



A • M • E • R • I • C • A • N
A N T H R O P O L O G I C A L
A S S O C I A T I O N

More than Nutrition: Breastfeeding in Urban Mali

Author(s): Katherine A. Dettwyler

Reviewed work(s):

Source: *Medical Anthropology Quarterly*, New Series, Vol. 2, No. 2 (Jun., 1988), pp. 172-183

Published by: [Wiley-Blackwell](#) on behalf of the [American Anthropological Association](#)

Stable URL: <http://www.jstor.org/stable/649160>

Accessed: 14/09/2012 11:51

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at
<http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Wiley-Blackwell and American Anthropological Association are collaborating with JSTOR to digitize, preserve and extend access to *Medical Anthropology Quarterly*.

<http://www.jstor.org>

KATHERINE A. DETTWYLER
Department of Anthropology
Texas A & M University

More Than Nutrition: Breastfeeding in Urban Mali

Ethnographic research on infant feeding among women in Mali reveals that breast milk substitutes are not widely used, with only 15 out of 136 children (11%) ever having received a breast milk substitute. This is an exception to the general trend toward substantial use of breast milk substitutes in urban Third World contexts. Economic constraints, pro-breastfeeding government policies, and beliefs about the value of breast milk all function to support the maintenance of breastfeeding. In addition, traditional kinship beliefs strongly affect maternal perceptions of the opportunity costs of alternative infant feeding choices, since only breastfeeding creates maternal kinship.

In all societies, maternal choices among alternative infant feeding strategies are based on a number of complex factors, including environmental constraints, economic and political conditions, women's workloads, and cultural beliefs about the nature of children and the nature of food. They are seldom, if ever, made simply on the basis of which alternative is cheaper or more convenient. Indeed, even the relative cost of breast milk substitutes in terms of time, money, and convenience are culturally defined. However, the role that cultural beliefs play in defining and constraining women's infant feeding choices has often been ignored in favor of simple economic or "convenience" models.

During the past decade, a number of cross-cultural surveys of infant feeding practices have been published. Much of this literature has focused on the "infant formula controversy"—the trend in the urban centers of many Third World countries away from breastfeeding and toward the use of infant-feeding bottles and/or commercial formula, with detrimental effects on the health of children (Jelliffe and Jelliffe 1978; Raphael and King 1977; Stupiansky 1982; World Health Organization 1981). Often the blame for this shift has been laid at the feet of multinational corporations, such as Nestlé, whose aggressive advertising campaigns have suggested that formula/bottle¹ feeding is the "Western" or "modern" way to feed infants. Lacking money, education, and sanitary water sources, so the argument goes, poor urban mothers prepare infant formula improperly, diluting it to make it go further and mixing it with contaminated water. The result is a dramatic increase in infant morbidity and mortality in these communities. More recently, Raphael and Davis (1985) have suggested that multinational corporations are not to blame. They suggest that other factors account for the rise in infant morbidity and mortality, that mothers choose the infant feeding option that is best

suited for their particular situation, and that formula/bottle feeding may be the best option in certain circumstances.

It is not my intent here either to refute Raphael and Davis or to repeat the arguments that have surrounded this controversy. Instead, I will present data from Farimabougou, Mali, an urban Third World community in which breastfeeding is still overwhelmingly the infant feeding choice, and try to answer the question, "Why has breastfeeding persisted in this community?" Or, conversely, "What particular economic or political factors and/or cultural beliefs prohibit women from considering formula as a viable option for infant feeding?" In this discussion I will show that Van Esterik's distinction between breastfeeding as a *process* and breast milk as a *product* (Van Esterik 1985) is a particularly useful concept for understanding women's behavior in this community.

