Human Immunodeficiency Virus Related Knowledge, Risk Perception and Practices among Married Women of Reproductive Age: A Cross-sectional Study from Mid-western Development Region, Nepal

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Abstract

Background: Despite the implementation of anti-human immunodeficiency virus (HIV) interventions, it has continued to spread from high risk to the low risk population with the devastating social, economic and health consequences. Aim: The aim of the following study is to identify HIV related knowledge, risk perceptions and practices among married women of reproductive age (MWRA) in Mid-Western Development Region, Nepal. Subjects and Methods: A community based, cross-sectional study was conducted during May-December 2010 among 618 MWRA in Mid-western Development Region, Nepal. Multistage random sampling was followed wherein four districts, representing each ecological zone were selected in the first stage. Nine Village Developments Committees with the total 81 clusters were selected in the second and third stages. Finally, 7/8 participants/cluster were selected randomly. Household interviews were conducted using pretested structured questionnaire. Data were analyzed by SPSS 16.0 (SPSS Inc. Chicago, IL, USA). Percentages, mean, Chi-square value and odds ratio were calculated. Results: Nearly three quarters (434/618) of all participants had heard about the HIV. Radio was the most common source of the information 73.3% (318/434) amongst all sources. Unsafe sex 55.3% (240/434), infected blood transfusion 33.2% (144/434), needle sharing 24.7% (107/434) and mother to child transmission 4.1% (18/434) were reported modes of HIV transmission. Condom use during extramarital sex 51.8% (225/434), use of sterilized syringes 24.2% (107/434) and mother to child transmission 4.1% (18/434) were reported HIV preventive measures. Extramarital sexual experience amongst all participants. Only a quarter (8/30) of those who had extramarital sex used condom regularly. Conclusions: Almost half of the MWRA had limited awareness on HIV transmission and preventive measures. There was poor HIV preventive practices; indicating knowledge-behavior gaps. Awareness raising and behavior change interventions are recommended. Keywords: Human immunodeficiency virus, Knowledge, Married women of reproductive age, Nepal, Practice, Risk perception

Introduction

The human immunodeficiency virus (HIV) infection continued to be the pandemic since the first case of acquired immune deficiency syndrome (AIDS) was identified in 1981.¹ Multiple modes of transmission and behavioral predominance further exacerbated its spread, creating a challenge for prevention.¹⁻³ Despite practice of multidisciplinary
interventions, HIV continued to spread from high risk to the low risk population with devastating social, economic and health consequences.[1]

Globally, women living with HIV infection remained stable at 50%.4[4] Since the detection of the first AIDS case in 1988 in Nepal, it evolved from low prevalence to concentrated epidemic.5[5] Injecting drug users, female sex workers, men who have sex with men and their sexual partners are most at risk whereas others are considered low risk population. Nevertheless, epidemiological concerns are in the spread of HIV infection from high risk to the low risk population.1[1]-3[3] Nepal Demographic and Health Survey (2011) revealed that never-married women of reproductive age (MWRA) were more likely to have heard about AIDS than ever-married women and knowledge of AIDS was much higher among urban than rural respondents.6[6]

Except commercial sex workers and antenatal women, HIV/AIDS behavioral researches have neglected women as a focus of research; consequently, there has been inadequate understanding of women’s vulnerability to HIV.7[7] Furthermore; some of the norms promoting men’s multiple partnership and gender power role in the society has increased the women’s susceptibility to HIV infection.7[7] Hence, this study was carried out to (i) assess the knowledge on HIV transmissions and preventive measures (ii) explore HIV related risk perceptions and practices of a married woman of reproductive age in rural mid-western development region of Nepal.

Subjects and Methods

This was a community based descriptive cross-sectional quantitative study carried out among MWRA in the Midwestern Development Region of Nepal during May-December 2010. Altogether, 618 MWRA were selected for this study with the consideration of the design effect (2) at 5% tolerable error \( n = \frac{z^2*p*(1-p)}{a^2*DE} \). Multistage random sampling procedure was used. In the first stage, four districts were selected out of 15 districts of the region representing from each of the three ecological zones; plane (Bardiya), hill (Salyan and Pyuthan) and mountains (Jumla). Then, three Village Development Committees (VDC) from plane and two VDCs from each of the Hill and Mountain districts were selected randomly. In third stage, 81 clusters (1 VDC = 9 wards) were selected and finally, 7/8 participants from each cluster were selected randomly from the alphabetical list of the mothers maintained by Female Community Health Volunteers (FCHV). Information was collected by face-to-face interview with consenting mothers using preformed and pretested structured interview schedule. 10% of the filled questionnaires were cross checked by supervisors and Principal Investigator. All data were entered into MS access and then analyzed by SPSS 16.0 (SPSS Inc. Chicago, IL, USA). Percentage, mean, median and standard deviations were calculated wherever applicable. Chi-square test was used to test significance difference between those with and without knowledge of HIV and the Odds ratio was calculated to observe the likelihood of the existence of knowledge. Ethical clearance was taken from the institutional ethical committee of University Grants Commission, Nepal.

