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BREASTFEEDING AND WEANING IN MALI: CULTURAL CONTEXT AND HARD DATA

KATHERINE A. DETTWYLER
Department of Sociology and Anthropology, University of Southern Mississippi, Southern Station Box 5074, Hattiesburg, MS 39406-5074, U.S.A.

Abstract—Patterns of infant feeding, based on cultural beliefs, affect the nutritional status, health, and growth of children. In order to understand malnutrition and infant health in a particular community, knowledge of both the beliefs and the practices associated with infant feeding in that community is essential. For this reason, it is critical that research strategies for collecting both traditional 'soft' data (the cultural context) and 'hard' data (observed patterns of infant feeding) be employed. A two-year study of infant feeding in Mali (1982–1983) provides detailed information about breastfeeding and weaning beliefs and practices. In this community, virtually all women breastfed their infants. Infants were nursed on demand, for comfort as well as nutrition. Weaning took place at an average age of 20.8 months, with a range of 6–32 months ($N = 136$). Bottle/formula use was very rare. Breastfeeding and weaning practices affected the growth and development of infants during the first two years of life. In contrast to many other populations, however, a number of infants in this community showed improved growth after weaning. Some traditional beliefs about infant feeding are changing under the pressure of urban norms, while others remain resistant to change, with varying effects on infant health.

Key words—West Africa, Mali, breastfeeding, weaning

INTRODUCTION

Patterns of infant feeding in any community have an underlying basis in cultural beliefs concerning, among other things, the nature of children, the nature of food, and how, when and what kinds of food children should eat. In turn, patterns of infant feeding can have a major effect on the nutritional status, health, and growth of children. Therefore, a first step toward understanding malnutrition and infant health in a particular community is a thorough knowledge of the beliefs and practices associated with infant feeding in that community.

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 many Third World countries away from breastfeeding and toward the use of infant-feeding bottles and commercial formula, with detrimental effects on the health of children [1–3]. Only recently have detailed ethnographic descriptions of the traditional cultural context of infant feeding appeared [4–6].

While these contributions to a cross-cultural understanding of infant feeding are valuable, most of them have provided only general descriptions of cultural beliefs; variations in those beliefs and 'hard' data (actual patterns of infant feeding) are often missing. For example, in a discussion of the cultural context of breastfeeding among the Sidamo of Ethiopia, Knutsson and Mellbin found that informants claimed to nurse boys longer than girls, but no sex differences were observed in the weaning data they collected [7]. When discussing the Arsi Galla, Knuttson and Mellbin report a similar normative belief that boys should be nursed longer, but do not provide the objective data for comparison [7].

In other cases, general statements are made about the 'average' age of weaning, but it is difficult to determine if the information represents observations made by the anthropologist or statements made by informants which, additionally, may be retrospective, predictive, or normative. In an otherwise excellent article, Nardi reports from Western Samoa that:

> "Babies in Salamumu are *usually* weaned by *about* 15 months, although there is *some* variation, and at the time of this study one baby was still breastfed at 21 months" [8, p. 297, emphasis mine].

It is not possible to identify the nature of her source of information, and the lack of precision about variations in actual weaning patterns is, at the least, frustrating.

Additionally, for many populations, long-held traditional beliefs and practices about infant feeding are undergoing rapid change as people migrate to urban centers and come in contact with new ideas about infant feeding, not just 'Western' notions, but also concepts and practices of people from other regions of the same country. Beliefs and practices do not all change at the same pace or in the same direction, however, and such changes will have varying effects on infant nutrition. For a complete understanding of infant health in such situations, we must determine which beliefs are changing, and which are resistant to change, and we must identify those instances in which articulated beliefs have persisted, but actual practices have been altered. The only way to do this is to collect data about cultural beliefs *and* observe patterns of infant feeding, and analyze the relationship between the two.

This report is an addition to the rapidly growing literature on infant feeding, based on data from a peri-urban community in Mali, West Africa. The

research covered all aspects of infant feeding beliefs and practices and their effects on the growth and development of children from before the addition of solid foods until after complete weaning from the breast. Only the data specifically related to breastfeeding and weaning are reported here. A description of the addition of solids to the diet and infant feeding after weaning has been published elsewhere [9]. Likewise, the growth data will be published separately, although a preliminary analysis is available [10].

ETHNOGRAPHIC BACKGROUND

This research was conducted in Mali during 1982 and 1983. The study community, known as 'Farimabougou' (a pseudonym), is one of approximately ten peri-urban squatter communities located across the Niger River from the capital city of Bamako. Houses 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 comes either 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.

The population of Farimabougou in 1983 was approx. 22,000 people, living in 2336 compounds [11]. In terms of ethnic identity, the parents of children involved in the study identified themselves primarily as Bambara or Mandinka (67%); the rest were divided among Fulani, Senoufo, Songhrai, Bobo, and Dogon. The preponderance of Bambara and Mandinka reflect the location of the community in the heart of Manding country. Conversely, the wide representation from other Malian ethnic groups reflects the migrant-settlement nature of the community. Although I sometimes refer to the people of Farimabougou as 'Bambara' for convenience, the multi-ethnic nature of the sample should be kept in mind.

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 commercant (merchant), cash-crop farmer, chauffeur (taxi driver, bus driver, etc.), and carpenter, with a variety of other skilled and unskilled labor occupations represented. Essentially all food is purchased in the daily market using cash obtained from wage labor.

The Malian diet, traditionally, as well as in present-day Farimabougou, is based on the consumption of the 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 of which are made from okra, peanut butter, tomatoes and onions, green leaves, or soumbala (fermented locust bean). Animal protein in the diet 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 [12–14].

The traditional social organization of the Bambara consists of extended families, polygynous marriages, patrilocal residence, and patrilineal descent [15]. This type of compound/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 due to economic constraints. Because of these factors, the majority of children in the study belong to parents in monogamous marriages, and 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 strictly follow Moslem teachings—they are not secluded, they seldom go to the mosque or pray at home, they rarely fast during Ramadan, and they are not familiar with Koranic guidelines concerning infant feeding. For both men and women, Islamic beliefs coexist with traditional religious beliefs and practices. Sickness and death are usually attributed to Allah rather than to organic causes, witchcraft, or 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. They have had little or no formal education, speak Bambara but not French, and can neither read nor write.

This brief ethnographic sketch provides a wider context for the more detailed information about breastfeeding and weaning with which this report is primarily concerned. A more detailed ethnographic description of the study community is available elsewhere [9, 10].

