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Social Determinants of Mixed Feeding Behavior Among HIV-Infected Mothers in Jos, Nigeria

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Abstract

Mixed feeding confers excess risk of mother-to-child transmission (MTCT) of HIV compared with exclusive breastfeeding (EBF) and exclusive formula feeding (EFF). We undertook a qualitative and quantitative cross-sectional survey to identify the social determinants of mixed feeding among a subset of the 469 HIV-infected women enrolled in a MTCT prevention program in Jos, Nigeria. Formula was provided free-of-cost. Of the 91 participants, 68(75%) exclusively formula fed, 7(8%) exclusively breastfed, and 16(18%) practiced mixed feeding. Of the mixed feeding women, 7 primarily formula fed and 9 primarily breastfed. Women who primarily formula fed described family pressure as the reason for mixed feeding, while women who primarily breastfed reported insufficient breast milk. In a multivariate analysis, lack of partner support of the feeding decision predicted mixed feeding behavior (OR: 4.2; 95% CI: 1.2-14.9; p=0.03). Disclosure of HIV status was significantly correlated (p<0.001) with partner support. HIV prevention interventions aimed at reducing mixed feeding should encourage supportive partner relationships that facilitate disclosure of HIV status. Attention should also be made to the differing pressures faced by women attempting to exclusively breast feed and exclusively formula feed.

Keywords

mixed feeding; PMTCT; breastfeeding; bottle feeding; social determinants; HIV; acquired immunodeficiency syndrome

Introduction

Every year, approximately 40% of HIV-infected children worldwide become infected through breastfeeding, making breastfeeding the most prevalent mode of mother-to-child transmission (MTCT) of HIV (Kourtis, Lee, Abrams, Jamieson, & Bulterys, 2006). In the setting of poor access to clean water and sanitation, HIV-infected mothers in Sub-Saharan Africa are faced with the choice of breastfeeding, which confers an increased risk of HIV, or formula feeding,

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which increases the risk of malnutrition, respiratory tract infections, and diarrheal diseases. The consequences of this feeding choice have led the WHO to take a conservative approach, recommending avoidance of all breastfeeding only "when replacement feeding is acceptable, feasible, affordable, sustainable and safe" and exclusive breastfeeding if those conditions are not met (WHO, 2001).

Compared with exclusive formula feeding (EFF) or exclusive breastfeeding (EBF), "mixed feeding," the practice of giving breast milk and any other liquid or food simultaneously, confers the highest risk of morbidity and mortality (Coovadia, et al., 2007; Coutsoudis, 2000). Not only are infants deprived of the benefits of full breastfeeding, mixed feeding can increase HIV transmission up to two-fold over the approximate 20% risk of HIV acquisition during EBF (Coovadia, et al., 2007; Coutsoudis, et al., 2001; Iliff, et al., 2005; WHO, 2004). Antigens in non-breast milk are thought to cause inflammation in the infant gut, making it more vulnerable to HIV infection (Smith & Kuhn, 2000; Wise, 2001).

Education on the importance of exclusive feeding has been integrated into counseling for prevention of mother to child transmission (PMTCT) programs, yet these interventions have achieved only partial success (Chisenga, et al., 2005; Coutsoudis, et al., 2001; Kiarie, Richardson, Mbori-Ngacha, Nduati, & John-Stewart, 2004). For example, studies have demonstrated that up to two-thirds of women in PMTCT programs are not able to correctly define EBF (Yeo, Bequet, Ekouevi, & Krawinkel, 2005), and the prevalence of mixed feeding in PMTCT programs is reported at 21-43% (Kiarie, et al., 2004; Suryavanshi, et al., 2003). Without understanding the determinants of mixed feeding, intervention programs may do more harm than good. Indeed, provision of free formula in some PMTCT programs has resulted in increased rates of mixed feeding (Coutsoudis, Pillay, Spooner, Kuhn, & Coovadia, 1999; Nduati, et al., 2001).

