

## THE EXPERIENCES OF HIV-POSITIVE MOTHERS BREASTFEEDING EXCLUSIVELY IN SWAZILAND

Shongwe MC<sup>1,2\*</sup> and NR Mkhonta<sup>1</sup>



**Mduduzi Colani Shongwe**

\*Corresponding author email: [mduyaye@gmail.com](mailto:mduyaye@gmail.com)

<sup>1</sup>Department of General Nursing, Faculty of Health Sciences, University of Swaziland, P.O. Box 369 Mbabane (H100), Swaziland

<sup>2</sup>Department of Nursing Science, Swaziland Christian University, P.O. Box A624 Swazi Plaza, Mbabane (H101), Swaziland.

## ABSTRACT

In Swaziland, 41.1% of pregnant women live with HIV, while only 32% of Swazi mothers (including HIV negative mothers) currently practice exclusive breastfeeding among infants less than six months of age. The rate of exclusive breastfeeding decreases with an increase in the infant's age, as only 17% of infants aged four to five months are reported to be exclusively breastfed. Exclusive breastfeeding is recommended by the ministry of health of Swaziland to reduce postnatal HIV transmission of HIV to the infant, through the prevention of mother-to-child transmission of HIV (PMTCT) strategy. However, little is known about HIV-positive mothers' perspectives and experiences of exclusive breastfeeding in Swaziland. Therefore, a hospital-based explorative, descriptive qualitative study design was employed to describe the experiences of HIV-positive mothers in Swaziland breastfeeding exclusively. Seven exclusive breastfeeding, HIV-positive mothers, aged 21-41 years, married and unemployed, participated during two visits to the study site. Responses to semi-structured and in-depth interviews, through purposive sampling, were analyzed in order to generate themes. Five major themes emerged: (i) benefits of breast milk to the mother and the baby; (ii) social support factors; (iii) the role of healthcare workers in promoting exclusive breastfeeding; (iv) psychological relief from a baby's negative test result; and (v) challenges faced by breastfeeding mothers. Despite pressure from relatives and in-laws for some of the participants, they continued to breastfeed exclusively for the first six months of the baby's life, stating that breastfeeding benefited themselves and their infants. Continuous teaching and counseling offered by nurses during child-welfare clinic visits motivated the mothers to continue breastfeeding exclusively. In view of the challenges expressed by mothers, there is a need to develop and implement feasible interventions to improve support for HIV-positive mothers, in order to scale up exclusive breastfeeding practices in the country. Counseling on exclusive breastfeeding should also include the in-laws as they play a pivotal role in child feeding. This study contributes to the body of knowledge on infant feeding and provides insights to healthcare professionals and stakeholders working with HIV-positive breastfeeding women.

**Key words:** Experiences, Exclusive Breastfeeding, HIV-positive, Swaziland

## INTRODUCTION

The sub-Saharan Africa region has the highest human immunodeficiency virus (HIV) prevalence among women worldwide [1,2], and Swaziland, a small land-locked country between South Africa and Mozambique, has not been spared from the pandemic, with an HIV prevalence of 26% in the 15-49 years age group, placing the country among those with the highest HIV prevalence in the world [1,3]. The HIV prevalence among pregnant women attending antenatal care (ANC) is 41.1%, while exclusive breastfeeding during the first six months is at 32% [1,4]. Exclusive breastfeeding is defined as feeding the infant only breast milk, with no supplemental liquids or solids except for liquid medicine and vitamin/mineral supplements [5]. About 53% of infants less than one month old are receiving only breast milk, while only 17% of infants (including those from HIV negative mothers) aged four to five months are exclusively breastfed, meaning, the rate of exclusive breastfeeding declines with an increase in age of infants [1].

The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) recommend that every infant should be exclusively breastfed for the first six months of life, with breastfeeding continuing for up to two years of age or longer [5]. The promotion of breastfeeding has been ranked as the most cost-effective intervention for child survival, and could prevent about 13-15% of all child deaths in low-income countries [6]. However, in the absence of preventive measures like PMTCT, a large proportion (25-45%) of mother-to-child-transmission (MTCT) of HIV could occur through breast milk when mixed feeding is practiced [7,8].