METHODS

In this study, information concerning breastfeeding and weaning beliefs and practices come from two sources. The first source is a sample which was constructed for the collection of mixed-longitudinal data on growth and development. The primary requirements for inclusion in the sample were that the infant was nursing (preferably only nursing) at the beginning of the study, and that the mother was enthusiastic about participating in the research. The study compounds are widely distributed and include all sectors of the community. The sample is composed of 136 infants from 117 compounds, and includes 20 sibling pairs.

These 117 compounds were visited on a monthly or bi-monthly schedule. At the first visit, the child's health and dietary history were recorded, as well as data on ethnic background, family size and organization, father's occupation, and general socio-economic status. At subsequent visits, I collected the following data: various measures of growth and development, what the child was eating in general, what the child had eaten in the past 24 hours, the condition of the child's and mother's health since the previous visit, her stage of gross motor development, and whether the mother had had a menstrual period since the previous visit. Most of the children in the sample were only nursing at the beginning of the study, so I was able to pinpoint the addition of solid foods to the diet, and the time of weaning, within one

month of their actual occurrence, rather than having to rely on retrospective or predictive data, or statements of cultural ideals.

After collecting these standard items of information at each visit, if the mother had time, we discussed other topics of interest such as breastfeeding and weaning practices, beliefs about child rearing in general, attitudes towards pregnancy, etc. 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 constitute the second source of information concerning breastfeeding and weaning beliefs and practices.

In addition to these unstructured or semi-structured interviews, I spent many hours observing maternal–infant interactions, including innumerable instances of breastfeeding. Breastfeeding women can be observed everywhere, not just in their compounds, but at the market, walking along the road, at the river washing clothes . . . anywhere mothers and babies are to be found.

RESULTS

Pregnancy and birth

Attitudes towards pregnancy and lactation. A discussion of the cultural context of breastfeeding in this community must begin with beliefs about pregnancy. Bambara women grow up expecting to have children as a normal part of their adult lives. They have ample opportunity to observe their own mothers, other women in the compound, and other women in the community progressing through many pregnancies and nursing the babies after birth. Pregnancy is not ". . . regarded as a dangerous transition period, requiring rituals and prescribed activity" [16, p. 473, describing the Yoruba of Nigeria]. Pregnancy and lactation are viewed, instead, as a natural condition for all adult women; during much of her adult life, the typical woman will either be pregnant or nursing an infant. Given the fairly limited diet and the amount of time spent in pregnancy and lactation, it is not surprising that few changes in diet or working patterns are observed during these periods.

Work during pregnancy and lactation. Bambara women are required to do a lot of heavy labor every day—hauling water up out of deep wells with a rope and bucket, pounding millet, washing clothes, and gathering and chopping firewood. Other less strenuous activities include sweeping the compound, going to the market to buy food, preparing food, washing dishes, and caring for children. Some women receive help with these chores from older daughters or co-wives.

During pregnancy, women are expected to maintain a normal work routine. They are not excused for reasons of sickness or tiredness related to pregnancy. Even in the last few weeks or days before delivery, pregnant women can be seen pounding millet, hauling water, or walking a kilometer to the river with a heavy load of clothes to wash. In individual cases, a pregnant woman may be able to convince her daughters, her co-wives, or even her husband to give her extra help during pregnancy, but most pregnant women continue to work until labor begins. Similar practices have been reported for rural Malian women [14].

Most children are born at the local maternity clinic and mother and baby remain at the clinic for three days. In general, women say they appreciate this chance to rest after childbirth because, once they return home, or three days after the birth, they are expected to resume their usual tasks.

If there is a co-wife in the compound, the co-wife is supposed to cook for the family for 40 days after the birth. The co-wife is also expected to help with other strenuous tasks such as hauling water, pounding millet, washing clothes, etc. However, most women do not have a co-wife, and some co-wives refuse to help.

The role of the 'doula'. In a cross-cultural study, Raphael found many societies in which a mother's helper, or 'doula', came to help the mother after she had given birth [17]. Raphael has emphasized the importance of the doula for establishing and maintaining successful lactation in the new mother. She attributes problems with breastfeeding among urban women to the absence of a doula, caused by the breakdown of a kinship-based support group. She suggests that in the absence of a doula, the new mother must rely on her inexperienced husband for physical and emotional support and this often results in lactation failure [17–19].

There is no doula figure in Bambara society as it is represented in Farimabougou. Even first-time mothers are expected to return to a full level of activity after the three day clinic stay, whether or not they have anyone to help them. In this patrilineal, patrilocal society, a woman's mother is seldom nearby to help her. If she is, she *may* come and help care for her daughter and/or grandchild but she is not obliged to do so. Nor are members of the husband's family obliged or expected to help. Despite this lack of an institutionalized doula, lactation failure and other post partum problems are essentially non-existent. Even in this highly mobile, peri-urban, squatter community, every new mother has a network of friends and neighbors upon whom she can rely for emotional support and advice. Visits made to compounds of recently-delivered mothers almost always revealed three or four friends and neighbors visiting and helping the new mother. These women have replaced the traditional kinship-based group, and seem to function just as well, so that women do not have to rely solely on their husbands for support, and do not experience lactation failure.

Initiating breastfeeding

Clinic recommendations. Because almost all women in Farimabougou spend some time after delivery at the maternity clinic, the clinic personnel have ample opportunity to influence their breastfeeding beliefs and practices. The following information was collected during an interview with the head maternity nurse (*sage-femme*) at the local clinic. The baby is handed to the mother immediately following delivery, and remains with the mother at all times. The baby sleeps in a crib which is attached to the bed and is

open on the side toward the bed. Some babies nurse immediately after birth, but more often they are 'tired' and sleep for a while before nursing. All babies nurse within a few hours of delivery.

Before the milk comes in, the maternity nurses tell the mothers they can give sugar water to the baby if she cries a lot, but that they should let the baby nurse to bring in the milk. They tell mothers not to give fruit juice or cow's milk to the baby. They do not suggest formula or bottle feeding instead of breastfeeding. The head nurse said "We know that mothers' milk is cleaner, healthier, cheaper, and easier." There are no posters in the clinic advertising infant formulas, nor are samples of formula or bottles given to new mothers. Mothers are told to introduce solids at six months and to wean at 18 months for girls, and 24 months for boys (because boys are inherently weaker and need to nurse longer to be strong, according to the *sage-femme*). These are the official guidelines of the maternity clinic. The *sage-femmes* are themselves mothers, knowledgeable, experienced, and well-equipped to give advice and assistance concerning breastfeeding.

