YOUNG CHILD FEEDING, WEANING, AND DIARRHEA ILLNESS: PRACTICE IN A HAUSA VILLAGE AND EDUCATIONAL IMPLICATIONS

PART I: THE ETHNOGRAPHIC STUDY

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Executive Summary

YOUNG CHILD FEEDING, WEANING, AND DIARRHEA ILLNESS: HAUSA PRACTICE AND EDUCATIONAL IMPLICATIONS

By

Nancy Keith

Feeding, weaning, and diarrhea treatment practices have been implicated in the high mortality rates of young children in Niger, but in fact, little is known about the Nigerien practices and belief system. This ethnographic study examines and documents Hausa views and practices in these areas and discusses the implications for educational interventions.

A sample of twenty-four mother-child (four to sixteen months) pairs was selected in one village and followed over a year using the following methods:

1) In-depth interviews with each mother
2) Monthly questionnaires which included a 24 hour food recall, and open-ended questions on illness, food preparation and consumption, women's money and women's work
3) Detailed description of feeding and diarrhea treatment using participant observation of sample families and villagers.

An overview is presented of Hausa ideas about therapy, men's work, women's work, the Hausa compound, and women's money.

Findings in the areas of breast-feeding and the termination of breast-feeding include the following:

1) Nearly all children in the village breast-feed on demand until age two or until the mother becomes pregnant.
2) The traditional practice of withholding colostrum is changing.
3) Drinking water, medicinal teas, sometimes animal milk, and other non-breast milk liquids are given from birth.
4) Environmental and behavioral factors may make the mother's milk turn "bad", endangering the child.
5) The child's body is prepared for the consumption of food through the use of purgatives and surgical procedures at birth.
6) The majority of pregnant and nursing women fast during Ramadan even though they say that their breast milk decreases and their nursing babies lose weight.
7) The decision to terminate breast-feeding is based on considerations of the child's psychological and physical readiness as well as the mother's health and situation.

8) Termination of breast-feeding takes place in one day, in order to avoid trauma for the child.

Findings in the area of supplementary feeding include the following:

1) Solid foods are introduced by seven months and most children experience a weaning period of 8 - 18 months.
2) Learning to eat solid foods is a socialization process in which the child learns to feed itself and become satisfied with the staple eaten by the family.
3) The child is expected to ask for food when hungry.
4) The child decides when it is full.
5) The staple, millet tuwo, is synonymous with "food"; the purpose of eating is to fill the stomach; the person whose stomach is full has eaten enough; the person whose stomach is full will get fat or be healthy.
6) The child regulates its own food consumption and the anorectic child is not compelled to eat.
7) The liquid foods, koko, and fura, are the first offered the child and serve the purpose of getting the child used to eating.
8) Special preparations or extra meals are often not made for the young child, who is expected to eat from the family pot.
9) The family who can afford it may buy "snack" (not the staple) foods for the child during the day.
9) Children scrounge and beg food from others as well as eat bites of whatever is being prepared at non-meal times.
10) Government recommended supplementary foods are viewed either as medicine or as preparation the child to eat from the family pot, rather than as having a nutritional benefit. Therefore they are usually not prepared on a daily basis or continued on a long-term basis in addition to the family pot.

Findings in the area of diarrhea illness include the following:

1) Diarrhea is attributed to a number of environmental and behavioral factors.
2) Teething is blamed for the majority of diarrhea episodes. Since this is viewed as normal, treatment seeking is usually delayed.
3) Dehydration is not viewed as a loss of water from the body, so rehydration is not seen as the appropriate treatment.
4) Traditional herbal teas are given and are viewed as stopping the diarrhea.
5) ORT is widely known, but not the first step taken in the majority of diarrhea episodes.
6) ORT is expected to stop the diarrhea.
7) Traditional treatments and ORT are often given concurrently or one after the other, depending on the money at hand at the time, the perceived cause and the results.
8) Liquids, breast milk, and food are seldom withheld during diarrhea episodes, but the anorectic child is not compelled to eat or drink.

9) No special foods are prepared or viewed as beneficial during illness or diarrhea episodes.

The findings are discussed, using a technique of comparing the Hausa views and health educator views of each topic. The points which each would find non-negotiable are suggested and possible interventions which meet the non-negotiable standards of both cultures are suggested. The mother's reluctance to control what her child consumes by compelling or helping the child to eat and drink must be addressed in any educational strategy dealing with nutrition education or oral rehydration therapy.

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INTRODUCTION

This ethnographic study describes Hausa[1] practices and views of young child[2] feeding, weaning, and diarrhea illness. Using mainly in-depth interviews and participant observation, the study followed 24 mother-child pairs over one year in a Hausa village in Niger, Sabon Gari (pseudonym), documenting the practice of Hausa mothers throughout the period between the introduction of solid foods to the time when most children have been removed from the breast. The infant mortality rate (the number of deaths before the age of one per 1,000 live births) for Niger in 1960 was 191/1000 and 134/1000 for 1988 (Grant, 1990). The child mortality rate (the number of deaths before the age of five per 1000 live births) was 320/1000 for 1960 and 228/1000 for 1990. These very high rates have shown improvement since the country's independence in 1960, but even the recent figures suggest a serious problem in Niger. A thirty-two year old Hausa woman recalls the births of her children:

> I've had eight births. Five are in the ground; now there are three left. The first one was a boy. He didn't live to be a year old. He couldn't sit up yet. He died because my milk was not good; he turned white and then he died.
>
> The second one was a boy. He had reached two years of age; when he was in his third year, he died. He could walk; he had already been weaned. He died of hepatitis.
>
> The third child; this is she. [She points to a girl whom she says is seven years old].
>
> The fourth was a girl. She was also between two and three years when she was killed by measles.
>
> The fifth one; here she is. They were twins; the other twin girl died. She could sit up, but she couldn't crawl. Maybe she was four months old. Maha[3] is what killed her. Mabugi, you know, the one where one puts a razor to the forehead and makes scars. [These little cuts in the skin on the forehead let out the bad blood to lower a high fever].
>
> We did the scarring after we went to the dispensary. When we went to the dispensary they gave her a shot. Then the dispensary nurse hit her, the hitting that one does for maha. When she died, then we scarred her; then she came back to life. [The child went into a coma; then they made the incisions to make the fever go down. Then

[1]The Hausa were chosen for the study because I had already spent two years in a Hausa village and had been fluent in the language.

[2]"Young child" is used for children aged birth to three years.

[3]Mabugi (one who beats or place where something is beaten) means the convulsions which accompany cerebral malaria. Maha is apparently another word for the same thing.

the child became conscious again temporarily.] But she died soon after.

The sixth one died in bed. He could sit up... Breastmilk killed him. I was pregnant. I was pregnant with this girl here and he drank the breastmilk...He had diarrhea and fever and vomiting. He got very skinny... I took him to the dispensary and they gave him shots. But he didn't get better. Five shots they gave him! He had the diarrhea for a long time - a whole month!

After him it was this one here. [She points to her four month old infant who was to die a year later of cerebral malaria and possibly amoebic dysentery. [4]] (Case # 19).

Of the eight children born alive to this mother, two children were still living at the time the researcher left the village. Although the mother has named various specific illnesses as the cause of death in her children, from a biomedical point of view, young child deaths usually involve more than one illness at a time and their complications, all interacting in a vicious cycle with malnutrition (Scrimshaw et al., 1968). Malnutrition is a major determinant of mortality risk in young children (Puffer & Serrano, 1973) and on the average, child mortality is doubled between the ages of 1-36 months for each 10% decline below 80% of the Harvard weight-for-age median (Kielmann & McCord, 1978). The biomedical cause of death is usually some combination of malnutrition, diarrhea, and other infections in a synergistic relationship. Malnutrition lowers resistance to infection so the child becomes sick. Then the infection makes the co-existing malnutrition worse, leading to decreased resistance and more infections. A child in this compromised state is much more likely to die from measles, whooping cough, diarrhea, or malaria (Chen, 1983; Hoyle et al., 1980; Martorell et al., 1980; Mata, 1978; Mata et al., 1977; Murray & Murray, 1979; Scrimshaw, et al., 1968).

The morbidity (number of sick persons in relation to the population) and mortality rates exemplified in the above case study are thought by health care providers to be due in part to the practices and beliefs of Nigerien mothers in the areas of feeding, weaning, and diarrhea illness, but in fact, there is a dearth of knowledge about Nigerien cultural beliefs and practices. There is a common perception in the health provider community, for

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[4]This youngest child had a fever for three weeks and the mother purchased aspirin (or possibly nivaquine) on the market. When he began to have convulsions she took him to the dispensary and got a prescription for quinamax injections. She purchased a total of seven for 300 CFA each, and took the child to the dispensary for six consecutive days for a shot. Meanwhile the child began to have blood in his stools. He died the day of the sixth injection.

example, that children are exclusively breast-fed until breast-feeding is terminated. That is, the child goes from only breast milk on one day to only non-breast milk foods the next day, around the age of 1 1/2 to 2 years (USAID, 1978). This practice was not substantiated by the present research. This ethnographic study will provide detailed description and analysis of feeding and care giving practices as they are integrated into the cultural context of beliefs, the mother's social and physical environment and her past experiences. These findings may inform the development of culturally relevant educational interventions which could lead to improved nutritional status and lower rates of morbidity and mortality among young children in Niger.

The Research Questions

This study was designed to address the following umbrella research questions:

1. What are Hausa ideas and practices in the areas of young child feeding, weaning, and diarrhea illness and treatment?

2. What are the potential points of intervention and how might educational interventions be developed in a way which increases the probability of adoption?

The following questions guided me in the collection of data:

<u>In the area of breast-feeding and cessation of breast-feeding</u>

1. What meanings are given by the Hausa to breast milk and breast-feeding? How does society view women's role as the provider of breast milk?

2. How are children breast-fed? When, how often, where, and by whom? Is the breast withheld under certain circumstances? Which circumstances? How long does breast-feeding continue? How prevalent is the baby bottle? Why is it used? By whom?

3. How do women view colostrum? Do women give colostrum? If it is withheld, why? What strategies might make giving colostrum acceptable? Are other foods given before the first breast-feeding attempt?

4. Who makes the decision about how or when to terminate breast-feeding? How are these decisions made?

5. How does the actual cessation of breast-feeding take place? What sort of preparations are made? Is this time seen as dangerous for the child?

6. Are children removed from the breast abruptly without having first been introduced to solid foods, as is thought by health providers? If so, why? Is it as damaging as is thought?

7. What do women perceive about the adequacy of their lactation in general, or in relation to the child's needs? How do they determine if they have enough breast milk? How is the relationship between milk production and sucking understood?

8. Do women terminate breast-feeding because their milk is bad as reported? What makes the milk bad? At what age and under what circumstances does this occur?

9. Do women have an awareness of the relationship between prolonged breast-feeding and amenorrhea? Do they attempt to use this knowledge for birth spacing?

In the area of supplementary feeding

1. How do Hausas view food? Are certain foods valued for specific purposes?

2. What foods are eaten by whom, in which season, and on what occasion? How are staple foods prepared? How much time and money is required to prepare staple foods? Who pays for food and under which circumstances?

3. When do mothers begin to give solid foods? What do they give, and for how long? How is the child fed, i.e. with spoon, fingers, etc.? Does baby eat out of the family pot?

4. Are there traditional weaning foods? How are they used? Do they meet biomedical nutritional requirements if given in sufficient amounts? How could they be modified to be more nutritious? Under what circumstances would mothers be likely to make such modifications?

5. How are PMI[5] recommended weaning foods perceived? Are they used as intended? If not why not? Is it because of lack of ingredients, lack of money, lack of time, or because recommended foods are not compatible with the Hausa views of feeding young children? Are there other reasons why women don't make them?

In the area of diarrhea illness and treatment

1. How do Hausas define diarrhea? How do they know when their child has diarrhea and how do they decide that the child needs treatment? Is diarrhea considered an

[5]Protection Maternelle et Enfantile, (Mother-Child Protection) refers to the mother child health services offered at the dispensary. Mothers in Sabon Gari refer to both the dispensary services and the PMI services as "the dispensary".

illness? Is diarrhea seen as serious?

2. What are indigenous categories of diarrhea and by what criteria are they grouped? Are some kinds of diarrhea viewed as good, bad, or harmless? What do people see as the causes?

3. What are traditional treatments? How are they prepared? In what ways are they beneficial or harmful? How are they administered to the child?

4. Are there different treatments for diarrhea under different circumstances? Who makes illness treatment decisions? Who influences these decisions? On what basis does one decide to seek one treatment or another? Under what circumstances does one then decide to change treatments?

5. Are women familiar with oral rehydration therapy (ORT)? How is it viewed? When is ORT used? How it is given? Is it viewed as helpful? If it is not viewed as helpful what are the problems with it? Is it because it doesn't stop diarrhea? Is it too much trouble? Does it cost too much? Does the traditional remedy work better in the Hausa view? Or does ORT have elements which are not compatible with Hausa views of illness, diarrhea, and therapy?

6. What do mothers give as food or drink during a diarrhea episode? Do they withhold food or drink? Do women feed after a diarrhea episode? What kinds of foods are given?

7. How is dehydration viewed? What is the Hausa understanding of what is happening to the body in dehydration? What is seen as the remedy? How is ORT understood in light of these understandings?