A majority of children infected with HIV acquired it from their HIV-positive mothers during pregnancy, delivery or breastfeeding [4]. In 2008, between 129 000 (30.0%) and 194 000 (45.1%) of the 430 000 pediatric HIV infections worldwide were attributable to breastfeeding [3], a dilemma since breastfeeding is regarded as one of the most effective child survival interventions [6, 9, 10]. As a result, women are often faced with a dilemma when they have to choose their preferred infant feeding option aiming to achieve the best chances of HIV-free survival [11]. Little is known about HIV-positive mothers' perspectives and experiences of exclusive breastfeeding in Swaziland, hence the aim of the current study to explore and describe experiences of HIV-positive mothers who opt for exclusive breastfeeding in Swaziland.

## METHODS

### Study Design

An explorative, descriptive qualitative design was used to elicit information on the experiences of HIV-positive mothers, practicing exclusive breastfeeding. The study was conducted at a regional referral hospital in southern Swaziland. Swaziland has three regional hospitals and one national referral hospital. This hospital was chosen because it is located in a region of Swaziland that has the lowest median duration (months) of breastfeeding, and the second lowest literacy rate among women aged 15-49 years old [1]. Before implementation, ethical approval was obtained from University of

Swaziland, Faculty of Health Sciences. The Ministry of Health, through the hospital management, granted the researchers permission to collect the data at the hospital.

### **Participant Selection**

Purposive or judgmental sampling was used to select HIV-positive mothers practicing exclusive breastfeeding in January 2010. There were 15 mothers admitted into the ward during data collection, and 10 were eligible to participate in the study. Eligibility criteria included being a HIV-positive mother of an infant who was six months or younger, and be practicing exclusive breastfeeding. Participant recruitment continued until data saturation was reached. Data saturation is sampling to the point at which no new information is obtained and redundancy is achieved [12]. Mothers of infants admitted in a paediatric ward were interviewed in a private and quiet room, where the study was explained in detail. Written consent was sought from those participants who could write, and a verbal consent from those who could not read or write; stating the aims and objectives of the study; and that participation in the study was voluntary. Only one potential participant refused to be interviewed, stating that she was exercising her right not to participate. No names were used; instead, transcripts from the tapes were coded to ensure anonymity.

A semi-structured interview guide, developed by the researchers, was used to probe for more information from participants. The basic question asked to participants was: “Can you share with me your daily experiences as you breastfeed your baby exclusively?” To ensure dependability and confirmability (integrity) of findings, the data collection tool was pretested and modified based on the pretest-study feedback. A tape recorder was used to collect the data in order to obtain detailed and accurate information. Using an audio-tape also allowed the interviewer an opportunity for eye contact which made it easier to observe non-verbal cues.

### **Data Management/Analytic Strategy**

Each of the 20-30 minutes recorded interviews was transferred to a secure, password-protected computer, and could only be accessed by researchers. The recordings were transcribed verbatim and analyzed to develop themes and categories. The interviews were translated from SiSwati to English. The transcripts were read line by line to maintain the logic of participants’ reporting and to derive meaning from it. Similar categories and subcategories were grouped together to form themes.

### **Trustworthiness**

The model of Lincoln and Guba [13] was used to ensure trustworthiness (credibility, transferability, dependability and confirmability) of the study findings. Credibility was ensured through member checking and literature control. Member checking was employed to validate the obtained data through discussion with the participants, where they were given an opportunity to react to their responses when the analyzed data was referred back to the participants for review, validation and commentary, as well as corrections on the themes and categories. Trustworthiness of the findings was demonstrated when the seven mothers who participated in the study recognized and confirmed the reported research findings as accurately representing their lived experiences. Literature review was done after data collection and analysis, in order to

place the findings of the study in the context of existing body of knowledge. This prevented and protected the researchers from developing preconceived ideas about the topic being studied. In the discussion of the findings, relevant studies were used to institute similarities and differences, in order to strengthen trustworthiness of the study. Thick descriptions of the methodology and research findings ensured transferability of the findings to similar settings.

## RESULTS

### Participants' characteristics

A total of seven mothers participated in the in-depth interviews before saturation was reached. Participants were requested to describe their breastfeeding experiences. Median maternal age was 29 years, with a mean infant age of four months. A majority of the participants were from extended households, with five (71.4%) unemployed (Table 1).

