

Psychosocial and economic determinants of infant feeding intent by pregnant HIV-infected women in Tshwane/Pretoria

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Objectives. To determine the extent to which stigma, disclosure, coping and socio-economic factors would affect infant feeding choices made antenatally by pregnant HIV-positive women after the routine prevention of mother-to-child transmission counselling process.

Patients and methods. The antenatal feeding choices and determinants of these choices of HIV-infected women were studied at four antenatal clinics in two Tshwane townships, between June 2003 and December 2005.

Results. Seventy-four per cent of the 293 study participants intended to formula feed their babies, while 26% planned to breastfeed or mixed feed. The women who intended to breastfeed had lower active coping ability (adjusted odds ratio (AOR) 0.88, 95% confidence interval (CI) 0.82 - 0.94), were less likely to have disclosed their status to partners or husbands (AOR 0.54, 95% CI 0.30 - 0.99), were twice as likely to be married (AOR 2.06, 95% CI 1.03 - 4.12) and were twice as knowledgeable about HIV transmission through breastfeeding (AOR 2.11, 95% CI 1.14 - 3.90).

Conclusion. Counselling on infant feeding choices among HIV-infected women should be sensitive to the numerous internal and external factors that influence the decision. The support that HIV-infected women need in making their infant feeding decisions will entail psychosocial, community-wide interventions, and frequent counselling sessions to assist them in coping with and disclosing their status.

In South Africa, the prevention of mother-to-child transmission (PMCT) of HIV programme includes counselling on appropriate feeding of the newborn child by trained lay counsellors. This is based on the World Health Organization (WHO), UNICEF and UNAIDS guidelines on optimal infant feeding practices, which stated until recently that 'when replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended. Otherwise, exclusive breastfeeding is recommended during the first months of life.¹ This policy essentially provides for advice on two infant feeding options, provision of free infant formula for 6 months, or exclusive breastfeeding for a limited duration up to 4 months followed by abrupt cessation.² Women choosing to breastfeed are expected to be counselled on the benefits of exclusive breastfeeding.

While there is sufficient scientific evidence on the advantages and risks of breastfeeding and of replacement feeding in the

HIV context,³ there has not always been sufficient consideration of the quality and appropriateness of counselling advice and its practical application at household level, where socio-cultural influences remain important determinants of actual infant feeding choices and practices of HIV-infected women.⁴

The Serithi study was designed to assess the psychosocial impact of the diagnosis of HIV infection on mothers and their children. It offered the opportunity to determine the extent to which stigma, disclosure and socio-economic factors would affect infant feeding choices.

Aim of the study

The Serithi study aimed to describe the infant feeding choices made antenatally by pregnant HIV-positive women after the counselling process and to establish the psychosocial and economic determinants thereof.

Patients and methods

This was a prospective, longitudinal study at four antenatal clinics in two Tshwane townships. Trained HIV counsellors, employed in the routine PMTCT programme, referred newly diagnosed HIV-positive women to the Serithi project, between June 2003 and December 2005.

The eligible women were generally at 28 weeks of gestation. They were referred within 4 weeks after testing positive for HIV. The counsellors had received a 5-day training course as prescribed by the National Department of Health, the content of which included voluntary counselling and testing (VCT), counselling skills and HIV and infant feeding counselling, in accordance with the WHO position on infant feeding. This information was imparted to the mothers in a language that was appropriate for them, using a standardised checklist. All study participants provided written, informed consent. They were interviewed at the time of recruitment and subsequently at planned intervals, up to 24 months after delivery.

At the first interview, information was gathered on socio-demographic and psychological indicators as possible determinants of infant feeding practices. Socio-demographic data included maternal age, marital status, educational level of the mother and the partner and per capita household income. A socio-economic score of 0 - 5 was developed by assigning one point to each of the following: whether the home was constructed of brick or concrete, and whether it had running water, a flushing toilet, electricity and a refrigerator.

Women were asked whether they had already disclosed their HIV status and to whom, and if they knew someone with HIV. The psychological variables measured were depression, using the Center for Epidemiologic Studies Depression scale,⁵ and coping, using an adapted version of the Brief Coping Scale.⁶ The adapted version included questions on how mothers coped with their HIV status. Stigma was assessed using recently developed and localised scales, namely the so-called 'internalised stigma' and 'attributed stigma' scales.⁷

Study participants indicated their intended feeding choices for their babies and who in the household was responsible for such decisions. No attempt was made to repeat or reinforce any part of the PMTCT counselling content, to influence the selected infant feeding choice or to offer additional counselling. Participants were not asked whether the counsellors had influenced their infant feeding decision.

Statistical analysis

Data were entered into a MS Access 2000 database (Microsoft Corp., Redmond, WA, USA) and analysed with SPSS for Windows version 13.0 (SPSS Inc., Chicago, IL, USA).

Associations between independent variables and feeding intent during pregnancy were examined using the chi-squared test for categorical data and Student's *t*-test for continuous data. Factors associated with feeding intent that had a *p*-value of less than 0.25 were subsequently entered into a logistic regression model to determine which factors were independently associated with breastfeeding intent.

