

Factors influencing the infant feeding choices of HIV-positive mothers at a level two hospital in Cape Town

By Jenna J Morgan and June D Jeggels

Abstract

Background/Aims: Following the decision by the South African Department of Health in 2012 to withdraw the provision of free infant formula milk to HIV-exposed infants, policy makers have grappled with the need to develop guidelines to help HIV-positive mothers decide whether they should breastfeed their babies. The objectives of this study were to assess the infant feeding choices of HIV-positive mothers and to determine factors influencing their behaviours prior to the process of withdrawing the provision of free infant formula milk.

Methods: A quantitative approach was employed in this study, including the use of a survey to collect descriptive data on a consecutive sample ($n=100$). Data analysis was carried out using the IBM SPSS Version 20.

Results: More than half (54%) of the participants indicated that their infants were exclusively breastfed, and 46% of the participants reported exclusively formula feeding. There was no statistical difference between both groups with regards to: race; employment status; obstetric history; HIV disclosure status; knowledge and awareness of infant feeding recommendations or policies regarding breastfeeding promotion.

Conclusions: The findings of this study show that health-care workers are the main providers of counselling on infant feeding. Inconsistent messages from health professionals, health facility practices and government policies were also observed.

Keywords: HIV, Infant feeding, Breastfeeding, Formula, South Africa

In 2009, it was estimated that approximately 130 000 children under the age of 15 years were newly infected with HIV (World Health Organization (WHO) and Joint United Nations Programme on HIV/AIDS (UNAIDS), 2010). Vertical transmission, where an HIV-positive mother transmits the infection to her baby, accounted for the majority of these infections. Postnatal mother-to-child transmission of HIV through breast milk occurred in 5–20% of cases if no preventive measures were in place (WHO, 2008).

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The 2007 South African Department of Health (SADoH) infant feeding recommendations stated that exclusive formula feeding and exclusive breastfeeding were equally safe options for infants born to HIV-positive mothers. These guidelines were based on WHO (2007) guidance, and also stated that infant feeding decisions should be based on the AFASS criteria (acceptable, feasible, affordable, sustainable and safe). In 2010, findings from the WHO-funded Kesho Bora study discovered that providing HIV-positive mothers with a combination of antiretroviral (ARV) drugs during pregnancy, birth and when breastfeeding reduced maternal–infant HIV infections by 43% at 1 year of age and lowered viral transmissions during the breastfeeding period by 54% compared with the previous recommended prevention of mother-to-child transmission (PMTCT) regimen, which stopped ARV treatment at the time of delivery (WHO, 2010). This discovery resulted in WHO revising its PMTCT programme guidelines. Despite the publication of these revised guidelines, the South African National AIDS Council (SANAC) (2010) and SADoH continued to recommend exclusive formula feeding and offered free infant formula as an acceptable option to exclusive breastfeeding within the national PMTCT programme.

Recent studies have identified several determinants of infant feeding choices. Ladzani et al (2011) carried out a study in the Gert Sibande District Municipality, South Africa, on infant feeding practices and factors affecting feeding decisions, and identified maternal knowledge gaps as contributory factors that result in undesirable practices such as the adoption of mixed feeding (i.e. a combination of breastfeeding and bottle feeding). Recommendations included:

- Strengthening maternal education on infant feeding
- Aligning local health facility practices with national policies that promote breastfeeding
- Intensifying health worker training on infant feeding, thereby ensuring uniform messaging
- Developing nutrition education strategies that convey the dangers associated with mixed feeding.

A study carried out in Zambia further documented that the main determinants of infant feeding choices were (Chisenga et al, 2011):

- Formula costs
- Health workers' influence
- Influence of relatives
- Stigma associated with HIV
- Difficulty with using an exclusive feeding mode.