### Results

**Socio-demographic characteristics**

Table 1 shows socio-demographic characteristics of the participants. Majority 60.4% (373/618) of the study participants were 20-29 years of age followed by nearly one-fifth (116/618) with 30-39 years of age while more than one-tenth participants (70/618) were below 20 years. More than two-third (255/618) participants were Brahmins/Chhetri followed by 26.5% (164/618) were Tharu (Ethnic group). With the exception of 1%, almost all were Hindus (612/618). Nearly three-fifth (360/434) had Joint families. Majority 79.1% (489/618) of all participants had their annual family income (NRs) ≤100,000.

**Knowledge about HIV infection**

Majority 71.2% (434/618) of participants had heard about HIV while more than a quarter (184/618) had never heard about HIV. Of those who have heard, nearly three quarters 73.3% (318/434) heard form Radio/FM followed by FCHV 30.0% (130/434). Almost one-fifth (82/434) knew from the textbook while about one-tenth (55/434) had heard from the peers/teachers/or television. More than half (240/434) reported, sexual relation with an infected partner followed by infected blood

| Description | Numbers of participants | Percentage |
|-------------|-------------------------|------------|
| Age (in years) |                          |            |
| <20          | 70                      | 11.3       |
| 20-29        | 373                     | 60.4       |
| 30-39        | 116                     | 18.8       |
| ≥40          | 59                      | 9.5        |
| Caste        |                          |            |
| Dalit        | 100                     | 16.2       |
| Tharu        | 164                     | 26.5       |
| Janajati     | 79                      | 12.8       |
| Chhetri/Brahmin | 255                  | 41.3       |
| Magar        | 20                      | 3.2        |
| Religion     |                          |            |
| Hindu        | 612                     | 99.0       |
| Buddha/Christian | 6                    | 1.0        |
| Type of family |                        |            |
| Nuclear      | 258                     | 41.7       |
| Joint        | 360                     | 58.3       |
| Annual income in nepalese rupee |           |            |
| ≤100,000     | 489                     | 79.1       |
| 100,001-200,000 | 79                  | 12.8       |
| >200,000     | 50                      | 8.1        |

*Mean age: 27.7 (9.2) years, Mean annual income: 50,000.0, 1$: 84 (NRs)*
transfusion 33.2% (144/434), needle sharing 24.7% (107/434) and mother to child transmission 4.1% (18/434) are the modes of HIV transmission while more than one out of every ten (44/434) replied that they did not know about the modes of HIV transmission. Condom use during extramarital sex 51.8% (225/434), safe blood transfusion 20.3% (88/434), restriction of sex within faithful partners 22.6% (98/434), use of sterilized syringes/instruments 24.2% (105/434) were reported as the preventive measures of HIV transmission [Table 2].

HIV related risk perceptions and practices
Most of the participants 72.8% (316/434) perceived that commercial sex workers are the risk population followed by injecting drug users 60.4% (262/434), transportation workers 47.2% (205/434), spouse of migrant workers 37.6% (163/434) and rickshaw pullers 38.0% (165/434) are most at risk population for HIV infection. Meanwhile, baby born to the infected mother, barbers and health workers were also reported to be the risk population for HIV infection. Majority had perceived that multiple sex partnership (300/434) followed by unprotected sex (259/434) were the most risky behaviors for HIV transmission. Moreover, injecting drug use and needle sharing, use of non-sterilized needles in the health care practices, non-screened blood transfusion and sharing of blades/razors were also perceived to be the risk behaviors. About 4.9% (30/618) had ever had extramarital sex. Consistency in the condom use was reported by only a quarter of the participants (8/30) who have ever had extramarital sexual relation while one-third of them (10/30) were inconsistent users and two-fifth 40.0% (12/30) had never had condom use during extramarital sexual activities. Almost two-fifth participants (7/18) had used condom in the last episode of extramarital sex [Table 3].

