Knowledge, Attitude And Practice Of Ante-Natal Attendees Toward Prevention Of Mother To Child Transmission (PMTCT) Of Hiv Infection In A Tertiary Health Facility, Northeast-Nigeria

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Abstract

Objective: Knowledge, attitude and practice of pregnant women toward PMTCT have not been evaluated in any tertiary health facility in the Northeast Nigeria. Methods: A structured questionnaire was used to obtain data from 172 women that consecutively attended the antenatal clinic of University of Maiduguri Teaching Hospital to determine their level of knowledge, practice and attitude toward PMTCT. Results: Knowledge on modes of transmission, risky behaviours and prevention of HIV and other STIs was high among the women. The use of breast milk substitute by HIV positive nursing mothers and condom during sexual intercourse did not receive very encouraging responses from 42 (24.4%) and 58 (33.7%) of the women respectively. Those that discourage BMS indicated spouse dislike as a major reason and the fact that the community places higher premium on breastfeeding. Majority of those that discouraged condom use said the practice was against their religious beliefs while a few believes withdrawal before ejaculation and use of antibiotics after sex can equally prevent HIV infection. Conclusion: The pregnant women accepted PMTCT as a veritable means of preventing infants from HIV infection and a means to determine HIV status. Majority implored greater involvement of male partners and other family members during PMTCT counselling sessions. Staff training, awareness creation and community mobilization were identified as key to success of PMTCT programmes and fight against stigma and discrimination.

INTRODUCTION

The transmission of Human Immunodeficiency Virus (HIV) from mother to child contributes largely to HIV prevalence amongst children. Efforts to reduce this mode of spread include increasing the number of persons who know their HIV status and increasing the number of HIV positive women who when pregnant take instructions and act on them to protect their children from the possibility of infection. The risk of transmission of HIV virus from an infective source such as receptive vagina intercourse and insertive vagina sex is 8 to 20 and 3 to 9 risk/10,000 exposures respectively (1).

The rate of perinatal transmission of HIV in developing countries ranged between 19% to 36% and HIV prevalence in some areas upto 25% (2). In Nigeria, the current prevalence rate of 4.4% is derived from national sentinel surveillance of antenatal attendees aged 15-49 years drawn from rural and urban communities through out the country (3). This report seems to indicate a reduction in HIV prevalence in Nigeria compared to 5.8% and 5.0% obtained in 2001 and 2003 respectively. However, the reality of the situation in many high brow Nigerian cities does not give room for respite considering the dense population and socio-cultural complexity of Nigeria. The 2005 sero-prevalence of 4.4% among ante-natal attendees in Nigeria is 250% increase from 1991 prevalence rate of 1.8% and sexual transmission of HIV is recognized as the dominant mode of transmission making mother to child transmission of HIV an increasing national concern. In the national survey report of 2005, 73,000 HIV-infected infants were born, making it the highest number for any country in the world (3). Currently in Nigeria, several attempts have been made by
knowledge, attitude and practice of ante-natal attendees toward prevention of mother to child transmission (pmtct) of hiv infection in a tertiary health facility, northeast-nigeria

government and non-governmental organizations to provide cost-effective anti-retroviral regimens to prevent perinatal transmission of hiv. Nevertheless, there is great concern over these regimens in terms of development of resistant strains that could cause limitations in individual patients and on a population basis (1).

the current effort to incorporate hiv counseling and testing (hct) into ante-natal care through prevention of mother to child transmission (pmtct) programme in all health facilities in nigeria is a positive one aimed at identifying those pregnant women that are hiv positive and providing adequate steps that will prevent, reduce or eliminate infection of the infants. in it counseling is expected to among other things provide information about the virus (hiv) and the disease (aids); mode of infection; effective interventions that protect the infant and reduce morbidity and mortality in adults; hiv testing recommended for all pregnant women; available services to help pregnant women prevent hiv transmission; and care for women who might refuse the test, as well as their infants (4). the challenges that need to be surmounted include insufficient pmtct services especially in the rural communities and even health facilities located in high prevalence areas. there is also the issue of low community involvement in pmtct programme which is averse to programme ownership and sustainability.

