

Knowledge of pregnant women on transmission of HIV infection through breast feeding

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Although breast-feeding is nature's way of providing nutrition to the baby, in HIV positive mothers this has been identified as one of the means through which HIV infection is transmitted from the mother to the child. In Africa where children under the age of 5 are killed by preventable diseases like diarrhoea, the issue of HIV transmission through breast feeding poses an added huge problem. Research has, however shown that exclusive infant feeding, be it breast or formula, reduces the risk substantially. It is imperative that mothers be informed about safer methods of infant feeding so that HIV infection is kept to a minimum.

The objective of the study was to explore and describe the knowledge that pregnant women had about mother to child transmission of HIV infection through breast-feeding. A non-experimental quantitative exploratory and descriptive research design was used to explore the knowledge women had on mother to child transmission of HIV infection through breast-feeding.

From the data collected, it showed that although women were aware of the susceptibility of children to HIV infection if fed on breast and formula feeds simultaneously by HIV positive mothers, exclusive feeding was a problem as people associated the practise with a positive HIV status. Women who had not disclosed their HIV status and were HIV positive, found it difficult to comply with the requirement to exclusively feed their infants. These either continued with complementary feeds or did not collect the free formula milk supply preferring instead to buy the formula feeds privately.

In this study it was recommended that information on transmission of HIV infection from mother to child through breast-feeding including the benefits of exclusive infant feeding, be it breast or formula, for the first three to six months be provided to the community so that relatives can support the mother on infant feeding method of choice.

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Introduction

HIV/AIDS poses a major public health problem in Africa. In 2004, 39.4 million people worldwide were reported to be living with HIV/AIDS; 25.4 million of these were in Africa (Department of Health 2004:1). According to UNAIDS (2004:2), HIV/AIDS has reached pandemic proportions in the Sub-Saharan region with mother to child transmission (MTCT) being reported as the primary source of HIV infection in children under 15 years of age. According to UNAIDS (2004:1), 500 000 children die annually from AIDS related illnesses. This notion is confirmed by Ward and Krim (1999:230-231) who state that babies born of HIV positive mothers have a 1:6 chance of contracting HIV infection. According to these authors, more than 98% of HIV infections in children are through their HIV positive mothers. The infection happens during pregnancy, childbirth and after birth through breast-feeding. The risk of transmission varies at different stages with the risk during pregnancy ranging from 5-10% and about 10-20% during child birth and through breast-feeding (Department of Health 2004:3).

Literature Review

Mother to child transmission of HIV infection through breast-feeding has been debated upon and literature supporting exclusive infant feeding (breast or formula feeding) is available. Breast-feeding as a natural way of providing nutritious food to the baby is supported by Bagglely, Mogapi, Keapoletswe, Smith, Luo, Kgosidintsi, Phumaphi, Mahatelo, Mor, Kebaabetswe, Magowe, Mokganya, Ngcongo, Mazhani, Mompati, Ngashi, Kalume, Modisi, Katse and Sibiya (2002:81) who assert that breast-feeding provides 100% nutrition to the baby in the first 6 months of life. The authors also state that infants who do not breast-feed have an increased risk of dying within the first year of life due to malnutrition and lowered immunity against childhood illnesses like diarrhoea and respiratory infections. However, in HIV positive mothers this method of feeding may transmit HIV infection from the mother to the baby (Gorby & Schiele 2003:1). Pratt (1995:188) and Jackson (2000:12) put the risk of mother to child transmission of HIV through breast-feeding to range between 20% and 40% respectively.

Prevalence studies in Southern Africa

show a marked increase in HIV infection. In a survey conducted among pregnant women in South Africa, it was found that HIV prevalence was 29,5% in 2004 compared to 27,9% in 2003 (Department of Health 2004:6). In another study by Masupu, Khan, Gboun, Buthali, Mynth, Roels and Phaphe (2003:30) in Gaborone, Botswana, a high HIV prevalence rate of 48.1% among pregnant women was reported. The indicated prevalence represents babies at risk of HIV infection. Where preventive measures have been adhered to during pregnancy and childbirth, HIV infection is thought to have been transmitted through breast feeding.