Factors influencing the knowledge about HIV
Relationship with the knowledge “heard” of HIV and its transmission with the covariates were explored by using

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**Table 2: Knowledge about HIV**

| Description                              | Number of participants | Percentage |
|------------------------------------------|------------------------|------------|
| Heard about HIV (n=618)                  |                        |            |
| Yes                                      | 434                    | 71.2       |
| No                                       | 184                    | 28.8       |
| Sources of information*(n=434)           |                        |            |
| Television                               | 70                     | 16.1       |
| Pamphlet/posters                         | 39                     | 9.0        |
| Newspaper/magazine                       | 17                     | 3.9        |
| Textbooks                                | 82                     | 18.9       |
| Radio/FM                                 | 318                    | 73.3       |
| FCHV                                     | 130                    | 30.0       |
| Health-workers                           | 36                     | 8.3        |
| Peers/Teacher                            | 55                     | 12.7       |
| Group meeting                            | 60                     | 13.8       |
| Others                                   | 28                     | 6.5        |
| Knowledge on mode of transmission*(n=434)|                        |            |
| Unsafe sex with infected partner          | 240                    | 55.3       |
| Blood transfusion                        | 144                    | 33.2       |
| Needle sharing                           | 107                    | 24.7       |
| Mother to child                          | 18                     | 4.1        |
| Don’t know                                | 44                     | 10.1       |
| Knowledge about preventive measures*(n=434)|                        |            |
| Condom use in extramarital sex           | 225                    | 51.8       |
| Safe blood transfusion                   | 88                     | 20.3       |
| Use sterilized syringes for medication   | 105                    | 24.2       |
| Restrict sex within couple               | 98                     | 22.6       |
| Don’t know                                | 52                     | 12.0       |

*Multiple responses, HIV: Human immunodeficiency virus, FCHV: Female community health volunteer, FM: Frequency modulation

**Table 3: Risk perceptions and risk behaviors for HIV infection**

| Description                              | Number of participants | Percentage |
|------------------------------------------|------------------------|------------|
| Perceived population at risk for HIV infection* |                        |            |
| Commercial sex workers                    | 316                    | 72.8       |
| Injecting drug users                      | 262                    | 60.4       |
| Transportation workers/drivers            | 205                    | 47.2       |
| Rickshaw pullers                         | 165                    | 38.0       |
| Migrant workers                           | 149                    | 34.3       |
| Spouse of migrant workers                 | 163                    | 37.6       |
| Baby born to HIV infected mothers         | 119                    | 27.4       |
| Health workers                            | 99                     | 22.8       |
| Barbers                                  | 64                     | 14.7       |
| Don’t know                                | 44                     | 10.1       |
| Perceived risk behaviors for HIV transmission*(n=434) |                        |            |
| Multi-partner sex                         | 300                    | 69.1       |
| Extramarital sex without condom use       | 259                    | 59.7       |
| Injecting drug with needle sharing        | 130                    | 30.0       |
| Non-sterilized hospital instruments       | 99                     | 22.8       |
| Blood transfusion without screening       | 205                    | 47.2       |
| sharing of razors/razors                  | 163                    | 37.6       |
| Extramarital sexual involvement (n=618)    |                        |            |
| Yes                                      | 30                     | 4.9        |
| No                                       | 588                    | 95.1       |
| Condom use while having sex with extramarital partner (n=30) |                        |            |
| Always                                   | 8                      | 26.7       |
| Sometimes                                | 10                     | 33.3       |
| Never                                    | 12                     | 40.0       |
| Condom use during sex with extramarital partner at last time (n=18) |                        |            |
| Yes                                      | 7                      | 38.9       |
| No                                       | 11                     | 61.1       |

*Multiple responses, HIV: Human immunodeficiency virus*
Chi-square test and corresponding odds ratio. Heard status and knowledge of mode of transmission was statistically associated with the participant’s residential district and their belonging castes ($P = 0.01$) whereas, type of family, migratory status of the husband and religion are not statistically associated with their knowledge. Participants from the hill and mountain districts were 1.54 times and 1.82 times more likely having knowledge on HIV and its transmission respectively when compared with those living in plane district [Table 4].