Research Methods

Research on infant feeding and growth was conducted in Farimabougou, Mali, during 1982 and 1983. The community is one of approximately ten peri-urban squatter settlements located across the Niger River from the capital city of Bamako. Information concerning breastfeeding and weaning beliefs and practices comes from two sources. The first source is a sample, selected for the collection of mixed-longitudinal data on growth and development.² The sample consists of approximately 5% of the compounds in the community, and was selected primarily on the basis of the infant's age and the mother's willingness to cooperate over the extended research period of 20 months. A detailed description of the sample selection procedure is available elsewhere (Dettwyler 1986). The sample includes 136 infants from 117 compounds, and includes 20 sibling pairs. These 117 compounds were visited once every four to eight weeks. A number of anthropometric measurements were taken, and information was collected about feeding patterns and health. These visits also provided observational data about actual infant feeding practices. All interviews were conducted in Bambara, which is the native language of most of the informants and is spoken as a second language by the rest.

At each visit, if the mother had time after we collected these standard items of information, we discussed other topics, such as breastfeeding and weaning practices, beliefs about child rearing in general, and attitudes toward pregnancy. Fathers, relatives, and visiting friends sometimes contributed information on these topics, but since mothers have virtually total responsibility for infant feeding, the majority of my information comes from them. These discussions, which were open-ended and often provided extremely detailed information, constitute the second source of data concerning the breastfeeding and weaning beliefs and practices that are presented in this article.

Ethnographic Background

According to estimates made by the World Bank in 1979, the population of Farimabougou in 1983 was approximately 22,000 people, contained within 2,336 compounds (World Bank 1979). In terms of ethnic identity, the parents of children involved in the study identify themselves primarily as either Bambara or

Mandinka (67%), with smaller numbers of Fulani, Senoufo, Songhai, Bobo, and Dogon.³

Houses in Farimabougou are mostly of mud brick construction with corrugated iron roofs, and are located inside mud-walled compounds which are closely packed along narrow dirt streets. Compounds have neither running water nor electricity. Light is provided by kerosene lanterns, and water either comes from a deep well inside each compound or is purchased from water trucks filled at the river. Each compound has a pit latrine. The daily open marketplace is centrally located and serves as the source of most food and the focus of public activities.

Traditionally, the Malian economy has been based on subsistence agriculture. Bamako and squatter settlements like Farimabougou, however, operate primarily on a cash economy. The most common occupations of fathers are merchant, cash crop farmer, chauffeur (taxi driver, bus driver), and carpenter, with a variety of other skilled and unskilled occupations represented.

In addition to the fathers, three of the mothers of children in the sample are employed: one as a schoolteacher, one as a nurse, and one as a cook. Some of the mothers occasionally sell food or herbs in the daily market, and one regularly sells fried potatoes door-to-door. Some families grow a few vegetables in their compounds or have a small garden plot near the river, but essentially all food is purchased in the daily market with cash obtained from wage labor.

The Malian diet is based on the consumption of two cereal staples, rice and millet. The noon and evening meals consist of a large quantity of rice (*kini*) or millet (*to*), served with a sauce. The most common sauces are made from okra, peanut butter, tomatoes and onions, green leaves, or *soumbala* (fermented locust bean). Animal protein in the diet usually comes from beef or fish and is pounded before being added to the sauce. According to several food consumption surveys, adult Malians have an adequate diet in terms of both protein and calories (Clairin, cited in May 1968; Diakite 1968; Mondot-Bernard and Labonne 1982).

Traditional Bambara social organization entailed patrilineal descent, patrilocal residence, and polygynous marriages. Compounds thus contained large extended families formed by a core of patrilineally related men, plus their wives and children (N'Diaye 1970). This type of social organization is seldom realized in Farimabougou. Usually only one adult male in a family migrates to the city, and he usually has only one wife because of economic constraints. In view of these factors, the majority of children in the study (72%) belong to parents in monogamous marriages; most (65%) live in compounds containing only nuclear family members.

Except for a few Christian families, the people of Farimabougou are Moslem. For the most part, however, women do not follow strict Moslem teachings: they are not secluded, seldom go to the mosque or pray at home, rarely fast during Ramadan, and are not familiar with Koranic guidelines concerning infant feeding. (The Koran recommends breastfeeding for two years but states that children may be weaned earlier by mutual consent of the mother and father.) For both men and women, Islamic beliefs coexist with traditional religious beliefs and practices. Sickness and death, however, are usually attributed to Allah rather than to either organic causes or witchcraft and sorcery.