Government's initiatives to prevent mother-to-child-transmission (PMTCT)

With the fight against HIV/AIDS, governments are supporting the provision of antiretroviral drugs to ensure availability, accessibility and adherence to treatment and have launched a programme that will assist in the prevention of mother to child transmission (PMTCT) of HIV infection. According to research studies by Bagglely et al (2002:81) the PMTCT Programme is said to have reduced mother to child transmission from 30% to 13%. Important components of this programme relate to voluntary confidential counselling and HIV rapid testing (VCCT), safe infant feeding practices for HIV positive women and availability of free antiretroviral drug therapy to those pregnant women who test positive to HIV infection. According to the stipulations of this PMTCT program, pregnant HIV positive women are closely monitored and are to deliver under the supervision of a health care practitioner. As soon as the diagnosis is made the woman is put on antiretroviral therapy regardless of the CD4 count and/or viral load. This includes the administration of Combivir (AZT & 3TC) 1 tablet twice a day, and, when the woman is in labour, during the active stage and the cervix is 3cm dilated, a stat dose of Nevirapine 200mg or Retrovir 200mg IVI is given. In the PMTCT program the woman is also counselled about baby feeding, whereupon this could either be exclusive breast feeding or exclusive replacement feeding (exclusive formula feeding) for women who choose not to breast-feed. The duration for the practice to exclusively breast feed ranges from the first three to six months of life. In this

period mixed feeding must never be implemented.

Following counselling, women are then allowed to choose a feeding method that they plan to use post delivery.

To ensure the success of this PMTCT program, governments also supply free formula feeds for a period of three to six months for those mothers who choose not to breast feed and have no means of accessing formula feeds. This formula feed is prescribed by the physician. In this programme infants born of HIV positive women are put on Retrovir or Nevirapine syrup.

Exclusive breast-feeding

Exclusive breast-feeding is an infant feeding method where the baby is fed on breast milk only and no other foods or liquids, including water, are given to the baby. According to Jimenez, Martin and Ross (2004:7) exclusive breast-feeding reduces the risk of gastric irritation that may result in the erosion of the gastric mucosa thus making it easy for the microbes including HI virus from the breast milk, to pass through to infect the baby. With exclusive breast-feeding, when weaning time comes, the baby is abruptly weaned and immediately introduced to formula feeding and any other relevant foods other than breast milk. The same holds for exclusive formula feeding. The baby is not given breast milk or put on the breast to feed from birth. In a case where the baby is exclusively fed on a formula feed, other foods are usually introduced from four to six months of age of the baby.

Several studies have been conducted to support this notion. A study conducted by Coovadia and Coutsooudis (2001:5) on 551 HIV positive women who exclusively breast-fed for 6 months and 157 who provided mixed feeding for their babies found that the rate of HIV transmission was higher in the mixed feeding group (26.1%) than in the exclusively breast-fed group (19.4%). The limitations of this study included the absence of antenatal history and delivery method in all the women as these could have isolated the role of breast-feeding in infectivity.

Challenges experienced with exclusive breast-feeding

In relation to exclusive breast-feeding, studies have reported difficulties with adherence. De Paoli, Manongi, Helsing

and Klepp (2001: 313,315,318) found that only 54% of mothers practised exclusive breast-feeding in the first few days after birth. In a study conducted in Kenya, Oguta, Omwega and Sehemi (2001:47,88) found that 98.2% of HIV positive mothers breast-fed their babies mixing this with formula milk feeds due to low knowledge on transmission of HIV infection through breast-feeding. In another study Shapiro, Lockman, Thior, Kebaabetswe, Wester, Gilbert, Marlink, Essex and Heyman (2005:7-10) found that in Botswana there was a low adherence to exclusive breast-feeding or exclusive formula replacement feeding methods, practises that are highly recommended in an effort to reduce the incidence of HIV infection among children. The reports cite several factors that mitigate against adherence to exclusive breast-feeding, such as, mothers giving water to quench the babies' thirst, expectations from the family to breast-feed, cultural pressure and fear of stigma especially for those who had not disclosed their HIV status. Lewis (2001:1-5) and Dabis, Sint and De Zoysa (2001:15) emphasize that the knowledge of mother to child transmission of HIV infection influences decisions on the choice of infant feeding method. In their reckoning appropriate decisions could save the lives of children at risk of HIV infection.