The literature on the determinants of mixed feeding is limited. One study in Nairobi identified pressures from relatives, lack of privacy, and maternal travel as determinants (Kiarie, et al., 2004). Another qualitative study from India cited the use of supplemental herbal preparations for child growth as a primary reason for continued mixed feeding (Suryavanshi, et al., 2003). Two small qualitative studies from South Africa outlined the range of factors leading to mixed feeding, including social, family and economic conditions (Thairu, Pelto, Rollins, Bland, & Ntshangase, 2005);(Doherty, Chopra, Nkonki, Jackson, & Persson, 2006). We conducted the present study, using quantitative and qualitative analyses, to expand upon these preliminary results. We hypothesized that six factors would be predictive of mixed feeding behavior: 1) financial difficulties 2) social stigma 3) disclosure of HIV status to partner 4) familial pressure 5) practical difficulties of EBF and EFF 6) partner support of feeding decision. We further hypothesized that the factors would play a different role for women attempting to exclusively formula feed versus those attempting to exclusively breastfeed.

Methods

Study Setting and Procedure

This study was conducted from July to September 2005 in Jos, Nigeria. Our study was approved by the human ethics committees at the University Of Maryland School Of Medicine and the Plateau State Specialist Hospital. We conducted interviews among 91 women of the 469 who were participating in the Jos Prevention of Mother to Child Transmission Cohort Study (Jos PMTCT Cohort Study). The Jos PMTCT study is a longitudinal cohort of mother-child pairs who have received care and antiretroviral prophylaxis to prevent MTCT. The HIV–infected pregnant women were referred from four primary clinics to the tertiary care Plateau State Specialist Hospital in Jos, Nigeria. Women receiving antiretroviral treatment for maternal

indications (typically, owing to CD4+ T-Cell counts less than 200 cells/microliter) were excluded from the study.

Women were enrolled at their first visit (<18 weeks gestation), at 25 weeks, at 34 weeks, or at delivery. All women were counseled on their feeding decisions prenatally. For women who chose formula feeding, nutrition counselors provided education on formula preparation within two days of delivery and again at home visits at one week postpartum. The concepts of EBF and EFF were discussed and those who chose formula feeding were provided with free powdered formula for the duration of the 12-month follow-up. Follow-up visits for mothers and children occurred at 1 week, 1 month, 3 months, 6 months, and 12 months post-delivery.

The present substudy is an analysis of all women who arrived for follow-up visits during a 10 week period between July and September 2005 and agreed to more in-depth interviews about infant feeding practices. This convenience sample represents 19% of the HIV-infected women in the study at the time.

Semi-structured Questionnaire

The women in this substudy were administered a 24-item semi-structured questionnaire that allowed for open-ended responses. A trained counselor conducted the interviews in a private area. The status of ‘mixed feeding’ was determined by the counselor during the course of the interview by obtaining details on number and type of feeds during a 24-hour period. Mixed feeding was defined as the practice of simultaneously feeding the infant both breast and any complementary feed.

The semi-structured questionnaire was based on interviews with staff involved in the study, including doctors, nurses, and counselors. The following factors were identified by the staff as potentially influencing feeding decisions: 1) financial difficulties 2) social stigma 3) disclosure of HIV status to partner 4) familial pressure 5) practical difficulties of EBF and EFF 6) partner support of feeding decision. These factors were addressed in the interviews by presenting a brief scenario of a hypothetical woman in the community who experienced each of these factors influencing her feeding choice. Each scenario was followed by a series of questions to probe the interviewee's experience. All counselors were fluent in English as well as Hausa, the predominant languages in Jos. Discussions were conducted in both languages and all responses were recorded in English on the questionnaires by the counselor. Questionnaire instruments are available from the authors upon request.