Discussion of Terms

The term "Nigerien", with its French orthography, is used to signify the people of Niger, while "Nigerian" is used for the people of Nigeria. Unless otherwise specified, references to Hausa practices and beliefs refer to the Hausa people in the village where the study was done, rather than all Hausa people. The term "infant" conventionally refers to children under the age of one year, but since this study focused on children aged 4 to 28 months, the term "young child" is used to mean all children from birth to age three years, in order to avoid the awkwardness of repeating the phrase "infants and young children". Case numbers are found in parentheses after direct quotes or segments from field notes.

Terms used in the discussion of breast-feeding and weaning are problematic and no set

of terms seems to be entirely satisfactory[6]. "Solid foods" is here used to mean all foods that are not water, teas, juices, or milks. The first Hausa foods are called liquids in Hausa and are "drunk", but they are usually quite thick and will be grouped with solid foods.

"Weaning" has been used both to mean the process of becoming accustomed to non-breast milk foods, and the actual cessation of breast-feeding. In this research weaning refers to the process of children becoming accustomed to non-breast milk foods, from the time that the child first starts to taste foods from it's mother's finger, until the time when breast-feeding ceases. Weaning in this research reflects the gradual introduction of non-breast milk foods but not necessarily a gradual decrease in breast-feeding. The "termination" or "cessation" of breast-feeding here refers to the day on which the mother refuses to allow the child to nurse again. The word for this event in Hausa, hida[7], means to "take something off", and reflects the abrupt removal of the child from the breast. These phrases will be used rather than "weaning" because they describe more accurately what actually happens and how Hausas view the event.

In Hausa, as in English, the third person masculine pronoun "he" is used to mean "a person" and although an attempt is made to avoid non-sexist language in this research, whenever a Hausa speaker is quoted the English translation guards the informant's pronouns.

Organization of this Report

The organization of this report is as follows: Section I describes the setting of the study, covering relevant issues such as women's work and money. Sections III, IV, V, and VI, present the findings of the ethnographic study in the areas of breast-feeding, termination of breast-feeding, supplementary feeding, and diarrhea illness. Only the Hausa views of these events will appear in these sections, except for an occasional biomedical explanation in a footnote to aid in understanding. The biomedical view of these health events is discussed in the final section, in which the Hausa view and the health educator's views will be

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[6]For discussions of terms see Popkin, et al. 1986, Chapter 2; Walker-Smith & McNeish, 1986, p. 394; and Soderhjehm, 1981.

[7]Yaye in other parts of Hausaland.

compared, with the aim of developing interventions.

Methods

Qualitative research using participant observation attempts to describe what is happening and what is said in people's daily lives for an extended period of time, for the purpose of learning what people are doing and why they are doing it, from their own point of view (Bogdan & Biklen, 1982; Hammersley & Atkinson, 1983). The researcher becomes a participant in the social world being studied and the assumption is made that the perspectives and the culture being studied are rational and internally consistent: it rests with the researcher to discover the insiders' point of view by becoming, to some extent, an insider. Using largely inductive reasoning, categories are drawn out from within the data, from which models and hypotheses may emerge which can be tested in later research. This type of research is the most appropriate when little is known about subject, since in doing ethnographic research, analysis is constantly taking place at the same time as the data collection, allowing the strategy and the direction of the research to change as the data suggest. The frequency of certain events is carefully examined and triangulation of different sources of data and different researchers is used to increase confidence in the conclusions. The methods chosen for this research are qualitative because it was felt that not enough was known about Hausa practice and attitudes a priori to be able to accurately identify the problems and hypotheses and that these would better be discovered in the course of the research (Glaser and Strauss, 1967).

The study was conducted in Sabon Gari, a large rural village of around 3600 people in the Department of Tahoua, in the Republic of Niger, between February, 1987, to March, 1989. Sabon Gari was chosen because it met the criteria for the research site: it had a population of around 3000 people, it was within the Tahoua Department, an area where the people were Aderawa Hausa (This is the same variation of Hausa I had learned to speak 25 years earlier.), the village had not previously had a Peace Corps nutritionist, but one was assigned to the village at the about the same time that I arrived. The dispensary had been weighing babies for several years before the arrival of the Peace Corps nutritionist, but the education program was new with the arrival of the volunteer so it was thought that

traditional ideas might be more easily obtainable here than in a community with a long-standing education program. Also the education program would give me the opportunity to see how the new ideas were viewed by mothers.

First a preliminary door-to-door survey was conducted with 250 mothers of children under three years of age in the village of Sabon Gari. Questions identified broad parameters of practice and served to provide a nearly complete list of children below the age of three in the community.

The age at which solid foods were introduced, it was learned in the preliminary survey, was about seven months, (four months at the earliest) and the age at cessation of breast-feeding was rarely more than 26 months. Therefore it was decided to study children aged 4 to 28 months, by sampling children aged 4 to 16 months and following them for a full year. Anticipating drop outs, a sample of 24 mother-child pairs was chosen with the goal of completing data collection on 20 children. A non-random sample of 24 mother-child pairs was chosen using the variables quartier (quarter or neighborhood) of residence and age of the child. Within each quartier a list of children was compiled, using the Protection Maternelle et Infantile (PMI) rolls and the preliminary door-to-door survey and children were grouped according to their age: 4 through 7 months, 8 through 11 months, and 12 through 16 months. The families were classified roughly into three socioeconomic levels according to the socioeconomic status of the father, using key indicators developed through interviews with villagers, such as ownership of a donkey or donkey cart (charette)[8], number of certain types of rooms in the compound, and whether or not they hired workers to help with the farm work. Within each age group two children per quartier were systematically selected using a CFA[9] bill serial number to determine the first child and then by counting off the sampling interval to determine the next child. The total sample was kept to one half boys and one half girls and the proportion of families at each socioeconomic level kept approximately representative of the village as a whole.

The intent was to select a sample of children who had a chance of living for over a year

[8]Two wheeled cart or wagon pulled by people, oxen, or donkeys. Charettes were introduced made by blacksmiths for either 50,000 or 100,000 francs, depending on size.

[9]Francs CFA are the currency used in Niger.

and to find women and children who would be representative of the Hausa villagers. The following children were eliminated: those whose parents were not both Hausa, two who were marasmic and dehydrated, one who had an undiagnosed chronic illness, one who lived in the same compound as another sample child, three whose mothers seemed to be extremely uncooperative, one whose mother was blind and one whose mother was mentally retarded. In each case where a child was rejected the next child on the list was chosen. Of the 24 mother-child pairs finally chosen one pair was dropped in the third month, (May, 1988) because the mother repeatedly refused to do the interviews. Three more of the sample children died between June and September, 1988, leaving the sample at twenty children at the end of the study, in February, 1989. Therefore, sometimes the sample will be referred to as containing 20, 21, 22, 23 children, or sometimes even fewer if a child was not available during a certain part of the study.

The 24 mother-child pairs were followed from March, 1988 through February, 1989. Each month a set of open-ended questions was administered to the mother on the illnesses of mother and child, diarrhea illness and treatment, mother's work and cash flow, along with a 24 hour food recall and a food frequency assessment for the family. All of these were conducted in Hausa and of the more than 250 completed over the year of the study about 200 were tape-recorded and transcribed in Hausa.

In addition to the regular monthly questions, sample mothers were interviewed on a number of special topics, such as behavior during the fast, breastfeeding behavior at birth, and diarrhea classifications. In-depth interviews were also conducted with key informants, men, Muslim priests, traditional healers, and health personnel. Residence in the village allowed me to participate in village life and to observe firsthand the practices not only of the sample women, but of a large number of the villagers. Many "opportunity" interviews were done with women and men on the street and in their homes. Many of these interviews were tape recorded and later transcribed in Hausa.

Field notes were taken in abbreviated form on one side of the questionnaires during the interviews and written up after returning home. I carried a tape recorder with me much of the time and turned it on when a conversation began. This allowed me to examine people's exact words. Findings were verified as they emerged by checking them out with key

informants and health personnel as well as with villagers.

Verbatim tapes were transcribed in Hausa, either by myself, or by a Hausa woman who had been educated in Nigeria and could read and write Hausa. This allowed the actual words used by the informant to be analyzed, thus revealing Hausa attitudes and thought system around the issues being studied. An attempt was made to extract the speaker's meaning from the context and the choice of words. The informant's tone of voice, body language, as well as observed behavior from the field notes gave clues to the meaning. Events and remarks which occurred many times became organized into themes, and when many of these small pieces of behavior and ideas had been put together, they often seemed to fit into a logical cohesive system.

THE SETTING

This section introduces the social and economic setting within which the Hausa woman in Sabon Gari makes decisions affecting the health and nutrition of her child. The first section gives a rough idea of the health and other services in the area, including an overview of Hausa views of health and therapy. Men's and women's work are discussed and a Hausa compound is described. The next section discusses Hausa women and money: where they get money and what they do with it. Case studies provide examples of women dealing with their roles of caring for children, feeding the family, and meeting their obligations to their husbands, their women friends, and their daughters.

Health and Other Services

Sabon Gari is a community of about 3600 people located on the tarmac road about half an hour from the border of Nigeria. There is a large weekly market and many of the villagers buy and sell goods, often making the 33 kilometer trip to shop or sell local goods in the big weekly market in Nigeria. There is a village solar television, a pépinière, a pharmacy, an agriculture agent's house, and a slaughterhouse. An elementary school of six grades serves a total of about 300 children, representing less than one quarter of the eligible males and in some grades, only two of the appropriately aged female children[1]. The fonctionnaires (civil servants) in the village number around eleven: the nurse, the six school teachers, the agricultural extension agent, the pharmacist, a cooperative representative, an adult literacy representative, and a representative of the district veterinary office who gives animal vaccinations.

The village has a dispensary staffed by one government trained nurse, an assistant who gives shots, treats cuts and does the custodial work, and an American Peace Corps Volunteer, who performs the services of the PMI. This dispensary building is a cement-coated mud-brick building about 25 years old and consists of two large receiving rooms, each with its own front door, one serving as the medical waiting room and one as the PMI. A

[1] A national health survey (Ministere de la Santé Publique et des Affaires Sociales, 1985), found that 4.4% of the women sampled knew how to read in French.

three room mud-brick building which serves as a hospital for complicated childbirths, and a place to stay for those who are too sick to go home. The dispensary is not equipped with any sort of lab equipment, does not do any surgery and does not get involved with childbirth except in an emergency. Cases needing more specialized attention are referred to Tahoua, Konni, or to the Galmi missionary hospital. Nowadays the dispensary is no longer seen as a place where people go to die, but as another source of therapy, some of which is thought to be effective. A number of illnesses are viewed as best treated with Western medicine, including malaria and dysentery. Hepatitis, however, is known to have no treatment in Western medicine and traditional medicines for this illness are highly respected. For the majority of illnesses, however, the type of treatment sought is based upon the perceived cause, the money one has on hand at the moment, and the type of healer or treatment one believes in or has seen work for this illness in the past.

During this study Helen Keller International selected the district in which this village is found to pilot the distribution of vitamin A megadose capsules (200,000 international units) through the dispensaries. Consequently the matrones[2] attached to the dispensary were trained to give a capsule to the parturient immediately after childbirth. The young child is then given a capsule at six months and every six months thereafter.

Darrah's (1980) study in Nigeria examined the Hausa belief system around health, illness, and therapeutics. Darrah hypothesizes that the consumption of food makes it particularly conducive to metaphorical speech and thought. The most highly developed Hausa allegory equates human reproduction with alimentation. The root metaphor equates intercourse with the consumption of food and is expressed in the homonym ci, the verb which means both to eat and to have intercourse. A few of the equivalents within this root metaphor are the following: intercourse is equated with eating, the vagina and the mouth are both orifices of consumption, the hymen and the uvula are both appendages which may become enlarged and block consumption and may be surgically removed in the small child.

[2]The matrones are usually uneducated and post-menopausal women who were practicing traditional midwifery before the government incorporated them into the Village Health Teams. Their government training consists of participation in one or more workshops of a few days on proper care of the umbilical cord, how to record births, identification of birth complications which should be referred to a medical facility, and some familiarity with oral rehydration therapy and the PMI recommended baby cereal recipes.

In a corollary allegory the production of food is metaphorically equivalent to gestation. Some examples of objects in this metaphor are: the vagina and the mortar, the penis and the pestle, the penis and testicles and the three-stoned cooking hearth, the womb and the cooking pot, the fetus and the staple starch (tuwo), and life and fire both of whose thermal properties form the basis of the analogy. The way in which Hausas view thermal properties of the body, medicine, and food, sweet and bitter, the human body, sex, illness and therapy are central to understanding women's ideas about feeding, illness, and child care and Darrah's study (1980) will be referred to often in order to better understand women's views and practices.

Health is not viewed by the Hausa as a biomedical state. According to Darrah (1980), health is one kind of good fortune. One's arziki[3] or good fortune, consists of health, wealth, status, and children. Each person is assigned a certain amount of arziki which can not be changed, but it can be decreased in one of the above areas and increased in another, as long as the total is maintained. This means that in order to maintain one's balance of arziki, when one gets ill (health), a price (wealth) must be paid in order to regain health. Pamela Schmoll, an anthropologist who studied Hausa therapy in Niger, feels that Darrah's fatalistic theory of health cannot explain the Hausa persistence in seeking medicine. Her theory of Hausa therapeutics is based on the idea of exchange, a theory which seems to account for the many exceptions to Darrah's model found in this study (Schmoll, personal communication, October 6, 1990).