The aim of the study on which this article is based, was to explore and describe the level of knowledge that pregnant mothers had on mother to child transmission of HIV infection through breast-feeding.

The study was conducted in two clinics in Gaborone, Botswana, (Gaborone West Block 9 and Broadhurst 111). The two clinics selected, amongst others, provided health care services to an estimated population of 18 951 and 15 500 respectively of whom at least half were of childbearing age (Projections 2001 population census).

Problem statement

According to the Annual Clinic Report (2004:3), in 2003, Gaborone West Block 9 Clinic provided HIV counseling to 986 pregnant women and tested 912 for HIV infection. Out of those tested, 241 (26.4%) tested positive for HIV infection. Similarly, Broadhurst 111 Clinic counseled 621 pregnant women and 133 (36.2%) of these tested positive for HIV infection. The figures presented here show a very high HIV prevalence rate in Gaborone.

From the PMTCT program, it was reported that after counseling during the antenatal period, about 6.3% of the HIV positive mothers chose to breast-feed and only 20% of these manage to exclusively breast feed. Botswana is one of the first countries in Africa to provide free formula milk supplies in its hospitals and clinics to HIV positive mothers. At the time of the research it was observed that some mothers, who had tested positive for HIV in the PMTCT program, abandoned the free formula milk supplies in the hospitals and clinics while others preferred to purchase this from the pharmacy or continued to breast feed their babies regardless of the risk. These actions made the researcher to wonder if pregnant women have the appropriate knowledge on HIV transmission through breast-feeding.

Significance of the study

The study was conducted to identify knowledge gaps among mothers with regard to prevention of mother to child transmission of HIV infection through breast-feeding. The study would also provide a basis for specific information on counselling about infant feeding in HIV positive mothers. In the Ministries of Health existing policies would be reviewed and strategies on breast-feeding and supply of free formula milk improved to serve the nation better.

Conceptual Framework

The Health Belief Model (HBM) was used as a conceptual framework to guide the assessment of the pregnant women's understanding of the importance of complying with the recommended method of infant feeding, that of exclusive breast-feeding or exclusive formula replacement feeding methods. According to Brown (1999:1) the HBM is applied in health education when a change in behaviour is advocated for. According to this model people can only change their behaviour if they are aware of their **susceptibility or potential** to contracting a disease and can **perceive the severity** of the disease in terms of its outcomes and impact on their lives. If they are to take action in preventing or curing the disease they have to **weigh the benefits or gains** of complying with recommended actions and consider **barriers** that could make it difficult for them to comply with the recommended actions. The model continues to provide strategies that can be adopted to comply

with recommended actions to achieve desired behaviour. These may include information and training (Glanz, Lewis & Rimer 1997:41-57).

In this study the components of the HBM were used to guide and organise the data collection instruments. The instruments required information about the knowledge of mother to child transmission of HIV through breast-feeding. This included safe infant feeding methods, the risk involved in breast-feeding if the mother is HIV positive and barriers that would prevent the mother from taking the correct action in this regard.

Because of the cultural expectations in relation to breast-feeding, the difficulty to disclose one's HIV status and the stigma and discrimination associated with HIV, these mothers had to weigh the benefits of complying with the recommended infant feeding methods and make a decision to either accept the reaction of their families and communities where they live or not comply with the recommended infant feeding method for fear of being stigmatised and stand the risk of their children contracting HIV infection.

The objectives of the study were to:

- Explore and describe the knowledge that pregnant women had on transmission of HIV infection through breast-feeding.
- Describe the factors that influence the choice of infant feeding method among pregnant women

Research questions

Based on the conceptual framework and the objectives of the study, the research questions were:

- What is the knowledge that women attending antenatal care in Gaborone Block 9 and Broadhurst 111 clinics have on the transmission of HIV through breast-feeding.
- What are the factors that influence the choice of infant feeding among HIV positive pregnant women

Research design and methodology

A non-experimental quantitative,

exploratory and descriptive research design was used to explore the knowledge that pregnant women had on HIV transmission through breast-feeding, in order to understand the behaviour of mothers, who, despite their attending the PMTCT program and were HIV positive, failed to adhere to the advice given on exclusive infant feeding.