in nigeria, voluntary counseling and testing for all women of childbearing age, including pregnant women have been proposed in the current national pmtct guidelines (3). in line with the millennium development goal 6 which is to halt and reverse the spread of hiv by 2015, the national hiv/aids prevention plan for 2007-2009 has been focusing on scaling up access and quality of hiv/aids services in a wide range of intervention areas including pmtct. basic knowledge about hiv and its prevention strategies as well as the attitude of mothers in accessing pmtct services are vital to the success of the programme. this study attempts to assess the level of knowledge, attitude, practice and perception of ante-natal women toward pmtct services in maiduguri, northeast nigeria. inadequate basic knowledge about hiv/aids, lack of understanding of practices that predispose to hiv/aids and poor attitude to hiv prevention information and services are major impediments to the success of hiv programme efforts. information gathered will help to identify existing gaps in programme management and implementation by private and public programmers toward optimizing provision of pmtct services in all health facilities in the state and by extension the entire country.

materials and methods

study population

the study population included all consecutive pregnant women seeking ante-natal care at the ante-natal clinic of the university of maiduguri teaching hospital (umth), maiduguri between january and february, 2006. umth is a tertiary health facility that serves not only the northeast zone of nigeria but also the neighbouring countries of chad, niger and cameroun republics.

sampling instrument

a structured questionnaire was developed and administered to pregnant women who attended the ante-natal clinic. the questionnaire was used to obtain information on the social and demographic characteristics of the women; personal circumstances, views and expectations; knowledge on hiv/aids; training acquired and need for empowerment; and recommendations on improving the performance of pmtct services in all health institutions. questions asked were both closed and open-ended. interviewers were trained on how to administer the survey instrument credibly and interpreters were used to interpret the questions in local languages when necessary.

sampling technique

convenience sampling technique was used on first come first served basis and a total of 172 consecutive pregnant women were voluntarily recruited into the study after a careful explanation of the objectives of the study and their consent were duly obtained.

results

background of respondents

the backgrounds of all respondents are shown in table 1. the age group distribution of respondents shows that majority, 46(26.7%) belong to the age group 25-29 years while those aged 30 – 34 years was 44(25.6%). eighty two of the respondents were of islamic faith (47.7%) while, catholics and pentecostals were 48(27.9%) and 14(8.2%) respectively. a relatively smaller number of respondents, 4(2.3%) were of other faiths.

one hundred and thirty four (77.9%) of the respondents were married whereas 14(8.2%) were single pregnant women. those that were either separated or divorced were 2(1.2%)
each. None of them was widowed.

Respondents of the Hausa/Kanuri ethnic groups formed the majority (38.4%), closely followed by the Igbo (31.4%). Yorubas were the least ethnic group (2.3%).

The educational levels of women in this study were identified as postsecondary (47.7%), secondary (31.4%), post-primary (5.8%) and primary (3.5%) education. Few of the respondents (2.3%) either had only Qu’ranic or did not have formal education. Women that were full time housewives accounted for a greater number of the respondents (37.2%) while that were students were (20.9%).

**KNOWLEDGE OF HIV/AIDS**

Table 2 assesses knowledge of respondents toward HIV/AIDS. When asked about the possible cause(s) of HIV infection, 61.6% agrees HIV infection is caused by a virus whereas 44.2% indicated HIV is a punishment from God and 3.5% indicated that HIV is caused by witchcraft. However, some of the respondents (34.9%) adduced that HIV is not a new virus and has been in existence longer than when it was discovered.

On the possible route of transmission, 144(83.7%) and 98(57%) of all the respondents indicated that HIV could be transmitted by heterosexual and homosexual intercourse respectively. A high percentage of respondents also indicated that blood transfusion, 140(81.4%) and kissing, 138(80.2%) are possible routes of HIV transmission. One hundred (58%) and one hundred and twenty (69.8%) of the women indicated that breastmilk and cutleries respectively are possible routes of transmission of HIV. Only ten of the respondents (5.8%) identified HIV contaminated injection needle as mode of HIV transmission, while mosquito bite, toilet seats, handshake and sharing of towels were identified
Most of the respondents had knowledge of signs and symptoms of HIV. For instance many indicated that people infected with the virus may look healthy (74.4%), may lose weight (70.9%) and may have diarrhoea (55.8%).

