statistically significant when controlling for other factors in the study. On the other hand, educational attainment and occupational status did have significant effects on whether or not migrants participate in risky sex. Migrants with no education and working in service occupations were more likely to engage in risky sexual behavior.

Many migrants have come to Rajshahi City, and most have migrated alone, often leaving their wives and children at the place of origin, from various parts of Rajshahi division and other parts of the country. Almost half (61.00%) of these migrants are poorly educated, employed in low paid contractual jobs (77.00%) and, as a result, forced to live in slum areas. These two factors are significantly associated with participation in risky sexual behavior that puts these migrants at increased risk for contracting HIV/AIDS. Previous research has shown that remarkable social and environmental factors coupled with lack of education and income make migrants more prone to indulge in risky behavior (18). Our findings suggest that migrants who are uneducated, unaware that AIDS results in death, employed in service occupations and watch adult movies are significantly more likely to engage in risky sexual behavior. Moreover, migrants who rent their place of residence or reside with relatives are more likely to engage in risky sex

than those who actually own their residence. These finding suggests a strong linkage between socioeconomic status and risky sexual behavior, where those with higher status are less likely to engage in risky sex, thereby reducing their risk of HIV infection.

While illegal drug use has been identified as an important predictor of unprotected/risky sexual practices, our data suggest that illegal drug use operates differently for migrants in Rajshahi City (19). More specifically, migrants who use illegal drugs are actually less likely to engage in risky sexual behavior than those who do not. This finding may suggest that in the situation of migrants in Rajshahi City, use of illegal drugs may be method of self-medicating in order to alleviate the feelings of isolation, loneliness and deprivation that accompany their circumstances, thereby reducing the impulse to engage in risky sexual activity. It is difficult to determine the extent to which migrants substitute illegal drugs for risky sex, and this is certainly an area in need of additional research in the future.

Conclusion

The existing socio-economic differentials in the home based networking among migrants in Rajshahi City suggest that the male migrants who are involved in pornographic materials and taking illegal drugs regularly have greater chance to involve in risky sexual behavior. The results show that among various individual level indicators, marital status and death for HIV are important predictors of risky sexual behavior. Age, education, monthly income, visiting the native place also influence the migrants to involve themselves in the risky sexual activity. Taking illegal drugs also affects the health of the migrants, develop mental illness as well. All these predictors increase the desire for sex among migrants and get affected in HIV/AIDS. Consequently, it is a matter of major concern that migrants in Rajshahi city are in high risk to get affected in HIV/AIDS. This situation can be diminished through strong participation of government organization and also NGOs by providing them knowledge and other related objects relating to HIV/AIDS.

The findings of this study confirmed that migrant populations are more likely to engage in sexual relationship that may result in increased risk of HIV infection. Our study also suggests that illiteracy, and being unaware that AIDS results in death and watching adult movies increase the likelihood of engaging in risky sexual behavior of migrant that may result in increased risk of HIV/AIDS infection.

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