Magani (medicine) in Hausa has several meanings: 1) medicine as in a treatment for an illness, as the word medicine is used in English, 2) method of obtaining something, as in medicine to help you get money or some other kind of good fortune and 3) means of avoiding or protecting oneself against something, as in medicine to keep others from beating you (Abraham, 1962). There are several different types of traditional healers: the malamai (Muslim priests), the bokaye (herbalists), barber-surgeons, bone setters, and yan bori (spirit mediums), mai magani (sellers of medicine), and magori (traveling medicine sellers) and ungozomai (midwives, or now trained as matrones).

Women were constantly going to Muslim priests and to an assortment of traditional

[3]This word is azziki in other parts of Hausaland.

healers, either to obtain protection against something, buy medicine to produce a desired outcome, or to receive treatment for a certain illness. Muslim priests prepare rubutu, which is the water resulting from washing Koranic verses from a wooden board and laya, amulets with verses folded up inside. A child who is about to be removed from the breast is given rubutu to drink, which puts the verses in the child's stomach and provides strong protection against the dangers of the termination of breast-feeding. Laya (amulets) are Koranic verses tied up in a string and sewn into a tiny square of leather worn around the neck or hips, usually to protect the child from the dangers of teething, evil mouth, or witches.

Barbers play a key role in the community by performing rituals which signal the passage of the individual to another stage in life. Their surgical procedures include circumcision, removal of the uvula to prevent digestive problems, clipping or removal of the hymen at birth if it is determined to be necessary to prevent reproductive problems, cuts to remove bad blood to lower fevers, scarification for identification as well as for health reasons, as well as shaving and hair cutting under certain circumstances to protect the child.

There are many kinds of traditional herbalists. Magori are medicine sellers who travel far and wide, sometimes as far as Mecca, to sell their formulas of minerals, barks, black cat hides, animal teeth, snake skins and other charms, sometimes earning as much as $2000 when they successfully treat a wealthy person. The area around Sabon Gari is known for its magori, and some of the small villages nearby boast several wealthy magori as residents. An informant whose husband was a magori, said that they rarely treat the people in their own village, because they are not "popular" in their own community. When asked what this meant she went on to say that magori medicine is sometimes "a lie" and that people in his own community don't always trust the magori. Other healers in Sabon Gari usually specialize in one specific illness. One old woman is a specialist in an illness called kaikai, another in a childhood illness called kai, and a man specializes in the treatment of abscesses, just to name a few.

Four traditional matrones (midwives) report to the dispensary daily to assist in the well-baby clinics and the health education demonstrations. The matrones are uneducated post-menopausal women who were practicing traditional midwifery before the government incorporated them into the Village Health Teams. Their government training consists of

participation in an initial workshop of a few days on proper care of the umbilical cord, recording births, identification of birth complications which should be referred to another medical facility, and some familiarity with oral rehydration therapy and the government recommended baby cereal recipes. Since their initial training there have been several workshops to review the material and to update their skills Each matrone represents a quartier, where she will be called upon to assist at most birthings. Then she reports the birth to the dispensary and takes the vitamin A megadose to the new mother. For her services she will usually receive a calabash[4] of millet from the family.

On the PMI side of the building baby-weighing clinics are held Monday through Friday mornings and health education and expectant mother clinics during the afternoons. A different quartier comes to the baby-weighing clinic each day one day each week is scheduled for the rural villages within 10 kilometers.

Making A Living: The Man's Role

In the Hausa culture the husband and wife are each responsible for different aspects of daily life: The husband is responsible to feed and clothe his wives and children and the woman bears his children, cares for the children and the household, and prepares food. The vast majority of the adult males in this village claim dryland agriculture during the rainy season as their main occupation, but most households depend on other economic activities during the dry season. Those men who have second and third occupations have enough capital to be able to buy food if the harvest falls short. Those families with very little land or not enough able-bodied men in the family, and whose men do not have a second occupation, can not grow enough millet to feed their family for the year and the men must hire themselves out to larger landowners in order to buy the millet to feed their family for the rest of the year. Of 21 families in the study about a quarter grew less than enough millet to feed their family for six months, a quarter grew ten to twelve month's worth, a quarter grew enough for their family for a year to eighteen months and the last quarter grew over eighteen months worth of millet.

A strategy used by many families is to raise onions during the cold season, sell them

[4] A calabash is a bowl made from half a large gourd.

around February or March, and use the money to buy millet. Families studied reported receiving a gross selling price for their onions ranging from 10,000 francs ($30) for those who worked the gardens themselves to 200,000 francs ($600) for those who are able to purchase the onion seed and pay someone to water the onions daily) in gross earnings around the end of February. Almost all of the families with more than one year's worth of millet or some other source of cash such as onions, seal their own granaries and buy all of the millet that they consume between February and planting time, purchasing millet when it is cheap and leaving their own stocks intact. Then, when the price of millet goes up and they have spent their onion money, they stop buying millet, and consume their own stocks through the rainy season. Those who are unable to grow enough for the family for one year eat their millet until it is gone; then they are forced to buy millet when it is at its highest price on the market. They find themselves in an endless cycle of working to get each day's food and being at the mercy of the market and those who might hire them. Some men who are in this position in Sabon Gari look to market day to earn the family's food money by transporting goods on their heads.

Men are responsible to prepare the fields: cutting trees, burning brush, and plowing up the soil with a short-handled hoe. Some farmers fertilize the fields with manure from their compound, but this work requires time, a charette and laborers, so it is often not done. On the day of the first good rain all of the men and children over seven, and some women[5] go to the fields to plant. The men dig a hole in the already prepared soil, and a woman or child places seeds in the hole, covers it with soil, and stamps on it with his or her feet. Depending on how soon it rains again, the weeding takes place in the next two or three weeks and a second weeding a few weeks later. When the grain is ripe the stalks full of grain are cut, gathered and tied into bundles, carried home on the head or on charettes, and placed into large mud-brick granaries until needed.

In the past, men's work was confined largely to the rainy season, and there was time during the dry season for men to sit around and talk, but nowadays most men are busy year

[5] In this village few women work in the fields, although some have fields of their own either given by a brother or inherited or else on loan from their husbands. When women work in the fields their work is usually the planting and the weeding.

round with secondary occupations. Most of the men and a few post-menopausal women in this village work contre saison (off season or dry season gardening) onions for commercial sale. Some farmers grow lettuce, tomatoes, or carrots which are sold in the village during about three weeks of the year in early March. A few farmers keep small crops growing in the fadamas year round.

Hausas are consummate traders and when the men are not involved in the rainy season crop of millet and sorghum (June through November), or in the contre saison gardening (September through February), most Hausa men are either big commerçants (businessmen) or petty traders with tables or small shops buying and selling animals, leather, tubers, millet, dates, canned goods, sugar, salt, matches, shoes, cloth and other consumer goods. Before the drought killed up to 65% (Jepson, 1984) of the domestic animals in Niger, this village was the site of a large weekly animal market and even though the number of animals sold is smaller than in the past, the weekly market is still large and sellers come from all over the department and from Nigeria to sell their wares.

Other secondary occupations include tailor, butcher, meat seller, carpenter, medicine seller, mat maker, barber, donkey cart hauler, launderer, tanner, blacksmith, and priest. The lowest status jobs include physical labor in other people's fields, mud brick house construction, and carrying things on one's head. Those young men who do not have a contre-saison garden of their own and are not needed on the family plot, leave the village (exode) during the dry season to seek part time employment on the coast. When they are successful at making money, it is sent home to the women and children via the post office mandat (money order).

Animal husbandry is a favorite second or third occupation of Hausas, both men and women. Most of the animals which can be seen in this village are owned by the women, who use or sell the milk and butter produced on a day to day basis. A few men own large herds of animals which are not visible in the village as they are sent north with Fulani herders to pasture, following a very old tradition of exchanging the milk produced by the animal for the care and feeding of what can amount to a large investment. Donkeys and charettes are considered a good investment because they can be used to produce food and can be rented out to provide income. The poorest cannot afford donkeys, but a family

which grows enough millet to sell for profit may buy a donkey one year, and a charette the following year.

Women's Work

Women in the Hausa culture are responsible for food preparation, carrying water, and caring for the house and the children. A woman informant was asked to describe the typical woman's work day:

> I'm going to tell you about women's work. Every day the woman gets up in the morning before the sun has come up. She baths herself and then she prays. She gets water from the well. First she heats leftover tuwo or gets out the fura for her family to eat. Her husband gives her the millet for the day and then he goes to the village gardens to do vegetable gardening. She sweeps the compound.
>
> She removes the millet grains from the stalk. She pours the grains from one bowl to the other so the wind will take away the chaff. She puts the grain in the mortar and does the first pounding using the pestle and adding a little water. She removes the bran and washes the grain. She washes the mortar and the cooking pot. She sets the pot aside to dry. The grain is put in a closed calabash. Then she puts the pot on the fire and lights the fire. She puts the grain back into the mortar and pounds it until it is flour. She makes the damp flour into balls and puts the balls into the cooking pot to boil.
>
> Before the balls have cooked, if she has animals she gives them the water used to wash the grain; she chases them out to pasture. She milks the cow. She pounds the spices. Some use ginger and cloves; others use different kinds of pepper.
>
> The balls have cooked. She takes them out of the pot and puts them into the mortar. She pounds them until the lumps are gone. Then she adds spices and a little water and stirs. When it is absorbed she puts it into a calabash. She washes the mortar and pestle. She goes back into the house and wet mixes the paste. Then she adds sour milk and water.
>
> Then it is lunch time. She carries the fura to the husband where he is working in the garden or fields and then she may work in the field or garden while he eats his lunch. Some women have fields that their husbands have given them. Then she will carry the dish home to clean. If she has older children she may send them to carry the husband's lunch to him.
>
> The women and small children eat and rest. In the mid afternoon, the women may work on their craft or get their hair braided. Then they get more water and begin to make preparations for the evening meal (Halima).

The village is fortunate to have a water table at three to five meters during all but the last few months of the dry season. A large percentage of the houses in the newer quartiers have their own well within the compound, but women in the center of town must walk to the nearest well outside of the house twice a day to carry water for the household

needs. For most homes women must get water for three to six trips every morning and again every evening. Most women wash clothes about two times a week so on this day the amount of water needed could double the usual amount. Women who are secluded (kubli)[6] and who do not have a well in their compound, go to the well before sunrise and after dark so that they can not easily be seen. A closed well was dug by Italian aid several years ago and provides potable water, but it is only a few meters deep and dries up during the dry season.

Most of the women in this village pound millet for the family's daily fura, the sour milk drink. This preparation takes from approximately 7:30 a.m. till 11:30 a.m., but there are parts of the preparation which allow a few minutes to do something else. During the farming season women spend all morning pounding the millet for the fura which will be carried to the workers to sip throughout the day. A family which usually prepares one tiya of millet for fura in the morning may prepare five tiyas during the farming season, greatly increasing the amount of pounding time.

A man who has more than one wife rotates nights with them. The woman who is to sleep with the husband that night is the woman who prepares the food for that day. When it is not their "day to pound", co-wives may help with food preparation, but they are likely to have some spare time to pursue their trade or talk with friends. Young girls begin pounding as soon as they can lift the pestle, but are not able to contribute to any extent until they are eight or nine. A woman in her thirties or forties may have a daughter old enough to do all of the pounding for her; the daughter will work for her mother with the knowledge that her mother will set her up in housekeeping when she marries by giving her pot and pans, blankets, and possibly a small goat or a calf. Very wealthy women may hire someone to pound millet for them or a wealthy husband may hire someone to pound for them.

Every day at about 11:30 a.m. the animals tethered in the compound are untied and driven to the clearing on the north side of town, where the Fulani herder family takes them outside of the village to pasture until about 6:00 p.m. Depending on the time of year and

[6] Kulle means locked, or keeping a woman in purdah, although the pronunciation is different for the two meanings. Kubli is the Aderawa variation of the word.

whether the animal is giving milk, owning animals entails additional work. During the millet growing season the women or children must gather from the fields or purchase food for the animals. If a goat or cow is giving milk the woman milks the animal while the fura balls are cooking. The milk is set in a corner of her room and skimmed the next morning; the cream is collected for several days and then shaken in a gourd until it becomes butter. The skimmed milk is sold daily or traded for the water that the millet is washed in, which is used to fatten animals.

The second pounding of millet for the evening meal of tuwo, is done by most of the women in this village only two to four times per week with most people doing it about twice a week and during cultivation this may even become less frequent for those who have large amounts of pounding to do in the morning and are too tired by evening. When they do not cook tuwo in the evening they buy it already prepared. In some families where there is only one wife the mother-in-law cooks one day and the daughter the next, or the work is shared. After the evening meal is eaten people usually sit around the fire, in the entrance way or under a tree, talking until they are ready to go to sleep. The dirty dishes are often given to the animals to clean up and then left until the next morning to be washed.

Firewood must also be obtained daily and for the most part it can no longer be gathered in the nearby area[7]. Most homes burn millet stalks stored in the compound after harvest, so the woman does not have to go after fuel every day. A poor family will gather and burn cow dung during those seasons when there are no millet stalks left. Some people buy their wood for 50 to 100 francs per day.

