

# Knowledge and Attitudes of HIV-Positive Women regarding Exclusive Breastfeeding

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## Abstract

Prevention of mother-to-child transmission of HIV is one of the primary strategies towards elimination of the HIV pandemic. Part of the mother-to-child transmission strategy is exclusive breastfeeding, which is fundamental for the survival of HIV-exposed infants, as breast milk remains the vital source of essential nutrients for infant growth. Unfortunately, exclusive breastfeeding comes with the risk of mother-to-child transmission of HIV if not practised correctly. Moreover, there were several amendments of the infants feeding guidelines before the study was initiated, which brought about a need to ascertain the need for advocacy and health education. To assess the current knowledge and attitudes of HIV-positive women regarding exclusive breastfeeding in the Mopani district (greater Letaba sub-district), South Africa, a quantitative, descriptive study was conducted. Probability sampling was used to sample the sites and non-probability sampling was used to sample the respondents in this study. A self-developed structured questionnaire was used to collect data from 123 respondents. The study concluded that HIV-positive women have good knowledge of and positive attitudes to exclusive breastfeeding. However, knowledge of HIV transmission during breastfeeding is still a challenge. Therefore, continuous evidence-based strategic interventions to increase the knowledge of HIV-positive women are still important in the fight against the pandemic.

**Keywords:** knowledge; attitudes; HIV-positive; exclusive breastfeeding



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## **Introduction and Background**

Since the start of the HIV/AIDS epidemic, more than 78 million people have been infected with HIV, while 35 million people are reported to have died of HIV-related conditions (UNAIDS Report 2016). As from 2010, there has been a 50 per cent decrease in the number of new HIV infections among children. However, HIV remains the leading cause of death among women of childbearing age (UNAIDS Report 2016). In 2013, it was reported that 54 per cent of women in the middle- and low-income countries did not undergo HIV testing, which is fundamental to eliminate mother-to-child transmission (MTCT) of HIV and to provide access to HIV healthcare services. HIV-related deaths were reduced by 72 per cent in infants that started antiretroviral therapy (ART) within 12 weeks of age (UNAIDS Report 2014a). The rate of HIV transmission from mother to child if not on ART ranged between 30 per cent and 45 per cent, depending on the duration of breastfeeding. The risk of HIV transmission to the infants is very high during the breastfeeding period; a comprehensive understanding of this period is imperative for the mothers to comply with the preventive measures (Chagomerana et al. 2018; Katirayi et al. 2016; UNAIDS Report 2014b).

According to the World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF), the mortality of more than 800 000 children under the age of five can be prevented. This can be achieved through the following strategies: initiating breastfeeding within the first hour after birth, exclusive breastfeeding (EBF) for six months (Suryavanshi et al. 2018), and continuing to give breast milk for two years or longer (UNAIDS Report 2014b). EBF meets the criteria of infant feeding, namely safety, nutritionally adequate, and age-relevant. Complementary feeding should only be introduced after six months of the infant's life (Holla-Bhar et al. 2015). Unfortunately, breastfeeding remains low globally, despite the overwhelming evidence supporting the significance of breastfeeding in reducing child mortality, morbidity, malnutrition and the risk of developing non-communicable diseases in adult life (Mwau et al. 2017). Holla-Bhar et al. (2015) have observed that the generation of money from formula milk has escalated to double in profit in 2013 and that it is still escalating, with almost half of these sales generated in developing countries like South Africa. Infant formula is vigorously marketed and its production has become a very profitable industry. The HIV pandemic and attractive media advertisements have influenced women to use formula feeding in their attempt to eliminate the risk of MTCT of HIV (Kent 2015).

Insufficient communication of the changes in breastfeeding guidelines leads to shortcomings in the promotion of sound infant feeding practices (Shayo et al. 2014). Wu, Scherpbier, and Van Velthoven (2014) conducted a study with breastfeeding mothers, which confirmed poor infant feeding knowledge and practices. Katepa-Bwalya et al. (2015) maintain that infant and young child feeding policies and the recommendations of the WHO and UNICEF have not been implemented effectively.