The majority of women who participated in the study were born in rural villages and have lived in the urban environment for less than 20 years. Data on

length of residence reveal a tendency to report this information in five-year intervals, with approximately equal numbers of women reporting urban residence of five, ten, fifteen, and twenty years. The women have had little or no formal education, speak Bambara but not French, and can neither read nor write. More detailed descriptions of the study community can be found in Dettwyler (1985, 1986).

Results

To understand Farimabougou mothers' selection of breastfeeding over bottle or formula use, one must first comprehend the local culture of breastfeeding.

The Cultural Context of Breastfeeding and Women's Work

Traditionally, breastfeeding was the only infant feeding option available to Malian women. Even today, so few women use breast milk substitutes that young women seldom can be said to "choose" whether or not to breastfeed. They grow up surrounded by older women nursing babies and expect to be successful at nursing their own children. Infants are nursed on demand, day and night. It is considered a primary right of children to be nursed whenever they want, for as long as they want, as often as they want. In addition to providing nourishment, babies are also nursed for comfort if they are hurt, sick, tired, or frightened. This aspect of nursing is considered as important as nursing for nourishment. If for some reason the mother is not available and the baby is crying, another woman, such as the maternal grandmother or a co-wife, will allow the baby to suckle. Solid foods are added to the diet at the median age of 7 months, with a range of 3 to 24+ months, and a mode of 6 months; the median age of complete weaning from the breast is 21 months, with a range of 6 to 32 months, and a mode of 24 months (see Dettwyler 1987 for more complete descriptions of breastfeeding and weaning practices).

Generally speaking, nursing bouts (separate nursing episodes) are very frequent—on the order of several to many times per hour—and usually last less than 15 minutes. This pattern continues until complete weaning. Despite the fact that most children nurse very often both day and night, women do not view this as a burden or an inconvenience. Breastfeeding is not culturally defined as an activity that significantly constrains a woman's activities.

When very young, an infant's head is supported during breastfeeding, but by the age of four months the infant, lying across the mother's lap, is expected to find the breast by herself, and the mother gives the baby little physical support or attention during feedings. This leaves both of the mother's arms free for other tasks, which means that nursing her baby need not interrupt her work. Breasts are not considered sexual objects, and nursing is not considered to be a private activity. When a woman needs to work or travel somewhere, her infant is tied on her back with a cloth wrap. It is not considered dangerous for infants or new mothers to go outside their compounds, and young infants are often taken on walking trips involving miles, or they may travel with their mothers on mopeds or in "bush taxis." When the baby needs to nurse, he is simply pulled around onto the mother's hip where he can reach her breast while still supported by the sling.

Women take babies and young children everywhere—to the market, to the fields, on visits to friends, to rural villages, even to work. Market women almost always have a baby on their laps or seated at their feet. The infants nurse, sleep, and play while their mothers sell food or other market items. Even in the formal sector, returning to wage employment does not necessarily mean giving up breastfeeding, as some employers allow women to bring their infants to the job. In view of the few women involved in formal-sector employment, this variable was not a major factor in my study. However, other women employed in the formal sector were observed at work with their nursing babies at an engineering consulting firm, a government hospital, various government offices, the Meteorological Society, and the English language school run by the Agency for International Development. In such cases babies were observed to spend the day tied on their mothers' backs or playing or sleeping on the floor by the desk. Sometimes the baby of an employed mother is cared for outside by an older sibling or hired nursemaid, who brings the baby in for feeding when it cries. This lenient attitude on the part of employers reflects the importance of breastfeeding in this culture and the general tolerance of infants by adult men.

With regard to the effects of women's work on infant feeding strategies in other societies, the evidence is mixed. Brown (1970) concludes that women are limited to certain types of productive activities by breastfeeding, because it requires the mother's constant presence and frequent interruptions of her work. Nerlove's (1974) comparative data suggest that women supplement earlier (with solids or breast milk substitutes) when their productive activities are not compatible with breastfeeding. However, Van Esterik and Greiner (1981), in summarizing the arguments about the relationship between increasing formal sector employment among women and declining breastfeeding frequencies and durations in the developing world, point out that many women successfully combine breastfeeding and employment, and that the often-cited "evidence" does not, in fact, support the claim that breastfeeding and women's work are incompatible. At the same time, evidence from Melanesia (Akin 1985; Barlow 1985) and Nepal (Levine 1986) suggests that in some societies even domestic or subsistence labor in rural settings may be incompatible with breastfeeding both because of cultural beliefs about dangers to infants and children outside the home and because of the perceived inconvenience to the mother of having the infant with her.