### Study findings

Five major themes were extracted from the interviews namely: (i) benefits of breast milk to both the mother and the baby; (ii) social support factors, (iii) the role of health workers in promoting exclusive breastfeeding; (iv) psychological factors and (v) challenges faced by the breastfeeding mothers.

#### Theme 1- Benefits of breastfeeding to the mother and baby

##### Relief from breast problems and contraceptive effect

Participants also mentioned that exclusive breastfeeding delayed menstruation after delivery, thus delaying the next pregnancy. This is what the participants said:

“... as soon as I started breastfeeding on demand...I saw the engorgement subsiding, and it was gone within a few days.” (Participant 7)

“Breastfeeding is OK because it takes time before I return to my monthly periods, so it's good.” [Participant 6]

##### Feelings of satisfaction

Participants also expressed feelings of satisfaction with breastfeeding. They reported that breastfeeding made them feel like they were real women because they were well accepted by society and family members. The participants expressed feelings of pride with breastfeeding. The following quotes describe what some of the mothers stated:

“I feel very great that I am breastfeeding because it makes me feel like a real woman, just like all women because I am breastfeeding...” (Participant 1);

“I am comfortable with it (breastfeeding) and I like it... I am proud to be a breastfeeding mom...” (Participant 5)

### **Breastfeeding brings comfort to the baby**

Participants expressed that breastfeeding brought comfort to the baby. They stated that a breastfeeding baby feels calm on the breast. One participant stated:

“When the baby is crying, my in-laws would shout: “*mufake ingono, umbonge ngesibongo salakhaya!*” (This is loosely translated as: “put the baby on the breast and call him by his surname!”)...and guess what, immediately the baby would be quiet...” (Participant 1);

The breastfeeding mothers reported that breast milk protects the baby from illnesses. The mothers stated that their babies did not suffer from any minor ailments such as flu, diarrhea or allergic reactions, as compared to their previous babies who were not exclusively breastfed, because they were HIV negative by then. Some of the women had this to say:

“...it helps prevent illnesses from attacking the baby...” (Participant 1);  
 “...the baby is practically free from illnesses like diarrhea... it’s not like I heard it being said, but I have experienced it through my current baby...” (Participant 2);  
 “...the baby stays healthy...” (Participant 3)

## **Theme 2 - Social Support**

### **Partner support**

The participants expressed great pleasure in getting support from their partners, especially the two who disclosed their HIV status. The mothers stated that disclosing their status to a partner ‘made things easier’ for them because he would then be the one to tell the other family members about her HIV status. Participants preferred their male partners to disclose on their behalf to the in-laws than doing it themselves, mainly citing that in-laws were difficult to deal with. This is what some of the participants said:

“He is just so supportive, and he is even the one who explained my situation to my in-laws...he just made everything easy for me” (Participant 2);  
 “My husband is quite supportive and he understands my situation... he accepted me when I told him about my status and he also went to test and also accepted that the baby will only be breastfed, he is just OK” (Participant 4)

### **Support from family members**

The two single mothers mostly derived social support from their biological mothers because they felt biological mothers were better understanding than anyone else in the family. However, one of the married participants mentioned her in-laws as a source of social support (psychological, financial and emotional help). This is what she said:

“...my in-laws accepted that I would only breastfeed, and they encouraged me...even when I was taking the ARV prophylaxis from 28 weeks, my mother in-law would encourage me...and would remind me to take them” (Participant 2).

### **Support from neighbours**

Two of the participants in this study obtained support from their neighbours whom they had disclosed their HIV status to. Sharing personal experiences during community gatherings and antenatal clinic visits motivated mothers to continue breastfeeding. One participant stated:

“...one of the things that kept me going (continuing with breastfeeding) was hearing other women in my neighbourhood and at the clinic saying that a baby can just live by breast milk alone...they would tell me that it was working for them” (Participant 2).

However, the mothers also reported that their neighbours pressurized them to introduce other foodstuffs other than breast milk, such as traditional herbs, in order to ‘boost’ the baby’s immune system. One woman stated:

“...my neighbours suggested traditional options to my in-laws to ‘boost’ the baby’s immune system...” (Participant 1).

