Perceptions of the Role of Maternal Nutrition in HIV-Positive Breast-Feeding Women in Malawi\textsuperscript{1,2}

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ABSTRACT A neglected issue in the literature on maternal nutrition and HIV is how HIV-positive women perceive their own bodies, health, and well-being, particularly in light of their infection, and whether these perceptions influence their infant feeding practices and their perceived ability to breast-feed exclusively through 6 mo. We conducted formative research to better understand breast-feeding practices and perceptions, and to inform the Breastfeeding, Antiretroviral, and Nutrition (BAN) Study, a clinical trial to evaluate antiretroviral and nutrition interventions to reduce mother-to-child transmission of HIV during breast-feeding in Lilongwe, Malawi. Twenty-two HIV-positive women living in semirural areas on the periphery of Lilongwe participated in in-depth interviews. In adaptation of the body-silhouette methodology, nine culturally appropriate body silhouettes, representing a continuum of very thin to very large shapes, were used to elicit women’s views on their present, previous-year, and preferred body shapes, and on the shape they perceived as healthy. The narrative scenario method was also used to explore women’s views on 2 fictional women infected with HIV and their ability to exclusively breast-feed. Women perceived larger body shapes as healthy, because fatness is considered a sign of good health and absence of disease, and many recognized the role of nutrition in achieving a preferred or healthy body shape. Several women believed their nutritional status (body size) was declining because of their illness. Women were concerned that breast-feeding may increase the progression of HIV, suggesting that international guidelines to promote appropriate infant feeding practices for infants whose mothers are infected with HIV should focus on the mother’s health and well-being, as well as the infant’s. J. Nutr. 135: 945–949, 2005.

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\textbullet{} HIV/AIDS

Women infected with HIV, particularly in developing country settings with high levels of background poverty, malnutrition, and food insecurity, may be particularly at risk when they are pregnant or lactating. The increased metabolic and nutrient demands of pregnancy and lactation, in conjunction with marginal nutritional status that is compounded by HIV infection, may result in maternal depletion of nutrient stores (1). International guidelines recommend women infected with HIV in such settings to exclusively breast-feed for 6 mo, if they are unable to provide adequate replacement feeds (2); but, clearly, one must consider the possible consequences to women’s health of complying with these guidelines.

A neglected yet potentially critical issue is how women infected with HIV perceive their own bodies, health, and well-being, particularly in light of their infection, and whether these perceptions may influence their choice of infant feeding or their perceived ability to exclusively breast-feed their infants through 6 mo.

Data presented here were collected as part of a larger formative research study conducted in Lilongwe, Malawi, in June and July 2002 to inform the Breastfeeding, Antiretroviral, and Nutrition (BAN) Study (3,4), a clinical trial to evaluate antiretroviral and nutrition interventions to reduce mother-
to-child transmission of HIV during breast-feeding. Primary objectives of the BAN Study include evaluating i) the benefit of nutritional supplementation given to mothers during breast-feeding, ii) the benefit and the safety of antiretroviral medications given either to infants or to their mothers to prevent HIV transmission during breast-feeding, and iii) the feasibility of exclusive breast-feeding, followed by early, rapid breast-feeding cessation (Table 1). Pregnant women with a CD4 count \( > 200 \text{ cells/\mu L} \) and hemoglobin \( \geq 7 \text{ g/dL} \) and their HIV-negative infants are eligible to enroll. Once enrolled, all women are counseled to breast-feed exclusively for 6 mo. A total of 185 women and men participated in the formative research, and research topics focused on issues surrounding infant feeding, maternal nutrition, and study participation. The overall findings of the formative research will be published elsewhere.

To better understand breast-feeding practices in Lilongwe, especially the perceived ability of HIV-positive women to breast-feed their infants exclusively for 6 mo, one of the secondary purposes of the formative research was to explore the perceived relationship between maternal health and exclusive breast-feeding. As another approach to understanding HIV-positive women’s perceptions of their health, the formative research explored the perceived association between illness and body image.

The formative research was approved by the institutional review boards at the U.S. Centers for Disease Control and Prevention and the University of North Carolina at Chapel Hill, as well as the National Health Science Research Committee in Malawi.