Results

Three hundred and seventeen pregnant women were recruited. Twenty-four were excluded because of prior knowledge

of their HIV status, leaving 293 for analysis. Data collection started in June 2003 and was completed by December 2005.

The average age of the women was 26.4 years (range 16 - 32 years). Most (89%) had attended school, with the majority (75%) having some secondary schooling. Of the study participants 80% used electricity for cooking, 63% had a fridge and 67% had a flushing toilet in the yard, but only 30% had direct access to piped water for cooking purposes in their homes. The median per capita monthly income in the households was R320.00 and the interquartile range (IQR) was R345.97. There were 185 participants (63%) whose per capita income was below R431.00, the national poverty line in 2006.

The majority of women (68%) were not married and almost half (47%) were not living with their husband or partner.

At the time of the recruitment interview, 173 (59%) of the women had disclosed their HIV status to others. Of those who disclosed, only 124 had disclosed to their partners, while 49 had disclosed to others. One hundred and five (36%) subjects reported knowing someone who was HIV positive.

Prenatal infant feeding intent

Of the 293 study participants, 218 (74%) stated that they were planning to formula feed, while 75 (26%) planned to breastfeed or mixed feed.

Seventy-nine per cent of the women who chose formula feeding had already disclosed to their partners and other persons by the time of recruitment. The most commonly cited reasons for formula feeding intent included: best for baby's health (161, 74%), the need to return to work or school, poor maternal health or breast health problems, collectively cited by 43 women (20%), and finding breastfeeding to be 'too complicated' (15%).

Most of the mothers who planned to breastfeed (71%) felt it was best for the baby's health. Twelve per cent had breastfed before; another 12% felt it was the most affordable option. In 5% of cases, the stated reasons included 'did not know how to measure formula', 'I want my baby to feel my love for it', 'advised by others to breastfeed', and 'I am working and do not want to mix feed'.

In order to assess the women's ability to make decisions on infant feeding, we asked who in the household made decisions on the feeding method for the baby. Two hundred and ninety-one women responded to this question, of whom 229 (79%) had made the decision themselves. Twelve (4%) of the remaining women said their partner had decided on the method of infant feeding, 19 (6%) said they had made the decision jointly, and the remaining 31 (11%) named a caregiver and other relatives besides herself or her partner.

Factors associated with prenatal feeding intent

The factors associated with the prenatal intended feeding choices are listed in Table I.

Only knowledge and actively coping were significantly different between the two groups. Logistic regression analysis was undertaken to further explore the factors associated with breastfeeding intent.

Table II indicates those factors that were independently associated with breastfeeding intent.

TABLE I. FACTORS ASSOCIATED WITH PRENATAL INFANT FEEDING CHOICE (FORMULA FEEDING OR BREASTFEEDING)

Variable	Formula (218)	Breast (75)	p-value
Continuous variables (mean (SD))			
Depression	12.2 (8.7)	10.8 (8.1)	0.24
Active coping	31.7 (3.9)	29.5 (5.1)	<0.01*
Categorical variables (No. (%))			
Marital status	40 (18.3)	20 (27)	0.12
Mother tertiary education	34 (15.6)	6 (8.0)	0.10
Time from diagnosis to interview >4 wks	53 (24.3)	24 (32.0)	0.19
Know someone with HIV	85 (38.9)	20 (26.7)	0.06
Disclosure to partner	103 (47.2)	26 (34.7)	0.06
Disclosure to others	71 (32.6)	18 (24.0)	0.16
Knowledge about HIV transmission via breastmilk	54 (25.0)	29 (38.7)	0.02*

*Denotes variables for which $p < 0.05$.

TABLE II. LOGISTIC REGRESSION TO IDENTIFY FACTORS ASSOCIATED WITH BREASTFEEDING INTENT

Variable	AOR (95% CI)	p-value
Active coping	0.88 (0.82 - 0.94)	0.01
Marital status	2.06 (1.03 - 4.12)	0.04
Disclosure to partner	0.54 (0.30 - 0.99)	0.04
Knowledge on HIV transmission through breastfeeding as assessed by the statement 'all babies who are breastfed by an HIV-infected mother will get HIV'	2.11 (1.14 - 3.90)	0.02

AOR = adjusted odds ratio; CI = confidence interval.

Women who intended to breastfeed tended to have lower active coping scores, were twice as likely to be married, and were less likely to have disclosed their HIV status to their partners than those intending to formula feed. However, women intending to breastfeed were also twice as likely as those women planning to formula feed to have correct knowledge regarding HIV transmission (Table II).