Very few women in Sabon Gari are secluded under Muslim purdah. As Hill (1972) argues, in order to seclude one's wives a man must be able to pay others to do the farm work, carry water from wells outside the compound, and perform errands and shopping. Seclusion also requires a pit latrine and a well in the compound, which eliminate the need to leave the compound morning and night. Three or four of the women in the sample of 24 considered themselves to be secluded, but women explained that in Sabon Gari there are different levels of seclusion. Women who consider themselves partially secluded say that

[7] The shortage of wood and the destruction of the forests is a serious problem in Niger and several projects have introduced stoves designed to use less wood.

they can leave the house for weddings and showers or visiting family, but they must cover their heads when they leave the house during the day. A truly secluded woman rarely leaves the compound and if she does she covers not only her head, but she also wears a sheer veil over her face.

Some women say that seclusion is the ideal to which they aspire: "If I could marry a rich man I wouldn't have to pound anymore and I could sit all day!". Others say that they would not want to be secluded because that they like to be able to come and go and visit their friends and relatives. Secluding one's wives is thought to please Allah, and most priests seclude their wives whether or not they can afford to pay others to do the work. Men who are not very well off sometimes seclude their wives for religious reasons or to acquire status, sometimes putting their wives in a difficult position in terms of getting food and health services.

The House

All houses but one in Sabon Gari are made of six foot high mud brick walls which enclose a number of smaller mud brick buildings and living areas sheltering a mai gida (homeowner or head of the household) and his sons, their wives and children. The following passage from my field notes describes the home of Fatchima, the mother in case #1:

> As I stepped into the entryway an old woman sat in the dark room sorting a large calabash of green leaves. A two year old child kept grabbing handfuls of the leaves and throwing them to the ground. The floor of most buildings consists of sand three inches deep which is periodically replaced with fresh sand. The old woman cuffed the child's hand, scolded her, and carefully sifted the leaves out of the sand and put them back into the calabash. I stepped through the door into the open compound and a young boy told me that Fatchima was at the neighbor's braiding someone's hair. While a child ran to tell her I was there, I watched the activities going on in the household. The compound had six different women's rooms besides Fatchima's. Each of these women was married to a brother or an uncle of Fatchima's husband.
>
> Near the entrance is a well which serves the neighbors as well as the residents, so there are always women coming and going with buckets of water on their heads. Surrounding the well is a raised area where the animals were tethered. The area is about 2 feet higher than the rest of the compound, and is composed of several years' accumulation of straw bedding and manure, allowing the area to remain higher than the rest of the compound, keeping the animals from standing in water during the

rainy season, which could make them ill. The animals usually number around two cows and their calves, eight goats, and eight sheep. Each has its own stick with a leather strap which fastened around the animal's foot. Getting to the well is not always easy because, as Fatchima explained, the girls are sloppy and spill water, creating deep mud all around the well. Stones had been placed in the mud to serve as stepping stones.

On the edge of this raised area, and descending towards the dwellings, is the cooking area. This usually consists of three of the largest cooking pots made (about six gallon capacity), and several smaller pots. The traditional cooking fire in Niger consists of three stones placed in a circle a few inches apart, with the pot balanced on them. The fire wood is poked in between the stones and fanned from whatever side the person is standing, if there is no wind.

Next are the women's rooms. It is in the front yards of these rooms that the family members sit and chat between jobs and children play while women and older girls work. In the six foot wide strip between the animals and the dooryards the women take turns pounding in four different mortars. Young girls, aged 7 to 15, give the older women a break by taking the pestles and pounding for a few minutes, but instead of one woman per mortar, three young girls pound at the same time in one mortar. This takes concentration and rhythm to avoid hitting each other's pestle, but the result is that the grain gets pounded more quickly. The girls often break into spontaneous song and clapping between pounds to help keep the rhythm steady and lighten the work. A stalk fence encloses one woman's small yard, and on the outside of this fence Fatchima has hung the stick from which she suspends the gourd filled with cream which she shakes to make butter.

The place where the family members urinate is next to the outer wall of the compound and shielded by a stalk screen. Most compounds have a corner in the house where people urinate on the ground. There is usually a short wall in front of it or a mat to provide privacy, a container of water for washing, and sometimes a bar of soap, but the urine is left of the surface of the ground to dry. Very few compounds have pit latrines. Most people in Sabon Gari walk to the nearest daji to defecate. Because it is often some distance and the trip interrupts their work, women often wait until their work is done or until dark and then go in groups of three or four.

Fatchima comes home, welcomes me, and invites me to come inside her room. Before entering she inspects the girls' pounding and gives some directions about what to do next. Inside Fatchima's room there are actually two rooms, each about six by eight feet. In the outer room there is a metal single bed with a mat on top of springs and several cloths or blankets in disarray. When Abdou gets tired during the day he comes in here and lies down and sleeps for a while. In the corner near the door Fatchima hands me a small wooden stool about six inches high to sit on. In the corner facing me are calabashes and assorted pots and pans, some dirty from some previous meal, and some covered with circular mats to keep the dust out of the food that is inside. The flies are thick enough in this room to produce a constant hum on my tape recorder when I listened to the tape later in the day. Fatchima sits on the bed and Abdou stands between her legs with his head on her knee. She reaches

under the bed and pulls out a calabash and offers me a handful of peanuts. I hold out both hands, palms up[8] and thank her, tucking them into my bag. Abdou starts to whine and Fatchima takes the lid off from the large calabash, picks up the gourd ladle where it is lying on top of another calabash, flicks out a piece of dirt from the ladle, scoops up a ladle of fura and holds it up to Abdou's lips to drink.

During my visit of one hour, four different women come to the door of the room, some bringing rice or beans for Fatchima to inspect, some to pick up money which Fatchima owed them, and another to pay Fatchima money she owned her from yesterday. Fatchima tells me that her husband wants to take another wife, then upon seeing my look of surprise and disappointment, tells me that she was joking. Then she talks about the terrible jealousy that can occur between co-wives. She recalls a story of a woman whose co-wife had divorced and gone home, but the children had been kept by the husband. This meant that the woman had to bring up her co-wife's children as her own. The woman was so jealous and angry about the situation that she set fire to the hut with the co-wife's two children in it (case #1).

Women and Money

A Hausa man's money and his wife's money are kept completely separate and women are not expected to contribute to the general welfare of the family. Any money the woman earns is hers to keep and to spend on her own needs and the inheritance which goes to her daughters. The man is responsible to feed and clothe his wives and children, but the way in which the man's familial responsibilities are defined varies among individuals and from one socioeconomic group to another. Usually in Sabon Gari the man provides two clothing outfits per year, a room for each wife, and the millet and other ingredients needed for the staple dishes, fura and tuwo and its sauce, and the firewood if it is purchased. The extent to which the man is expected to buy meat and snacks for the family seems to depend on his situation. Meat is purchased by most families once per week for the sauce, by middle income families, two or three times per week, and by the wealthy and the fonctionnaires meat is eaten in the sauce once or twice daily. Many farmers grow their own beans (niébé or cowpeas) and men often bring home cassava roots, yams, and fruits on the weekly market day to add some variety to the family's diet. Beyond these the woman often makes small purchases from her own money of other legumes, vegetables, fruits, and wheat products (noodles, spaghetti, bread from Nigeria) from children who hawk the foods already

[8] The appropriate way to accept a gift.

prepared.

Longhurst (1982) poses the question of whether seclusion "puts a secure floor under married women" by guaranteeing their food and shelter since men usually meet their obligations in this regard. This study found that although the "secure floor" of millet is usually provided, the family which has enough millet but not much else may not be able to obtain the cash needed to meet nutritional and medical needs of young children. If the husband provides the ingredients for tuwo and fura, but there is no money for meat, fruit, or vegetables the family's diet may have very little variety and may be low in certain nutrients. This was the situation for case #5 as the following segment of field notes suggests:

> Balira is married to a Muslim priest, who produced only three months' worth of millet in the harvest of 1987. He also has an onion plot which he works himself (although informants say that villagers help religious leaders work their fields) from which he earned 50,000 francs for millet, and he is a tailor on the side. Informants say that although a religious leader may be very poor, he never goes hungry because the villagers provide him with millet. These gifts, together with the millet he purchased, brought the family up to three years worth of millet in stock.
>
> In looking at this family's diet it becomes apparent that although they may never "go hungry", they have relatively little variety in their diet. There seems to be little cash available to spend on what the Hausas consider "snacks" (kayan dadi), fruits, vegetables, meat, and a variety of grains prepared in different ways. After the fast was over Balira had visibly lost weight. When asked if she were making an effort to put the weight back on, she replied that she could not gain weight as long as she was nursing. This becomes understandable as one discovers that on many days of the year, the two women in this family eat nothing except fura, the sour skimmed milk (thinned with water) and millet mash.
>
> When Balira can raise the cash she buys rice and beans from Fatchima (case #1, above), at least for the children, as she knows that they need more to eat. But unlike some families where almost every time I entered the compound someone was nibbling on a snack, I never saw the women and children in this compound eating at non-meal times during the day except for an occasional sip of fura.
>
> During the summer of 1988 the co-wife's daughter died of cerebral malaria, after waiting several days for the husband to find enough money to purchase the medicine which had been prescribed by the dispensary. After the study was over the sample child lost her eye because of a vitamin A deficiency. This family, although they have enough millet in their granaries, apparently have nutritional needs and occasional needs for cash for medicine that are not being met. For more about this family, see the Termination of Breast-feeding section (case #5).

If the woman is able to earn money and the man is too poor to provide fully for his

family she may actually be providing some of the support for the family, although is it not talked about because of the shame involved for a man who has to depend upon his wife for support. Watts (1983) suggests that all women (in Nigeria) help their husbands financially in some way by providing soap or other daily needs in the compound. Additional foods purchased as snacks or additional clothing a woman wants during the year for herself and her children come out of the woman's money.

Women have various legitimate ways to obtain money, such as trades, asking the husband for an allowance of spending money, and adashi or women's traditional credit organizations. Adashi or traditional women's savings groups seem to work well for fonctionnaire women in cities who are on monthly salaries, but the women of Sabon Gari said it was impossible in the rural situation where women do not have much money. One could not trust the other women to contribute on a regular basis.[9] Women sometimes find it difficult to meet needs through the legitimate sources of money and it is assumed that they will resort to other means, such as skimming from the food money allotted to them.

If the woman has the time and the capital to get started and her husband gives her permission, she may engage in a trade of her own. In some cases the wife is more enterprising than the man and has more wealth. Hausa women seem to love trading as much as the men, and if given the opportunity and the capital, these women would probably do as much trading as some of their wealthier sisters in Nigeria (See Hill, 1969; Schildkrout, 1983). In the sample of 23 women only four said that they did not have any trade. One is the wife of a poor Muslim priest, who probably thinks it would look bad for his wife to have a trade. During the study, however, she borrowed the capital and prepared food to sell on two occasions to meet specific needs she had for money. The wife of a wealthy alhaji[10], although she said she did not have a trade, had a large number of cattle. She would not divulge how many, but others estimated that she owned at least 50 sheep and 10-20 cows, making her wealthy in her own right. The other two were divorced and were pounding millet for other people in exchange for millet to feed themselves and their babies. The rest

[9] Longhurst (1982) found that nearly all of the women in his study in a rural village in northern Nigeria belonged to an adashi, contributing from 50-400 francs per week.

[10] Title given to a man who has made the pilgrimage to Mecca.

of the women in the sample weave mats to sell, some selling one or two per month, or prepare some food or snack to be hawked in the street by an older child. One woman pursues her trade on a regular basis 365 days a year, but most women in the study only sell something once a week or when they need money.

Women say that there are several problems with having a trade. First there are too many people with trades already so that it is difficult to sell all of the product. A second problem is that many women have trouble getting a young girl to do the hawking for them. A third, and perhaps the biggest obstacle is that of coming up with the capital to purchase the ingredients or the equipment necessary to get started. Women who weave sometimes claim to wait for several weeks before they can raise the capital to buy the splint and the dyes they need to get started. Women deal with this situation by doing something which requires a purchase of supplies only once, especially since many women seem to do their trade only occasionally when the need for cash arises. They borrow 500 francs from friends or family, for example, purchase a square plot of lettuce, prepare and sell it, and use the profit for the immediate need. Then they pay back the original capital and are done with the trade until the next wedding, baby naming ceremony, or other need arises.

Most trades involve cooking something, either food such as tuwo and sauce or rice and beans to sell as a meal at the street corner or snacks which are delivered door-to-door. Some typical snacks are deep-fat-fried bean cakes, millet pancakes, piles of salad (lettuce, cooked cabbage, or cooked native greens with peanut oil, onions, salt, red pepper. ginger, and peanut flour), roasted peanuts, tiger nuts, or sesame seeds, boiled peanuts, Bambara ground nuts, homemade sesame and sugar bars or candies. Some women make peanut oil from roasted peanuts. Most women weave mats at one time or another, usually to meet the family's own needs first and sometimes to sell, and some women sell pots and pans.