By 2011, South African policy makers were advancing stronger messages on breastfeeding. During the National Breastfeeding Consultative Meeting in August 2011, the *Tshwane Declaration of Support for Breastfeeding in South Africa* was promulgated (Minister of Health et al, 2011). This declaration noted the low rates of exclusive breastfeeding in South Africa, identified the practice of promoting and marketing free formula to HIV-positive mothers as undermining breastfeeding recommendations, and articulated concerns about the association of formula feeding with diarrhoea and death. Resolutions regarding the protection and support of exclusive breastfeeding in all relevant policies, legislation, strategies and protocols were subsequently advanced, with full adoption of the revised WHO infant feeding guidelines for HIV-positive mothers. A variety of specific action steps designed to strengthen breastfeeding practices in South Africa were also incorporated into this declaration.

During the time in which this study was undertaken, national withdrawal of the free formula programme had not yet occurred; therefore, the aim of this research was to collect baseline information prior to the cessation of free infant formula for HIV-positive mothers. The secondary objectives of this study were to: i) assess the infant-feeding choices of HIV-positive mothers, and ii) determine factors influencing their behaviours.

Methods

This study adopted a quantitative approach, as the research focused on small numbers of concepts, and was structured as a non-experimental descriptive study design as this approach allows for the collection of data as a phenomenon naturally occurs (Brink et al, 2006). The descriptive study design allowed the researcher to describe specified factors influencing the HIV-positive mother's decision about infant feeding within the context of SANAC (2010) guidelines for PMTCT.

A survey design allows the researcher to measure many variables (Neuman, 2014). The dependent variable was the infant feeding choice, with the attributes being either exclusive breastfeeding or exclusive formula feeding. Independent variables were the specified factors influencing the HIV-positive mother's infant feeding choice, including:

- Economic status
- Obstetric history
- Gravity
- Infant-feeding counselling
- HIV status disclosure
- Knowledge regarding PMTCT and infant feeding
- Knowledge of the phasing out of free formula.

These variables were chosen due to their frequency and relevance in the literature.

Setting

This study was carried out at a level two maternity-dedicated regional hospital located in the Metro Region of the Cape Town Health District in the Western Cape Province. This hospital provides obstetrical care to 'at risk' patients who are identified by clinical protocols that include but are not exclusive to hypertensive patients, high-risk

previous obstetric history, previous caesarean section, and/or those who require a caesarean section in this pregnancy. It is also the referral hospital for the three midwife obstetric units (MOUs) located in the Gugulethu, Khayelitsha and Mitchells Plain areas (referred to as MOU A, B and C, respectively) and an affiliated semi-private MOU (referred to as MOU D).

Ethical considerations

Formal clearance and approval for the study was granted by the Higher Degrees Committee and Senate Committee of the University of the Western Cape. The researcher was granted permission to conduct the interviews at the level two hospital from the chairperson of the Research Committee following the presentation of the proposal at the hospital's research committee meeting. Participants were invited to attend individual information sessions and were provided information sheets; informed consent was obtained from all participants.

Sample

The study population included all HIV-positive mothers who had made an exclusive infant feeding choice upon their discharge from the level two hospital and affiliated on-site MOUs. Participants were included if they were aged 18 years or older and had been discharged with a live infant. Any HIV-positive mother practising or intending to practise mixed feeding was excluded from the study. The sample size for this study was set at 100 participants, decided on as it is a round number; an adequate margin of error for a sample size of 100 is $\pm 10\%$ (Scheuren, 2004).

A non-probability consecutive sampling method was selected as there were constraints regarding the period of time in which data could be collected secondary to the imminent phasing out of free formula in April 2012.

Data collection

The data collection process was conducted over a 6-week period between January and February 2012. The HIV-positive mothers were identified through record reviews. All of the discharged mothers who met the inclusion criteria were enrolled with voluntary informed consent into the study. Participants were individually directed to a private room, where the researcher presented them with an information session. If the mother did not feel comfortable speaking in English or Afrikaans, a hospital-appointed, trained Xhosa translator was employed to ensure that all participants understood and were given accurate information. Participants were then asked to sign informed consent sheets.

The data collection tool took the form of a questionnaire, which was administered by the researcher. Questionnaires were easily administered and scored by the researcher. Since the main focus of this study was infant feeding choices, the questionnaire was adapted from a previous study conducted by Ladzani et al (2010) in the Gert Sibande District Gert Sibande District Municipality. A pilot study was conducted prior to the current study, which assisted in the ultimate flow of the administration of the questionnaire and indicated the need for a Xhosa translator.