On how to avoid contracting HIV/AIDS, more than 70% of all the respondents identified the use of screened blood for transfusion, having sex with faithful partners and not sharing razor, clippers etc. Being faithful to one’s partner, not using unsterilized needles and not patronizing sex workers were identified by more than 60 per cent of all the respondents as ways to avoid contracting HIV. Avoiding breastfeeding by HIV-positive mothers and not sharing manicure/ pedicure tools were identified by more than 50 per cent of all the respondents while the use of condom was identified by 45.4 per cent of all the women. Less than 10 per cent each of all the respondents indicated washing the vagina thoroughly with water after having sexual intercourse, not touching AIDS patients and the use of herbal medicine as ways of avoiding contracting HIV/AIDS. Other responses on how to avoid HIV infection include: having sex with virgins only (16.3%), having sex with familiar persons only (14%) and having sexual intercourse with healthy men (11.6%).

Twenty- two respondents (12.8%) indicated that the use of antibiotics can prevent HIV infection while 38(22.1%) opined that the use of vaccines may prevent HIV.

ATTITUDE TOWARD HCT/PMTCT SERVICES

Table 3 shows respondents attitude toward HCT/PMTCT. When asked about their personal risk and likelihood that they could be infected with HIV, only 38.4 per cent of the respondents denied such possibilities existed but 22.1 per cent think it is possible anybody including themselves could be infected with HIV if engaged in risky behaviours. They were also asked if the had been tested for HIV and a greater number of them (76.7%) indicated that they have undergone the test whereas 22.1 per cent are yet to be tested. Among the reasons advanced for carrying out HIV test included: premarital requirement (34.9%), enrolment into PMTCT programme (25.8%), and voluntarily counseling and testing (13.6%). Those that were tested for insurance purposes and those tested without their knowledge/consent was 4.5 per cent respectively. Nine per cent of all the respondents admitted to being tested for medical reasons as against 1.5 per cent tested as a requirement for issuing traveling documents.

Out of the 132 respondents that had been tested for HIV, 66(50%) received pre-test counseling while only 32(24.2%) received post-test counseling. When respondents were asked if they would be willing to be tested or re-tested for HIV, 92(69.7%) responded positively compared to the initial 132 that claimed to have been tested before. Forty-six (26.7%) were undecided. However, only forty-three per cent of all the respondents would consider paying for HIV test to know their status if the need arises.

Among the pre-conditions identified by the 92 respondents who indicated willingness to be screened for HIV, 87 per cent identified confidentiality as an important condition while 69.6 per cent felt that knowing ones HIV status must be beneficial to an individual who wants to do the test. Those that demanded their spouses’ consent before doing the test were 67.4 per cent while 13 per cent would not like to disclose their status to spouse. Some respondents (23.9%) would like to be tested only if cure for HIV exist.

When asked what to do if spouse/partner is tested HIV positive, 61.6 per cent of all the respondents agreed to give support to infected spouse, 44.1 per cent would use condom with partner during sexual intercourse whereas 11.6 per cent would not mind having unprotected sexual intercourse with the infected spouse. Those that prescribed either outright separation or divorce from infected partner were 20.9 per cent and 9.3 per cent respectively. Respondents were asked what advice they would give to pregnant women found to be infected with HIV. Seven percent of respondents recommended termination of the pregnancy whereas 52.3 per cent would opt for carrying the pregnancy to term.

Concerning HIV testing, 48.8 per cent of all the respondents indicated that testing should be voluntary while, 38.4 per cent said it should also be confidential. However, 22.1 per cent would like to be tested without being told of the result. When asked what to do if tested positive for HIV, majority of the respondents (79.1%) would advice their spouse to get tested and 76.7 per cent would inform only their spouses/partner of their HIV status. However, 22.1 per cent indicated they would conceal the result to themselves. About 1.2% of all the respondents indicated they would contemplate suicide while 0.6 per cent would not mind spreading the virus as much as possible.
Table 3: Attitude of Respondents to VCT/PMTCT (n=172)