Colostrum. The Bambara call colostrum *shin ji fin ma*, literally 'dark breast water.' They do not consider the colostrum to be either good or bad for the infant, it is just "what is in the breasts before the true milk comes." Infants are nursed on demand from the moment of birth, so they get the full benefits of colostrum [1].

Most women reported that their milk came in between two and four days after delivery. None experienced any particular problems with breast engorgement, blocked ducts, or sore nipples. Nor did any of the women in the sample, including mothers of low birth weight infants, encounter any problems with initiating breastfeeding.

The women are conditioned by their culture and by their own observations to expect successful lactation. Since the mother is not drugged for delivery, the baby is alert and responsive. Mother and baby are constantly together for at least the first three days post partum, the baby is nursed on demand, and it is not given any formula or sugar water by the clinic personnel. All of these factors contribute to the successful establishment of lactation.

Water. Besides breast milk, infants in Farimabougou receive only water during the first few days of life. According to the women, for a newborn the water should be heated and given to the baby every day beginning the day after birth. This warm water is thought to 'open the baby's stomach.' Mothers say that warm water should be given every day until the baby's skin color has changed from her lighter birth color to her permanent color, which is usually three to four months after birth. After this change, the baby can drink cold water if she is thirsty. In practice, most mothers did not give their infants any water at all until they were old enough to drink from a cup.

The usual source of water is the compound's well. These wells are often quite deep, often have a concrete collar, and are protected from contamination by a cover. Well water is considered to be much cleaner than river water, which is usually used only for washing. People drink river water only if their well has gone dry.

The mechanics of breastfeeding

Daily activities. A typical day for women in Farimabougou begins before dawn, when they rise and prepare breakfast by the light of a kerosene lantern. After breakfast has been eaten and dishes washed, they clean and sweep the compound and pound millet.

At some point during the morning, each and every day, women go to the market to buy food for the day's meals. Many women also sell things in the market. Returning from the market, women must prepare and cook the noon meal. After lunch, during the hottest hours of the day, women usually rest or visit with friends, and young children often take a nap. Around 4 p.m. the women feed the younger children again. If there is no food left over from lunch, the women cook more for this meal. After the afternoon meal, the children are bathed, and then women begin preparations for the evening meal, which is served around 8 p.m. Mondot-Bernard and Labonne provide a detailed analysis of time spent in various activities each day by rural Malian women for comparison [14, pp. 46–49 and 176–179].

Throughout the day, a woman's small infant is with her almost constantly. Infants are held, usually by the mother, for more than 50% of the time. If the mother is busy working in the compound, or if she goes somewhere, she takes the baby with her. The baby is carried on the mother's back, facing the mother, with its legs encircling her waist, held tightly in place by a sling. On a long trip, the mother may pull the baby around onto her hip periodically so she can nurse, still using the sling to help support her weight.

Nursing positions. To nurse, a new baby is usually held across the mother's lap with her arm supporting its head. As soon as the baby can control its head movements, the mother stops supporting its head—the baby lays back with its head on the mother's leg and nurses. This is possible because most women have large, long breasts. A common nursing position for older infants is facing the mother while sitting on her lap or standing between her legs.

After a few months, then, the mother does not give the baby much support or attention during feedings; the baby is required to find the breast and nurse it. This leaves both the mother's arms free for other tasks, which means that nursing a baby need not interrupt her work.

Nursing at night. The basic sleeping arrangement is for a mother and her young children to sleep together in one room, either on the floor or in a bed. The father may sleep in another room, in the same room but a different bed, or in the same bed (or floor) with the mother and children. In some families, the woman lies on the floor with the young children until they fall asleep and then joins her husband in the bed.

Until a baby is weaned, it sleeps right next to its mother. After weaning, children continue to sleep near their mother until the age of five years. After this time, children usually sleep in a different room with other older children. If the family has only one sleeping room, everyone sleeps together.

Nursing the young infant. The concept of nursing according to a schedule is completely unknown in this

community. Babies are nursed 'on demand'—they are allowed to nurse whenever they want, for as long as they want, as often as they want. Women in Farimabougou say that whenever a baby cries it is hungry and needs to nurse. It is considered imperative that a woman nurse her baby every time it cries. If she is busy during the day, cooking or washing clothes for example, she is obliged to stop work and sit down to let the baby nurse. The baby is also allowed to nurse whenever it wants during the night.

Besides nursing for 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 food. If a woman has stopped cooking to nurse her hungry baby for 20 min, and then the baby hurts herself, or becomes frightened by a stranger, the mother will stop cooking again to nurse her for comfort.

Women do not see this as a burden or an inconvenience—it is the baby's *right* to be nursed whenever she cries. If a mother tries to ignore her baby's cries, other people in the compound, or even strangers walking by outside, will strongly chastise her. In the nursing relationship, it is the baby's needs and wishes which are most important. So important is the belief that a baby must not be allowed to cry, the maternal grandmother or co-wife will nurse her if her mother is not available. Conversely, a baby is not offered the breast if she is not crying, even if it has been several hours since she last nursed. Nor will a mother wake up a sleeping baby to nurse, even if her breasts are full and sore.

Babies are nursed many times a day and many times a night. Few babies sleep through the night before the age of 12 months, and many not until much later. Precise data on the frequency and duration of nursing bouts were not collected as part of this study, nor could women tell me precisely how many times a day or for how long they nursed their babies. Generally speaking, nursing bouts are very frequent (several to many times an hour) and usually of short duration (less than 15 min). Often mothers would say "He nurses constantly," or "She nurses all the time, especially at night; she never sleeps at night." When asked to estimate, most mothers of young infants reported 30 or more nursing bouts in each 24 hour period. Mothers reported no decrease in the number of times per day the baby nursed as she got older until after the age of 12 months.

Nursing the older child. In general, babies continue to nurse very often, both day and night, until they are weaned. There is no apparent change in the mother's attitude towards nursing the baby until shortly before she is weaned. If the baby begins to *ask* the mother to let it nurse, people say "It is time she is weaned." Mothers seemed less tolerant of interruptions of their work from older infants wanting to nurse. However, as long as the baby is still nursing, her mother is supposed to let her nurse whenever she wants. If the child is approaching the appropriate age for weaning (18–24 months) and wants to nurse all the time, the mother will most likely wean her. The women do not see any contradiction between letting the baby nurse as often as she wishes, and then abruptly weaning her.