### **Theme 3- Role of health workers in promoting exclusive breastfeeding**

Participants reported that the continuous teaching and counseling offered by nurses during child-welfare clinic-visits motivated them to continue breastfeeding. For example, one participant stated:

“...the nurses had already counseled me, at least I felt better... Each time I went for child-welfare clinics, the nurses at the clinic would teach me and encourage me to continue breastfeeding...” (Participant 2)

### **Theme 4- Psychological relief of the DNA-PCR (Polymerase Chain Reaction) test result**

Participants stated that they experienced a great sense of psychological relief when the baby’s 6-weeks DNA-PCR test result came negative. They stated that it encouraged them to continue breastfeeding exclusively because they feel the baby is protected. This is evident in excerpts such as:

““...I would suddenly be flooded by the thought of fear of transmission of the virus through the breast milk ...but all became better after he tested negative at six weeks...I was motivated to continue breastfeeding..” (Participant 1);

“My greatest fear was that the baby could get the virus through breast milk and that he might die from the virus, until the sixth week when they told me she tested HIV-negative, I was relieved...” (Participant 4).

## **Theme 5- Challenges to breastfeeding**

### **Disclosure of HIV status to family members**

Participants expressed difficulty with breastfeeding because they did not get enough support and encouragement from either their in-laws or partners, mainly because they had not declared their HIV status to them. They feared discrimination and loss of their marriage if they disclosed. One participant said:

“I did not tell them (in-laws) about my status, not even my husband, because I could not dare so. I know he would have expelled me for good or else kill me; I would then go around with the baby and lose my marriage... my husband is not supportive...” (Participant 3).

### **Pressure to mix-feed**

In this study, the breastfeeding women stated they were sometimes pressurized by their inlaws, family members and some neighbours to mix-feed their babies. For example, some had this to say:

“...my in-laws are not as supportive... they would suggest that I should give the baby thin porridge... because it all looked like I was this bad and evil woman who starves the baby... I am married in an extended family, so there are many sisters-in-law; they are suspicious regarding my HIV status. They talk behind my back and say that I must be HIV positive because I am practising exclusive breastfeeding” (Participant 6);

“...my in-laws want to have a say on how the baby should be fed and brought up... they just tell me that it's ‘their’ baby after all... they always ask me why I do not give the baby some extra meals other than the breast milk... it's not that easy when one is married and stays with the in-laws, since I have to live under their ‘rules’...” (Participant 7).

### **Breast milk not enough**

Participants reported a perceived need to supplement breast milk with complementary feeds, since they sometimes felt that breast milk was not enough. This is evident in excerpts such as:

“...I thought that breast milk alone would not be enough and that the baby might go hungry... I don't think the baby is just satisfied with the breast milk only...” (Participant 2);

“...my husband tells me that I allow his baby to go hungry by feeding her only breast milk...” (Participant 6);

### **Socio-economic factors**

The mothers reported that due to poverty, they often did not have enough food to eat hence they felt breast milk production was affected. One participant said:

“Breastfeeding is sometimes a problem to me because I am coming from a poverty stricken family. I don't have anything to eat, hence there is reduced milk

production... sometimes I feel like there is ‘nothing’ coming out of the breast” (Participant 2).

## DISCUSSION

In this study, most participants were content about exclusive breastfeeding, stating that it helped them heal from breastfeeding problems like breast engorgement. Breast engorgement usually occurs when feeding is delayed or restricted or if the baby is unable to suck efficiently because he/she is not correctly attached to the breast. To relieve breast engorgement, mothers should breastfeed on demand, practice correct attachment and/or express breast milk [14,15]. Participants also reported that exclusive breastfeeding delayed the next pregnancy. This finding is supported by the United States Breast Feeding Committee (USBFC) which states that, if practiced exclusively for the first six months postpartum, breastfeeding is 98% effective in preventing pregnancy, in the absence of menses [16,17]. This contraceptive effect is caused by suppression of the progesterone mechanism, and effects of the prolactin reflex [14].

Breastfeeding is universally endorsed by the world’s health and scientific organizations as the best way of feeding infants [16]. Participants in this study expressed feelings of satisfaction with breastfeeding, stating that it makes them feel like “complete women”. In a Tanzanian study to investigate infant feeding experiences of HIV-positive mothers, a strong cultural position of breastfeeding was found to be the only way to fulfill ideals of being a good mother among respondents [18]. Another qualitative investigation on experiences of breastfeeding and vulnerability among a group of 13 HIV-positive women in South Africa revealed that in hierarchical settings, where major social differentiation is based on biologically defined gender categories, any deviation from societal expectations and norms could lead to recrimination and punishment [19].