Statistical Analysis

The presence or absence of the factors for each woman was extracted from the semi-structured questionnaire responses for quantitative analysis. Data analysis was conducted using SPSS version 12.0 and SAS version 9.3.1 (SAS Institute, Carey, NC). Relationships between dichotomous variables and mixed feeding outcome were assessed using Fisher's exact test; odds ratios and asymptotic 95% confidence intervals were also constructed. Assessing associations between the predictor variables was performed through the Spearman rank correlation coefficient. A multivariate model was used to fit the data, using backward and forward stepwise regression approaches, with a p-value of 0.30 to enter and leave the model. All variables shown in Table 2 were entered into the initial model. The Akaike information criterion (AIC) was used to assess model fit.

Qualitative Analysis

The specific challenges women faced with each factor and the strategies to overcome those challenges were examined in the qualitative analysis. Mixed feeding women were divided into two categories: those who predominantly breastfed and those who predominantly formula fed.

This was defined by their initial reported feeding choice and their response to questions about frequency of breastfeeding and complementary feeding. The responses of women who exclusively fed were examined for the women's ability to maintain EBF or EFF. Qualitative data from two focus group discussions of the same 6 social factors were also included. These focus groups were conducted by the same counselors using the same semi-structured questionnaire.

Results

The demographic and social characteristics of the study sample and the larger cohort are shown in Table 1. The study sample did not differ significantly from the larger cohort in any of these characteristics, with the exception of education. The study sample had a higher proportion of women who had graduated from high school than the larger cohort (52% vs. 39%, p=0.002).

Of the 91 participants, 68(75%) were able to EFF, 7(8%) were able to EBF (of whom two practiced early weaning), and 16(18%) were practicing mixed feeding. Of the mixed feeding women, 7(44%) were primarily formula feeding and 9(56%) were primarily breastfeeding. The difference between the exclusive and mixed feeding groups on the breakdown of primary feeding method (formula versus breast) was statistically significant (Fisher's exact p-value<0.001). The women who primarily formula fed tended to start mixed feeding soon after birth, with a mean onset at 6 days (SD: 13), and a median at 1 day (interquartile range: 1 to 3). The breastfeeding mothers initiated mixed feeding later (Wilcoxon rank-sum statistic= 36; p-value = 0.02), with a mean at 67 days (SD: 62), and a median at 53 days (interquartile range: 19 to 105).

Table 2 presents bivariate comparisons of characteristics of mixed feeding and non-mixed-feeding (exclusive feeding) women. Of the six main factors tested, only partner support was significantly associated with mixed feeding behavior. Namely, women whose partner did not support their feeding decision were more likely to practice mixed feeding (OR: 4.2; 95% CI: 1.2-14.4; p=0.03). Among the other demographic variables assessed, women who, at delivery, expressed their intent to breastfeed were more likely to practice mixed feeding than those who did not (OR: 5.7; 95% CI:1.8-18.2; p=0.008). Additionally, disclosure of HIV status was significantly correlated with partner support of the feeding decision (Spearman correlation coefficient=0.52, p<0.001). In the multivariate analysis, only the lack of partner support in the feeding decision persisted as a significant predictor of mixed feeding (adjusted OR: 4.2; 95% CI: 1.2-14.9; p=0.03). Table 3 shows the results of the four variables that persisted in the final multivariate model and their significance.

The factor of practical difficulties was excluded from the final analysis because of the way the question was answered in the semi-structured questionnaire. Almost all of those who reported practical difficulties were referring to awaking at night to prepare bottles, and thus only formula feeding women reported practical difficulties. Since 91% of women who exclusively fed practiced formula feeding, compared with only 44% of mixed feeding women (p<0.0001), the practical difficulties variable was confounded and could not be used as a predictor of mixed feeding.

For the variable describing whether the woman desired to keep a family member's HIV status secret, all women in the mixed feeding category answered that they would. As a result of this zero-valued cell the odds ratio estimates and chi-square (Wald) p-values failed to converge. Thus, it was kept out of the final multivariate analysis presented in Table 3.