Often women have negative perceptions of breastfeeding influenced by their socio-cultural factors and educational level (Takah et al. 2018). Breastfeeding practices vary in terms of when it is the appropriate time to start breastfeeding, the duration of EBF and when to start complementary feeding (Katepa-Bwalya et al. 2015). Katepa-Bwalya et al. (2015) found that only half of the women who participated in their study had some knowledge about breastfeeding. In a study conducted by Teka, Assefar, and Hailelassie (2015), the findings revealed that 77 per cent of women indicated that the advantage of breastfeeding is for the prevention of pregnancy, which is true, but breastfeeding has advantages other than child spacing. Although health education programmes exist, knowledge regarding the benefits of EBF is still lacking (Mwau et al. 2017). Mekuria and Edris (2015) found that the majority (90.1%) of their study participants had received breastfeeding information, yet 61.7 per cent of the women did not have enough knowledge of breastfeeding. However, more than half (57.4%) of the women knew that the first milk (colostrum) should be given to infants. The results from these three studies all recommend that knowledge levels around breastfeeding are a significant determinant of the breastfeeding behaviour.

The dissemination of recommendations for infant and young child feeding that assist in strengthening the knowledge of women on breastfeeding practices was identified as a fundamental step in dealing with the challenge of encouraging EBF (UNAIDS Report 2014b). In South Africa, the government recommended EBF by HIV-positive women for six months and the introduction of complementary feeding after six months (Department of Health 2013). The HIV-negative women are also encouraged to exclusively breastfeed for six months and continue breastfeeding for up to two years with complementary feeds initiated from six months. HIV-positive women whose infants are HIV positive are encouraged to breastfeed for two years and longer because the HIV-positive child will benefit more from the breast milk which increases his/her survival chances. The policy was designed to promote and protect best feeding practices that will ensure the optimal growth of the child in the context of HIV. Almost every mother can breastfeed her infant, however, there are certain conditions such as sepsis and the herpes simplex virus type 1 that can affect the mother and prevent her from breastfeeding (Department of Health 2013).

The Infant and Young Child Feeding policy of South Africa indicates that poor infant and young child feeding practices, such as no breastfeeding and inadequate complementary feeding, may result in poor child development and the risk of acquiring infections (Department of Health 2013). The rate of breastfeeding in South Africa, as in many other countries, is affected by the perceptions of insufficient breast milk, accompanied by fears of HIV transmission, marketing of breast milk substitutes, cultural and social practices, and misinformation (Department of Health 2013). Furthermore, factors that hinder EBF are perceptions that a child needs water or gripe water between feedings because of a concern that breast milk alone is not enough (Goosen, McLachlan, and Schubl 2014). Swarts, Kruger, and Dolman (2010) conducted a study which revealed that a high number of HIV-positive women indicated that they

will not breastfeed because they were afraid to infect their babies with HIV. Although good mother and child programmes and guidelines are in place, mothers continue to experience a variety of challenges including a lack of knowledge. The mothers are aware of MTCT of HIV, but lack knowledge on PMTCT (Chagomerana et al. 2018). Therefore, it is necessary to assess the current knowledge and attitudes of HIV-positive women regarding EBF in the Mopani district (greater Letaba sub-district), South Africa.

## **Definitions of Concepts**

In order to clarify the concepts used in this study, the following definitions are provided:

- Attitude is the predisposition or tendency to respond positively or negatively towards a certain idea, object, person or situation (*Business Dictionary* 2015, s.v. “attitude”). Attitude in this study refers to either positive or negative reactions or responses of HIV-positive women at the greater Letaba sub-district on EBF.
- Exclusive breastfeeding is feeding an infant breast milk only, with no supplementary feeding such as water, juice, animal milk or solid foods for the first six months of life, except vitamins, minerals and medication prescribed by a doctor or healthcare worker when medically indicated (Department of Health 2013). In this study, EBF refers to feeding breast milk only for six months without adding anything, unless medically indicated; i.e. no formula, water, syrups or traditional medicines.
- Knowledge is the expertise and skills acquired by a person through experience or education in the theoretical or practical understanding of a subject, in this case the knowledge of EBF ([www.knowmanint.com](http://www.knowmanint.com)). Knowledge in this study is defined as the information or understanding of education received by HIV-positive women in the greater Letaba sub-district on EBF.