In the current study, participants stated that putting the baby on the breast calmed him/her from crying. The crying repertoire of babies distinguishes the baby’s different needs, such as hunger and attention-seeking. Therefore, the mother needs to learn how to comfort her baby, such as rapid rocking to induce sleep and putting the baby on the breast to bring comfort to a hungry child and reduce crying [14].

The findings revealed that mothers who had disclosed their status to their partners often received cooperation and support from him and members of the family. Most participants either wished or preferred their male partners to disclose on their behalf to the in-laws than doing it themselves, mainly citing that in-laws were difficult to deal with. These findings are supported by a qualitative and quantitative cross-sectional survey to identify social determinants of mixed feeding among a subset of 469 HIV-infected women enrolled in a MTCT prevention program in Jos, Nigeria, which revealed that disclosure of HIV status to a partner was significantly associated with partner support of the decision to breastfeed exclusively. In that study, women who got support from a partner breastfed longer than those who lacked partner-support [20].

The findings show that social support increased the ease of exclusive breastfeeding within the studied group, and that the level of social support differed among mothers

from different family structures, and among the married and unmarried. Single mothers derived social support mostly from their biological mothers. On the other hand, participants from extended families were more likely to receive pressure to introduce solid foods from relatives or in-laws than those from nuclear families or those who stayed alone. These findings are supported by a longitudinal, qualitative study to examine the challenges faced by HIV-positive women at different stages of early infant feeding in South Africa, where it was found that women who achieved success in the exclusivity of breastfeeding, were those who had the ability to resist pressure from family members to introduce other fluids, and that having a supportive home environment was important in the sustainability of exclusive breastfeeding [21]. Another study to examine the feasibility and safety of early breastfeeding cessation as a means of reducing breastfeeding-associated HIV transmission in rural Zimbabwe showed that family support and disclosure of HIV status were some of the factors that facilitated early breastfeeding cessation [22].

This study revealed that sharing personal experiences during community gatherings and antenatal clinic visits helps motivate mothers to continue practising exclusive breastfeeding. This finding is supported by results of a randomized control trial of 256 primiparous breastfeeding mothers from two semi-urban community hospitals near Toronto, Canada, to evaluate the effects of peer support on breastfeeding. The researchers found that significantly more mothers in the peer support group continued to breastfeed at three months postpartum than in the control group (81.1% vs 66.9%,  $p = 0.01$ ), and did so exclusively (56.8% vs 40.3%,  $p = 0.01$ ). The authors concluded that peer volunteer support not only increases breastfeeding duration, but also its exclusivity [23].

The mothers in this study also reported that a negative HIV DNA-PCR test result at six-weeks motivated them to continue breastfeeding exclusively because they felt the baby was protected. However, this motivation would be hampered by in-laws who would most often show no support of her choice of exclusive breastfeeding. A qualitative study within a prospective cohort study of 40 women to explore how the HIV epidemic affected infant-feeding experiences of HIV-positive mothers in South Africa, revealed that fear of disclosure of HIV status and stigma weakened the ability of mothers to resist entrenched family and community norms that encourage early introduction of fluids and foods [24]. In Nigeria, a study to identify social determinants of mixed-feeding behaviour among HIV-infected mothers revealed that family pressure to mix-feed was found to be dominated by mothers-in-law [20].

Participants reported that the continuous teaching and counseling offered by nurses during child-welfare clinic-visits motivated them to continue breastfeeding. The study findings show that providing infant feeding counseling on a regular basis is very beneficial in promoting healthy feeding methods, including exclusive breastfeeding. Therefore, continuous teaching of mothers by health workers on how to properly attach the baby on the breast, or how and when to switch breasts, for example, can help mothers maintain adherence to exclusive breast feeding [14,15].

The “insufficiency of breast milk” was among the commonest reasons reported by mothers as a challenge which often incited thoughts of introducing solids earlier than six months. A similar finding was reported in an Australian cohort study of 556 mothers to describe problems experienced by breastfeeding mothers and the impact these problems have on breastfeeding duration. The researchers found that mothers stopped breastfeeding before the baby was two weeks old, because they felt like the baby was unsettled, a behaviour interpreted by the mothers as indicating an insufficient milk supply [25].