In Mali, because women and their infants are allowed to travel everywhere together, the mother does not have to stay at home to nurse her infant. The infant is simply taken along wherever the mother cares to go and is welcome in almost any situation. Even in the formal sector, there are few contexts requiring the presence of the mother that forbid the presence of the infant. Thus, cultural definitions of when and where it is appropriate for infants to go and for mothers to nurse have at least as much impact on infant feeding choices as the conditions of women's work.

Bottle/Formula Use

Breast milk substances available in Farimabougou include powdered commercial infant formula, powdered whole milk, Cerelac (a cereal-milk combination), pasteurized cow's milk, and raw cow's milk. Powdered commercial infant

formula is sold only in pharmacies, the nearest of which is approximately two kilometers away. In 1982 the cost of a can of formula ranged from 1,400 to 1,800 Malian francs (700 FM = \$1.00). Equivalent cans of powdered whole milk cost only 1,000 FM and were sold at the local shops in every neighborhood. Thus, powdered milk is cheaper and more widely available than infant formula. In addition, families often keep powdered milk on hand for use in the breakfast porridge and coffee.

Cerelac comes in several varieties (wheat, rice, oat). When prepared it has the consistency of thin Cream of Wheat and must be diluted further to be given in a bottle with a nipple. Cerelac is only rarely used as a substitute for breast milk; occasionally it serves as an infant's first "solid" food.

Pasteurized cow's milk must be refrigerated, and is generally sold only in larger stores outside the community. It is sometimes available in the local market in the late afternoon, however. Raw cow's milk from Fulani herds is sold door-to-door in the late afternoons during the rainy season (June–August). While usually cheaper than other forms of milk, it must be used immediately and is often already soured by the time it is offered for sale, which prevents it from flowing smoothly through the nipple. It is also said to upset children's stomachs. For these reasons, its use as a breast milk substitute is limited.

Like commercial infant formula, bottles and nipples are offered for sale only in pharmacies. Although some women use baby bottles with nipples, most women who use breast milk substitutes offer them in cups or empty formula or powdered milk cans. This means that infants must learn to swallow from the cup at an early age if given a breast milk substitute.

Only 15 of the 136 children in the sample (11%) had ever received any kind of breast milk substitute. In 14 of the 15 cases, the bottle/formula was used to supplement breast milk, rather than replace it, and in 11 cases it was added to the diet because the mother had experienced problems with breastfeeding. These included "insufficient milk" (nine cases) and sore breasts or nipples (two cases). One woman had used formula with an older set of twins, who were quite healthy, and decided to continue it with her next child. Two women could not provide any specific reason for their decision to use bottles/formula to supplement breastfeeding. The one case where infant formula was used to replace breast milk involved the child of a maternity nurse. The infant was exclusively breastfed for six months and then weaned onto formula when the mother returned to work full-time. Although the mother could have taken her baby to work with her, she preferred leaving him in the care of his father, who worked at home building furniture.⁴

Economic Constraints

The World Bank has defined the "urban poverty threshold" for Bamako as 30,000 FM (approximately \$60.00) per household per month (1979). According to the World Bank, almost half of the households in Farimabougou have an income below the urban poverty threshold, and the average income is 40% lower than that of Bamako (World Bank 1979). Given the low average income, the cost of using formula and/or other breast milk substitutes on a regular basis would be prohibitive for almost all community residents. For example, if a child were given only properly prepared formula, and one can costing 1,600 FM lasted approxi-

mately five days, the cost per month to feed an infant would be 9,600 FM. This represents almost one-third of the total income for families at the urban poverty threshold, and an even greater proportion for families below the threshold.