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>Don’t Know (%)</th>
</tr>
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<tr>
<td>HIV status (n=395)</td>
<td>33</td>
<td>66</td>
<td>36</td>
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<tr>
<td>Any possibility of being infected</td>
<td>38</td>
<td>66</td>
<td>33</td>
</tr>
<tr>
<td>Dose HIV test before</td>
<td>29</td>
<td>66</td>
<td>23</td>
</tr>
<tr>
<td>Reason for doing HIV test (n=132)</td>
<td>33</td>
<td>60</td>
<td>17</td>
</tr>
<tr>
<td>Voluntary Counselling Testing</td>
<td>18</td>
<td>60</td>
<td>22</td>
</tr>
<tr>
<td>PMTCT</td>
<td>34</td>
<td>66</td>
<td>3</td>
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<tr>
<td>Marital</td>
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<td>13</td>
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<td>46</td>
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<tr>
<td>Clinical Condition</td>
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<td>59</td>
<td>23</td>
</tr>
<tr>
<td>Without knowledge of friend</td>
<td>65</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>Counselling experience</td>
<td>56</td>
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<td>8</td>
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<tr>
<td>Post-test Counselling</td>
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<td>36</td>
<td>20</td>
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<tr>
<td>Willing to test for HIV (n=172)</td>
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<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Willing to pay for test (n=172)</td>
<td>92</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 4: Practice Toward HIV/AIDS Issues

Table 4 shows responses of women on some practices toward HIV/AIDS issues. When asked if they had ever contracted and be treated for sexually transmitted infections (STI), majority of the respondents (67.4%) indicated never been infected or treated for STI whereas 12.8 per cent admitted to have contracted STI in the past and were accordingly treated.

Among the respondents who discouraged breastfeeding among HIV infected nursing mother for risk of infecting baby were 60.5% whereas 10.5% would encourage such women to continue breastfeeding despite carrying the virus. Similarly, eighty eight (51%) of all the respondents would encourage the use of breast milk substitute (BMS) by HIV positive nursing mothers whereas 42(24.4%) of the women would not encourage it even if advised to do so for the following reasons: spouse dislike (42.9%), religious beliefs (14.3%) and cultural reasons (9.5%).

The use of condom during sexual intercourse was regularly practiced by 92(53.5%) of all the respondents whereas 58(33.7%) do not encourage it for reasons such as religious beliefs 28(48.3%), spouse dislike 10(17.2%) and lack of sexual pleasure 6(10.3%). However, eight respondents (4.7%) believe that the use of lime wash on the vagina after sexual intercourse would prevent HIV infection (Table 5).

Other precautionary measures practiced by the women against HIV infection include avoidance of casual sex (77.9%), use of condom by male partners (66.3%), and regular medical check up (67.4%). Other measures indicated include avoiding sexual intercourse with thin looking men (17.4%), withdrawal before ejaculation (12.8%), use of antibiotics after sex (19.8%) and protection against mosquito bites (16.3%).

On the issue of disclosure of status to spouse, especially in positive results, respondents were asked the best approach in disclosing HIV status to spouse/partner if found to be positive (Table 6). Majority of the respondents, 94 (54.7%) would prefer their doctors while, 40 (23.3%) prefer nurse/counselors. Those that opted for self disclosure were 78 (45.3%). About five per cent of the respondents were not sure who should best be responsible for disclosing their HIV status to spouse.

Table 4: Practice Toward HIV/AIDS Issues
DISCUSSION

Women attending antenatal clinics are unique cohort group and have been used in Nigeria to determine the national HIV sero-surveillance for more than a decade. Evidence of new infections from the national survey is an indication of an increasing number of children infected with the virus linked mainly to mother to child transmission (3). Sexual transmission still ranks high among the modes of transmission of HIV. This study revealed that majority of the antenatal attendees were of the age bracket 20-29 years is within the sexually active age group identified in Nigeria. Moreover, in the 2005 national sentinel survey the highest HIV prevalence was found in the age group 25-29 years making this subset a highly significant in HIV prevention programmes in Nigeria. However, stigma and discrimination has driven the epidemic underground with a resultant reluctance of people to voluntarily check their status. An earlier survey of knowledge of HIV/AIDS and understanding of risk factors revealed that more men had previous knowledge of HIV/AIDS prevention than women (5). Assessment of the level of knowledge of HIV/AIDS issues in this study revealed that many women though with good knowledge of HIV/AIDS are yet to fully understand the dynamics of HIV infection. This corroborates the report by Anas-Kolo (6). For instance, majority of the women (61.6%) understand HIV to be caused by a virus although for some (3.5%) HIV/AIDS is caused by witchcraft. A significant number of women in this study, 44.2%, believes HIV infection is punishment from God (consequence of one’s sins) while 34.9% believe AIDS is like every other disease that has been in existence. However,

In this study, majority of the women interviewed though had postsecondary education, were mostly housewives. Only about one-fifth of the respondents were civil servants while about one-eighth were engaged in one form of business or the other. Awareness of the major mode of transmission of the virus (heterosexual, homosexual, blood transfusion, breastmilk) and the fact that a person may appear healthy and yet harbor the virus as indicated by majority of the women did not outweigh the equally high percentage of women who indicated that kissing and sharing of cutleries could be a possible mode of transmission. This emphasizes existence of poor understanding of the mode of transmission/spread of HIV/AIDS among the other factors that drive the epidemic among women in Nigeria (3).