Population of the study

The target population of the study consisted of pregnant women in Gaborone, Botswana, attending antenatal care in Gaborone West Block 9 and Broadhurst 111 clinics.

Sample and sampling technique

A non-probability convenience sampling technique was used to select sixty (60) pregnant women of any age who were attending antenatal care at Gaborone West Block 9 and Broadhurst III clinics at the time and were willing to participate in the study. Selection was also regardless of HIV status and registration in the PMTCT program. The only exclusion criterion was mental illness. Pregnant women who did not seem mentally sound at the time of the investigation were not included in the study. The two clinics were purposively selected because of the large number of childbearing women in the catchment area. According to the annual report from the Ministry of Health (MOH 2001-2002:3) Gaborone, the capital city of Botswana, had a total population of 203 852 and 71 317 of these were women in childbearing age.

Data collection methods

A structured interview schedule with open and closed-ended questions was developed and used by the researcher to conduct interviews with the respondents. The interview schedule consisted of a section on the demographic profile and four other sections with questions that depicted the components of the HBM, ie, perceived susceptibility or risk, perceived severity of the disease, benefits and gains of actions and perceived barriers in relation to complying with the recommended method of infant feeding by HIV positive mothers.

A thorough literature review was conducted before the instrument could be constructed. The questions in the interview schedule were closely examined to ensure that they address the

research questions and measure the desired variables. The interview schedule was further pre-tested on five pregnant women attending antenatal clinic in Gaborone West Block 9 clinic. The women who were interviewed in the pre-test were not included in the main study. The instrument was further scrutinized by research experts and nurse practitioners in the area of midwifery and neonatal nursing and HIV and AIDS.

Ethical considerations

Permission to conduct the research was sought and obtained from the Ministry of Health and the Management Structures of the two clinics. To obtain informed consent, the aim of the study and the process of data collection were explained to the respondents and the respondents had a right to choose whether to participate or not. Respondents were also informed that confidentiality and anonymity will be maintained and their names or anything that might indicate their identity will not appear in any of the records that will accrue from the study. Respondents were free to withdraw from the study at any time they so wished without fear of penalty or denial of services to them.

Data analysis

Data was analysed using the SPSS Version 13.0 computer program. Simple tests of association were done to determine relationships between variables, such as the influence of the level of education, age, marital status on the knowledge of transmission of HIV infection through breast-feeding and the appropriate choice of infant feeding method.

Discussion of the results of the study

The purpose of this study was to explore and describe the knowledge pregnant women had about mother to child transmission of HIV infection through breast-feeding.

Biographic data

All respondents were literate, with schooling ranging from grade 6 to tertiary education (standard 4 to university education) and could understand health information on HIV transmission through breast-feeding. Their age ranged between 15-45 years. A large number (58.4%) of the respondents were not married while 23.3% were married and 18.3% were co-

habiting. This biographical data has a great impact on the behaviour of women in terms of complying with the requirement of exclusive infant feeding (either breast or formula milk feeding), understanding the risk of exposure to HIV infection and the consequences thereof. The knowledge aspect was evaluated in terms of the Health Belief Model in relation to perceived susceptibility, severity of the disease, benefits and gains and perceived barriers to preventive action.

Perceived susceptibility to HIV transmission

Mode of HIV transmission

A total of 68% of the respondents understood how HIV is transmitted in adults, while 53.3% also understood the mode of mother-to-child-transmission of HIV during pregnancy, delivery and breast-feeding.

Understanding of HIV transmission through infant feeding methods

Although the majority (75%) of women were aware of the high risk of HIV transmission in HIV positive mothers where mixed feeding was practised, 43.3% indicated exclusive breast-feeding as a potential risk of transmitting HIV infection to the baby. Another finding was that women did not firmly believe that avoiding breast-feeding will protect their children from contracting HIV infection as noted in the 5% who did not rate breast-feeding high in the transmission of HIV infection to children. The response above indicated the women's uncertainty in relation to the role of exclusive breast-feeding as a reliable method to reduce the risk of HIV transmission to the child. Other responses on transmission included broken breast skin (58,3%), cracked nipples (53,3%) and sores on baby's mouth (48,3%).