**Discussion**

Majority of the participants were below 30 years of age, almost (99.0%) all were Hindus, 58.3% were living in Joint families and more than every nine-tenth had an annual income below two hundred thousand. Our findings corroborates with the results of the study conducted in Iraq.\[9\]

Nearly three quarters had heard about the HIV where radio/ FM was the most common source of the information (73.3%). Similar studies from Asia, Africa and middle east have reported varying results (29.9-100.0%) that the women had heard about HIV with intra and inter-country variations and our findings somehow correspond to the studies form Pakistan and Nigeria.\[1,3,8,13\] Similarly, majority had heard from Radio followed by FCHV and preventive measures related information were more frequently heard from other sources like health care workers and newspapers. Findings of this study correspond to the Indian, Nigerian and Iranian studies cited wherein Radio, TV, health workers, friends, relatives were reported as the prime sources of HIV related information.\[8,10,11,14\] Unsafe sex (55.3%) followed by infected blood transfusion (33.2%), needle sharing (24.7%) and mother to child transmission (4.1%) were reported to be the modes of HIV transmission. Similar trends were observed in the studies conducted in Asia, Africa and the middle east viz. sexual transmission followed by infected blood transfusions, needle sharing and mother to child transmission were reported as the modes of transmission in decreasing orders of responses.\[1,3,8,11-14\] Condom use during extramarital sex (51.8%), safe blood transfusion (20.3%), restriction of sex within faithful partners (22.6%), use of sterilized syringes/instruments (24.2%) were reported as the preventive measures of HIV transmission. Study findings are similar to the studies conducted by Haider et al., Chirwa et al., Awusi and Anyanwu, and Burgoyne and Drummond.\[1,9,13,15\]

Commercial sex workers, injecting drug users, transport workers and migrant were the most risk population while baby born to HIV infected mother, barbers and health workers were also perceived to be at risk for the HIV infection. Similar study from Pakistan reported that multiple sexual partners, prostitutes and homosexuals; and drug addicts were reported to be the high risk population.\[13\] Almost 5% participants reported extramarital sexual involvement; of them, only a quarter had regularly used the condoms. Similarly, only two-fifth had used condom in their last extramarital sexual intercourse. Similar findings were reported in a Nigerian study.\[14\]

Ecological zone (hill and mountain vs. plane) and caste wise variation was observed to be significant while age, income, type of family, husband’s migratory status were not the significant factors influencing the knowledge regarding HIV and its mode of transmission. Participants from hill and

| Table 4: Association between participant characteristics and knowledge of HIV (n=618) |
|-----------------------------------------------|-----------------|-----------------|
| Participant characteristics | Heard about HIV | Knowledge of mode of transmission |
|---------------------------------|-----------------|---------------------------------|
| District                        | Yes             | Total                          | Yes             | Total                          |
| Hill and Mountain districts     | 190             | 413                            | 110             | 413                            |
| Plane district                  | 73              | 205                            | 34              | 205                            |
| Caste                           |                 |                                |                 |                                |
| Dalit                           | 48              | 100                            | 28              | 100                            |
| Tharu                           | 57              | 164                            | 26              | 164                            |
| Janajati                        | 39              | 79                             | 23              | 79                             |
| Brahmin/Chhetri                 | 107             | 255                            | 59              | 255                            |
| Magar                           | 12              | 20                             | 8               | 20                             |
| Age (in years)                  |                 |                                |                 |                                |
| ≤30                             | 200             | 472                            | 161             | 472                            |
| >30                             | 63              | 146                            | 44              | 146                            |
| Husband migrated for work       |                 |                                |                 |                                |
| Yes                             | 146             | 324                            | 81              | 324                            |
| No                              | 117             | 294                            | 63              | 294                            |
| Type of family                  |                 |                                |                 |                                |
| Nuclear                         | 113             | 258                            | 57              | 258                            |
| Joint                           | 150             | 360                            | 87              | 360                            |

OR: Odds ratio, CI: Confidence interval, HIV: Human immunodeficiency virus
mountain districts were found to be more knowledgeable than the participants living in plane district. Similar findings were reported in NDHS, in which knowledge of HIV/AIDS was observed to be higher among women in the hill zone.[6]

Limitations of the study
Study was limited to the selected parameters and based on the verbal information only.

Conclusion
More than 70% respondents heard about HIV and less than half of them had knowledge about the mode of its transmission. Radio/FM was the major (73.3%) source of information. Avoiding extramarital sex and/or condom use, screening of blood before transfusion, avoiding sharing of needles were reported preventive measure of HIV. Consistency of the condom use was reported to be low among those who have had extramarital sex. Gender specific awareness raising and behavior change interventions might increase women’s awareness on HIV, risk perceptions and preventive behaviors.

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