On HIV prevention issues, responses were varied according to the level of knowledge of HIV transmission among the women, their spouses and their religious doctrines. For example, the use of condom as a preventive measure during sexual intercourse was only encouraged by about 45% of the respondents whereas all professed catholic respondents whose population was significant (about one-quarter of the respondents) showed resentment.

In this study, nearly one-half of the respondents asked for modification of current prevention messages that seem to enforce ‘abstinence only’ among the youths without being backed up by alternative for deviant youths which seem to be proper condom use. These women assert that sexually active young persons these days find it difficult to abstain from having sex hence, such campaign messages may not yield the best of results if not reconsidered to accommodate present realities.

Ankrah et al. (7) reported that African family system extends beyond an individual to include the clan. The clan may provide a contemporary social framework through which to mobilize people against HIV. With the increasing number of emerging non-governmental organizations, faith-based groups, community-based organizations and support groups of PLWH addressing HIV/AIDS issues in Nigeria, proper coordination and harmonization of activities should be
seriously considered by national and state programme officers and policy makers. The rapidly increasing spread of HIV among African women is one of the many tragedies of the AIDS epidemic. PMTCT services which are tailored toward preventing not only the uninfected woman but also the baby, before and after delivery need to be supported to cater for the teeming population of women. Indeed, no group of women is spared. Many programmes in the past focused upon sex workers because of the direct risk of HIV infection inherent in their work but young women, wives and mothers, and survivors are also now being increasingly infected and affected. Therefore interventions must therefore target these women differentially with selective services that address the unique problems and needs that each distinct group faces.

Most of the respondents who know their HIV status had mandatory test as a pre-condition for marriage by their religious affiliations. This report emphasizes the need to educate religious leaders of the benefits as well as rights of their members to voluntarily undertake HIV testing as against mandatory testing. PMTCT programme is identified as a virile opportunity for pregnant women and their spouses to know their HIV status so as to guard against infecting the unborn child pre- and post-delivery. However, 25.8 per cent and 13.6 per cent of the respondents indicated they were tested at PMTCT and VCT centres respectively while majority do not know their HIV status. This low uptake of services is generally observed in Nigeria (6).

Its common knowledge that in our communities, a married woman is expected to commence child bearing soon after marriage and this affects the degree to which women can make personal decisions about their reproductive behaviour including infant feeding choices. The consequence of failure in this role could result to abandonment or divorce by husband, blame from relatives. Above all, if she has a child who fails to thrive or who dies at infancy, a deep sense of shame, anxiety, guilt, and depression will engulf her. Due to the fact that many African wives and mothers lack formal education and independent means of liberation from the myriads of problems that AIDS creates, they are often trapped in a hopeless situation. As a measure to surmount these tendencies, male partner involvement in PMTCT programmes has been reiterate by majority of the respondents. The confidence expressed by majority of the women in this study (7.6.6%) to willingly disclose their HIV status to spouse should be encouraged. The indication of divorce, separation, termination of pregnancy suggested by some respondents to HIV positive pregnant women further inform the need to intensify target HIV education for different population groups on issues of HIV/AIDS. Termination of pregnancy as a choice has similarly been reported among some HIV positive women by Hausermann (8). Equally, the issue of breastfeeding versus breastmilk substitute has generated a lot of concerns in our communities. In this study, only few women (8.1%) would choose to continue breastfeeding despite being aware of their HIV status whereas majority (64%) said they would stop breastfeeding and use breast milk substitute (BMS) as an alternative. As shown in this study, majority of those that do not encourage use of BMS identified spouse disapproval as a major reason. Despite the high premium placed on breastfeeding in the community, most HIV positive nursing mothers are likely to choose formula feeding for their infants in place of breast feeding to prevent child infection. This is without prejudice to the fact that reliance on BMS in some settings especially in countries with high rates of infectious disease and poor sanitation would be counter productive since infant formula feeding would probably increase infant mortality as a result of poor hygiene (9).