Data analysis

The data were initially captured using the IBM SPSS version 20. The Chi-square test was inferentially used to establish whether variables were significant; a *P* value of 0.05 was considered an acceptable level of significance.

Results

A total of 100 interview questionnaires were completed by willing participants; six potential participants either refused or could not be included in the study based on the exclusion criteria. The overall response rate was 94.3% (100/106). All questionnaires were filled out completely with no missing data.

Demographics of the sample

The majority of HIV-positive mothers ($n=61$; 61%) fell into the 19–29-year age group. The mean age of the sample was 29 years. The majority of the sample ($n=96$; 96%) were African, and the remaining 4% were Coloured. Approximately 97% ($n=97$) of the sample were South African nationals. There were no significant differences in the relationships between age and race with regard to the exclusive infant feeding choice.

HIV-positive mothers' infant feeding choices

The main objective of this study was to determine the feeding choice of HIV-positive mothers. Of the 100 participants, 54% ($n=54$) chose to exclusively breastfeed and 46% ($n=46$) decided to exclusively formula feed.

Specified factors influencing infant feeding choices

The second objective of the study was to determine the specified factors thought to potentially affect mothers' infant feeding choices, using the independent variables of: employment status; parity; infant-feeding counselling; disclosure of HIV status; knowledge of PMTCT; and knowledge of the phasing out of free formula.

Employment status

The researcher selected the socioeconomic characteristic of income, as it specifically lends itself to one of the AFASS criteria i.e. ability to afford to continue formula feeding after free formula is no longer provided. Participants were asked whether they were in employment. Thirty-four per cent ($n=34$) of participants said they were employed and 66% ($n=66$) reported that they were unemployed at that moment. The unemployed participants ($n=66$) were then asked to indicate whether there was any other form of income in their household. Of these, 70% (46/66) reported that they had another form of income. That equates to 80% ($n=80$) of participants having either their own or another form of household income. Of the 20 participants who had no form of income, 40% (8/20) chose to exclusively formula feed. According to the Chi-square test there was no significant difference ($p=0.54$) with regard to income between the participants' infant feeding choices.

Obstetric history

Of the total participants 31% ($n=31$) were primigravidae and the remaining 69% ($n=69$) were multigravidae. Of the HIV-positive primigravidae, 45% ($n=14$) chose to exclusively formula feed and 55% ($n=17$) chose to exclusively breastfeed. Of the multigravidae, 46% ($n=32$) decided to exclusively formula feed, while the remaining 54% ($n=37$) decided to exclusively breastfeed. The distribution of mothers who opted to formula feed and those who opted to breastfeed was similar when comparing primigravidae and multigravidae women. According to the Chi-square test, the proportion of mothers who chose to exclusively breastfeed or exclusively formula feed was not statistically significantly different between these two groups ($p=0.91$).

Health-care providers and infant-feeding counselling

A vast majority of participants (98%, $n=98$) had enrolled in the PMTCT programme. Of the 100 participants, 95% ($n=95$) had received antenatal infant-feeding counselling; the distribution of counselling sites is shown in *Figure 1*. It was established that most of the participants expressed relatively similar and low formula feeding rates in relation to where they had received their primary infant-feeding counselling:

- MOU A: 45% ($n=10$)
- MOU B: 38% ($n=11$)
- MOU C: 69% ($n=11$)
- Level two hospital and MOU D: 40% ($n=6$)
- Other facilities: 43% ($n=3$).

The sample size was insufficient to provide statistical significance according to the Chi-square test ($p=0.38$).

Participants were asked whether they had received any advice in making their infant feeding choice, and 64% ($n=64$) reported that they had received advice. *Figure 2* shows the distribution of those who gave the most advice. The vast majority of participants (98%, $n=98$) reported that they felt that they had freedom to make their own infant feeding choice. Postnatal infant-feeding counselling was reported to be inadequate, with only 38% ($n=38$) of participants reporting that they had received this counselling.