**METHODS**

**Sample and data collection measures**

Twenty-two HIV-positive women participated in the semistructured interviews on maternal nutrition. HIV-positive women who had an infant under 1 y old were purposefully selected and recruited by 2 AIDS support organizations in Lilongwe. Trained Malawian interviewers conducted all interviews in Chichewa, the local language. The interviews, which lasted approximately 2 h, were carried out in a private area at the offices of the AIDS support organizations. Within each interview, 2 additional qualitative research methods were used: body-image silhouettes (5,6) and vignettes (7). Using the body silhouettes methodology, nine culturally appropriate body silhouettes were used: body-image silhouettes (5,6) and vignettes (7). Using the body silhouettes methodology, nine culturally appropriate body silhouettes, representing a continuum of very thin to very large shapes, were randomly placed in a straight line in front of the participant (Fig. 1). Participants were asked to select the body silhouettes that best represented their answer to 4 questions. Follow-up probes were asked after each question to allow the respondent to expand upon her answer. Cards were reshuffled and repositioned after each question. Questions included the following: i) Which figure most closely resembles your figure? ii) Which figure would you prefer your figure to look like? iii) Which figure shows you last year at this time? iv) Which figure do you think shows a healthy woman? Direct questions regarding the association between illness and body shape were not asked. Instead, broad questions were used to explore women’s overall perceptions regarding the factors that affect body shape.

To explore participants’ perceptions regarding the ability of HIV-positive women to breast-feed exclusively, scenarios on infant feeding decision making of 2 fictional characters were presented in vignettes using the narrative scenario method (Fig. 2) (7). The first character, Theresa, was a 24-y-old HIV-positive woman with an unemployed husband. She was described and shown as heavy in the drawing. The other character, Memory, also had HIV. She was described and shown as average and her husband was employed. After the fictional scenarios were presented, follow-up questions were asked to solicit perceptions on the characters’ decisions on infant feeding. Related topics also explored included the ability of HIV-positive women to exclusively breast-feed, foods and medicines to avoid when breast-feeding, cessation of breast-feeding at 6 mo, use of vitamins, and the ability of mothers to eat a healthy diet (only perceptions regarding the ability of HIV-positive women to exclusively breast-feed are presented here).

Before the interviews, each woman provided her written informed consent.

**Data analysis**

After the analytical techniques described in Miles and Huberman (8) and Ulin et al. (9), content analysis was used to analyze the data. All interviews were audio taped and, simultaneously, were transcribed and translated into English. Both inductive and deductive codes were created by 2 investigators, and all transcripts were coded electronically in QSR NUD*IST Vivo software (10). Data matrices were used to examine the distribution of body-image shapes, and text associated with the central themes was examined for the most essential perceptions.

**RESULTS**

**Participants**

Women’s ages ranged from 20 to 39 y, and average education was 6 y (range 0–11 y). All women had young children, and all but one had a child under 1 y old. Of these, 64% were married and lived with their husbands. The women lived in a semiformal environment characterized by several indicators of extreme poverty; 77% did not have electricity in their homes, and all households used pit latrines. None of the households had an indoor water tap; 27% had an outdoor tap on their property, and 59% shared a community water tap; 64% of the women indicated there were times during the year when there was not enough food for themselves and their children.

**Perceived present, previous-year, and preferred shapes**

Perceived present shapes ranged from shape 1 to shape 7, and 68% of respondents perceived their shape as shapes 3, 4, or 5. Shape 4 was most frequently mentioned (36%) (Fig. 3). Of the 9 women who perceived their present shape to be smaller in size compared with their shape 1 y earlier, 6 believed they lost weight either because of HIV, another illness, and/or lack of food. As described by one woman: “Because I now have the virus, I have grown thin” (age 34, perceived present shape 1, previous year shape 4). Another woman said she lost weight because, “We didn’t have enough food” (age 24, perceived present shape 2, previous year shape 3).

Two-thirds of respondents preferred a larger shape from their own perceived present shape, and roughly onethird preferred to remain the same shape. Shapes 4, 5, and 6 were preferred by 68% of respondents. Women who preferred a

**TABLE 1**

<table>
<thead>
<tr>
<th>BAN clinical trial study design</th>
<th>No ARV therapy</th>
<th>Infant ARV</th>
<th>Mother ARV</th>
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ARV, Antiretroviral; Supp, supplement.
larger body shape associated their ability to attain their preferred (larger) shape with eating a nutritious, balanced diet. Moreover, several women expressed their preference for a larger shape because larger-shaped women were sick less often. For example, one woman said, “[Shape 5] is fat and healthy. If somebody is thin, it shows that there is a problem” (age 39, perceived present shape 1, preferred shape 5). When asked what she could do to become her preferred shape, she responded, “Now that is difficult because I am sick. I realized I was sick because of the loss of weight. There is nothing I can do to look like preferred shape because the disease is there.”