The study also found that women with a low educational level between grades 6 and 8 scored lower on the knowledge of the mode of HIV transmission from mother to child in general including through breast-feeding when compared to those with a tertiary education. Women with a higher educational level through reading and knowledge of physiology came to understand the increased risk of HIV infection through breast-feeding better than those with lower grades.

Perceived severity of HIV infection

Although HIV/AIDS is perceived as

serious, it was difficult to evaluate perceptions related to the transmission of the HI virus through breast-feeding because only 5% of the respondents did not rate breast-feeding high in the transmission of HIV infection to the child, and 43.3% indicated exclusive breast-feeding as a potential risk of transmitting HIV infection to the baby. The response above demonstrates doubt and misconception which needs to be addressed if mother-to-child-transmission of HIV is to be contained.

Benefits and gains

The main benefits in complying with the recommended action, that of exclusive breast-feeding, would be the reduced risk of transmission of HIV infection from mother to child. Avoidance of breast-feeding as a benefit was mentioned by a large number (63.3%) of women, while 18.3% mentioned using formula feeds. There was also another group (18.4%) who mentioned the use of antiretroviral drugs (ARVs) during pregnancy and administering these to the baby after birth. Seemingly mothers tend to believe that if they are on ARVs they need not comply with the exclusive infant feeding requirement.

Possible factors that influenced the knowledge on transmission of HIV infection through breast-feeding

Apart from levels of education impacting on knowledge, it was noted that half (50%) of all the respondents had no previous experience in childbirth as this was their first pregnancy. Only 56.7% had participated in the PMTCT program and were aware of their HIV status and the risk of HIV transmission through breast-feeding. This finding is also indicative of the low exposure of pregnant women to the PMTCT program, where they would receive the counselling about the choice of mode of feeding of infants if they were to be HIV positive.

Perceived barriers to preventive actions

There were important barriers indicated. These centred on the stigma that a positive HIV status carries. Women indicated that the community associated infant feeding methods with HIV status. From the findings 56.7% stated that the community associated exclusive formula milk feeding with a positive HIV status, so did 30% with exclusive breast-feeding. However 66.7% of the women stated that breast-feeding was associated with HIV negative status.

This perception weighed strongly on whether the woman was going to breast-feed exclusively or not. Women also mentioned that when one is breast-feeding no one pays attention to whether this is exclusive or not, but exclusive formula feeding is always noticeable. For those women who already had children, only 16.7% had previously practised exclusive breast-feeding. For these women previous practices were a major determinant of future practices. The method of feeding used in the previous instance was expected to continue in future. The decision on the choice of a feeding method was also based on the expectations of the spouse, the in-laws and other family members. A total of 25 (41%) stated that their family members would like them to use complementary feeding (mixed feeding), while 21 (35%) stated exclusive breast-feeding. This finding was in line with that presented by Molopolole et al (2005: 7-10) who reported the family as one factor that had an influence on the woman's choice of infant feeding method. For women who had not disclosed their positive HIV status it was difficult to exclusively feed or to receive free formula milk from the facilities as this action might draw attention to their unknown HIV status. This notion is in line with the researcher's observation where she found that mothers gave complementary feeding even though they knew that they were HIV positive or abandoned the free formula milk supplies in the facilities, preferring to purchase these in privacy. In this study only 15% of the total respondents indicated that they plan to exclusively breast-feed.

Reasons for not exclusively breast-feeding were cited as not having enough breast milk (3.3%), breast milk needing to be complemented with a formula feed (22.8%) and baby left at home while working (8.4%)

Conclusion

The results of the study showed that women in Gaborone, Botswana, were much more concerned about their HIV status being known by the community. A large number of women (56.7%) regarded exclusive replacement formula feeding as an indication of their HIV status and were therefore not eager to exclusively feed their babies regardless of their knowledge of their HIV status.

Based on these results it is recommended that the PMTCT programme should

intensify counselling with special emphasis on disclosure. The services provided should be extended to the whole community so that women who bear a positive status for HIV should be supported to adhere to exclusive infant feeding method of their choice. Family members should support the mother's choice of infant feeding method and refrain from making this decision for her.

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