Most women in Sabon Gari ask their husbands for the money that they need for everyday expenses, but for some women getting the money they need or want seems to be a problem. Some said that their husbands only give them food money and no extra money for themselves; others are given 150 to 300 francs per week. When the husband leaves the house in the morning he brings to the wife the millet for the day's food and money for either sauce ingredients or to buy tuwo for the evening meal, and when appropriate, such

items as school lunches and medical expenses. Hausa men accuse their wives of pilfering from the household food money and the millet rationed out each morning. When asked if they take a little of the sauce money for themselves several women indicated that they did. Those who do take a portion out of the food money vary on how they deal with it. Two mothers said "Oh, he knows that I take a little out of the food money; he figures it in." Others agree with their co-wives on how much will be put away for personal use so that both wives are taking the same amount and the husband will not notice.

Although women are not expected to provide the millet for the family, they have a need for millet from time to time. Whenever a friend is married or has a baby women make food to take to the biki (feast). Many of the payments which they are required to make require millet, such as paying the herder for the care of the animals, and payments to various healers and priests for magani (medicine). Women are routinely allowed to glean the fields (kala) after the harvest has been completed and to keep whatever millet they obtain from this.

Most women say that they use their money for kayan daki (things for the room), gifts for the wedding or childbirth of friends, special clothes for themselves or their children beyond the obligatory outfit the husband buys, and animals. When one enter's a bride's room one or more walls are hidden by huge pots and pans stacked in columns from the floor to the ceiling. These dish collections serve as a sort of insurance, and will be sold in times of hunger or misfortune[11]. Some mothers told me that they sold all of their pots and pans during the famine of 1984. How the decision is made between man and wife to spend her money or turn her stocks into cash for the benefit of the entire family is not clear, but men report that during the famine, the animals, beginning with the small ones usually owned by women, were eventually sold to buy food. When a daughter is married she will be given the pots and pans from her mother's wall to hang on her own and if the mother has another unmarried daughter she will begin the collection over again in preparation for the next marriage.

Bikis (feasts) are usually wedding celebrations or the reception for friends and relatives after a child is born. Hausa women have special relationships with other women

[11] Durrah (1980) says that these pots symbolize the children that one hopes to accumulate.

they call kawa (best friend or pal) which include reciprocal obligations requiring that the giver give more than or double what the receiver gave her at the last biki until someone can not go any higher, and then they begin over again. These social obligations to friends are of great importance to Hausa women and they will spend every penny they have to make the required gift or contribute the required food. Longhurst (1982) suggests that these obligations serve as an important source of informal credit for women.

Few Hausa women own land and investing in animals is a way for them to accumulate wealth. Many young women begin marriage with a goat or sheep or a calf given to them by their mothers. With any luck this animal will provide her with milk to sell and trade for animal food, butter to eat and sell, and offspring which she can fatten and sell to meet social obligations. Eventually she will give the offspring to her daughter at marriage.

In the ideal, to which everyone seems to subscribe, the responsibilities of the man and the woman in regards to the support of the family are clear, but the woman who is married to a man who cannot provide for the family will sometimes pitch in and provide part of the support, although it is not talked about because of the shame involved for a man who has to depend on his wife for support. Fatchima (Case #1),[12] the wife of a poor farmer, furnishes a large portion of the support for the family through her trades as these field notes illustrate:

> Fatchima is about 42 years old and has given birth to ten children, six of whom are still alive. One is a government clerk in far away Diffa and another is married to a well paid fonctionnaire in the capital city. Fatchima is married to a poor farmer who has a small field and was able to grow only 10 months worth of millet this past season. He has no other trade except a small onion contre-saison garden which he works himself. I learned that in 1989 he borrowed 3000 francs to buy the onion seeds and other supplies necessary to get the onions planted. He sells his onions and uses the money to purchase millet for his family (I estimated that he made only enough money to buy about one month's worth of millet). Each morning he brings his wife the millet for fura for the day, but he provides very little of the other food for the family. This family's strategy was to use their own millet for the fura until the millet was gone (except for seed) and then to begin buying millet a month or two before harvest, when it is at its highest price of the year. In order to do this, the man will have to take odd jobs hauling things or working with mud brick.

Fatchima, in contrast, has established herself as a popular rice and beans

[12] See field notes about Fatchima's house, pp. 21-23.

seller in the community. Each day she prepares rice and beans in the late afternoon and sells them from inside her home. She sets the prepared pots of food just inside the entryway and customers come to the entryway with their empty dishes, make a purchase, and leave. She spends 3500 francs on the rice, oil, condiments, and fire wood for the rice and beans. In the evening she feeds her husband, her children, and often other people who live in the compound or neighbors, all from her rice and beans pot. When the rice and beans are gone she finds she often only clears about 375 francs per day, because she is giving away much of her profit. Fatchima also owns cows and so it is she who furnishes the sour milk and the butter for the family as well. In the morning Fatchima often buys koko, the hot, spicy, slightly fermented, semi-liquid millet gruel, for her son, paying a total of 25-30 francs. Throughout the day when snacks are hawked in the doorway she buys a small portion for her child. Fatchima is clearly providing a large portion of the support for this family through her rice and beans business and her animals.

During the fast and at other times when she needs money Fatchima also cooks rice and beans in the morning and prepares a kind of lemonade made from limes, tamarind, and sugar. She also braids other people's hair and from time to time retails such things as women's scarves and what are apparently vitamins from Nigeria. In the past she has managed to save enough from her profits to buy three cows and two sheep. Now these animals provide income through the sale of milk and butter and when she needs a lot of cash she may sell an animal. She is fortunate to have a teen-age daughter who has been promised in marriage but "has not been carried to her house yet" and this daughter does all of Fatchima's pounding which frees Fatchima to pursue her trades most of the day. This year Fatchima says she is using what money she can set aside to purchase pots and pans and other gifts for the upcoming marriage of her daughter.

Fatchima talks about her marriage as a happy one. She says that although her family was against her marrying a poor man, she loved him and was willing to make sacrifices in order to live with this man. She seems to thrive on her many enterprises and is respected in the neighborhood for her achievements. When I asked her about women helping to support the family she said that sometimes when the man has nothing the woman helps out; everyone knows about it but no one talks about it because it would bring shame to the man. When I asked her husband how he felt about the difficulty of providing enough food for the family her said, "Don't I furnish the millet, and isn't that what the man is supposed to do?"

Fatchima's son, Abdou, was about one year old at the beginning of the study and he had been suffering from diarrhea off and on for three months. In late December of 1987, he received a vitamin A megadose. Soon after that his diarrhea cleared up, he began to gain weight and became playful once again. Abdou has steadfastly refused to eat the cereals recommended by the PMI- "He doesn't like them", his mother says. But Fatchima buys koko and snacks such as Bambara ground nuts and macaroni for him daily with the cash she earns from her trades. He also demands and gets tea when it comes to the door because "He likes it".

Fatchima's cash flow from her trades is sufficient to allow her to provide a variety of fruits, vegetables, and protein foods in the form of snacks to offset the

meager supply of food provided by the poor husband (case #1).

Because of the strict role definitions it is very difficult for a woman who is divorced to support herself and her children. Divorce rates are extremely high, but there are only a small percentage of women who are unmarried at any given time. The Koran urges men to take as second wives women who are unmarried and to treat them the same as one's other wives. When divorced, women usually go home to their parents' home. Every effort will be made through negotiations between the two families to patch up the marriage. But if the marriage is over the woman will be courted by prospective husbands, and the woman who is not fortunate enough to be remarried soon often finds herself in a position of trading sex for the money to support herself and her children, although it is not called prostitution if the woman lives at home and uses some discretion. Resulting pregnancies are not seen as catastrophes as long as the woman accepts an offer of marriage when it is made. The women whose families reject them, possibly because the family stands to pay back money to the groom's family in the case of a divorce, are in a different situation. These women have no place to go and are almost forced into a situation of prostitution in order to support themselves until they find another husband. Mariama's story shows the difficulties for the divorced woman in this culture:

> Aboubacar's mother, Mariama, is divorced and her parents died when she was young. Aboubacar is her fourth child and the other three died, one at seven of measles, one at five of whopping cough, and the last within a few days of birth of kaikai an illness of the mother's milk. Mariama has come home to Sabon Gari and is living with relatives in a compound with about twenty five other people. Every day she tries to find work to earn her millet for the day.
>
> When first interviewed in February, she was going to the millet pounding area in the center of town and pounding the grains from the stalk for other people in exchange for a bowl of millet from which to make the day's fura for herself and Aboubacar. This pounding the millet off from the stalk is usually done in Sabon Gari by older women and young unmarried men, both of whom need to contribute to the family welfare in exchange for the food they eat from the mai gida's (head of household's) grain supply. Women with children on their backs are seen much less often doing this job, but Mariama was desperate.
>
> At this point Aboubacar's mother was also begging for food and small change with which to buy 5 francs worth of salad or cooked Bambara ground nuts hawked on the street for herself and her child. She reported spending about 75 francs per day on food for her child, besides what she obtained as gifts and as exchange for work. Besides the cost of food, she spent money on various medicines. Aboubacar has been sickly, according to the mother, since he was born. He was almost two

years old at the end of the study and unable to walk. In the spring of 1988 Mariama was spending 500 francs a week on kai medicine because she felt the illness kai (p. 250) was somehow contributing to the problem.

In May, Aboubacar's mother had begun to weave mats for a trade. She said that she spent 600 francs for the splint and 25 francs each for four colors of dye, making a total cost of 700 francs for the materials for one mat, which she could sell for 1000 francs. She sewed her own strips together, although other women have told me that they pay someone else 250 francs per mat to sew the strips together.

In the fall of 1990 I learned that Mariama was pregnant again, but apparently with no prospects of a husband to help support her and her children (case #11).

BREAST-FEEDING

Children in Sabon Gari are always breast-fed unless the mother dies or is ill; it is very rare to see a bottle used even as a supplement to breast-feeding. Breast-feeding is traditionally delayed three or four days after birth because of a fear that the first milk will kill the child, but this practice is changing now as people come into contact with dispensaries or with government trained traditional midwives. Breast-feeding generally is successful and breast milk is given on demand until the mother decides to remove the child from the breast, usually at one and one half to two years of age, or when the mother becomes pregnant again. The only interruption of this pattern is the possible dwindling of breast milk in some mothers during Ramadan, the month-long Moslem fast.

Hausas in Sabon Gari do not practice exclusive breast-feeding, since drinking water, medicines, and sometimes animal milk are given. Because it has been found that extra quantities of low solute breast milk will be produced by the human breast in response to the child's thirsty sucking, it is recommended that only breast milk be given during the first six months of life, since other liquids can unnecessarily expose the child to disease organisms and increase the risk of diarrhea at an early age (Jelliffe & Jelliffe, 1978). But mothers in Sabon Gari feel that their children need the extra water to drink in addition to breast milk from birth onward.[1]

Except for the first childbirth, when a very young mother may be embarrassed by pregnancy, childbirth, and nursing, breast-feeding is taken for granted and occurs whether the woman finds herself in public or in private. Whenever the child cries the mother stops what she is doing long enough to give the child the breast, either by pulling the young child around to the front from where it is tied to her back with a cloth, and letting the child lie or sit on her lap to nurse, or the older child may nurse standing beside the mother or between her legs as she sits doing some kind of work. Babies and children sleep at their mothers' sides and nurse freely during the night until they are completely weaned from the breast.

[1] This practice may be widespread across Niger as well as in the rest of the Sahel (Dettwyler, 1985; Rowland, 1983).

Although nearly all babies are breast-fed, breast milk is not automatically assumed to be "good"; it is watched for its quality, particularly at birth and as the child approaches the age of termination of breast-feeding, since the milk can turn "bad" and become dangerous to the child. Bad milk (mugun nono) can have a number of causes, most of them related to the mother's behavior or health state and young mothers are counseled and guided by older women and to some extent by the community in their initiation and termination of breast-feeding. An examination of Hausa views of the influence of environmental and behavioral factors on the quality of breast milk is necessary to understand Hausa practice in the area of the termination of breast-feeding. The Hausa child's body is prepared in order to assure that the child will be able to properly consume breast milk and other foods. This preparation takes the form of a series of medicinal solutions given at birth as well as scarification and Muslim rituals on naming day. This section will document and examine Hausa ideas about breast milk and breast-feeding and consider the ways in which these views affect traditional practice as well as the adoption of new practices.

Colostrum

Hausas value a fat "good looking" baby, a sign that the quality of the mother's milk is good, the quantity of breast milk is sufficient, and the baby's body is functioning properly, that is, the child is drinking to the point of getting full (p. 219). The quality of the mother's breast milk is carefully monitored at birth and throughout the nursing period, both by examining the milk itself and by observing the growth of the child; if the child starts to lose weight the breast milk becomes suspect. A woman explains, "if the child refuses to gain weight and his body refuses to look good, it is a sure sign that your milk is bad". Two types of bad milk are associated with childbirth: dakashi[2] (colostrum) and kaikai, an illness found in the milk. In certain aspects kaikai and dakashi appear to be the same thing and are used interchangeably in descriptions of bad milk.

[2] Abraham (1962) defines dakashi as animal colostrum and does not mention that it applies to humans, but many informants in Sabon Gari used it interchangeably with the term "first milk" to describe their own colostrum.

Dakashi, Kaikai, and the Knife Test

Dakashi (colostrum) is viewed by Hausas as bad milk (mugun nono), which if given to children, will cause them to lose weight and die. Women in Sabon Gari have traditionally withheld the breast for 3-14 days or until they could see that the colostrum had been replaced by milk. During these first few days after birth the colostrum is allowed to drip onto the ground.