Table 4 presents the reasons women cited for mixed feeding and exclusive feeding. These are examined in two separate groups, those who were predominantly formula feeding and those who were predominantly breastfeeding. The analysis revealed that the groups described

different experiences that led them to practice mixed feeding. The formula-feeding women primarily cited pressures from various parties (mother-in-laws, husbands, families, and society in general) as the primary cause of their failure to exclusively feed. Breastfeeding women, on the other hand, primarily discussed a perceived need to supplement breast milk with complementary feeds for the baby's nourishment. Reasons for exclusive feeding varied, but often conveyed a sense that women wanted to protect their child from HIV.

Table 5 presents the challenges women described and strategies they used to cope with them. Family pressure to breastfeed was dominated by the mother-in-law. Participants also experienced pressure from other members of the husband's family and members of a woman's own family. Strategies conveyed for mediating family pressure included self-assertion, using others' authority, deception about HIV status, and HIV status disclosure. As the quotes in the table show, the social pressures women described involved harassment, rejection, and force. Women primarily used deception to deal with this social stigma. Practical difficulties occurred only among formula feeding women and included preparing formula in the middle of the night, having insufficient resources for preparing the formula, maintaining sanitation of utensils, and experiencing fatigue. Strategies for dealing with practical difficulties included preparing formula in advance, demonstrating personal resilience, and receiving assistance from partners and relatives. Financial difficulties pertained to paying for fuel, transport, and extra formula, and stemmed from lack of personal or partner income. Strategies for financial difficulties included assistance from relatives and missionaries, personal savings for children, and alternative modes of transportation.

Discussion

The analyses presented here elucidate some social factors involved in mixed feeding among HIV-infected women in Nigeria. In the qualitative analyses, we found important differences between the mixed feeding women who primarily breastfed versus those who primarily formula fed. The predominantly formula feeding mothers reported family pressure to breastfeed, while the predominantly breastfeeding mothers' main challenge was their perception that their milk was insufficient and needed supplementation. Perhaps as a result of these distinct pressures, mothers who initially formula fed initiated mixed feeding at a significantly earlier time than those who initially breastfed. Irrespective of the intention to EFF or EBF, lack of partner support was identified in multivariate analyses as a significant predictor of mixed feeding. Additionally, disclosure of HIV status to the partner was significantly associated with partner support of the feeding decision. These results have important implications for the design of PMTCT programs.

As is found throughout much of Sub-Saharan Africa (Doherty, et al., 2006; Thairu, et al., 2005), the stigma and social pressures surrounding HIV were frequently experienced in this cohort of women. Fewer than half of the women in our study (46%) could say for certain that they would not be thrown out of their homes if their partners knew their HIV status. Stigma played a different role for the mixed feeding women who predominantly breastfed versus those who predominantly formula fed. Family pressure to breastfeed was experienced more by the mixed feeding mothers who predominantly formula fed. The family pressure may be due to a deep belief in the value of breastfeeding for every infant (Ogbonna, Okolo, & Ezeogu, 2000) or from the social stigma of formula feeding being associated with HIV(Kebaabetswe, 2007; Leroy, et al., 2006).

Predominantly breastfeeding women, on the other hand, did not report family pressure or social stigma as reasons why they practiced mixed feeding. The qualitative analysis showed that the pressure they faced was to breastfeed prior to delivery. It was then the belief that their milk was insufficient that led them to add complementary formula feeds. These results match data

from Jos (Ogbonna, et al., 2000), and other parts of Nigeria (Davies-Adetugbo, 1997), in which uninfected mothers reported insufficient breast milk as the primary reason for mixed feeding, introducing complementary feeds as early as two months.