Even for families with greater discretionary income, other items are usually given higher priority than the purchase of breast milk substitutes. These include school fees, medical care, remittances to rural relatives, gasoline for mobylettes, bus fare, and clothing, to name only a few. For these reasons, it is impossible to specify whether a family can or cannot "afford" infant formula. Most do not choose to spend any of their income, regardless of its adequacy, on breast milk substitutes—or, for that matter, on more or better food for other family members (Dettwyler 1986). The few women who use formula or powdered milk to supplement their own breast milk buy it when their other needs have already been met at some minimal level—for example, if no one has been sick that week. When they are short of funds, the child receives only breast milk until money is available again.

Government Policy

The Malian government has developed a number of programs to promote breastfeeding and discourage the use of formula. Radio programs, restrictions against the advertising of formula in printed media, regulations against the promotion of formula in maternity clinics (where 85% of children are born), and recommendations by clinic personnel not to use formula all operate to reinforce traditional feeding practices.

Breast Milk As a Product

In her summary to Marshall's *Infant Care and Feeding in the South Pacific* (1985), Van Esterik draws a distinction between viewing breastfeeding as a *process* and breast milk as a *product*:

It is likely that the more traditional interpretations are primarily process models in societies where women breastfeed successfully. The biomedical model built on accumulated scientific evidence about breastmilk composition and the functions of specific nutrients in breastmilk is a product oriented model. . . . It is this emphasis on breastmilk as a product which has been particularly advantageous to the expansion of the market for breastmilk substitutes. Infant formula is an item to be sold, and as such, can be compared with another product, breastmilk. . . . It would be difficult to imagine a process oriented campaign for breastmilk substitutes. [1985:339–340]

The conceptual distinction between product and process is useful for understanding how women in any community feel about nursing their children. Women in Farimabougou do perceive of breast milk as a product and will discuss its attributes. In general, people say that breast milk is the best food for infants and makes them strong and healthy. A baby's own mother's milk is considered better for it than another woman's milk or formula. People also claim that babies were stronger in the "old days," when they were nursed until three or four years of age and before bottle-feeding was introduced. Bottle-fed infants are perceived as being weaker and more sickly than breastfed infants, because the product is in-

ferior. Several women stated specifically that breast milk acts to protect babies from illness. In addition, women report that a sick baby will often refuse to eat but will always nurse, so that breast milk may provide the only nourishment during an illness. If a child becomes thin after weaning, its mother will say that it is not as "heavy" as before, because breast milk makes a child "heavy." Some people also say that formula can make a child tall, but only breast milk can make a child "heavy," healthy, and strong.

The women of Farimabougou also believe that breast milk can vary in both quality and quantity from woman to woman. It is a widespread belief in the community that a fat baby results from a mother with "good" milk. Women say that it is the quality rather than the quantity of milk that is the important factor. Likewise, a thin baby may be the result of the mother having "bad" milk.

The women of Farimabougou believe that during lactation breast milk is produced "from the blood" and that each woman has a finite amount of blood in her body during her lifetime. Therefore it is impossible to increase or compensate for any lost blood or to affect the quantity of breast milk available through diet or medicine. If a woman loses a lot of blood in an accident, for example, she will probably not have enough breast milk for her children and will have to supplement with breast milk substitutes or solid foods. Older women who have already nursed many children will likewise have a poor milk supply and will be tired all the time because they have "used up" all of their blood (Dettwyler 1987). Thus, women do perceive breast milk as a product, transformed from blood, which can vary in quality but is generally superior to infant formula.

Breastfeeding As a Process

Perhaps the most widespread belief about breast milk in this community, cutting across all ethnic, age, and socioeconomic categories, is that because it is made from a woman's blood, the process of breastfeeding creates a special relationship between a child and the woman from whom it nurses, whether or not she is the baby's biological mother. In addition, breastfeeding creates a bond among all children who nurse from the same woman, whether or not they are biological siblings.⁵

In this strongly patrilineal society, children of the same father are bound by ties of common "blood." Children inherit their father's "blood" via his semen, which, through intercourse, is the cause of pregnancy. The children of one man, even if they have different mothers, cannot marry or have sexual relations because they "share the same blood." Some people extend this relationship another generation to include all the grandchildren of one man (thus ruling out marriage between cousins), while others limit the marriage taboo to one generation and even encourage marriage between cousins. Of particular importance to this discussion is the fact that the marriage taboo is predicated on the concept of "shared blood."