Kaikai means literally "itching" in Hausa, although the illness does not seem to have much to do with itching. The much feared illness occurs most often in the first two weeks after birth and is blamed for the large number of deaths during this dangerous period. Kaikai is often the reason given for withholding the breast for several days after birth but kaikai may also develop at any other time while the child is still nursing. Kaikai is found in the mother's breast milk, and is passed to the child through the milk. The treatment is for the mother to drink kaikai medicine, which "follows" the milk into the child, expelling the kaikai from the mother's milk and protecting the child. The medicine serves both to prevent the illness if the mother's breast milk does not have it and to cure the illness if it is present. As a preventive measure mothers begin taking the medicine immediately after childbirth, delaying the initiation of breast-feeding until they are sure the medicine has had time to take effect, and continue to take it for as long as they still fear the illness.[3]

Symptoms seen in kaikai victims are the following: skin eruptions, loss of weight, turning yellow or white, becoming languid or apathetic, muscle spasms, crying all night, and becoming emaciated to the point of "being only veins". Sometimes women say that "the babies' stomachs swell up in a thick lump".

Newborns with kaikai generally are expected to die during the first week or two of life, although nowadays some people say that kaikai can be cured by a series of shots given by the dispensary nurse. Women explain, "If the child dies on or before naming day (the seventh day after birth) then you know it's kaikai". It is not unusual to find a woman who has lost more than one child before one week of age to the illness kaikai, and these women

[3] This medicine costs 100 CFA every day or every two days and is used from one to five weeks, or even up to as long as a year. Some of the ingredients are cediya, maigi, danya, and birgu, all wild plants gathered in the area. For more information on plants indigenous to Niger, see the following excellent references: Adam et al., 1972; Ikhiri et al., 1984; Peyre de Fabriques, 1979.

are said to have kaikai in their milk.

Both colostrum and milk with kaikai are described as more yellow and thicker than regular milk, so after childbirth women anxiously observe the color and texture of the milk for several days to see if the milk has the dreaded illness kaikai, or if it has changed from colostrum to milk[4]: "When we see the milk is coming in white, then we know it doesn't have anything". Besides observing the color and texture of the parturient's milk, there are traditional tests which older women perform on the breast milk to see if it yet safe to give to the newborn. These tests are mandatory for the first two or three births and thereafter if the woman has been found to have bad milk with a previous birth.

To determine if a woman's milk is good, that is, if the milk has kaikai, an older woman helps the mother perform the knife test[5] after birth as follows:

> You cook (gasa) the knife in the fire until it is red hot; then you take it out. Then you squeeze some of the breast milk onto the knife. If there is kaikai in the milk, then the milk will lie there like a piece of pancake, but if there is no kaikai, it will jump off from the knife or scatter. Then you know your milk is healthy. It doesn't have the thing (the older co-wife of one of the sample mothers).

The knife test may have its basis in the Hausa practice of cooking goat or cow colostrum to make a sort of cheese for human consumption. The knife test allows the woman to observe whether or not the human colostrum behaves in the same way as the animal colostrum when fried, and therefore whether or not it is still colostrum or has now changed and become real milk.

If the milk is determined to be healthy, breast-feeding is initiated on the third or fourth day after birth; if the milk is found to be unhealthy, some women give the breast after the third day, but only if they have already taken kaikai medicine for two or three days. Others found to have kaikai wait several days longer while they take medicine; meanwhile the child is given cow's or goat's milk. There is evidence that in the past women waited

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[4] One informant said that if the milk has kaikai the milk will not come in and the breast milk is only water.

[5] Some informants also described an ant test, in which ants are placed in a puddle of the mother's breast milk. If the ant or (in some versions) a certain number of the ants crawls out of the milk alive, the milk is good. If the ant dies in the milk, then the milk is bad.

Some reported performing the test for three consecutive days. Others said that you only test once; once the medicine has been taken for several days it is safe to give the breast.

longer before initiating breast-feeding: Older women report that they used to wait six days before giving the child the breast and the dispensary nurse sees rural village women who have walked several miles to the dispensary with their sick newborns who have already gone seven to fourteen days without breast milk. The important thing seems to be to withhold breast milk long enough for the kaikai medicine to pass through the milk and take effect before putting the child to the breast. Even the mother who follows the modern practice of giving the baby the breast "at birth", often waits at least over night after having started the kaikai medicine, before she puts the child to the breast.

Adoption of the Practice of Giving Colostrum

In the sample of 22 mothers thirteen gave the breast soon after the birth. Women's conversations suggest that the rewards for adopting the new behavior are greater than the rewards for keeping the old behavior: Women suffer physical and emotional pain by withholding the breast milk; there is less work and less expense involved in giving the breast rather than animal milk substitutes; there seem to be immediate positive results that are visible and attributable to the child having drunk colostrum. If a child is not put to the breast soon after birth and the breasts emptied, (the women in Sabon Gari do not express the milk), the breasts become engorged and swollen to the point of being very painful. Moreover mothers say that it worries them to hear their newborns cry of hunger while at the same time they don't like giving them animal milk, which is thought by some to cause allergies and vomiting. Growing numbers of women seem to feel safe in giving colostrum, as long as they take the preventive medicine.

In the past there seemed to be no awareness that if nursed, the breasts will reach full milk production sooner, but now some women are repeating the dispensary message that the milk is "pulled" or made to come sooner by the sucking action of the baby nursing on the breast. Some informants said that the colostrum prevents the illness kaikai, because they see the baby gaining weight on the colostrum instead of losing weight under the old practice.

Vitamin A and the Adoption of Colostrum

In 1987, Helen Keller International chose the district in which Sabon Gari is located as one of the sites for the distribution of vitamin A megadose (200,000 IU) capsules. The dispensary staff trained the matrones to distribute the Vitamin A megadose to women in the village after they give birth. The message that the vitamin A capsule will make the child healthier, but that it is to be given to the mother, is completely compatible with the Hausa idea that medicine passes from the mother to the child via her breast milk. One often hears, "They gave him (the baby) vitamin A" or "He drank vitamin A". This should not necessarily be construed to mean that the matrones gave the megadose capsule of vitamin A to the newborn instead of the parturient mother. What is meant is that the baby received vitamin A through the mother's milk, the same way the baby receives kaikai medicine.

Because of the way it is distributed and the message which goes along with it, the Vitamin A megadose seems to have assumed the role of modern kaikai medicine or medicine which allows one to give the baby colostrum safely. Other regions of Niger, however, report a similar trend in the adoption of the practice of giving colostrum, without the coincidence of having vitamin A capsules distributed. The giving of colostrum is apparently being accepted without the help of the vitamin A capsule, probably because of the advantages to the mother over withholding the breast as described above.

Preparations of the Child to Consume Breast Milk

Bauri (dauri in other parts of Hausaland) is the general name given in Sabon Gari for a number of medicinal solutions given to babies soon after birth. These solutions are viewed both as purgatives to rid the baby's body of the impurities associated with pregnancy, and as tonics which enable children to eat enough to get full and "make them grow fat, good looking, and fun to hold". The child's body is interfered with at birth so that it will function properly: The intestines are believed to be "tied up" with impurities and in order for the child to eat and digest properly the stomach and guts must be "opened up" or "untied", and "washed out". The various bauri solutions serve this purpose.

There are several solutions which qualify as bauri in Sabon Gari, but the most important one is the baurin itatuwa, or the solution made from "trees". The ingredients

form a long list of wild plants, usually their roots, their bark, and often the branches and leaves as well. Potash[6] is almost always added and is used by Hausas as a multipurpose medicine to sweeten the stomach, wash the stomach, increase milk production, regulate sperm production, and to purge the body of excess mucus as well as a purgative in the case of constipation. Often nowadays, sugar and lime juice are added to the recipe in small quantities. Some women described taking one sugar cube and breaking it into two or four pieces, one for each batch of solution. This probably reflects the belief that sugar in large quantities can cause the illness zahi, one of the symptoms of which is severe diarrhea. This finding and its implications for oral rehydration solution, which calls for eight sugar cubes, will be discussed in the diarrhea section.

A second traditional bauri is made by soaking millet grains, tsaba, in water and potash overnight, until it turns red (or brown). Then it is strained and the liquid is given to the baby to drink and adults eat the soaked wheat grains which have been strained out.

A third bauri, which seems to have originated with the advice of the dispensaries and the PMI's, is made by taking a "little water, putting in lime juice, and a little sugar." Some mothers use all three of these solutions, the herbal brew, the soaked grain water, and the sugar and lime juice solution; others use only one or two. The sugar-water and millet water are usually given only during the first three days, but the herbal tea may be given up to forty days.

The Hausas believe that if the gut is not purged, the child will not be healthy and will have an appetite or be able to consume food properly. The main idea seems to be that if one does not get the impurities out of the stomach and gut the child will not be able to eat and get bigger. But there is also the idea of controlling when and where the child will have bowel movements. Purging the gut will prevent the child from defecating during the night.

The Hausa word dabru, used in describing the role of the bauri, means to tie up, but it also has the figurative sense of controlling something, such as tying up or stopping diarrhea. One of the traditional ways of protecting the child against diarrhea is to buy a

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[6] Kanwa is sometimes defined as potash, sometimes as natron, and sometimes as saltpeter. Durrah (1980) cites two other sources: 1) Buchanan and Pugh as citing a 1934 geological survey of Nigeria which found kanwa to be a compound containing roughly 20 percent Na_2CO_3, 27 percent Na_2SO_4, and 31 percent CaCO, and 2) Bargery (1934) defines kanwa as saltpeter (sodium or potassium nitrate) and potash.

necklace of knots, thought to aid in "tying up the diarrhea".

The Hausa way of toileting small babies involves the mother sitting on the ground with her legs outstretched in front of her, with the child's little bottom positioned in the gap between her legs. The mother makes hissing noises and coaxes the child to defecate. She then stands up, washes the child's bottom, positions the child carefully on her back with a cloth tied around the child's back, and then cleans up the stool. This is done by pushing sand around the stool until it rolls into a sand covered ball. Then it is picked up on a leaf or an old mat or between two sticks and carried outside of the compound where it is thrown on the garbage heap or to the side of the walking path.

This controlled process of toileting, i.e., coaxing the child to have a bowel movement when the mother is ready to deal with it, is preferred by Hausa mothers to having the child defecate in bed, while on the mother's back, or at other inconvenient times. So the child is purged during the first ten to forty days of life, in order to clean out the digestive system of impurities and prepare the child to consume breast milk as well as to control the child's bowel movements.

On naming day the barber performs other rituals to ensure the health of the baby. In Sabon Gari this involves snipping a tiny nip from the hymen of the female child if it appears to be prominent. This is to prevent future swelling of the hymen to the point of interfering with sex and reproduction. The barber also makes a design of knife cuts on the bodies of both male and female children on the stomach and chest and on the back. These cuts allow the bad blood to escape, preventing the stomach from swelling up and ensuring that the child's digestive system will function properly.

Other Findings About Breast Milk

There are a number of environmental and behavioral factors which are viewed as having the potential to affect the quality of the breast milk and thus the health of the child, since, in the Hausa view, medicines, illnesses, kinship, pollutants from the mother's sexual activity, personality traits, and witchcraft, as well as heat and cold can be passed from the mother to the child through breast milk.

Hot Milk and Sweet Milk

If the child is not getting fat, mothers will sometimes say that their milk is sweet. They are not referring to the taste of the milk, but to a state of the breast milk which is caused by the state or behavior of the mother. Darrah (1980) elaborates the metaphorical parallel found in Hausa songs, proverbs, and rituals, between the human reproductive system and the alimentation system, based upon the Hausa verb ci, which means both to eat and to have sexual intercourse. Within Hausa symbology sweetness is equated with desire, sex, and the menses, and is symbolized by the color red, while lactation, abstinence from sex, and birth are associated with the color white and non-sweet foods. There is a conflict between sex, desire, and sweetness on the one hand, and the opposite state which is associated with lactation, child birth, and abstinence from sex. At marriage the bride is given red candies to eat to enhance her sexual desire and desirability. In contrast, starting in the seventh month of pregnancy women avoid sweet foods and eat milky, white foods to clear their bodies of sweetness and sexual desire before birth, so as not to harm the new baby. During the 40 days following birth the mother abstains from sex as required by Islamic law and eats non-sweet, milky, or white colored foods and drinks, to decrease sexual desire and enhance lactation.

In the past the Hausa woman remained at the home of her parents for up to two years or until the child was completely weaned. This practice facilitated birth spacing and improved the child's chances for survival. Nowadays most women, except sometimes a young first-time mother in a polygamous household, resume sexual relations with their husbands after the 40 day period. Darrah suggests that "sweet milk" is caused by the lactating mother having sex before the nursing child is completely weaned from the breast. Not only does sexual desire itself taint the milk, but Hausas believe that during intercourse, the man's seminal fluids remain in the woman's body and accumulate. When there is an accumulation of these "pollutants" in the woman's body, they can get into the woman's breast milk and cause the milk to go sour or turn bad. This bad milk can keep the child from getting fat and can give the child diarrhea and even cause its death.