Variations in patterns of nursing. Each child, of course, has its own unique pattern of nursing, and its own unique circumstances and history. Of 57 older infants (8–28 months old at the time surveyed), 43 were reported to be nursing many times a day and often during the night also, in addition to eating a wide variety of solid foods. The 14 remaining children exhibited a variety of different nursing patterns, which are presented in Table 1, along with representative comments of mothers, and corresponding growth data for those who were only nursing.

Most children were still nursing quite frequently at the time of weaning. Except for the four cases mentioned in Table 1, all the children were nursing very often at night as well as during the day. Only one mother could tell me exactly how many times a day her baby nursed, and that was only because he was nursing so infrequently. For most women, the number of nursing bouts per day is not considered relevant—the baby nurses whenever she wants, and no one takes any notice of the frequency or duration of nursing bouts.

The introduction of solid foods has little impact on nursing frequency. There are 92 children in the sample for whom data are available on when solid foods were first introduced. For these children, the range is 3–24+ months, with a mean of 7.9 months, and a mode of 6 months. Most children begin solid foods within a limited time span, 80% in the 4–9 months range. Mothers reported no decline in nursing frequency or duration after the addition of solids to the diet. On the contrary, many children preferred the breast to solid food, some to the extent of refusing to eat as long as they were nursing (Table 1). Many, many times I heard the phrase "She will not really eat until she has been weaned," and almost every mother reported a dramatic increase in the amount of solid foods eaten after the children had been weaned.

Beliefs about breastfeeding

The quality of human milk. In addition to the general beliefs about how often and for how long a baby should be nursed, the Bambara hold a number of specific beliefs about breastfeeding and the qualities of human milk.

In general, people say that breast milk is the best food for infants and makes the infant strong and healthy. Its own mother's milk is better for an infant than another woman's milk or formula from a bottle. People claim that babies were stronger in the 'old days' when they were nursed until the age of 3 or 4 years, and before bottle-feeding was introduced. Bottle-fed infants are perceived as being weaker and more sickly than breast-fed infants. 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.' Along the same lines, some people say that formula can make a child tall, but only breast milk can make a child heavy, healthy, and strong.

In accordance with Western medical opinion, the women of Farimabougou believe that breast milk can

Table 1. Variations in nursing patterns among infants in Mali

Nursing pattern	Sex	Age	Mother's comments	Growth pattern*
Only nursing, refusing all solid food, $N = 5$	Male	15 months	"He nurses all day."	Well nourished, developing properly.
	Male	17 months	"He has been refusing to eat."	Severely malnourished, cannot walk, far below the 5th percentile of NCHS standards of weight for age.
	Male	19 months	"He doesn't like to eat."	Moderately malnourished.
	Female	24 months	"She doesn't like food."	Severely malnourished, cannot walk, far below the 5th percentile of NCHS standards of weight for age.
	Male	28 months	"He only wants to nurse, and he nurses all day and many times at night."	Healthy, at the 83rd percentile of NCHS standards of weight for age and the 90th percentile of height for age.
Prefers nursing to solid food, $N = 4$	Male	16 months	"He likes to nurse a lot, he will only eat if he is really hungry."	Mildly malnourished by NCHS standards, which is typical for children in the sample.
	Female	17 months	"My babies never really eat until they are weaned."	Same as above.
	Male	20 months	"My babies don't eat very much as long as they are nursing."	Same as above.
	Male	23 months	"When I have a lot of milk in my breasts he doesn't want to eat at all."	Same as above.
Nursing only during day, sleeping through the night, $N = 4$	Male	10 months		Same as above.
	Female	11 months	"She sleeps all night and only nurses a few times each day."	Same as above.
	Male	15 months		Same as above.
	Male	24 months	"If he eats a lot of food in the evening, he sleeps all night."	Same as above.

*Based on NCHS standards [20].

vary in quantity and quality from woman to woman. In the community, it is a widespread belief that a fat baby results from a mother with 'good' milk. Women say that it is the quality, rather than the quantity, of milk which is the important factor. Likewise, a thin baby may be the result of the mother having 'bad' milk. The quality of a woman's milk is considered something intrinsic, not readily subject to change or alteration. If a woman decides she has 'bad' milk, she may seek medicine to make it better, wean the baby, or add formula or solids to the baby's diet.

The Bambara believe that milk is produced 'from the blood' and that each person has a finite amount of blood in her body for her lifetime. Therefore, it is not possible to increase or make-up any lost blood or affect the quantity of the milk through diet or medicine. If a woman loses a lot of blood in an accident, for example, she will not be able to produce much milk and may have to use formula to supplement breastfeeding. Older women who have already nursed many children will have a poor milk supply and will be tired all the time because they have 'used up' all of their blood.

This blood–milk connection is made even more explicit in Bambara beliefs about nursing other women's children. Children are thought to be related to their father through his semen—they 'share his blood.' However, they are related to their mother—they 'share her blood'—through her breast milk. Just as two children who are related through their father or grandfather may not marry, so two children who have nursed the same woman cannot marry, whether or not they are *biologically* related. Similar beliefs have been reported for the people of the Kaliai coast of New Britain, where breast milk is described as "the substance of maternal kinship" [21, p. 159].

The women in Farimabougou believe that once milk has been produced from blood and is in the breasts, it should be 'used' quickly; if it sits in the breasts for too long it turns bad. This means that if a child has weaned herself by not asking for the breast for several days, she will not be allowed to nurse again. According to the women, if a child does consume the 'old' milk it will give him diarrhea and may also cause vomiting. This belief precludes any gradual weaning process during which the child is nursed once a day, every other day, then every two to three days, etc.

One grandmother said that the milk would become 'hot' after sitting in the breasts for several days. The child should not be allowed to drink this hot milk because it would make him sick. Another woman said that her baby sometimes gets a fever from nursing during the mother's menstrual period. Menstrual blood is 'hot' and affects the milk, making it 'hot' also, which causes the fever, but this fever is not considered a sickness.