It is important to note that this study provided free formula to mothers who chose to formula feed. It is likely that this incentive resulted in the large proportion (82%) of women who chose to formula feed. The women who chose to breastfeed were significantly more likely to mixed feed than those who chose to formula feed (Fisher's exact p-value<0.001). Thus, even in this cultural and economic setting favoring breastfeeding, those who attempted EFF with the aid of free formula were able to maintain exclusive feeding better than those who attempted EBF. These results suggest that PMTCT programs providing free formula should focus counseling efforts on mothers who choose to breastfeed to ensure exclusive feeding.

The onset of mixed feeding in mothers attempting to EFF was significantly earlier (mean 6 days) than in mothers attempting to EBF (mean 67 days). Given the likely impact of the timing of mixed feeding on HIV transmission, this finding has critical implications for PMTCT programming. Other studies have shown that longer duration of breastfeeding increases the cumulative probability of HIV transmission (Coovadia, et al., 2007; John-Stewart, et al., 2004; Van de Perre, 2000). These results point to differing counseling needs for women trying to EFF versus EBF, including possible early weaning for women trying to EBF.

The multivariate analysis showed lack of partner support as a predictor for mixed feeding. Additionally, women reported that partners provided emotional support to confront family and social pressure. A study from South Africa also showed that exclusive feeding was bolstered by family members who were aware of their HIV status (Doherty, et al., 2006). Other studies indicate the importance of partner support in determining feeding behaviors (Doherty, et al., 2006; Farquhar, et al., 2004; Kiarie, et al., 2004). Partner counseling programs should encourage women to disclose their status as well as prepare couples for potential pressures that they may face.

In contrast to social stigma, family pressure, and partner support, specific knowledge of HIV transmission patterns did not impact feeding behaviors in our cohort. In fact, prompted knowledge of MTCT was 93% prior to any specific intervention. Lack of understanding around transmission was therefore an unlikely cause of mixed feeding in our study population. In other populations where knowledge may be lower, however, it is possible that this would be a more important factor.

There are some important limitations that temper the results of this study. The study population was from a small convenience sample from a single locale, limiting the generalizability of our conclusions. This sample, however, did not significantly differ from the larger study on key demographic and biological characteristics. Additionally, the issues discussed in the study are likely to be faced by women in other geographic areas and provide a basis for testable hypotheses. Another limitation was that the small sample size decreased the power with which we could detect significant differences in mixed feeding behavior on the basis of predictor variables. There was large variance in our outcomes, which made our estimates of effect sizes imprecise. Finally, while a trained counselor probed for mixed feeding status, it was ultimately based on self-report by the participant. There is no reason to expect that there would be systematic biases in these data, but it is worth noting that we did not have an objective assessment of our main outcome.

These limitations notwithstanding, the results of this study can be used to inform interventions targeting feeding behaviors among HIV-infected women. The women in this study identified several strategies to mitigate the pressures that they were facing to formula feed. Feeding counseling may provide these strategies as examples to women facing the same issues. Regular

group support meetings may aid women who live in the same social milieu to share strategies with each other. Identifying strategies that address issues surrounding partner support and disclosure may be particularly helpful in advancing PMTCT interventions among these women.

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Table 1

Baseline Demographic and Social Characteristics of the Jos PMTCT Cohort Study Population and the Population for the Current Sub-Study