Analogous to the belief that children of one father share the same blood by virtue of inheritance, children who nurse from the same woman are said to share the same blood through her breast milk. In fact, children of the same woman are related to each other on the maternal side not because they were all born from her body, but because they all nursed from her breast. Thus, breast milk is thought of as a "product" with some very special attributes, and these attributes are incor-

porated by the infant during the "process" of breastfeeding itself. Two children who nurse from the same woman are related through the process itself and cannot marry, whether they are "genetically" related or not. *Shin-kelen* (literally, "one breast"—i.e., nursing from the same woman) creates an even stronger taboo against incest or marriage (in terms of punishment for transgressions) than having the same father. For the same reason, bonds of kinship between full siblings (same mother and father) are considered stronger than bonds between half-siblings (same father, different mothers). This belief is also reflected in the kinship terminology: a man may refer to his full brother as *shin-ji* (literally, "breast milk").

Every woman hopes that her children will grow up and marry her friends' children, and a son's wife is often chosen from among the daughters of his mother's friends. Therefore, women do not nurse their friends' babies, as this would eliminate the possibility of their children marrying as adults. Only in an extreme situation would a woman nurse a friend's child—for example, if the friend died in childbirth and no one else was available to nurse the infant.

Women routinely nurse children other than their own, if doing so will not jeopardize future marriage prospects. That is, women can and do nurse children who are already of "the same blood" and therefore not marriageable. Depending on which of the two aforementioned marriage prohibitions one adopts, this may include co-wives' children, grandchildren through daughters, brothers' children, and husband's brothers' children. In the latter case, only co-wives' children could be nursed.

The most commonly occurring instance of a woman nursing a child other than her own in Farimabougou is that of a woman and her daughter's baby. According to the rules of kinship and exogamy, a woman could technically also nurse her sons' children, but this does not happen. A woman's daughters may marry as young as 13 years of age and have children while their mother is also still bearing and nursing children of her own. In addition, women say that "a woman and her daughters are the same," especially with regard to nursing. Conversely, a woman's sons usually do not marry and have children until relatively late (25 years or older). Thus, women say they will be too old to nurse their sons' children. Even if a woman still has milk at the time her son has a child, the traditional antagonism between a woman and her daughter-in-law makes it unlikely that a woman will nurse her son's children.

During the study, a number of women were observed nursing children other than their own biological offspring. Most often this involved a woman nursing her oldest daughter's first baby, but instances involving co-wives or other relationships were also observed.

The belief that women become related to their children primarily through the process of breastfeeding is not unique to the Bambara and related peoples of Mali. Similar beliefs have been reported by Davis (1985) for Haiti, Counts and Counts (1983) for the Kaliai of Papua New Guinea, Farb and Armelagos (1980) for an area reaching from the Balkans east to Burma, and Dickson (1949) for the Badawin of Kuwait and Saudi Arabia.

Discussion and Conclusions

In this article I have discussed infant feeding beliefs and practices in a peri-urban squatter community in Mali where breastfeeding is still the overwhelming

infant feeding choice. Economic constraints and explicit pro-breastfeeding government policies contribute to the maintenance of breastfeeding. Most important, traditional beliefs about the qualities of human milk and the process of breastfeeding itself function very strongly to inhibit the use of breast milk substitutes.

In this community, breastfeeding is seen as a special process that creates bonds of kinship between women and children and among children. Breastfeeding is *more* than nutrition. The decision to substitute infant formula in a bottle for the complex process of breastfeeding is more than just a decision about the relative cost or nutritional value of the two products or the practical convenience of the two processes. A woman in Farimabougou who decides not to breastfeed is, in effect, deciding not to be related to her children. On numerous occasions, when discussing the use of breast milk substitutes, women expressed uneasiness at the implications for maternal kinship of giving up breastfeeding. Economic constraints were clearly viewed as secondary considerations. Even if breast milk substitutes were relatively inexpensive, in this strongly patrilineal society where a woman's rights to her children are tenuous at best, few women at the present time will willingly choose to give up their primary tie to their children. Thus, where breast milk has more than nutritional importance, and where breastfeeding is viewed not as a constraint on women's activities but as a process that provides contact and comfort and that creates kinship, bottle feeding has been resisted.