In Nigeria, exclusive infant formula feeding as against breastfeeding has been advocated because it has lower risk of HIV transmission (3). Awareness should be created for mothers to ensure that the commercial infant formula used is duly registered with NAFDAC (National Agency for Food and Drugs Administration and Control) and also complies with the National Code of marketing of Breast Milk Substitutes (BMS). Education of family members who may insist on the use of breastfeeding as against infant formula feeding is important. However, there is reported risk of acquiring HIV infection through prolonged breastfeeding, beyond 12-18 months of age, and this obviously outweighs the benefits of breastfeeding at this age (10). Spouse/partners should be encouraged to support their HIV positive wives to adhere to BMS as infant feeding choice to protect the child from infection. Mang (11) suggest that males should be involved at the onset of PMTCT through couple counseling. Partner support is therefore a necessary key factor in adhering to infant feeding choice. It is in recognition of the importance of male partner involvement that majority of the respondents in this study identified their spouses as best suitable to discuss issues of HIV serostatus disclosure apart from their doctors. Disclosure of HIV test results to partners will make it easier for women to access the complete package of PMTCT services and follow programme recommendations.
The resentment of condom use as indicated by one-third of the respondents, and the fact that men might still be keeping more than one sexual partner, has provided enough evidence to intensify sensitization and education on HIV prevention issues. Heterosexual intercourse remains the major route of transmission of HIV in sub-Saharan Africa (12) while, MTCT account for over 90% of paediatric HIV infections in sub-Saharan Africa (11). Although the mechanism through which unprotected sexual intercourse with two or more different partners may predispose to vertical HIV-1 transmission is unknown, studies have shown that a possibility exists (13). Ariyoshi et al. (14) and Bulterys et al. (10) postulated that unprotected sexual intercourse with multiple sexual partners in a population with a high HIV-1 sero-prevalence may well increase the diversity of HIV-1 variants in the mother and thus the likelihood of Mother to Child Transmission (MCT). The repertoire of HIV-1 variants may be more important than the infectious virus titre in determining transmission from infected mother to infant. Multiple partners may also facilitate transmission to infants by increasing the likelihood for sexually transmitted diseases (STD) (15). There is strong evidence that latex condoms, when properly used, can prevent HIV transmission and must be a central part of HIV prevention efforts (16, 17). Findings in this study show that majority of the women accept use of condoms. Most of the women that are not favorably disposed to use of condom based their reasons on religious beliefs and spouse dislike. Respondents of Catholic faith were among the strong opponents of condom and formed a sizeable number among those who do not use condom during sexual intercourse. Although few of the respondents believe that washing the vagina with lime after sexual intercourse could prevent HIV infection, such procedure has not been recommended as effective public health approach to reduce HIV transmission (18).

In conclusion, for a successful PMTCT programme in our hospitals, the uptake must be seen to be above optimal level and involvement of male partners is recognized as a necessary component to the realization of programme objectives. Disclosure of HIV sero-status by a pregnant woman involves informing significant others about her HIV status, most importantly, the male partner. The male partner has to be involved, educated together with his spouse to provide necessary support whenever the need arises. Lack of HIV testing and non-disclosure among couples places an HIV negative partner in a discordant relationship at risk of infection. Apart from male partners, other significant family members need to be counselled and educated on infant feeding choices. This will not only provide support and encouragement but will also improve adherence to programme ethics by pregnant women. A widespread public education using correct and relevant materials on HIV/AIDS is required to create more awareness and basic facts about HIV/AIDS. The use of effective and efficient support tools such as flipcharts, wall-charts, brochures, to deliver PMTCT testing and counseling messages will assist women to voluntarily PMTCT services. Such tools facilitate health care worker compliance with a standard approach for offering HIV testing and enabled them to communicate critical PMTCT messages to clients (19). The training and retraining design for healthcare workers involved in PMTCT programmes must involve audio-visual aids and kinaesthetics. Scaling up of PMTCT services up to primary health care level will increase uptake of services and reduce HIV and other sexually transmitted infections that can be transmitted vertically or horizontally to infants during perinatal or postnatal periods. Awareness creation and community mobilization by government and non-governmental organizations should be intensified in order to successfully fight against stigma and discrimination. Application of participatory approach to programme implementation would create confidence, security and ownership toward effective, efficient and result oriented programming.

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