(Thomson et al. 2018).

## **Purpose of the Study**

The purpose of the study was to assess the knowledge and attitudes of HIV-positive women regarding EBF in the Mopani District (in the Greater Letaba sub-district, Limpopo), South Africa.

## **Methods**

A quantitative, descriptive design was adopted to describe the knowledge and attitudes of HIV-positive women regarding EBF. All HIV-positive women of the age of 18 years and above who had babies six months old or younger, and who attended an ART clinic, were eligible for inclusion. Multistage cluster sampling, as a method of probability sampling, was used to select the sites for inclusion in the study. Of the 21 ART clinics (the broad cluster of clinics) in the greater Letaba sub-district, three clinics were selected

for inclusion. Multistage cluster sampling involves the selection of broad clusters or groups (Bautista-Arredondo et al. 2018). The three sampled clinics also had a high number of pregnant women on ART. Non-probability convenience sampling was used to select the respondents. To determine the sample size, 10 per cent of the population of each selected cluster or clinic was utilised, which amounted to the target of 160 respondents. Every client who was at the ART clinic on the day of the sampling who met the inclusion criteria was included, until 123 respondents were reached over a period of five months. A self-developed, structured questionnaire was utilised to collect the data (Muditambi 2015).

The data were analysed using SPSS version 21.0. Statistical methods were used to arrange, understand and communicate the numeric information. Frequency distributions were employed to interpret the number of responses belonging to the categories of interest. To communicate the overall summary or average scores in a distribution, the researcher used measures of central tendency. The median, as the point in the distribution above and below which 50 per cent of all cases fall, was used most frequently, because it is a more robust value of central tendency and can also be used to describe ordinal, interval and ratio data.

The knowledge questions were subdivided into four specified categories, namely: (i) knowledge of HIV/AIDS; (ii) knowledge of HIV transmission in the context of breastfeeding; (iii) knowledge of infant feeding in the context of HIV transmission; and (iv) knowledge of the advantages and disadvantages of feeding options in the context of HIV. The overall score in each specified category was calculated using the formula: Overall knowledge score = Sum of knowledge scores on questions in the specified category. To describe the attitude questions, a Likert-type standardised scale was used to calculate scores based on the following formula: Overall attitude score = Total score on all attitude questions, ranging from 11 to 55. The total scores were then categorised into ordinal classes whereby a total score between 11 and 21 was considered a “Very negative attitude”, a score between 22 and 32 a “Somewhat negative attitude”, 33 “Neutral”, between 34 and 44 a “Somewhat positive attitude”, and between 45 and 55 a “Very positive attitude”. Individual attitude items had scores ranging from 1 to 5.

### **Validity and Reliability**

The truth value of the study was maintained through validity and reliability. Validity of the data collection instrument was upheld by a pretest with 18 respondents to ascertain if the intended variable knowledge and attitudes were measured. Firm application of quantitative measures and an extensive literature review ensured internal validity. The focus was also on the meaning of the instrument, what it is measuring, and how and why it works in this manner. The purpose and objectives of the study guided the inclusion of items. Experts in the field as well as in research and statistics were consulted. Reliability tests for the instrument were only done on the attitude-related items because the knowledge items were achievement tests that are researcher-made tests. The knowledge items were designed specifically in the context of the research

topic and used the researchers' conceptual knowledge based on a thorough literature review on the topic. To test the reliability of the Likert scale used for the attitude items, the Cronbach's alpha measure was used. For this study, the Cronbach's alpha value was 0.645 for the 12 relevant items. The Cronbach's alpha value of 0.645 indicates reliability of the tested items. Salkind (2012) states that a value of +1.00 indicates perfect reliability, while a value of 0.00 or less indicates no reliability.