Problems with breastfeeding and the use of formula. The use of formula as a substitute for breast milk is practically unknown in Farimabougou. The tradition of nursing one's children, the belief that breast milk is the best food for infants and the belief that mothers become related to their children via breastfeeding, all remain very strong and function to inhibit the use of formula. In addition, the cost of formula and other breast milk substitutes is prohibitive, given the average income. For these reasons, especially the latter, multi-national infant formula companies such as Nestlé have not undertaken major advertising campaigns to promote the use of infant formula in Mali. This does not mean that infant formula is not available, however. Although not promoted on radio,

Table 2. Use of bottle/formula as a breast milk supplement for infants in Mali

Child I.D. number	Reason for supplement	Kind of supplement	Age at which supplement given
1	Not enough milk	Formula	0–14 months
5	Not enough milk	Formula	0–8 months
6	Not enough milk	Formula	0–8 months
8	Not enough milk	Formula	0–9 months
20	Baby small/thin	Cerelac	6–18 months
22	No reason	Cerelac	8–12 months
25	Cracked nipples	Formula	4–8 months
		Powdered milk	11 months
		Formula	14–17 months
29	Fever/sore breasts	Formula	4+ months
43	Breast abscess	Formula	0–3 months
61	Not enough milk	Formula	6–12 months
67	No reason	Formula	6–18 months
68	Not enough milk	Formula	6–18 months
89	Had used with her twins previously	Formula	0–12 months
		Powdered milk	12–24 months
128	Not enough milk	Formula	6+ months

billboards, or at the maternal health clinics, formula and other breast milk substitutes are sold in Mali.

Infant formula is only sold in pharmacies, although a prescription is not required. Most of the infant formula is French, but formula of Dutch or Italian origin is found occasionally. Infant formula is sold in powdered form, and comes in metal cans. Preparation instructions are usually offered in several languages, including Arabic, English, French and Italian, and are accompanied by diagrams showing the number of 'spoonfuls' to be used for one bottle. The cost of one can of formula ranges from 1400 to 1800 FM (700 FM = $1.00), depending on the brand. Plastic bottles and nipples are sold in the pharmacies for use with formula, but more often women use cups or empty formula cans rather than bottles.

Cerelac, a French cereal–milk combination, is also sold in pharmacies and in the large French stores in Bamako. Cerelac comes in several varieties—wheat, rice, oat, etc. 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.

Powdered whole milk enjoys a much wider distribution and availability than formula. Many brands of powdered milk (mostly from France and Holland) in cans are sold in the French stores in Bamako and at every small shop and roadside 'table-store' in Bamako and Farimabougou. Compared to an equivalent can of formula, powdered milk costs only 1000 FM. In addition to cans of powdered milk, bulk quantities of dried milk powder are divided into bags of various sizes and sold throughout Bamako.

Thus, powdered milk is both less expensive and more widely available than formula. The closest pharmacy to Farimabougou is about 2 km distant, while powdered milk is available at the local shops found in every neighborhood. Also, most families keep powdered milk on hand for use in breakfast porridge and coffee.

Pasteurized cows' milk is packaged by the Mali Lait company in Bamako and comes in small plastic pouches. Because it must be refrigerated, it is sold only in the larger shops. Sometimes it can be found at the Farimabougou market in the late afternoons, but it is not generally available.

Fresh cows' milk from Fulani herds is sold door-to-door in Farimabougou, by Fulani women, in the late afternoons during the rainy season. Some families are regular customers of their local Fulani milkwoman and buy milk for their children every afternoon when it is available. Other families seldom or never purchase fresh cows' milk. While it is usually cheaper than other forms of milk, it must be used immediately and may already have soured by the time it is offered for sale, so its use as a breast milk substitute is limited.

Many families keep sheep and/or goats in their compound, but they are not milked. No one in the study had consumed the milk of goats or sheep.

Of the 136 children in the sample only 15 (11%) had every received any kind of bottle/formula. Only mothers who had experienced problems with breastfeeding resorted to bottles/formula, and in 14 of the 15 cases, the formula was used to supplement continued breastfeeding, not to replace it. Reasons for using a supplement, the kind of supplement, and the ages at which it was used are presented in Table 2.

As the table reveals, the most commonly reported reason for using a bottle/formula, 9 out of 14 mothers, was that the mother felt she did not have enough milk in her breasts. Four of the nine said they did not know why they had so little milk, but their breasts were small and flabby and the baby continued to cry after nursing. The mother of twins (numbers 5 and 6, Table 2) said she did not have enough milk for twins. Other explanations offered for not having enough milk included breast abscesses, loss of blood in a car accident many years before, and anxiety.

Two women reported sore breasts or nipples as a reason for using bottles/formula. One mother started giving her baby Cerelac in a bottle because she thought he was too small and thin, and one mother said she began using bottles with a set of twins and continued it with her next baby because the twins had been very healthy. Two women could not provide any specific reason for their decision to use bottles/formula to supplement breastfeeding.

Most women mixed the formula according to the pictorial directions on the can, more or less. The well water in this community seemed relatively clean, and bottles or cups were washed before use, but women did not boil the water or the bottles. A typical pattern was to mix one to three bottles of formula in the morning and give them to the child throughout the

day if she cried after nursing. Once the day's supply was finished, no more was prepared. The bottles were not refrigerated, but were kept in the house or shade outside, sometimes in a larger container of cool water. One can of formula might last anywhere from 3 to 20 days, depending on how much the child was relying on formula and how the mother prepared it.

Weaning

When children should be weaned: urban norms—the cultural context. Speaking of when children should be weaned, most people report 24 months as the most common age for weaning in Bamako. This is earlier than the reported age at which children are weaned in rural villages, especially those in which children are allowed to nurse as long as they want. However, a recent study in rural Mali reports an average age at weaning of 25 months [14]. My information on weaning in 'traditional,' rural villages is anecdotal, and most of it was collected from elderly informants, but it is nevertheless of great interest for the contrast it provides to current weaning practices in Farimabougou.

According to an elderly male informant (in his eighties), his children nursed for two to three years. They were allowed to nurse as long as they wanted, and they all stopped between the ages of two and three years, except for the youngest, a boy, who nursed until he was four years old, and had to be weaned. "He used to go out after the cows during the day and come back and nurse. The day he came back from the fields and said 'breast milk is good'—that day he was weaned."

One woman in her late seventies said that she could not remember how long she had nursed, but generally 'in those days' women did not wean their children, they let them nurse until they wanted to stop. With her own children, she let them nurse as long as they wanted, she did not wean them. She remembers that they would go out into the bush in the morning to tend the sheep and come back home at noon and nurse. She estimated that each child nursed for three to three and a half years.

Another elderly woman said that in her village most children nursed until two or three years of age, when they stopped of their own accord. She had never heard of a child nursing beyond three years of age. She said children in the village are only weaned if they start to say things such as "I want the breast" or "Come over here so I can nurse." She claimed, "Children who are old enough to say things like that need to be weaned."