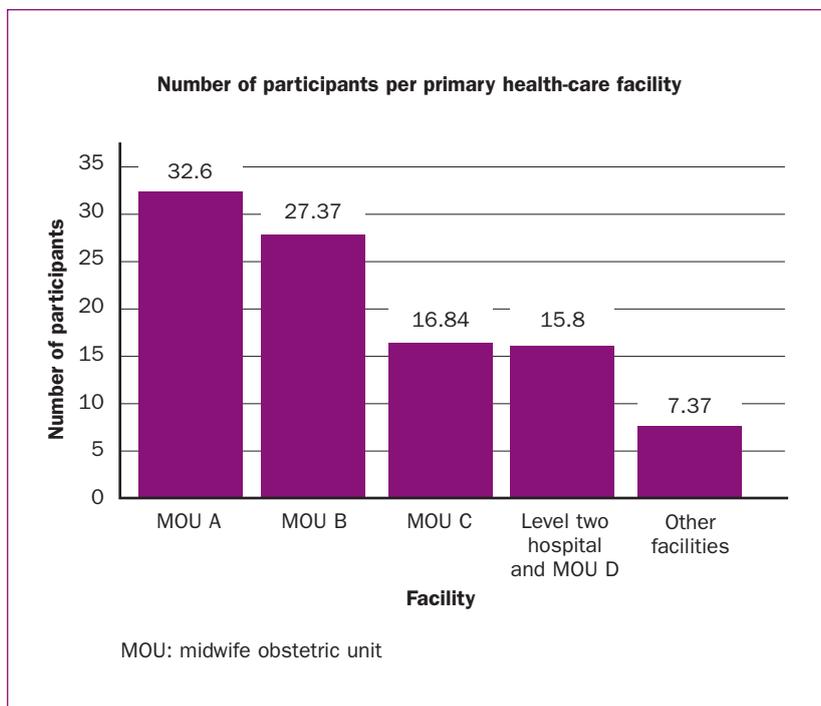


Figure 1. Primary facility of infant-feeding counselling

Disclosure of HIV status

Disclosure of HIV status was thought to be a factor influencing mothers' infant feeding choices, as disclosure and non-disclosure would influence the environment in which the participant would practise her infant feeding choice. The non-disclosure rate for all participants was 7% ($n=7$). According to the Chi-square test ($p=0.84$) results, differences of feeding choice were not significant across these categories.

Knowledge of PMTCT and infant feeding

Knowledge of PMTCT and infant feeding options and practices were investigated. The average knowledge score for mothers who exclusively breastfed was 4.33, and for formula feeders 4.45. There was a slightly higher mean knowledge score in the formula feeding group than in the breastfeeding group, but the differences were not significant based on the Wilcoxon rank-sum test ($p=0.45$). The distribution of knowledge scores is illustrated in Figure 3.

Knowledge of the phasing out of free formula

At the time of the study, HIV-positive mothers qualified for free formula if they decided to exclusively formula feed. Awareness that the free formula would be withdrawn in the near future was considered to be a factor that could potentially influence infant feeding choices—this being closely associated with the first factor, that of income. Of all of the participants, 63% ($n=63$) reported having known that the provision of free formula was in the process of being withdrawn, while 37% ($n=37$) reported not knowing. Of the participants who did not know that free formula was being withdrawn, 50% ($n=18$) chose to exclusively formula feed. The difference between mothers' awareness regarding the withdrawal of free formula was not statistically significant according to a Chi-square test ($p=0.59$).

Discussion

This study showed that exclusive breastfeeding occurred among 54% of HIV-positive mothers. The increased inclination towards exclusive breastfeeding is not only beneficial for the mothers and their infants but also suggests that the impact of formula-supportive infant feeding policies may be waning. However, an almost even split between breastfeeding and formula feeding is not nearly sufficient in light of the current WHO recommendations supporting a single infant feeding strategy of exclusive breastfeeding (Doherty et al, 2011). These recommendations have been more recently reinforced in WHO's (2013) consolidated clinical guidelines, which state that HIV-positive mothers should only stop breastfeeding once a nutritionally adequate and safe diet without breastmilk can be provided for the first 6 months of an infant's life.