NOTES

Acknowledgments. This research was supported in part by grants from Sigma Xi and the Graduate School of Indiana University. The ideas were developed further during participation in a National Endowment for the Humanities Summer Seminar for College Teachers, "Anthropology of Food and Foodways," in 1987. The author also wishes to thank Rita Gallin, Alan Harwood, Sheila Cosminsky, and the anonymous reviewers for helpful comments on earlier drafts.

Correspondence may be addressed to the author at the Department of Anthropology, Texas A & M University, College Station, TX 77843.

¹It is important to recognize that infant bottles may contain a variety of products used as breast milk substitutes, including commercial infant formula, powdered milk, diluted commercial infant cereals, and diluted gruels made from the local carbohydrate staple. Additionally, any of these breast milk substitutes may be given in a cup or with a bowl and spoon, rather than in a bottle. The phrase "formula/bottle" is used in this article to indicate the use of a breast milk substitute, which may or may not be commercial infant formula, and may or may not be given in a bottle.

²A mixed-longitudinal study is one in which children enter and leave at different ages, thus providing varying degrees of longitudinality. As such, it represents a combination of a cross-sectional study, in which individual children are measured only once, and a pure longitudinal study, in which all children enter at the same time and are retained until the end of the study. Children left the sample through death, migration, or parental decisions not to continue cooperation. Children were added to the sample through birth (younger siblings of children already in the sample), parental requests to be included, or recruitment because they represented some aspect of the population not present in the original sample (twins, older mothers, etc.).

³Two-thirds of the sample consists of people who identify themselves as either Bambara or Mandinka. These are closely related ethnic groups, speaking mutually intelligible languages, and sharing many features of culture and social organization. Although there are a variety of other ethnic groups identified in the sample, "ethnic identity" is a prob-

lematic issue in this region, where people assume the ethnic identity of their fathers. Many of the children in the study have parents of differing ethnic backgrounds, and many of the parents themselves are of mixed ethnic origin. So, for example, a woman who identifies herself as "Bambara" based on her father's lineage, may have a mother who is ethnically Dogon. If she is married to a Fulani, her children will be ethnically Fulani. In addition, many generations of migration and contact have resulted in situations where, for example, people retain Fulani surnames and ethnic identity, but speak Bambara and live as sedentary agriculturalists. Analyses of the data reveal no consistent differences in beliefs relating to infant feeding according to ethnic affiliation. Geographic differences, on the other hand, were often cited by the women themselves as explanations for why other Bambara women held different beliefs about infant feeding. The beliefs about breastfeeding reported in this article are ascribed to by the majority of the women in the sample.

⁴More detailed information about children supplemented with formula can be found in Dettwyler (1987).

⁵According to my informants, the creation of kinship ties via breastfeeding does not operate in a linear, additive fashion. That is, a woman who nurses her child for two years is not somehow *more* related to that child than to the child she nurses for only one year. The women did not specify an exact minimum duration of breastfeeding necessary to establish definite bonds of kinship, but felt that women who nursed their children for only a few months were definitely taking a risk in that regard.