Another finding from the current study is that mothers reported that due to poverty, they often did not have enough food to eat hence they felt it negatively affected their milk production. However, early studies dispute this finding [26,27]. Most often, mothers perceive breast milk quantity and quality to be influenced by their nutritional status when, in fact, it is the mother’s frequency of breastfeeding that determines the quantity of breast milk production [28].

## CONCLUSION

The HIV-positive mothers in this study encountered challenges as they breastfed, but these challenges did not deter them from practising exclusive breastfeeding. More discussion and openness about HIV status within households could therefore help to shape community norms on infant feeding, which would create an easier environment for HIV-positive mothers to carry-out exclusive breastfeeding. There is a need for partner involvement in infant feeding counseling in order to facilitate acceptability of exclusive breastfeeding. The in-laws and neighbours can play an important role in supporting the breastfeeding mother. The continuous teaching and counseling offered by nurses during child-welfare clinic visit motivated participants in this study to continue breastfeeding exclusively. As a result, the PMTCT strategy should be integrated into pre-service curricula for health workers, in order to strengthen health worker support to exclusive breastfeeding mothers. The findings may inform infant feeding policy development and counseling guidelines in the country.

**Table 1: Biographic profile of participants**

| PARTICULARS                     | DESCRIPTION                                                                                                                                                                                                                                                     |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Age</b>                      | The age range was 21 to 41 years                                                                                                                                                                                                                                |
| <b>Education level</b>          | Six (85.7%) participants finished primary education while one (14.3%) never attended school                                                                                                                                                                     |
| <b>Family status</b>            | Five (71.4%) participants were married and two (28.6%) were single mothers. Four (57.1%) of the participants came from extended families, mostly affinal kin, including mother-in-law, while one (14.3%) lived alone and one (14.3%) came from a nuclear family |
| <b>Residential place</b>        | Five participants resided in rural areas in the Shiselweni region while two resided around the capital city (urban), Mbabane                                                                                                                                    |
| <b>Income</b>                   | Five participants did not have any source of income because they were unemployed, and for the two that were employed, it ranged from US\$34-US\$92 per month                                                                                                    |
| <b>Disclosure of HIV status</b> | Only two participants had disclosed their HIV status to a partner or close relative, while five had not disclosed their HIV status to anyone                                                                                                                    |

## REFERENCES

1. **CSO.** Central Statistical Office. Swaziland Demographic and Health Survey 2006-2007. Central Statistical Office and Macro International Inc. Mbabane, Swaziland. 2008.
2. **WHO.** World Health Organization. HIV transmission through breast feeding; a review of available evidence - an update from 2001 to 2007. Geneva. 2008.  
[http://whqlibdoc.who.int/publications/2008/9789241596596\\_eng.pdf](http://whqlibdoc.who.int/publications/2008/9789241596596_eng.pdf).  
Accessed on 3<sup>rd</sup> March 2010.
3. **CSO.** Central Statistical Office. Multiple Indicator Cluster Survey, Mbabane, Swaziland, 2011.
4. **MOH.** Ministry of Health. 12th Round of national HIV sero-surveillance in women attending antenatal care (ANC) services at health facilities in Swaziland. Mbabane, Swaziland. 2010; 21.
5. **WHO.** World Health Organization. Guidelines on HIV and infant feeding. Principles and recommendations for infant feeding in the context of HIV and a summary of evidence. Geneva. 2010; 15-28.
6. **Jones G, Steketee RW, Black RE, Bhutta ZA and SS Morris** Bellagio Child Survival Study Group. How many child deaths can we prevent this year? *Lancet*. 2003; **362**: 65–71.
7. **Horvath T, Madi BC, Iuppa IM, Kennedy GE, Rutherford G and JS Read** Interventions for preventing late postnatal mother-to-child transmission of HIV. *Cochrane Database Syst. Rev.* 2009; **21 (1)**: CD006734.
8. **Taha TE** Mother-to-child transmission of HIV-1 in sub-Saharan Africa: Past, present and future challenges. *Life Sci*. 2011; **88 (21-22)**: 917-921.
9. **UNAIDS/WHO.** Joint United Nations Programme on HIV/AIDS/World Health Organization. AIDS epidemic update: special report on HIV/AIDS: December 2006. Geneva: WHO.
10. **De Cock KM, Fowler MG, Mercier E, de Vencenzi I, Saba J, Hoff E, Alnwick DJ, Rogers M and N Shaffer** Prevention of mother-to-child HIV transmission in resource-poor countries: translating research into policy and practice. *JAMA*. 2000; **283**:1175–82.
11. **Magagula N and H Mkhathshwa** Women Themselves Define Access to PMTCT Programmes - A Dilemma. XV International AIDS Conference Bangkok Thailand 2004.  
<http://www.iasociety.org/Default.aspx?pageId=11&abstractId=2167834>  
Accessed on 16 February 2010.