	Jos PMTCT Cohort Study Participants not in present study (N=469-91=378)	Jos PMTCT Cohort Study Participants in present study (N=91)
Characteristic	**Value (%)**	**Value (%)**
Age, Mean Years (SD)	26.6 (4.7)	27.3 (5.5)
Age (Years)		
15 to 19	18 (5%)	5 (5%)
20 to 24	111 (29%)	22 (24%)
25 to 29	159 (42%)	37 (41%)
30+	87 (23%)	27 (30%)
Not Known	3 (1%)	0 (0%)
Marital Status		
Currently Married	352 (93%)	81 (89%)
Not Currently Married	26 (7%)	10 (11%)
Age at Marriage		
<15	11 (3%)	1 (1%)
15 to 19	123 (33%)	20 (22%)
20 to 24	151 (40%)	37 (41%)
25 to 29	74 (20%)	26 (29%)
30+	6 (2%)	0 (0%)
Missing	13 (3%)	7 (8%)
Education Level		
Primary (0-5)	56 (15%)	2 (2%)
Secondary (6-11)	176 (47%)	42 (46%)
Graduate (12+)*	146 (39%)	47 (52%)
Occupation		
Housewife or Unemployed	152 (40%)	35 (38%)
Student	22 (6%)	6 (7%)
Working	180 (48%)	44 (48%)
Other	24 (6%)	6 (7%)
Religion		
Catholic	83 (22%)	21 (23%)
Protestant	183 (48%)	51 (56%)
Pentecostal	34 (9%)	9 (10%)
Muslim	73 (19%)	7 (8%)
Others	5 (1%)	3 (3%)
Gestational Age at Enrollment		
First Trimester	18 (5%)	0 (0%)
Second Trimester	109 (29%)	23 (25%)
Third Trimester	248 (66%)	68 (75%)
Not Known	3 (1%)	0 (0%)

	Jos PMTCT Cohort Study Participants not in present study (N=469-91=378)	Jos PMTCT Cohort Study Participants in present study (N=91)
Characteristic	**Value (%)**	**Value (%)**
Danger of Being Thrown Out		
Yes	37 (10%)	9 (10%)
No	186 (49%)	42 (46%)
Don't Know	143 (38%)	35 (38%)
Never Married/Missing	12 (3%)	5 (5%)
Knowledge of MTCT (not prompted)		
Yes	259 (69%)	61 (67%)
No	119 (31%)	30 (33%)
Knowledge of MTCT (prompted)		
Yes	367 (97%)	85 (93%)
No	9 (2%)	5 (5%)
Missing	2 (1%)	1 (1%)
Number of Pregnancies prior to current pregnancy		
≤ 1	166 (44%)	45 (49%)
2	84 (22%)	13 (14%)
3	69 (18%)	11 (12%)
≥ 4	59 (16%)	22 (24%)
First Ever Pregnancy		
No	295 (78%)	61 (67%)
Yes	83 (22%)	29 (32%)
Missing	0 (0%)	1 (1%)
Feeding Intentions		
Exclusive Breastfeeding	106 (28%)	24 (26%)
Formula Feeding	248 (66%)	59 (65%)
Mixed Breastfeeding	10 (3%)	4 (4%)
Other/Missing	14 (4%)	4 (4%)
Intention to Breastfeed		
Yes	112 (30%)	28 (31%)
No	239 (63%)	58 (64%)
Don't know	16 (4%)	4 (4%)
Missing	11 (3%)	1 (1%)
Maternal Baseline CD4+ T-Cell Count		
>200 cells per microliter	237 (63%)	59 (65%)
≤200 cells per microliter	141 (37%)	31 (34%)
Missing	0 (0%)	1 (1%)
Husband has Multiple Wives or Sex Partners		
No	218 (58%)	50 (55%)
Yes	81 (21%)	12 (13%)
Don't Know/Missing	79 (21%)	29 (32%)

* p-value<0.05 comparing the two groups using Fisher's exact test

Table 2
Comparative Characteristics of Mixed Feeders and Non-Mixed Feeders (n=91)