REFERENCES CITED

- Akin, K. Gillogly
 1985 Women's Work and Infant Feeding: Traditional and Transitional Practices on Malaita, Solomon Islands. *In* *Infant Care and Feeding in the South Pacific*. Leslie B. Marshall, ed. Pp. 207-233. New York: Gordon and Breach.
- Barlow, Kathleen
 1985 The Social Context of Infant Feeding in the Murik Lakes of Papua New Guinea. *In* *Infant Care and Feeding in the South Pacific*. Leslie B. Marshall, ed. Pp. 137-154. New York: Gordon and Breach.
- Brown, Judith K.
 1970 A Note on the Division of Labor by Sex. *American Anthropologist* 72:1073-1078.
- Counts, Dorothy Ayers, and David R. Counts
 1983 Father's Water Equals Mother's Milk: The Conception of Parentage in Kaliai, West New Britain. *In* *Ideologies of Conception in Papua New Guinea*. D. Jorgensen, ed. *Mankind* 14(1):46-56.
- Davis, Wade
 1985 *The Serpent and the Rainbow*. New York: Simon and Schuster.
- Dettwyler, Katherine A.
 1985 Breastfeeding, Weaning, and Other Infant Feeding Practices in Mali and Their Effects on Growth and Development. Ph.D. dissertation, Department of Anthropology, Indiana University. Ann Arbor: University Microfilms.
- 1986 Infant Feeding in Mali: Variations in Belief and Practice. *Social Science and Medicine* 23(7):651-664.
- 1987 Breastfeeding and Weaning in Mali: Cultural Context and Hard Data. *Social Science and Medicine* 24(8):633-644.
- Diakite, Seydou
 1968 Nutrition in Mali. *Proceedings of the West African Conference on Nutrition and Child Feeding*, Dakar, Senegal, March 25-29, 1968. Pp. 87-97. Washington: U.S. Department of Health, Education, and Welfare, Public Health Service.

Dickson, H. P. R.

1949 *The Arab of the Desert: A Glimpse into Badawin Life in Kuwait and Sau'di Arabia*. London: George Allen & Unwin, Ltd.

Farb, Peter, and George Armelagos

1980 *Consuming Passions: The Anthropology of Eating*. Boston: Houghton Mifflin.

Jelliffe, Derrick B., and E. F. Patrice Jelliffe

1978 *Human Milk in the Modern World*. St. Louis: C. V. Mosby.

Levine, Nancy E.

1986 *Patterns of Fertility, Child Care, and Mortality in Rural Nepal*. Paper read at the 85th annual meeting of the American Anthropological Association, Philadelphia, PA, December 3–7, 1986.

Marshall, Leslie B., ed.

1985 *Infant Care and Feeding in the South Pacific*. New York: Gordon and Breach.

May, Jacques M.

1968 *The Ecology of Malnutrition in the French Speaking Countries of West Africa and Madagascar*. New York: Hafner Publishing Company.

Mondot-Bernard, J., and M. Labonne

1982 *Satisfaction of Food Requirements in Mali to 2000 A.D.* Paris: Development Centre of the Organization for Economic Co-operation and Development.

Nerlove, Sara B.

1974 *Women's Workload and Infant Feeding Practices: A Relationship with Demographic Implications*. *Ethnology* 13:207–214.

N'Diaye, Bokar

1970 *Groupes ethniques au Mali*. Bamako: Edition Populaires.

Raphael, Dana, and Flora Davis

1985 *Only Mothers Know: Patterns of Infant Feeding in Traditional Cultures*. Westport, CT: Greenwood Press.

Raphael, Dana, and Joyce King

1977 *Mothers in Poverty: Breastfeeding and the Maternal Struggle for Infant Survival*. *Lactation Review* 2(3) (special issue).

Stupiansky, Sandra Waite

1982 *The Infant Formula Marketing Controversy: A Sociopolitical Case History*. Ph.D. dissertation, Interdisciplinary Doctoral Program on Young Children, Indiana University, Bloomington.

Van Esterik, Penny

1985 *Commentary: An Anthropological Perspective on Infant Feeding in Oceania*. In *Infant Care and Feeding in the South Pacific*. Leslie B. Marshall, ed. Pp. 331–343. New York: Gordon and Breach.

Van Esterik, Penny, and Ted Greiner

1981 *Breastfeeding and Women's Work: Constraints and Opportunities*. *Studies in Family Planning* 12(4):184–197.

World Bank

1979 *Report and Recommendations of the President of the International Development Association to the Executive Directors on a Proposed Credit to the Republic of Mali for an Urban Development Project*. Report No. WP-2595-MLI, June 12, 1979.

World Health Organization

1981 *Contemporary Patterns of Breast-Feeding: Report on the WHO Collaborative Study on Breast-Feeding*. Geneva: World Health Organization.