12. **Polit DF and CT Beck** Nursing research: Generating and assessing evidence for nursing practice, 8<sup>th</sup> ed., Lippincott Williams & Wilkins: Philadelphia, 2008.
13. **Lincoln YS and EG Guba** Naturalistic Inquiry. Sage Publications Inc., Newbury Park, London, New Delhi, 1985.
14. **Lowdermilk DL and ES Perry** Maternity and women health care, 9<sup>th</sup> ed., Philadelphia, Mosby, Inc., 2007.
15. **Fraser DM and MA Cooper** Myles Textbook for Midwives, 15<sup>th</sup> ed. London, Churchill Livingstone, 2009.
16. **USBC.** United States Breastfeeding Committee. Benefits of breastfeeding [issue paper]. Raleigh, NC: United States Breastfeeding Committee; 2002.
17. **Labbok MH** Effects of breastfeeding on the mother. *Pediatr Clin North America* 2001; **48**: 143–158.
18. **Leshabari CS, Blystad A and KM Moland** Difficult choices: Infant feeding experiences of HIV-positive mothers in northern Tanzania. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*. 2007; **4 (1)**: 544-555.
19. **Seidel G, Sewpaul V and B Dano** Experiences of breastfeeding and vulnerability among a group of HIV-positive women in Durban, South Africa. *Health Policy Plan*. 2000; **15 (1)**: 24-33.
20. **Maru S, Datong P, Selleng D, Mang E, Inyang B, Ajene A, Guyit R, Charurat M and A Abimiku** Social determinants of mixed feeding behavior among HIV-infected mothers in Jos, Nigeria. *AIDS care*. 2009; **21 (9)**:1114-23.
21. **Doherty T, Chopra M, Nkonki L, Jackson D and L Persson** A Longitudinal Qualitative Study of Infant-Feeding Decision Making and Practices among HIV-Positive Women in South Africa. *J. Nutr*. 2006; **136 (9)**: 2421-2426.
22. **Lunney KM, Jenkins AL, Tavengwa NV, Majo F, Chidhanguro D, Iliff P, Strickland GT, Piwoz E, Iannotti L and JH Humphrey** HIV-Positive Poor Women May Stop Breast-feeding Early to Protect Their Infants from HIV Infection although Available Replacement Diets Are Grossly Inadequate. *J. Nutr*. 2008; **138**: 351–357, 2008.
23. **Dennis C, Hodnett E, Gallop R and B Chalmers** The effect of peer support on breast-feeding duration among primiparous women: a randomized controlled trial. *CMAJ*, 2002; **166 (1)**: 21-28.
24. **Doherty T, Chopra M, Nkonki L, Jackson D and T Greiner** Effect of the HIV epidemic on infant feeding in South Africa: "When they see me coming with the tins they laugh at me". *WHO Bulletin*. 2006; **84 (2)**: 90-96. ISSN 0042-9686.

25. **Colin WB and JA Scott** Breastfeeding: reasons for starting, reasons for stopping and problems along the way. *Breastfeeding Review: Professional Publication of the Nursing Mothers' Association of Australia*. 2002; **10 (2)**:13-19.
26. **Dusdieker LB, Hemingway DL and PJ Stumbo** Is milk production impaired by dieting during lactation? *Am J Clin Nutr*. 1994; **59 (4)**: 833-40.
27. **Morse JM, Ewing G, Gamble D and P Donahue** The effect of maternal fluid intake on breast milk supply: a pilot study. *Can J Public Health*. 1992; **83(3)**: 213-6.
28. **Kibel M, Salooje H and T Westhood** *Child Health for All*, 4th ed., Oxford University Press, South Africa, 2007.