Factor	Mixed Feeding (n=16)	Not Mixed Feeding (n=75)	OR (95% CI)	p-value
Feels pressure from family	12 (75.0%)	39 (52.0%)	2.8 (0.8-9.4)	0.11
Social Stigma	8 (53.3%)	35 (47.3%)	1.3 (0.4-3.9)	0.78
Non-disclosure to partner of HIV status	8 (50.0%)	55 (75.3%)	3.1 (1-9.3)	0.07
Partner does not support feeding decision	9 (60.0%)	63 (86.3%)	4.2 (1.2-14.4)	0.03
Financial Difficulties	6 (66.7%)	39 (68.4%)	0.9 (0.2-4.1)	1.00
Age ≤ 24	7 (43.8%)	20 (26.7%)	2.1 (0.7-6.5)	0.23
Not high school graduate	9 (56.3%)	35 (46.7%)	1.5 (0.5-4.4)	0.59
Presented to clinic in third trimester	12 (75.0%)	56 (74.7%)	1.0 (0.3-3.5)	1.00
Not a wage-earner	11 (68.8%)	36 (48.0%)	0.4 (0.1-1.3)	0.17
Christian	14 (87.5%)	67 (89.3%)	0.8 (0.2-4.4)	1.00
Lack of unprompted Knowledge of MTCT	2 (12.5%)	28 (37.3%)	4.2 (0.9-19.7)	0.08
Intention to Breastfeed	11 (68.8%)	21 (28.0%)	5.7 (1.8-18.2)	0.003
CD4+ T Cell Count ≤ 200	9 (56.3%)	50 (67.6%)	0.6 (0.2-1.9)	0.40
Husband has multiple wives	7 (43.8%)	34 (45.3%)	0.9 (0.3-2.8)	1.00
Non-disclosure to family/others of HIV status	10 (33.3%)	42 (56.0%)	2.5 (0.8-8.2)	0.16
Danger of being thrown out of home if HIV+	8 (50.0%)	36 (48.0%)	1.1 (0.4-3.2)	1.00
Desire to keep HIV within family a secret	16 (100.0%)	62 (83.8%)	--* --*	0.12

Italicized factors are the main variables from the semi-structured questionaire. Other factors are from the larger Jos PMTCT cohort study database. Since we used Fisher's exact test, some p-values were exactly equal to 1 (which is impossible for parametric tests like chi-square).

* Owing to the presence of a cell of 0 in the 2×2 table, the OR estimate for this variable failed to converge.

Table 3
Multivariable Analysis of the Factors Impacting Mixed Feeding

Covariate	Adjusted OR (95% CI)	p-value
Non-disclosure to family/others of HIV status	2.1 (0.6 to 7.5)	0.23
Lack of unprompted Knowledge of MTCT	3.2 (0.6 to 16.5)	0.16
Non-disclosure to partner of HIV status	3.7 (0.9 to 15.2)	0.07
Partner does not support feeding decision	4.2 (1.2 to 14.9)	0.03

Table 4
Qualitative Analysis of Semi-Structure Questionnaires and Focus Groups

Reasons given for mixed feeding

Predominantly formula feeding mothers giving some breast milk

Pressure from mother-in-law

"My mother in-law came and told me to give breast, so I complied."

Pressure from husband

"Pressure from [my] husband to breast-feed."

Pressure from family and society

"I was pressurized to give breast, so I gave for one week, and then I told them that there is no milk in my breast"

Pressure from society

"People pressurize[d] me when they came to greet me and the baby was crying."

Practical Difficulties

"When I had to travel."

Cognitive Difficulties

Woman says she wants to stop giving breast milk; counselor thinks she has cognitive deficits

Predominantly breastfeeding mothers giving complementary feeds

To give traditional concoctions to an unwell child

"My baby is sick. I gave her traditional concoction yesterday, 3 times a day. I give her another twice a day. I will give them until she is okay."

To supplement breast milk-- breastmilk is insufficient

"There are too many people in our house, and I don't get enough to eat, so I don't have enough breast milk. My mother-in-law introduced the formula and buys it for me."

Improper weaning off of breast

"[There was] pressure from family, so [I] breast fed for 3 months, then gave formula."

Lack of knowledge regarding MTCT

She delivered at the hospital and says that no one explained to her about why mixed feeding is not good.

Reasons given for exclusive feeding

To protect child from HIV

"[I] want my baby to be healthy, to not die."