In addition, several women suggested that together with eating a nutritious diet, avoiding casual sex would help them to become their preferred shape. As explained by one woman, “Being faithful and eating different types of food [will help to become preferred shape.] If I indulge myself in casual sex, I can just add viruses in my body” (age 29, perceived present shape 6, preferred shape 9).

Perceived healthy body shapes

One-half of women perceived the 2 heaviest shapes as healthy shapes (Fig. 3). These shapes were perceived as healthy for reasons similar to those given for the preferred body shapes. For example, one woman chose shape 9 (obese body silhouette) as a healthy shape because: “She is the fattest woman of all. A person with good health, we usually see the body being fat” (age 32, perceived present shape 4, perceived healthy shape 9). In addition, several women suggested that women with larger shapes were free of diseases and sick less often: “[Shape 9] is fat and she looks healthy as if she does not have viruses” (age 34, perceived present shape 1, perceived healthy shape 9). Another woman said, “[Shape 9] doesn’t get sick often” (age 22, perceived present shape 7, perceived healthy shape 9). Similar to other respondents, she also suggested that women with larger shapes were able to regularly consume nutritious, balanced diets: “She eats a balanced diet of vegetables, beans, meat, and nsima [the local maize staple]. Vegetables protect from diseases, beans provide protein, meats are body-building foods, and nsima provides energy.” A mid-size shape was also perceived as healthy such that 23% of women chose shape 5 as a healthy shape. As described by one woman, “You know, the body needs to be free and this one (shape 5) is the one which can be free. She is not very fat but is in the middle” (age 37, perceived present shape 3, perceived healthy shape 5).

We hypothesized that the body shapes the women preferred would also be the ones they considered healthy. Interestingly, however, whereas one-half of respondents indicated that shapes 8 or 9 represent a healthy shape, only 3 respondents indicated that they would prefer that their shape be 8 or 9. At the same time, women believed that larger shapes were a sign of adequate nourishment and few illnesses, several suggested that having too much fat prevented women from being active. As described by one woman, “This woman (shape 4) is not too fat or too thin. She looks active” (age 27, perceived present shape 4, perceived healthy shape 4).
Maternal health and exclusive breast-feeding

In response to the vignettes, most women believed Theresa had no other choice but to breast-feed her infant, because replacement foods were not affordable. One woman said, “She has to breast-feed because she has no money to buy milk” (age 39). Another woman said, “Theresa will have to follow instructions from the nurse because she can’t stop breast-feeding because sometimes she may not have money to buy baby formula. So if she stops breast-feeding the baby, the baby will not be well” (age 21). A few women acknowledged the risk of HIV transmission during breast-feeding but stressed that there was no alternative but to breast-feed. For example, one mother said, “The problem is that if she can’t breast-feed the baby, the baby will starve. But there is also a danger of transmitting the virus to the baby. What Theresa can manage is to breast-feed because she doesn’t have money. If there was some money, she would have tried to buy infant formula milk” (age 29). Only 2 women were concerned about the stigma associated with not breast-feeding because one is HIV positive.

However, few believed that Theresa could breast-feed exclusively for 6 mo. For example, one woman said, “Because she is lacking money, she will not eat a balanced diet. Therefore, she will not have sufficient milk” (age 22). Another woman said, “The way she is looking is that she is sick and therefore it is not possible for her to breast-feed her child only but give her some other foods like porridge, in addition to the breast milk” (age 24). Moreover, women suggested that Theresa’s overall health would be compromised if she breast-fed without maintaining a nutritious diet. As explained by one woman, “Breast-feeding can affect her life if she is not eating adequately because as the baby breast-feeds, she takes out some things from her mother’s body and therefore you need to eat a lot to replace these foods” (age 37). Similarly, another woman said, “Because some babies suck nonstop, this would make Theresa become weak. The baby who sucks too much reduces blood volume in the mother’s body and this would render the mother weak and pale, and she would become anemic” (age unknown). In addition, many women believed that because Theresa is HIV positive, breast-feeding would accelerate the progression of HIV, because of the physiologic impact of lactation. One woman said, “When you have the virus, there’s a need to eat different types of food. For a breast-feeding mother, she can be sharing her vitamins with the baby, thus paving the way for the virus to multiply in the mother” (age 29). A few women suggested, however, that adequate nutrition could maintain Theresa’s health during breast-feeding. For example, one woman said, “Since Theresa is HIV positive and if she has good food, she will be all right. But if she doesn’t have enough food, she will have problems. She will not have enough energy and as a result she will die” (age 34).