The most significant finding from this study pertains to aspects of infant-feeding counselling, such as documenting the primary source of infant feeding advice along with insufficient postnatal counselling and knowledge acquisition. For the majority of participants, exclusive formula feeding rates were low, ranging from 38–45% (Figure 1). However, one facility, MOU C had a far higher exclusive formula feeding

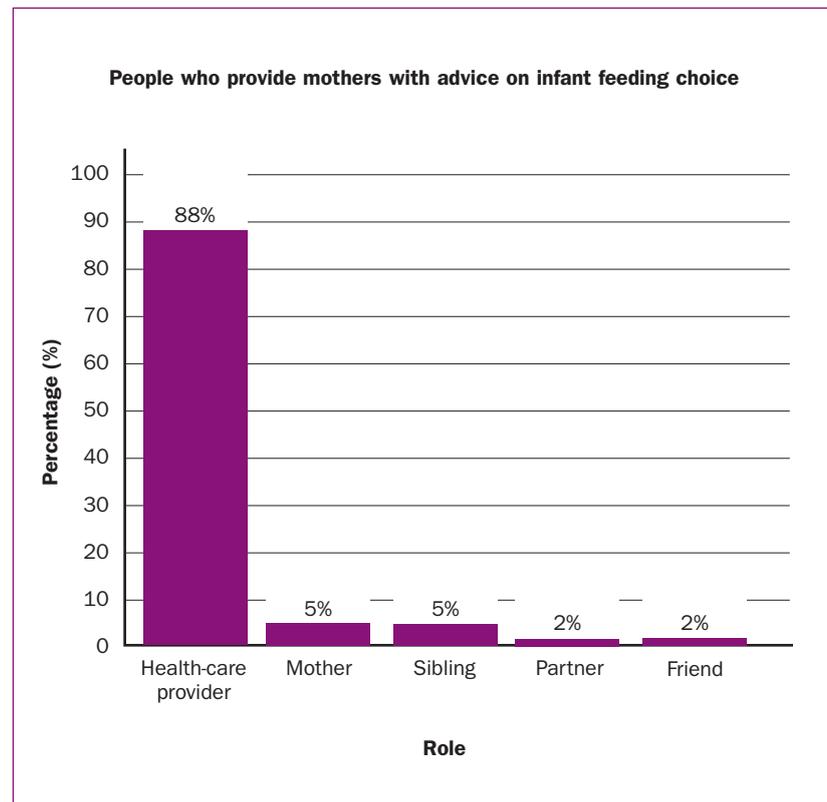


Figure 2. People who provide mothers with advice on infant feeding choice

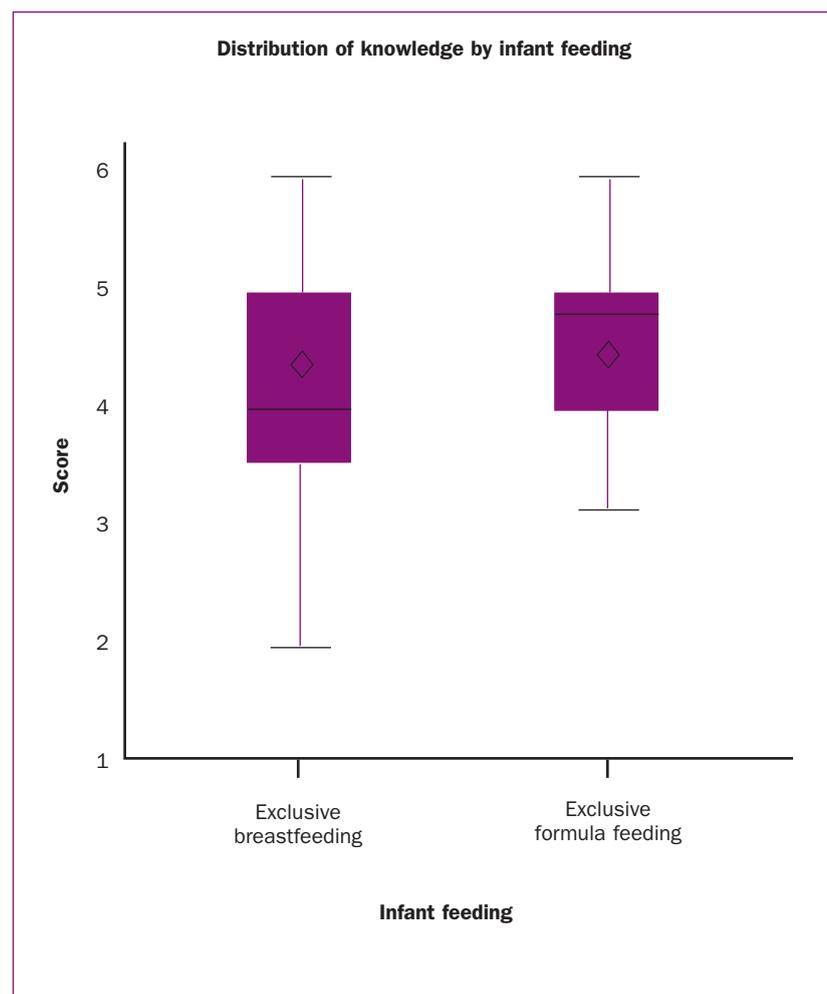


Figure 3. Box plot depicting distribution of knowledge score

Key Points

- Exclusive breastfeeding occurred among 54% of HIV-positive mothers in this study
- Health-care providers are the primary information agents on infant feeding choices
- Health-care providers require timely communication, explanations and preparation prior to major public health policy changes, especially the rationale behind the national infant feeding method of breastfeeding for all regardless of HIV status
- Free state-provided formula delivers a contradicting message to HIV-positive mothers, its phasing out needs to be made clear during infant feeding counselling

rate of 69%. In reviewing MOU C's quarterly data of infant feeding choices, this was not an isolated finding. According to the facility's director, MOU C had formula feeding rates of 85%, 50%, 62.3% and 65.7% over the four succeeding quarters of 2011 (personal communication, 20 April 2012).

Previous studies have indicated the health care provider as a significant factor influencing infant feeding choices (Chisenga et al, 2011). In the Gert Sibande District Municipality study, inconsistent messages were identified as a hindrance to the exclusive decision-making process, with maternity ward staff encouraging breastfeeding while primary care facility staff were providing free formula (Ladzani et al, 2010). In this study, of the participants who received infant feeding advice (64%), the information was overwhelmingly provided by health care workers (87.5%), thereby underscoring their role in conveying the