The mother of one of the study children said that, because she was her mother's last child, she nursed for an unusually long time—four years. She said she was nursed longer than the others because, as the last child, she was the best liked.

Another mother of one of the study children (who was weaned at 30 months), was born and raised in Bamako. She said her mother never weaned her children, she let them nurse as long as they wanted, and she herself nursed for six years. She finally stopped because here friends teased her for nursing so long. Now, when she weans her own children relatively early, she is afraid to tell her mother, because her mother will be angry and say "Why did you wean him? I never weaned you!"

The mother of another child in the study said that in her natal village, women do not wean their children, they let them nurse as long as they want. Her son was still nursing at 29 months, when she returned to her home village to try to improve his health. He refused to eat very much food, and she felt that in the village she would not feel the pressure to wean him which she felt in Farimabougou. She also would be able to avoid becoming pregnant again, since her husband did not go with her.

Several other women who were planning on letting their children nurse past the 'Bamako standard age' of 24 months, or even letting them nurse as long as they wanted, cited the village practices of not weaning children as justification: "In my village, we do it this way." Other women said that in their village children were nursed for a long time, but said that since they lived 'in Bamako,' they would follow Bamako practices.

The 'Bamako' practice of weaning at two years was most frequently explained by saying that people in Bamako believed that nursing a child past the age of two years would 'make the child stupid.' This was sometimes phrased as "the child will be stupid in school if you let him nurse for longer than two years" or "she will be stupid when she grows up if she is allowed to nurse past two years." Similar beliefs have been reported for communities in Java, Mexico, and Iran: "There is a perception . . . that very long breast-feeding makes the child dull or boorish" [4, p. 6].

Most women seemed to accept this as 'urban wisdom,' not to be questioned based on their own experiences in the village. Of women who let their children nurse beyond two years, other women would say that they were not acting in the best interests of their child; they said that they would be afraid to test this belief by letting their child nurse so long.

Along with the idea that nursing a child past two years might harm her mental development, went the idea that children did not need to nurse longer than two years. By two years, all children (with only a few exceptions) were eating a substantial amount of solid foods, including all adult foods. Nursing was not seen as making a significant contribution to the food needs of the child. In addition, it was expected that by the age of two years, children no longer needed to be nursed for comfort when they were hurt or frightened. They were expected to fend for themselves, and indeed were often laughed at, rather than comforted, when upset.

It is hard to disentangle the web of motivations and rationalizations tied up in these beliefs. Did the stated Bamako ideal of weaning at two years act as a strong social pressure on women to wean their children earlier than they themselves wanted to? In more than the one case cited above, it certainly seemed that way. Or, did women cite this 'Bamako' practice as a means of justifying their own desires to wean? In other words, did most women really not believe that nursing beyond two years would make their child stupid? Again, in more than one case, it certainly seemed that women did not really believe this, but only gave it as an answer when I insisted on probing for a specific reason for weaning at a particular age.

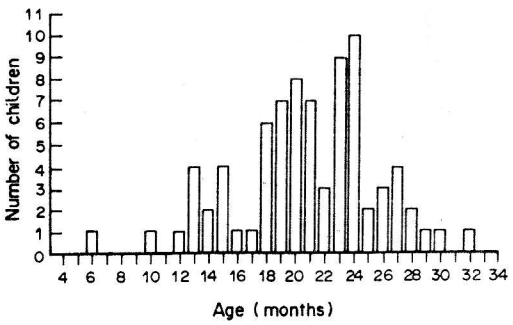

Fig. 1. Distribution of weaning age in Malian infants, sexes combined.

When children are weaned: the hard data. In the study sample of the 136 children, weaning data are complete for 78 cases, 40 girls and 38 boys. Of the remaining 58 cases, accurate data on age at weaning were not available for four of the children, and the other 54 were still nursing at the conclusion of the study.

The distributions of age at weaning for the 78 cases with complete data are shown in Figs 1 and 2. For males and females combined (Fig. 1) the mean age at weaning is 20.8 months, with a standard deviation of 4.8 months. The median is 21.0 months and the mode is 24.0 months ($N = 10$). Most children (63.4%) are weaned between the ages of 18 and 24 months. Considering the sexes separately, the mean age at weaning is 20.7 months for males (SD = 5.1 months) and 20.9 months for females (SD = 4.6 months). This slight difference is not statistically signficant ($t = -0.14$, $P = 0.89$). In addition, the standard deviations are very similar for both males and females ($F = 1.21$, $P = 0.56$), as are the distributions (Fig. 2).

Although children in the community have birth certificates, women usually cannot read them and pay little attention to precise accounting of age. Therefore, many children were weaned when their mothers *thought* they were 24 months old. For example, a child born 'during the rainy season' might be weaned two years later 'during the rainy season,' whether or not they were exactly 24 months old.

When children are weaned: birth order. In the sample, birth order was positively correlated with age at weaning ($R = 0.27$, $P < 0.01$). That is, older children (lower birth orders) were weaned at an earlier age than younger children (higher birth orders). It is possible that women in general tended to nurse subsequent children longer than their first several children. It is also possible that women who raised several children in a rural village before moving to Farimabougou continued to follow the rural practices concerning weaning. Young women having their first child in Farimabougou may have been more inclined to follow the Bamako norm of 'early' weaning.

Why children are weaned: age. When children are weaned is partly a function of why they are weaned. Of the 76 children for whom a definite reason could be elicited for why they were weaned, the most common reason, accounting for 34 of the children (45%), was that they were 'old enough.' This was commonly phrased as "it was time to wean." This is congruent with the finding that most children began solid foods when they were 'the right age' [9]. Different mothers defined this category by different criteria, most often by age, or general developmental level of the child. Several women did mention that the baby had started to ask for the breast, which is still considered an indication that she is old enough to be weaned. A few children had started to show a disinterest in nursing, nursing only once or twice a day. The mean age at weaning for this subsample was 22.5 months (close to the stated Bamako norm of 24 months), with a standard deviation of 3.5 months, and a range of 16–33 months.