### **Ethical Considerations**

Ethical clearance for the study was obtained from the Health Studies Higher Degrees Committee (HSHDC), College of Human Sciences, at the University of South Africa, where the study was registered (HSHDC/257/2013). A letter, the research proposal, the ethics clearance certificate and a consent form were submitted to the Limpopo Provincial Department of Health's Research Ethics Committee to request permission to conduct the study. The ethics clearance certificate from the institution and a letter of approval from the Limpopo Provincial Department of Health's Research Ethics Committee (Letter Reference 4/2/2 dated 03/03/2014) were in turn submitted to the Mopani District Manager and to the Primary Healthcare Manager to request institutional permission to conduct the study. The information obtained from the sampled clinics was kept confidential and no information was used to exploit a particular institution. The names of the respondents were not included in the data collection tools, so that no information can be linked to the respondents. The respondents' autonomy was respected by giving them an informed consent form to sign as an indication of their approval to participate in the study. The decision of women who refused to be part of the study was respected. A total of 123 respondents participated in the study. All other relevant ethics principles were observed.

### **Results**

The researcher anticipated reaching a target of 160 respondents. However, 123 (100%, N = 123) responded to the questionnaire. The researcher could not reach the target because some women declined to participate in the research feeling that their time will be wasted, and others did not meet the inclusion criteria. The reported results covered socio-demographic characteristics of the sample, knowledge of HIV-positive women regarding EBF, demographic characteristics and overall knowledge score, and overall attitude to EBF.

#### **Socio-demographic Characteristics of the Sample**

Table 1 describes the socio-demographic characteristics of the respondents who formed part of the analysis. Most respondents were between the ages of 32 and 36 (27%, n = 33), and 73 per cent (n = 90) of the respondents were single. The population of the greater Letaba district is a young population (Mopani District Municipality 2017). The majority of the respondents (83%, n = 102) had a secondary education which is an indication that most of the respondents were able to read and write and could therefore complete the questionnaire with good understanding. More than half of the respondents

(51%, n = 63) depended on their family members for income. From the Mopani Annual Report (Mopani District Municipality 2017) it is clear that poverty still affects most people in the greater Letaba district where nearly 20 per cent of inhabitants depend on grants and other family members.

**Table 1:** Demographic characteristics

<i>Age distribution</i>		<i>Marital status</i>		<i>Educational status</i>		<i>Source of income</i>	
<i>Age in years</i>	<i>(N = 123)</i> %	<i>Status</i>	<i>(N = 123)</i> %	<i>Level</i>	<i>(N = 123)</i> %	<i>Source</i>	<i>(N = 123)</i> %
17–21	14	Single	73	Primary school	4	Employed	15
22–26	19	Civil	5	Secondary school	83	Grant	2
27–31	24	Traditional	20	National certificate	9	Husband	12
32–36	27	Cohabiting	2	Diploma	2	Family members	51
37 >	16	–	–	Degree	1	No income	20
		–	–	Non-response	1	-	–
Total %	100		100		100		100

### **Knowledge of HIV-positive Women regarding Exclusive Breastfeeding**

A total of 18 items were used to determine the knowledge of HIV-positive women on EBF (see Table 2). Using the 50 per cent mark as the standard, the results show that the average knowledge of HIV and AIDS was around 60 per cent, which is acceptable. Knowledge of HIV transmission in the context of breastfeeding was at a similar level, with a median score of 60 per cent. Knowledge of infant feeding in the context of HIV transmission was acceptable, with a median percentage score of 75 per cent. Knowledge of HIV-positive women regarding advantages and disadvantages of infant feeding options in the context of HIV transmission had a much higher median percentage score of 86 per cent. Overall, the knowledge of HIV-positive women regarding EBF in the context of HIV had a median percentage score of 67 per cent, which is acceptable. Ngoma, Roos, and Siziya (2015) concluded that women had insufficient knowledge of even the basic meaning of HIV and AIDS. Although knowledge of breastfeeding is important, the knowledge of basic information regarding HIV and AIDS is fundamental to understand the importance of minimising risks of HIV transmission.