To follow what was instructed by health professional

Advised not to give breastmilk

Educated not to mixfeed

Pressure from others

"My mother says I shouldn't give breast milk, [I have] fear of my mother."

Financial Incentive

"Formula is available for free."

Table 5
Qualitative Analysis of Interviews and Focus Groups: Challenges and Strategies

Types of Family Pressure
Mother-in-law
"My mother-in-law came during the delivery and influenced my choice."
Woman's family
"I breast feed because if I don't, my mother will ask questions and I won't know what to say."
Strategies to deal with family pressure
Living Separately
"I don't live with relations."
Deception
"[I] say that my breast has problems [or] is diseased [or] has an abscess."
Using Husband's authority
"My husband tells them he doesn't want his baby to be breastfed."
Hiding
"They don't know that I formula feed, I hide in my bedroom."
Using Hospital's Authority
"I tell them the hospital says I shouldn't give breastmilk."
Strongly stating preference, using woman's own authority
"I tell them I prefer formula and they don't talk again."
Reveal HIV status to family
"Previously my family did not know my status, but once I started formula feeding my baby, my mother would follow me to the hospital every time I went because she wanted to know why I wasn't breast feeding. Finally I told her my status."
Types of Financial Difficulties
Shortage of fuel
"When I run out of kerosine, I boil water at the neighbor's house."
Money for transportation
"Transportation money to come and pick up the milk [is a difficulty], because my salary is inconsistent."
Lack of partner financial support
"Now I do [have financial difficulty] because my husband just died last week."
Lack of personal income
"[I have financial difficulty] because I'm not working."
Shortage of formula
"I have had to buy formula 3 times, when it runs out."
Strategies to deal with Financial Difficulties
Assistance from missionaries
"I work with the missionaries who help."
Assisistance from family
"My mother provides financial support, [and my] brother [and] mother-in-law."
Personal savings for child
"I try to save for when I run out of formula."
Alternative modes of transport
"When I don't have transport money, I trek."

Types of Practical Difficulties

Preparing formula at night

"I have a back ache from waking up at night and preparing the baby's meal."

Lack of resources to boil water

"At night there is not kerosine to light the stove."

Inability to maintain sanitation of utensils

"[It is] difficult to keep utensils clean."

General fatigue

"I get too tired sometimes."

Maternal urge to breast feed

"It is natural to breast-feed, and not being able to is a very painful thing. Sometimes I shed tears for it."

Strategies to deal with practical difficulties

Make formula in advance

"I premake formula for night-time feeding."

Resilience

"I'm hard working and used to it."

Assistance from family

"My mother-in-law helps."

Types of Social Stigma

Stigma of not breast feeding

"People called me a "wicked woman" for not breast-feeding my baby. They said that it was my fault the baby died. They said that if I ever get pregnant again they will force me to breastfeed."

Stigma of HIV

"When I formula feed my baby everyone knows why… Whenever I cook food in the morning, I have always given some to the neighbors… Now they cover the food and throw it away when I leave."

Strategies to deal with social stigma

Deception

"I tell others that my breast does not have enough milk in it, and that is why I must formula feed."

Examples of Partner Support and Status Disclosure

"When I found out my status, my husband and I laughed over the results. We took it easily. For the feeding decision, my husband advised me to go to my mother-in-law's place and let her see me breast-feeding. I went for 3 weeks, then I returned home and switched over to formula feeding."

"When I found out my status, I wept and told my husband. He said that it's ok, it is an act of God. But I tried to commit suicide with drugs and a knife. My husband called my sister to help me. I wanted to tell my parents about my status, but the nurse advised against it. We made the decision to give formula to the baby together. My husband supports me very well."

"The first people who I told my status to were my own parents. They encouraged me to tell my husband. I told my husband and he supports me. We decided to formula feed our baby."

"When I got my HIV test done, my husband was with me. When the results came back I showed them to him right away. So he has known since the beginning and has supported me with my choice to formula feed the baby."