Older women say that when women worked in the fields they sometimes worked so hard that they forget to nurse their babies, causing the milk to change within the breast and

giving the child diarrhea when he or she finally does drink. This is referred to as "hot milk". The idea seems to be that environmental factors can make the milk inside the breast change in consistency or color, and that drinking this milk "stir up a sediment" in the breast milk and make the child sick.

Wet Nursing

Wet nursing is rarely done in this culture. If a woman does not have enough breast milk, it is unusual for her to find another woman to nurse her child; she will try instead to substitute other foods or animal milk. Hausas are concerned about the quantity of their bodily fluids, including breast milk and they are afraid that if they give theirs to another's child they will not have enough for their own child. The breast changes ownership and belongs to the fetus as soon as the woman becomes pregnant. The same idea applies to a woman who is already nursing; she cannot share her milk with another child.

The nursing woman is thought to have great power over the character of the nursing child because of the transfer of character traits through the breast milk. Several informants said that there is so much jealousy between co-wives that a woman would never nurse a co-wife's baby because the women seldom trust each other and would fear that the co-wife might turn the child into a witch or otherwise cause the child harm through the power given to the woman who nurses. Finally there is the concern that children nursed by the same woman become as blood siblings. If a woman nurses her daughter on one breast and her friend's son on the other breast, for example, because the children are drinking the same milk, they become brother and sister and can never get married.

When a woman dies in childbirth, the baby is in very serious danger. The child will be given to the maternal grandmother if possible and she will put the child to her breast and usually will re-lactate. But in the two cases observed by the researcher, the grandmothers did not have enough milk to sustain the children and were penniless, so they were forced to wander the streets begging for animal milk.

Galactagogues

Hausa mothers are very concerned about the quantity of their milk and say that they

are aware when their breast milk decreases for any reason. There is a realization that with childbirth the mother needs to drink liquids, especially milk. At birth there is a tradition that the husband gives four to five kilograms of millet to the parturient so that large calabashes of fura can be made for her to drink, "to make the milk collect". Soon after birth neighbors and friends come to the house to pound millet and a huge calabash of lalame, a special drink of millet and water with spices and sabara (*Guiera senegalensis*), is prepared for the new mother. It is considered important that the mother eat as much as possible after birth to regain her strength. The food most commonly thought to increase milk production in Sabon Gari is beans, and mothers, if they can afford them, will eat as many beans as possible following child birth or when they see that their milk is decreasing. During the last few months of pregnancy and especially during the forty days after birth women in Sabon Gari also eat large quantities of potash to increase their milk production. This substance is purchased in the market in fist-sized chunks and mothers can be found nibbling it as they work around the house.

Breast Milk and the Muslim Fast

The fast of Ramadan is one of the five pillars of the Muslim faith and is obligatory for adult Muslims. During the month-long fast adults abstain from food, drinks, and coitus during the hours from dawn to sunset. This partial fasting is considered to be good for one's health, training in controlling one's needs and desires, and is prescribed for Muslims so that they may remain conscious of Allah, earn Allah's pleasure, learn to appreciate the hunger of the poor and needy, and as some interpret the Koran, have their sins erased (Sakr, 1975).

There are several circumstances under which women are exempted from fasting: 1) During menstruation and during the forty days following childbirth women are forbidden to fast. 2) Women who are pregnant or lactating are exempted from fasting, especially if they perceive that fasting is causing harm to themselves, the fetus, or the nursing child. 3) Anyone who is ill or who becomes ill during the fast is exempted from fasting. In all of these situations the women must keep track of days missed and must ramco (a loan that is paid back in another form) or make up the same number of days by fasting at another time, preferably during the month following the fast. Even though exempted from fasting many

pregnant women[7] and over half of the lactating women in Sabon Gari fast for the full month[8] and over half of these reported that their breast milk decreased and that their nursing child lost weight.

Perhaps one reason pregnant and lactating women perform the fast rather than "put it aside" is that it may be difficult to find times during their reproductive years when they are neither pregnant nor lactating. Certainly it is much easier to fast at the same time as the whole community because of the community support and a common schedule for eating and resting. The most frequently given reasons given by women for fasting were so that "In samen gobe" (I may receive tomorrow) or "in samen lada" (I may receive my reward from Allah), "because everyone else is fasting", and "because my husband (or husband's family) wouldn't allow me not to". During the fast there is a sense of shared difficulties; nearly everyone in the community is fasting and suffering together, and those who are discovered not fasting are teased and ridiculed for not having a strong character. The pressure to fast is very strong, particularly, women report, from their husbands and the Muslim priests. Some women say that they fear that their husbands will divorce them if they do not fast and a few that their husbands may beat them. Part of the reason for this pressure may be the interpretation by many Koranic scholars that missed fasting days are a "debt" which can be paid back for elder family members who died before they were able to pay back their debt (Sakr, 1975). One man explained that if an unmarried man or woman fasts he or she helps older family members get to heaven; if a married woman fasts she helps her husband get to heaven. Viewing the fast as a kind of family bank account of grace, each individual's contribution becomes a kind of insurance for the rest of the family.

Since large numbers of fasting nursing mothers in the present study reported a decrease in their breast milk and a loss of weight in the nursing child, it was thought that

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[7] Villagers report that it is acceptable for pregnant women to fast if it is early in the pregnancy "when your stomach isn't so heavy", but women often told the researcher that they stopped the fast early because they gave birth, indicating that they fasted during the last month of pregnancy.

[8] Studies in the Gambia found that even greater numbers of women (all lactating women and 90% of pregnant women) fasted (Prentice et al., 1983). In the Dettwyler (1985) study in Mali, much smaller numbers of women were observed fasting. The percentage of women who fast may be much smaller also among other ethnic groups in Niger, according to reports from Peace Corps Volunteers working in other areas.

fasting during lactation may contribute to high malnutrition rates. Women are aware of how much breast milk they have and whether or not the child "gets full". When asked if their breast milk has decreased a majority of nursing fasting mothers in Sabon Gari respond that it has. But it difficult to know what this means. Fasting people talk about the hardship they are undergoing by performing the fast. Azumi, akwai wuya (fasting is difficult) was heard hundreds of times, as was babu nono (literally, I don't have any breast milk). The researcher soon realized that babu nono did not necessarily mean that the woman had no milk, but that she had less than before. So when women in large numbers during the fast said that their breast milk decreased and that their nursing child lost weight it was impossible to know to what extent this talk was a kind of exaggeration associated with the shared hardship of fasting, or perhaps a kind of competitiveness about who was sacrificing more. It is not clear from this research whether nursing mothers total milk output decreased or whether it simply decreased during the day and then the deficit was made up during the night when they rehydrated themselves. Unfortunately I took the women's words at face value to mean that their total milk output had decreased and did not think to ask about night time milk production. The possibility that the total milk production in any 24 hour period might remain the same (Prentice et al., 1984), was not understood until I had left the field.

Although some people felt that women could begin the fast immediately after the forty days following childbirth because the very young infant could be given animal milk, a greater number of people in the present study felt one should wait to fast until the nursing child had begun to eat foods, so that alternatives to breast milk could be provided to the child if the quantity of mother's milk decreased. Sabon Gari women are concerned when they see their breast milk decrease and most try to provide alternative milk or foods for the child so that he or she will not suffer from the fast. Koko, which is made in nearly every home daily during the fast, is given to every young child who will eat it. Often mothers make or buy extra beans or meat or other foods for their nursing children daily.

A few women and their children manage to maintain weight and even gain during the fast. Two possible factors may be at work here. As the fast progresses people often reverse their hours of sleep so that they sleep several hours during the day and stay awake

most of the night, when they can eat, drink and socialize, so they may be eating the same amount of food as usual. Some families, especially in cities, actually seem to consume more food and a greater variety of foods during the fast than at other times, sometimes spending much more money than usual on food. Also some women may do a better job of rehydrating themselves during the night than others. But large numbers of adults, especially poor people, do lose weight during Ramadan.

Women may say that the child losing weight is nothing to worry about, but their actions belie this calm facade - women try hard to provide extra foods for their young children and they buy medicine from the Muslim priests to protect them. The fast seems to present a double bind for mothers; although few younger women would talk directly about it, remarks by older women and those having difficulties fasting, suggest that women are caught in a position of having to do the fast because of pressure from the priests and their husbands and families, while at the same time worrying about injuring their young children.

All minor illnesses which occur during the fast are said by the women to be due either to the fast itself or to anago, which is defined by the Abraham dictionary as follows: "Yana anago- he's suffering hunger as he cannot enjoy fura without milk and there is no milk to be had." People in Sabon Gari define the term as follows:

> If you are used to eating something, and tomorrow you don't eat it , the next day you don't eat it, until a week has passed, then you see sores come out on your body. That is anago. The medicine for anago is to eat what you are used to eating (Ali).

Many mothers say that they are experiencing anago during the fast and consequently their nursing babies experience it. Diarrhea or any illness (including conjunctivitis, stomach aches, etc.) experienced by the child during the fast will be blamed on anago. When asked why a child is crying during the fast mothers most often respond, "It's azumi" (the fast), or "It's anago". Diarrhea in nursing children during the fast[9] is seen as related to hunger caused by the decreased food consumption of the mother and the subsequent decreased

[9] During the fast nursing children are probably exposed to more solid foods than they are used to, and more leftovers, hence more diarrhea causing pathogens. Freshly prepared food is served only after dark (except for special dishes bought or prepared for young children) and children are often allowed to eat the leftovers the next day.

frequency of nursing in the child. When anago is blamed treatment seeking may be delayed because it is thought that the illness is caused only by the fasting and that it will go away after the fast.

THE TERMINATION OF BREAST-FEEDING

According to the Koran, "Mothers shall suckle their children two years completely, for such as desire to fulfill the suckling. It is for the father to provide them and clothe them honorably.... But if the couple desire by mutual consent and consultation to wean, then it is no fault in them."[1] When asked at what age children should be removed from the breast, mothers in Sabon Gari respond by giving the ideal age as it is stated in the Koran, "Two years", and then they qualify it by adding, "unless Allah gives you another pregnancy", in which case it would be as soon as the woman knows she is pregnant. But the ideal of two years is attained by only a fraction of mother/child pairs; the average age at which breast-feeding stops is around 15 months and the range from 10 to 27 months. Often the mother becomes pregnant before the child reaches two years and equally often the mother makes the decision to terminate breast-feeding after carefully considering a combination of factors having to do with the mother's estimation of the child's readiness and health, her own body state or health, and other factors.

The termination of breast-feeding is viewed as a dangerous time in a child's life. The Hausa have learned from experience that many children who were fat and healthy in their earlier months, get sick, waste away, and eventually die after termination of breast-feeding. When the mother decides that it is time to terminate breast-feeding she seeks protection through medicines and protective rituals from Muslim priests as well as traditional healers. Termination of breast-feeding takes place in one day so that the child will suffer less and will forget the breast more quickly than if the process were prolonged. Efforts are made on the day of termination to provide the child with enjoyable distractions and to surround him or her with relatives who will cater to the child's every whim.

The following is a series of conversations between the researcher (Nana) and a mother about the termination of breast-feeding:

1 Nov. 11, 1987 (The mother talks about the ideal.)

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[1] Arberry (1955), p.33.

	Nana:	How long do you plan to breast-feed her?
	Balira:	She will drink breast milk until she is two years old.
	Aug. 27, 1988	(The mother is making the decision.)
	Balira:	I want to forbid her the breast, Nana; she's old enough.
	Nana:	She can't be. How old is she?
	Balira:	One year and ten months.
	Nana:	Why do you want to take her off the breast now?
	Balira:	This nursing here that she does, she grabs the breast to drink; she grabs the breast to drink. You know now I don't have any breast milk, I have less milk than I used to.
	Nana:	Have you been sick?
	Balira:	I'm fine!
	Nana:	Is she well?
	Balira:	There is nothing wrong with her.
	Nana:	Does she eat everything now? All kinds of foods?
	Balira:	Everything! She eats everything! You see just now she drank fura and she ate tuwo.
	Nana:	Does it seem to you as though she is tired of breast-feeding?
	Balira:	No, she isn't tired of breast-feeding. That's the problem; I feel pity for her because she wants the breast. At the same time her sucking wears me out; she wants to nurse all the time. You know, I feel I shouldn't take her off the breast because I'm afraid she'll get skinny.
	Nana:	I'm afraid of that too. Because you don't have all different kinds of food in your house.
	Balira:	We don't. Just fura. That's why I'm afraid to take her off the breast - because we don't have different kinds of foods that I could give her to make her grow big.
	Nana:	She might get skinny.
	Balira:	Get skinny is what she will do! That's what I'm afraid of. I know that if I take her off the breast, she will get skinny.
	Nana:	Did she get her vitamin A (The megadose from Helen Keller International distributed by the PMI)?
	Balira:	She got it. It's two months until she's supposed to go back.
	Nana:	I think she's only one and one half years old. (At this point I had calculated her age and found that she was only 1 1/2 years old.) Is she hurting you when she nurses?
	Balira:	Um. I'm going to take her off the breast. Don't you see how much weight I have lost from all this nursing?
	Nana:	One doesn't have to get skinny from nursing; you aren't eating enough, probably. There's not enough fat medicine (maganin

		kiba) in fura.[2]
	Balira:	You're right.
	Nana:	Did you tell your husband?
	Balira:	What would he say?
	Nana:	Is it his decision?
	Balira:	It's not his affair.
	Nana:	What if I talked to him?
	Balira:	What would you say?
	Nana:	I could tell him that fura is not enough for her.
	Balira:	No, don't tell him that. He knows that fura is not what one should give the children. He doesn't have any money. He'll get mad. He'll just say that I told you. When he does have money he buys all different kinds of foods and we eat them. Right now he doesn't have any money.
	Nana:	Are you eating tuwo nowadays?
	Balira:	We eat it whenever we prepare it.[3]
	Nana:	Fura is not enough for you or for her.
	Balira:	Nana, I'm going to take her off the breast.
	Nana:	Why don't you wait until you have a little money, until after the harvest so you can get a little extra food for her?
	Balira:	We finished the harvest already, Nana.
Nov 24, 1988		(The mother has terminated breast-feeding.)
	Balira:	Nana, I weaned her. And nothing bad happened! She could walk. So I weaned her.
	Nana:	She didn't get skinny?
	Balira:	Look at her, she didn't get skinny, you see?
	Nana:	She didn't get diarrhea?
	Balira:	There's nothing wrong with her; she just eats food!
	Nana:	Great! What did she eat today?
	Balira:	This morning she drank fura and she ate bean cakes. And every day I buy her some yams. Last night she had tuwo.
	Nana:	What kind of sauce did you put on it?
	Balira:	Jute leaf sauce. You see now when she eats yams, her stomach will not get skinny.
	Nana:	You have really made an effort to keep her from getting skinny!