Why children are weaned: pregnancy. Another factor which figures importantly in the question of when a child should be weaned is the wide-spread belief, in Farimabougou, and in many other parts of Mali, that a child should be weaned when her mother becomes pregnant again [22]. In rural Mali, post-partum sex taboos are still widespread and strongly followed [22], so the advent of another pregnancy does not usually affect a woman's decision about when to wean her child. The breakdown of post-partum sex taboos in urban areas such as Bamako and Farimabougou has led to many children being weaned even before the stated preferred age of two years, because the mother has become pregnant again. 'Mother's pregnancy' was the second most common reason for weaning,

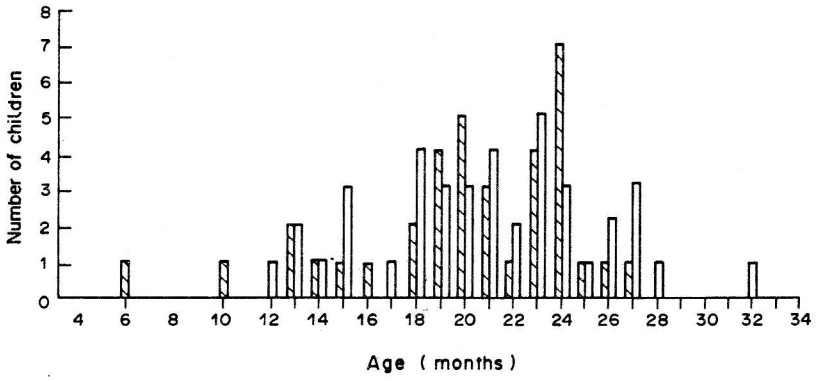

Fig. 2. Distribution of weaning age in Malian infants, sexes separate (males—clear lines; females—striped lines).

accounting for 18 children (24%), 6 males and 12 females.

The mean age at weaning for this subsample was 16.5 months, with a standard deviation of 3.4 months, and a range of 9–21 months. These children were weaned, on the average, six months earlier than those weaned because they were 'old enough,' a difference which is highly significant statistically ($P < 0.001$). The health implications of this trend toward relaxation of the post-partum sex taboo are likewise significant. More and more children are being forced, at younger and younger ages, to rely solely on solid foods for their nutrition. They no longer have access to an important source of protein, and they have lost their most comforting food source during illness. In addition, women are experiencing more closely-spaced pregnancies and births, and have more young children to care for at one time. This is a drain on a young mother's energy and health, and threatens the health of all her children.

The category of 'weaning because the mother is pregnant again' is interesting in several other respects. It cannot be assumed that a woman will wean her child as soon as she misses her first period, or even as soon as she 'decides' she is pregnant. Within this category, some children did acquire a sibling eight months after they had been weaned. For other children, only four or five months elapsed between weaning and the birth of the sibling. This is because women were inconsistent, both in 'deciding' when they were pregnant, and in weaning the older child. A woman who says she must wean her child because she is pregnant may be anywhere from one to five months pregnant before she actually weans him.

Only nine women in the sample said that a woman could continue to nurse an older child after she got pregnant again. Three who had not nursed during their own pregnancies mentioned a traditional medicine that could be used to wash the older child which would allow it to continue to nurse a pregnant mother without harm. Six women had nursed during pregnancy, including two who nursed throughout pregnancy, then had nursed both toddler and infant for some months before the older child weaned himself. Interestingly, none of the six women who nursed during pregnancy had used any special medicine to allow them to do so, or had even heard of the medicine.

Two women in the sample said that they were never faced with the decision of whether to nurse while pregnant because they could not get pregnant again until after they had weaned their older child. This was thought to be related to some aspect of their physiology, rather than to the observance of a post-partum sex taboo. The women mentioned the desire to get pregnant again as one factor influencing their decision to wean the older child.

Why children are weaned: other reasons. Six of the children in the sample were weaned primarily because their mothers were sick. Two of the women had chronic breast abscesses, which made nursing painful, and they weaned their children at 14 and 17 months, respectively. One women said only that she was 'sick' and weaned her child at 26 months. Another had a skin disease which caused large, irregular dark patches on her face and hands, and general malaise; she weaned her child at 23 months. One woman had to wean her child at 23 months because she had a miscarriage resulting in two days of hospitalization and several weeks of recovery at home. Finally, one woman had to wean her child at 24 months because she had a stroke requiring hospitalization for 13 days.

A further six children were weaned because they themselves were sick. Four of these were children who suffered from repeated or chronic illnesses, who ate little or no food, and, in two cases, who could not walk at 24 and 29 months, respectively. Their mothers felt that they would be healthier if they were weaned, partly because they would then be forced to eat more solid food. In the two cases of children with delayed motor development, social pressure from relatives, friends, and neighbors was critical in influencing the mother's decision to wean. Three of the four showed marked improvements in health after being weaned.

Five children weaned themselves—they stopped nursing with little or no intervention on the part of the mother. The mean age of weaning for this category was 22.6 months, only 0.10 months older than those who were weaned because they were 'old enough.' Three of these children were reported to have stopped by themselves one day, and to never have asked to nurse again. The other two told their mothers that they didn't want to nurse one day, and the next time they asked, their mothers refused.

Four children were weaned specifically because their mother was tired of nursing them. The mean age for this category was 21.6 months.

Only two children in this study were weaned because their mothers reported insufficient milk to continue nursing. One, a girl, was weaned at 26 months because the mother didn't have any more milk, and felt the child was old enough not to need the breast for comfort nursing. The other, also a girl, was weaned at 18 months because the mother had 'no milk at all.' This child was severely malnourished and still could not walk at 22 months of age, when the study ended.

One child in the sample was weaned at an unusually young age, six months, because his mother worked full-time. When the child was born, the mother was allowed three months of maternity leave. She nursed him exclusively during those three months, and for three months more after returning to work. She weaned him at six months onto formula and prepared infant cereals. Throughout the study he was mildly malnourished, which was typical of most children in the sample [9, 10]. There was one mother in the study who worked full-time, but she continued to nurse her son until he was 18 months old, nursing primarily in the evenings and during the night. A number of other women in the sample sold food or other items in the market every morning, but simply took their infants along. The children slept or played nearby, and nursed whenever they wanted.

How children are weaned. Considering the wide range of ages at weaning, and the various reasons involved in the decision to wean, the actual process of weaning was fairly uniform. Almost every mother in the sample reported that weaning took only one day. In essence, the mother chose a day to wean. When the child woke up, she was not allowed to

nurse. Whenever she asked to nurse, her mother just said 'no.' She was not allowed to nurse again. There were no observed differences in weaning practices for males and females. Several of the males were supposedly weaned 'gradually.' This meant that their mothers took up to one week to reduce the number of daily nursings to zero. In no instance did weaning take more than one week.