**Table 2:** Distribution of knowledge of HIV-positive women regarding exclusive breastfeeding

<i>Sub-categories</i>	<i>N</i>	<i>Median score (%)</i>
Knowledge of HIV-positive women regarding HIV and AIDS	123	60
Knowledge of HIV transmission in the context of breastfeeding	123	60
Knowledge of HIV-positive women regarding infant feeding in the context of HIV transmission	123	75
Knowledge of HIV-positive women regarding advantages and disadvantages of infant feeding options in the context of HIV transmission	123	86

### Demographic Characteristics and Overall Knowledge Score

A relationship between marital status, educational status, source of income and overall knowledge scores was drawn. The analysis of the knowledge percentage scores stratified by demographic characteristics (see Table 3) revealed that those women who are in civil marriages, with a national certificate of education, and who depend on their husbands for a source of income had a better knowledge percentage score than others. This indicates that educational status and a reliable source of income (or lack thereof) are directly associated with knowledge of HIV and feeding options (or lack thereof) (Muditambi 2015).

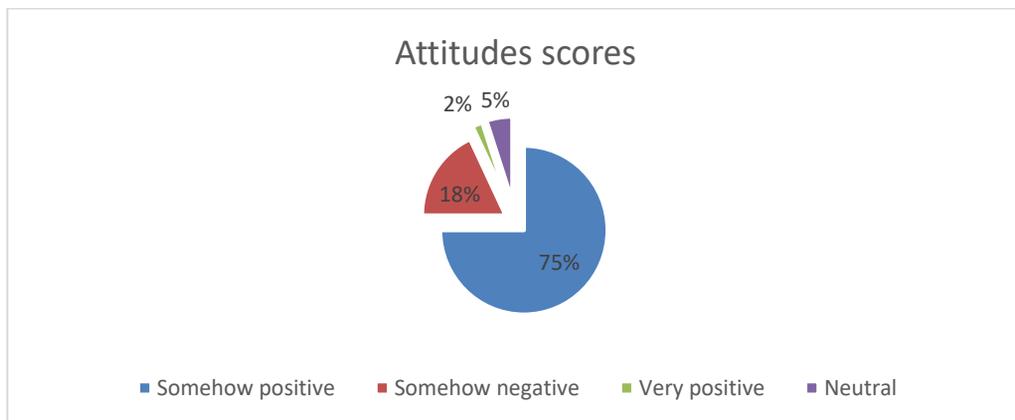
**Table 3:** Demographic characteristics and overall knowledge score

<i>Marital status</i>	<i>N</i>	<i>Median %</i>	<i>Educational status</i>	<i>N</i>	<i>Median %</i>	<i>Source of income</i>	<i>N</i>	<i>Median %</i>
Single	90	13.3	No education	0		Employed	18	61.1
Divorced	0		Primary school	5	50	Grant	3	27.2
Civil marriage	7	53.8	Secondary school	102	100	Husband	15	86.7
Traditional marriage	24	50%	National certificate	12	14.2	Community support	0	
Cohabiting	2	16.7%	Diploma	2	6.7	Family member	63	19
Widowed	0		Degree	1	1%	No income	24	50

### Overall Attitude to Exclusive Breastfeeding

The analysis of women’s attitudes to EBF (see Figure 1) indicates that 75 per cent of the women had a somewhat positive attitude, 2 per cent were very positive, 18 per cent had a somewhat negative attitude, and 5 per cent were neutral. This shows a mostly

positive attitude to EBF. None of the respondents had a very negative attitude to EBF. A somewhat positive attitude was most evident in the 32 to 36 years age group (24 out of 93, or 25.8%). Only 2 of the respondents showed a very positive attitude and they came from the group of women of 37 years and older (2%). The results further suggest that most marriage categories have somewhat positive attitudes, particularly the traditionally married category, with the highest percentage of 79.2 per cent (n = 19).