Government's current exclusive breastfeeding single strategy policy. However, as documented in this study, there appears to be a lack of clarity regarding the Government's plan to phase out the provision of free formula, as 37% ($n=37$) of participants reported that they were not aware of programme changes. As this information is crucial for the infant feeding decision-making process of HIV-positive mothers, the provision of policy-consistent and accurate counselling information is essential.

Limitations

The present study has several limitations. First, the study population excluded participants under the age of 18 years—a population that may represent different behaviours with regard to infant feeding practices. Second, this study incorporated self-reporting behaviours, which is a potential source of bias. Furthermore, as a non-probability sampling method was used, the data collected in this study may not necessarily represent the entire South African population of HIV-positive mothers. As such, the results cannot be generalised to the entire South African population. Third, as only women accessing maternity care were included in this study, these findings may not be true to service users at other sites.

Conclusions

Findings from this study provide insight into the importance of infant-feeding counselling services. As shown in this article, practitioners at grassroots level may not be aware of the latest policy changes regarding infant feeding practices for HIV-positive mothers. The implications of providing outdated information are significant. Our findings suggest insufficient coordination exists between PMTCT programme policies and local practices. It is recommended that prior to instituting major public health policy changes, adequate communication, explanation and preparation must be made available to health-care providers as they are the main source of information on infant-feeding. Outcomes from this study provide baseline data for level two hospitals and MOUs, which can benefit both institutional practices and HIV-positive women.

AJM

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