In contrast to Theresa, several women said that Memory would be able to breast-feed her infant exclusively for 6 mo because of her ability to maintain a healthy maternal diet. As explained by one woman, “Because she is well nourished and she has money, she is able to buy foods which can further improve her nutrition” (age unknown). Another woman said, “Memory has money, and therefore she will have enough food to be able to produce breast milk for the baby. Theresa does not have money, so breast milk will not be enough for the baby because she will lack food for milk production” (age 22). Only 2 respondents said that Memory should not breast-feed her infant because she could afford replacement foods (milk or formula) instead.

DISCUSSION

This study investigated how women infected with HIV in a semirural setting of Malawi perceive their bodies, health, and well-being in the context of their illness. We also explored their perceptions about the ability of HIV-positive women to follow counseling recommendations to exclusively breast-feed their infants through 6 mo. The use of body silhouette cards
adapted for the setting, combined with a narrative scenario method conducted within in-depth interviews, is a unique method in the literature on HIV and nutrition, because we are not aware of the use of these methods among HIV-positive women in any other setting.

Our data suggest that the majority of women we interviewed are substantially well informed about issues related to HIV, nutrition, and infant feeding. First, they clearly understand the linkages between their infection status and their risk of weight loss, morbidity, and mortality. They also make a correct link between access to adequate nutrition, dietary quality, and maintaining health. Thus, the preferred choice of two-thirds of women to have a larger body shape than their present shape, which they also considered healthy, is both rational and scientifically correct. They understand the constraints of poverty and the lack of access to resources to protect their health status, particularly in light of their infection. They are acutely aware of the dilemma they face as they balance the risks of continuing to breast-feed (increasing the risk of HIV transmission through breast milk) vs. the risk of not breast-feeding their infants (the potential for growth faltering and malnutrition). Their knowledge and ability to articulate these issues, with a mean educational level of just 6 years, is both remarkable and poignant in light of the extreme poverty and chronic food insecurity that they are experiencing while each day carrying the heavy burden of HIV infection.

In general, women perceived the larger body shapes to be healthy, and most women wanted a larger body shape than they were at present. One-half of the women in this small sample chose silhouette cards 8 and 9 (morbidly obese shapes) as those that were healthy. Fatness and larger body shapes are considered to be signs of good health in this setting and fatter women were thought to be less susceptible to disease, including HIV. Women also made a direct link between these fatter and presumed healthy shapes and access to dietary quality and good nutrition. They were aware of the need for a high-quality diet to maintain their health and to meet the demands of lactation. Several women linked their infection status and a lack of access to a high-quality diet as contributing to declining nutrition or body-weight loss. Therefore, these women infected with HIV in Malawi, indeed, understand the linkages between HIV, nutrition, and health status.

Through the fictional characters, we probed directly on the link between the respondents’ perceptions of the health of HIV-positive women and their ability to follow recommendations to exclusively breast-feed through 6 months of age. Most women believed that poor maternal nutritional status and diets were obstacles to exclusive breast-feeding. Moreover, several women were concerned that breast-feeding and its physiological demands would compromise the health of HIV-positive women unless they could supplement their diet with high-quality foods. Many noted, however, that the high cost of supplemental foods or replacement food (e.g., infant formula) for infants of HIV-positive women would prohibit both of these options. In Malawi, infant formula is as expensive as generic antiretroviral therapy. Thus, women clearly understand the difficult choices they face, with no clear solution to protect either themselves or their infants.

In conclusion, periodic food insecurity and HIV are compromising the nutritional status of Malawian mothers and their children (11). These conditions underscore the importance of providing maternal nutrition support to HIV-positive women during infant feeding counseling or treatment, particularly in resource-constrained settings (12). HIV-positive mothers face many difficult dilemmas when making decisions for themselves and their children. Avoidance of all breast-feeding by HIV-positive mothers is recommended when replacement feeding is affordable, feasible, acceptable, sustainable, and safe (2), but these conditions were not found in our study population. Making breast-feeding safer for mothers and infants in Malawi and in similar settings, an objective of the BAN trial, is therefore an urgent priority.

LITERATURE CITED