**Figure 1:** Overall attitude to exclusive breastfeeding

## Discussion

Among the factors that have an influence on EBF practices are knowledge about and attitudes to EBF. The HIV-positive women in this study had an acceptable knowledge of HIV/AIDS. This finding is similar to that of the study conducted by Haffejee, Ports, and Mosavel (2016), in which South African HIV-positive women (73%) were found to have enough information on HIV/AIDS. These findings might be attributable to the repeated educational health messages received by HIV-positive women at ART sites monthly. Most significantly, HIV-positive women should know how HIV is transmitted from mother to child, so that they can prevent HIV transmission. In this study, the women had knowledge of HIV transmission in the context of breastfeeding. The study conducted by Haffejee, Ports, and Mosavel (2016) showed similar findings, with the authors concluding that the majority of women (91%) had knowledge of MTCT of HIV.

The current study was conducted with due consideration of the fact that infant feeding is affected by cultural beliefs and traditional practices. Nevertheless, the findings showed that the HIV-positive women were knowledgeable about infant feeding options. These findings were congruent with the study conducted by Wakwoya, Zewudie, and Gebresilasie (2016), which concluded that 91.9 per cent of the HIV-positive women in an Ethiopian hospital had adequate knowledge of infant feeding options.

The results indicate that breastfeeding is generally acceptable, but that it is difficult to maintain EBF for six months owing to some of the self-reported challenges. HIV-

positive women reported that they have a fear of infecting their infants with HIV through breastfeeding. This fear was also expressed by HIV-positive women in the study conducted by Haffejee, Ports, and Mosavel (2016), where women indicated that an HIV-positive woman should not even conceive, because the risk of transmitting HIV to the child is high. This fear can contribute to a reduced intention of undertaking EBF on the part of HIV-positive women.

The study shows that married or cohabiting women have more knowledge of EBF than single women. These findings are supported by the study conducted by Hashim et al. (2017), who also concluded that single women have less knowledge about EBF, when compared to married or cohabiting women. Health education programmes need to specifically focus on the single mothers who might not have the support of an extended family and in-laws (Akinremi and Folake 2015).

Women with a national certificate had more knowledge about EBF than those with secondary or primary education. This concurred with the findings of Haqhiqi and Varzande (2016), who concluded that women with a high educational status are more knowledgeable about EBF. The general educational status of women improves the knowledge and practices of breastfeeding, irrespective of cultural practices.

In this study, high levels of knowledge on EBF in the context of HIV were associated with women who do not have a direct source of income. This agrees with the study conducted in Nigeria by Aishat et al. (2015, 77), in which it was concluded that women with a low income had a better understanding of EBF. Women who depend on their husbands for a source of income are unemployed. The findings suggest that unemployed mothers have time to attend the clinics where they get the information on breastfeeding. Moreover, for unemployed women breast milk remains the primary source of infant feeding; hence they had better information on EBF. Married women were less knowledgeable on breastfeeding which ultimately affects the practice of EBF. Employed women have less time to breastfeed and attend the clinic where they get the health education information. Zhang et al. (2015) conducted a study that revealed that 16 per cent of women decided to introduce formula feeding because they had to go back to work. Although women cannot necessarily afford to buy formula feeding, modernity and urbanisation promote this practice and reduce the interest to know more about the value of breastfeeding. Health education strategies need to focus on working mothers to assist them to cope with work and breastfeeding an infant.

Knowledge can influence attitude, so there is a need to strengthen the knowledge of HIV-positive women about HIV transmission during pregnancy, delivery, and breastfeeding (Mirkuzie 2018; Wanyenze et al. 2018). The attitude of women to EBF in this study was found to be positive, just as Tadele et al. (2016) indicated in their study where 89.5 per cent of women said EBF is better than formula feeding. Knowledge of the advantages and disadvantages of feeding options significantly predicts the attitude at a five per cent level of significance ( $p$ -value = 0.001) (Muditambi 2015). Married

women were found to be more knowledgeable than single women. Similar findings were reported by Akinremi and Folake (2015) who found that 70 per cent of married respondents had adequate knowledge of EBF while single respondents had inadequate knowledge. To influence positive attitudes among women to EBF, women need to be educated on EBF, irrespective of educational, marital and working status. Older women were found to be the ones with a very positive attitude to EBF. This was also confirmed by the study conducted by Vijayalakshmi, Susheela, and Mythili (2016), who also concluded that older women have a positive attitude to EBF.