A variety of techniques were used to help or encourage the baby not to nurse. Several women mentioned that you could put something on your nipples to make them taste bad so the baby would not want to nurse. Nivaquine (a quinine derivative used for malaria), hot peppers, and ashes from the fire were all mentioned. None of the women in the study actually used any of these substances, because their babies all weaned without any problems. Two women told their children that they couldn't nurse any more because the breast milk was 'bad.' One of these women told her child that the milk had turned bad because there were worms in her breasts. The child became very upset and did not try to nurse again.

Only one woman told her child in advance that he was going to be weaned. The rest of the women felt that it was not important that the child know beforehand. Several woman said that the mother could do things to help the child, such as wearing clothing that covered up the breasts or made it difficult for the child to have access to the breasts. Others said they would leave the child with a friend or relative for the day—if she did not see her mother, she would not think about nursing. Several women used this technique when weaning. Two of the women, mentioned earlier, became sick and had to leave their children when they went to the hospital. Several others just went away for the day, or for several days in one case, so that the child would forget about nursing.

Most children were given extra food to eat when they were weaned. The food was seen as replacing the breast milk, to keep the child from being hungry, especially at night, but also served as a distraction for the child, to help it forget about nursing. Some children received extra food for only two to three days, while some continued to receive extra food for up to six months. The most frequent duration of supplemental food was between one week and one month.

Milk and fish/meat were the two most common foods given to a child who had just been weaned. Most people used powdered whole milk, but several children weaned during the rainy season were given fresh cow's milk, which is only available at that time of year. Mali Lait, the commercially packaged cow's milk, was also frequently used. Women using milk as a replacement for the breast usually gave it to the child right before bed time, to help the child sleep through the night.

Fresh fish (sometimes meat or eggs), usually combined with potatoes or macaroni, was also a very common weaning food. The fish was usually given at regular meal times, or in between meals if the child was hungry. Some women prepared extra porridge (*moni* or *rui*) in the morning and gave that to the child throughout the day, whenever she cried to nurse. *Moni* and *rui* were also commonly given to children who awoke at night wanting to nurse.

One woman reported that, after weaning, she gave her child Periactine (a cough syrup containing codeine) whenever the child woke up at night. Another said that she would walk with the baby on her back until the child fell asleep again.

For the great majority of children, weaning seemed to proceed without any emotional trauma. Most women reported that their children were not upset and did not cry at all when weaned, or only cried during the night for the first few days. They also reported that children quickly 'forgot' about nursing. By this, they meant that the children stopped asking to nurse after only one or two days, and when later offered the breast, would refuse it.

Only two children showed any evidence of being upset about weaning. One child, a girl of 25 months, became very attached to her mother after being weaned. She insisted on being carried around on her mother's back all day, and would not play with other children in the compound. If the mother tried to leave her in the compound, she cried inconsolably. This behavior persisted for just over one month after weaning. Another child, a boy of 24 months, continued to ask for the breast for several weeks after weaning. Finally, his parents consulted a marabout (Koranic expert) about the problem. The marabout wrote down a verse from the Koran dealing with weaning, then used water to wash the ink from the paper into a bowl. The child then drank the water and ink to help him forget about nursing. According to his parents, he never asked to nurse again.

Of the 78 children who were weaned during the study, 40 were weaned sufficiently early in the study period to allow a determination of how weaning affected their eating habits, and subsequently, their growth patterns. Thirty-two of the 40 were reported to be eating more food after weaning than before. Five were said to be eating the same amount of food before and after weaning, and three were reported to be eating less food than before weaning. Many women said that their children really ate very little food before they were weaned, but had begun to eat much more food once they had been weaned. They said that many children like to nurse better than they liked to eat, and would only eat a lot of food when they were forced to by hunger. This increase in food intake mentioned by the mothers was not documented by actual measurements of amounts of food eaten by specific children. It is, however, reflected in the growth patterns of many of the children, who show slight to moderate increases in rate of growth in the months following weaning [10].

CONCLUSIONS

In this article, I have described in detail the variations in beliefs and practices associated with breastfeeding and weaning in one community. The ethnographic data are valuable in their own right, as a record of the situation in Mali at one point in the continuum of cultural change under pressures of Westernization and urbanization. However, the data have value in another way as well. The presentation of such detailed information reveals that breastfeeding is not a simple, natural process, the details of which flow directly from women's biology. Rather,

breastfeeding is revealed as a complicated, variable process, defined and circumscribed by culture. The inclusion of observed data on the timing of various infant feeding events (initiating breastfeeding, the addition of solids, weaning) allows us to see how actual practices coincide with or contradict cultural beliefs.

For example, although many people believe that boys should be nursed longer than girls, there was practically no difference in the mean age of weaning for the two sexes. Likewise, while 24 months was the stated cultural norm for weaning, the average age at weaning was actually 20.8 months. This is perhaps partially due to inaccurate maternal perceptions of chronological age. Women seemed willing, or even eager, to relinquish traditional beliefs that children should be allowed to nurse as long as they wanted, and no longer routinely practiced post-partum sexual abstinence until the child was weaned. At the same time, they were unwilling to give up the belief that children should be weaned when the mother became pregnant again, so that many children were weaned well before 24 months. And while women claim that pregnant women must wean their children, many siblings were born only four or five months after the older child had been weaned.

These contradictions reflect a society undergoing a number of changes in both belief and practice under the influence of Western ideas and contact with a variety of peoples from different village and ethnic backgrounds in the urban context. I predict that infant feeding beliefs and practices will continue to change, and will involve closer adherence to the evolving 'urban norms.' Some of these changes, such as earlier weaning and increased use of formula, may have detrimental effects on infant and maternal health. Other aspects of culture are also changing, however, and may serve to counteract some of these effects. For example, Western methods of birth control are available, though not widely accepted. Their increased use may offset the effects of the breakdown of the post-partum sexual taboo on infant and maternal health.

As I have shown in this report, studies of the 'cultural context' of breastfeeding which do not identify the nature of the data—whether they are retrospective, predictive, or normative—can provide only limited understanding of this essential and fascinating aspect of culture. Likewise, even the best study of 'cultural context' or 'infant feeding practices' alone is incomplete without the observational data of actual feeding patterns collected on a regular basis over the course of a child's first several years. Both traditional 'soft' anthropological data (the 'cultural context') and the 'hard' data (actual feeding patterns) are essential for a complete understanding of infant feeding and child health.

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