Discussion

This is one of a few studies in South Africa on factors that might influence mothers in their infant feeding decisions, and psychological circumstances in the context of the 'real life' situation of the PMTCT programme. Earlier studies in South Africa found considerable variation across PMTCT sites, with high uptake of replacement feeds in urban settings, whereas in rural settings mothers opted for breastfeeding.⁸

In the urban and peri-urban settings in which this study was conducted, most women (74%) planned to formula feed, regardless of the facts that only 30% had direct access to piped water inside their homes and that the median per capita income in the households was only R320.00, falling short of the estimated national poverty line of R431.00 per capita per

month in 2006.⁹ In addition 76% of the women in this study were unemployed. Even though 80% of mothers in this study had access to electricity and 62.8% had a fridge, with relatively few having access to piped water it is possible that preparation of safe formula feeds could have been challenging. Indeed, other data from PMTCT sites in South Africa indicate a growing concern over bacterial contamination of formula feeds.¹⁰ These findings raise doubt about whether the WHO's prerequisite for replacement feeding, namely 'acceptable, feasible, affordable, sustainable and safe', is being adequately contextualised and applied to individual mothers in the lay counsellor training programmes.

Women who participated in our study were exposed to only two counselling sessions as part of the PMTCT programme, and we did not verify the quality of this counselling. All the counsellors who had contact with mothers had undergone a 5-day training course on VCT which included 1 day of infant feeding counselling. It appears from the above that even this 5-day training is inadequate. Indeed, it has been stated by others that the ideal counselling training should be as long as 22 days.¹¹ Research at PMTCT sites in KwaZulu-Natal, Eastern Cape and Western Cape provinces in 2005 revealed that infant feeding counselling was the weakest programmatic component.¹²

The fact that the large majority of mothers in our study indicated their intention to formula feed may reflect the strong influence of the counselling they had received in the PMTCT programme and points towards a need for much more in-depth training and attitudinal support of the counsellors. Tanzanian data demonstrated the influence and power of the counsellor in that 82% of urban and rural mothers chose to formula feed if advised to do so by a health worker and if the formula milk was made available free of charge.¹³ The statement cited by over 70% of our study respondents that 'formula feeding is best for a baby's health' may be indicative of misinformation emanating from the counselling process as applied in the local PMTCT programme. In the light of research evidence that early exclusive breastfeeding is less risky for vertical transmission than mixed feeding,^{14,15} and the increased risk of contamination and diarrhoea among children who are formula fed, HIV-infected mothers should receive adequate counselling on the risks of formula feeding and not be unilaterally directed towards it.

This study again demonstrates that decisions on infant feeding are affected by both internal (mother's own choice) and external influences (family and possibly counsellors, though the latter was not formally assessed). We found in our study that 14.6% of mothers are not able to independently make decisions concerning their infant feeding choices. This has profound implications for the process and content of counselling about infant feeding. Twelve per cent of mothers who intended to breastfeed stated this was more affordable than formula feeding, implying that they either were not aware at this time that formula milk was available free of charge from the health facility or had factored in the additional cost of formula feeds such as teats, bottles and cleaning materials.

We found a significant association between measures of active coping, disclosure to partner, marital status and intention to breastfeed. Women who intended to breastfeed had a lower active coping ability (adjusted odds ratio (AOR) 0.88, 95% confidence interval (CI) 0.82 - 0.94) than those choosing to formula feed, were less likely to disclose their HIV status to their partners or husbands (AOR 0.54, 95% CI 0.30 - 0.99) and were more than twice as likely to be married (AOR 2.06, 95% CI 1.03 - 4.12), yet were twice as knowledgeable about HIV transmission through breastfeeding (AOR 2.11, 95% CI 1.14 - 3.90).

We were surprised that women with an apparently better knowledge of the risk of breastmilk transmission of HIV nevertheless chose breastfeeding as their intended feeding option. The statement that had been posed to all mothers during pregnancy was: 'all mothers who breastfeed their babies will transmit HIV'. Although those intending to breastfeed (38.6%) answered this question correctly in significantly ($p=0.021$) more cases than those intending to formula feed (24.7%) it must be noted that 61.4% of them answered the question incorrectly, i.e. in the affirmative, thus exaggerating the transmission risk, and yet still planned on breastfeeding their infants. It is possible that these women were placed under household and family pressures to breastfeed regardless of the transmission risk, which they felt was high. It may therefore be that knowledge on HIV transmission alone is insufficient in some cases to influence the choices that women make.

We found that more mothers who had disclosed their status to their partners than who had not were choosing formula feeding. Others in South Africa have emphasised that the challenge of HIV disclosure is of great significance in the context of infant feeding decisions.¹⁶ Elsewhere, it has been observed that mothers who hesitated to choose formula feeding for their infants predominantly feared the reaction of their partner or family circle.¹⁷

Conclusion

This study re-affirms that counselling on feeding choices for HIV-exposed infants should be extremely sensitive to the numerous internal and external factors impinging on that decision. We found that HIV-infected women who had better coping skills, more education (though this was not statistically significant), were married and had disclosed to their partners, tended to choose formula feeding after undergoing the routine PMTCT counselling process. This study further emphasises the importance of support to HIV-infected women in their infant feeding decisions, to enable disclosure and improved coping.

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