The knowledge of the advantages and disadvantages of feeding options had a median score of 86 per cent. From these findings, the researchers conclude that breastfeeding is generally acceptable but is difficult to maintain for six months. These findings contribute to the prevalence of mixed-feed feeding practices, which in turn increases the risk of HIV transmission. The findings are congruent with those of Mwau et al. (2017), which confirm that thousands of infants are still exposed to sub-optimal practices of mixed breastfeeding. Using the multiple discriminate technique, it was found that knowledge about the advantages and disadvantages of various feeding options significantly predicts the attitude category at the five per cent level of significance ( $p$ -value = 0.001). A study by Agunbiade and Ogunleye (2012) concluded that some of the challenges that contribute to low breastfeeding rates were infants who continue to be hungry after breastfeeding, mothers-in-law and neighbours pressurising the women to wean their babies, babies not gaining enough weight, and that breastfeeding is tiring.

In describing the overall attitudes of HIV-positive women to EBF, a Likert scale was used to measure relative attitude scores assigned to a set of attitude-defining items from the study. The scores ranged from 11 to 55. The findings showed that the overall attitude median score was 39.9. The conclusion is that the attitudes were somewhat positive. These results are congruent with the study conducted by Modjo and Amanta (2015) who concluded that women had a general positive attitude to EBF. The study also concludes that people who are knowledgeable on EBF were the ones with positive attitudes to EBF, thereby suggesting that knowledge and attitude are closely related. Knowledge of the advantages and disadvantages of feeding options significantly predicts the attitude at a five per cent level of significance ( $p$ -value = 0.001).

To influence positive attitudes among women to EBF, women need be educated on EBF. The women had a negative attitude to advising other HIV-positive women to practise EBF. They would rather want to be supplied with formula milk. These results came from a fear of infecting their infants through breastfeeding and advice from other women who negatively influence them not to breastfeed. Knowledge influences attitude, so there is a need to strengthen the knowledge of HIV-positive women on HIV transmission during breastfeeding. The women were not influenced to formula feed by a free supply of formula from the government, which is an indication that the infant feeding option is a decision taken by the mother. The findings are congruent with the study conducted by Kuzma (2013). The knowledge of and attitude to mixed feeding are

acceptable but interventions are required to ensure implementation is needed. Although the women felt that breastfeeding is not a waste of time, they also felt that formula feeding is more convenient than breastfeeding.

## **Limitations**

The study did not reach the number of respondents it aimed for, because some of the women did not want to participate, or did not want to wait for the researcher while he was attending to other respondents. However, the sample size of 123 was representative. The use of structured questionnaires was limiting to the respondents who wished to elaborate on certain items, especially items related to attitude. The data collection was done in clinics where the respondents were collecting ART. The respondents might have been afraid that the information provided in the questionnaires could be used against them when they came to collect their ART. However, the researcher maintained highly ethical conduct to minimise or prevent such fear.

## **Conclusion**

The study showed that HIV-positive women had an acceptable knowledge of and positive attitude to EBF. However, there are certain areas which require further interventions. Health education of HIV-positive women on MTCT and the prevention of HIV through breastfeeding are crucial. Strategic interventions need to focus more on HIV-positive women who are single, have no source of income, and are less educated, to support them to exclusively breastfeed. There is a need to empower young HIV-positive women with knowledge about breastfeeding, to possibly influence their attitude positively. Breastfeeding policies in the workplace need to be reinforced to empower working mothers. To maintain the positive attitude of women to EBF, their knowledge of the advantages and disadvantages of various infant feeding options need to be strengthened. It is significant that despite the acceptable levels of knowledge and positive attitudes of women to breastfeeding, HIV-positive women still find EBF a challenge.

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