[2] Fura consists of about one third water, one third skimmed milk, and one third partially cooked grain, and is is therefore probably relatively low in calories.

[3] This can be two or three times per week for this family or not at all if the father is out of town. The family is too poor to buy tuwo or an evening meal sold in the street if the husband is not there to ration out millet for the preparation of tuwo on a given day. So the family will drink fura and possibly eat little else on that day.

Balira: I did try hard to keep her from getting skinny. I buy her meat, yams, bean cakes, and peanuts.

Nana: How long since she ate peanuts?

Balira: She even had them today.

Nana: How long since she ate meat?

Balira: Since market day (two days ago). She ate it all afternoon. Then the next morning she ate what was left.

Nana: What about liver?

Balira: Every market day, once a week. When he comes back from the market, then he fills her up a paper full of liver.[4]

Nana: On the day that you weaned her, what did you do?

Balira: I gave her beans, and I bought her meat every day for a week. Then I stopped. I bought her 75 CFA of lungabu (head meat). Then the next day I bought her 75 CFA again of head meat, to keep her from getting skinny. I could see then that she was not getting skinny, so I stopped.

April, 1989 (Six months after termination of breast-feeding)

This child had measles in April, 1989, and lost one of her eyes (ulcerated cornea) soon afterward as a result of a Vitamin A deficiency precipitated by the measles (case #5).

In the above case study when the child was six months old (November, 1987) the mother was asked about her plans for the termination of breast-feeding. She responded that the child would be removed from the breast at two years, reflecting the ideal age as it is taught by the Koran. In the second dialogue (August 1988) the child has reached one and one half years of age and the mother wants to remove her from the breast. The mother is not pregnant so she is not feeling pressured to remove the child immediately. She has mentioned the child's chronological age as a rationale, but she is not blindly following the Koranic guideline of two years, since she is planning to terminate breast-feeding before the child has reached two. Instead the mother has considered a number of other factors and is carefully weighing the pros and cons of this particular child's case, as listed in the table below:

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[4]Once a week the father buys her liver, probably 50 to 100 CFA worth or two to four ounces. According to Helen Keller International staff a child who eats this much liver once per week would probably be safe from vitamin A deficiency, but the father did not continue this practice on a permanent basis, as witnessed by the fact that she lost her eye a few months later.

Child's Readiness For Removal From the Breast

Pro: 1. Child is old enough: one year and ten months according to the mother's calculations. (line 9)

2. Child eats all adult foods. (line 19)

3. Child can walk. (lines 70-71,

Con: 1. Child still wants the breast. (line 23)

Mother's Situation or Other Environmental Factors

Pro: 1. Mother losing weight from nursing. (lines 41-42)

2. Mother tired of constant sucking. (lines 11-12)

3. Mother has less milk than she used to. (line 13)

Con: 1. Father too poor to buy special food for child. (lines 29-31)

The two main reasons why this mother was hesitating to terminate breast-feeding were that the child did not seem to be psychologically ready to give up the breast, (I feel pity for her because she wants the breast), and the mother's fear that there was not enough food in the house (I feel I shouldn't take her off the breast because I'm afraid she'll get skinny.). As pros for terminating breast-feeding now she points out three factors having to do with the child's readiness: the child can eat all kinds of food, she has reached an appropriate chronological age, and she can walk.

The reasons for termination which seem to be the most compelling for the mother, and those which eventually outweigh her hesitations, are those having to do with her own health and tiredness. Even though she felt that the child was not yet emotionally ready and she was worried about having enough food in the house, the mother terminated breast-feeding soon after this conversation. But she waited until she found enough money to buy special foods for the child to get her through the transitional period - for this mother one week was judged a sufficient transitional period as shown by the regular purchasing of extra food during only the first week (lines 94-98, footnote 4). This extra food assuaged her concern about not having enough food in the house. We do not know from the conversation

how she dealt with her concern about the child's psychological readiness, but the reader gathers that the mother decided to take the chance that the child would adjust because she did meet other important criteria such as being able to eat all kinds of adult foods.

Principles Used in the Decision to Terminate Breast-feeding

This study found that women make conscious and carefully considered decisions about the termination of breast-feeding, using as guidelines principles[5] which have been learned from oral tradition. Although younger women may be told by older women when to terminate breast-feeding, after the first child women say they make the decision themselves[6]. The women of Sabon Gari do not follow these principles rigidly: They consider each child's situation separately, identifying the principles which apply to this child, weighing the strength of conflicting principles, and basing the decision to terminate breast-feeding on a careful examination of these principles in the light of the biological and psychological state of the child and the mother. In their conversations with the researcher the women in Sabon Gari revealed the following principles which guide their decisions to terminate breast-feeding:

1. The child should be two years old, but if the child must be removed from the breast earlier, it is best if the child is at least one year old.

2. The child must be able to eat solid foods, must be eating the adult staple food as a major part of his or her diet, and must be "getting full" on the adult staple or eating enough to grow and maintain health.

3. The child must no longer have his or her "heart in the breast".

4. The child must not be sick.

5. Biting the nipple or refusing the breast are probably signs that the child is ready to

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[5]Millard and Graham (1985) derived principles from Mexican women's statements about breast-feeding, revealing the logic of weaning decisions. The Mexican women were not found to follow the principles blindly, but to use their own judgement, often in consultation with others, to decide the course of weaning for each individual child based on the child's biological and psychological maturation and the mother's health state. The term principle is used here as Millard and Graham used it.

[6]These is born out in the above case study in which Balira says that it is not her husband's affair (line 69), but this seems to differ from what is suggested in the Koran (p. 47).

be removed from the breast.

6. The child should not be breast-fed too long[7], as too much milk will make the child unable to learn to read (the Koran).

7 If the child is sick because of the breast-milk, the breast-feeding must be terminated to see if the child gets well.

8. If the mother is pregnant the child must be weaned immediately.

9. Failure to gain weight or chronic diarrhea may be caused by bad milk, requiring the termination of breast-feeding.

10. Separation from the mother for a whole day requires termination of breast-feeding.

11. If the mother is sick, tired of nursing, working in the fields, or fasting, the child may be removed from the breast, providing other factors are taken into consideration.

12. If the mother wants to become pregnant again, and other factors in the child's life are favorable, breast-feeding may be terminated.

13. The family must have the ability to provide alternative foods if the child is to be removed from the breast.

The principles which mothers consider in deciding whether or not to terminate breast-feeding can be divided roughly into three categories: 1) those having to do with the child's physiological and psychological readiness to make the change (#1-5 above) those having to do with the quality of the mother's breast milk and its effect on the child's health (# 6-10), and 3) those having to do with the mother's body state or health and the situation or environment in which she finds herself (#11-13). The discussion which follows examines more closely some of these principles in an attempt to understand how this period in the child's life is viewed and the potential impact of these factors as the mother sees them.

The Child's Readiness

Reporting after the fact about half of the mothers say that they terminated breast-feeding because the child was "old enough", and when pressed to say how old that is they

[7] As this was not heard too often, no information was obtained about how long is considered to be too long, but it was rare to find a Hausa child nursing after 28 months.

say that the child has reached two years of age.[8] Of the many women who said breast-feeding was terminated because the child was two, when their ages were verified at the dispensary they ranged from 16 to 27 months. In the case study above the mother has counted and found the child to be one year and ten months or 22 months, but when the researcher looked it up she was only 18 months old. Calling a child two years old when he or she may only be one and one half is very common, partly from miscalculation, perhaps, but also because people tend to count age in terms of the number of rainy seasons or other memorable events the person has lived through.

When a mother says "Ya isa" (He is old enough), she means that the child is ready in physiological and psychological ways. Although being able to walk is mentioned fairly often, there does not seem to be one particular stage of physical development which mothers look for in Sabon Gari as a signal that the child is ready to terminate breast-feeding. The more important signs that the mother wants to see in her child are the ability to eat adult food independently, a certain degree of emotional independence, and the acceptance of adult food to the point where the child will be able to "forget the breast" within a short time after termination of breast-feeding.

Hadiza explains the idea of the child being ready:

> Sometimes when one has taken a child off the breast, he resigns himself to the loss, he just keeps on eating food. If he has truly resigned himself to the loss, then he drinks his fura, and he doesn't care about the breast. He won't suffer wahala (troubles) Thank God!, since he was ready.
>
> But a child who is not ready to be taken off the breast; like he's only one year old; whenever he sips fura, he, indeed, his heart is still in the breast. When one has removed him; Well, at that moment he is not ready to be removed; he's the one who will suffer; because it will cause him to have diarrhea. Or if you give him the breast milk when the mother is one or two months pregnant.

For Hadiza, being ready has two components: 1) being able to eat adult food to the point of getting full, and 2) no longer having one's "heart in the breast" or being capable of resigning oneself to the loss of the breast. If a child has not yet acquired the physical skill and the psychological willingness to eat adult food he or she is not ready to be removed

[8]This is said as follows: Ya cica shekara biyu (He has filled two years or he is at the end of the second year). Once they reach two years, the mothers say ya cica biyu, yanzu na uku (the child has filled two years, and is now starting the third).

from the breast. Perhaps "having one's heart in the breast" is the mother's way of saying that the child is still too emotionally dependent on the mother to give up access to this source of comfort without experiencing trauma. In Hadiza's view, the child who has diarrhea as a result of being removed from the breast is sick, not because of pathogens or an illness but because the child was not psychologically ready to be removed from the breast. Those children who lose weight or become marasmic (suggested by the use of the word wahala) after termination of breast-feeding, are viewed not as having a nutritional problem, but as not having been psychologically ready to give up and forget the breast.

Some children signal their mothers that they are psychologically ready to terminate breast-feeding by gradually decreasing the frequency of nursing or sometimes by just refusing the breast and terminating breast-feeding themselves. Occasionally a child injures its mother by biting the nipple, sometimes leading the mother to decide to terminate breast-feeding.

Some informants give the impression that there is a limit to the length of time that a child should drink breast milk, some saying that if they drink too much milk their head will rot and they will not learn how to read (the Koran). Others say Ya koshi da nono (He got full of breast milk), or Ya ishe shi (He had enough [breast milk]). These phrases suggest that there is a point at which the amount of breast milk which the child has drunk or the amount of nursing the child has done is sufficient to meet the child's needs (perhaps both psychological and physiological) and the child can now leave nursing behind.

If the child is ill termination of breast-feeding will usually be postponed until the child is well and happy. A sick child is one who often refuses all other food except breast milk, and is viewed as needing the extra comfort from the mother offered by the breast. The exception to this principle is when the cause of the child's illness (especially chronic diarrhea and marasmus) is seen as related to the quality of the breast milk.

The Quality of the Breast Milk

The quality of the mother's milk is monitored throughout the period of breast-feeding, not only by watching the milk, but more importantly by observing whether or not the child is growing satisfactorily. This study found a number of mothers of 14-24 month old malnourished children who had terminated breast-feeding to see if their children's health

would improve. One said, "The child was getting skinny so I took her off the breast. You should remove them if they are getting skinny because it might be your milk." Several mothers of marasmic children said, "My milk wasn't good so I stopped giving it to him." Kaikai is thought to occur in some children at this age, as well as the conditions hot milk, sweet milk and milk that just does not produce growth in the child. All of these can require the termination of breast-feeding.

A nursing child separated from its mother for a whole day will often be removed from the breast to protect it against the dangers of breast milk left too long without being nursed. This separation leads to the condition called hot milk. To allow the child to nurse again would stir up the sediment in the milk, causing the child to have diarrhea, and could lead to death.

One of the greatest dangers for young children in Hausa thinking is the newly pregnant mother continuing to breast-feed the nursing child beyond the first three months of pregnancy. Hausas believe that the breast milk belongs only to one child at a time. If a child is nursed after the mother has become pregnant, the nursing child is taking the milk which belongs to the fetus, called by some the colostrum of the fetus. Women say that drinking the milk of the pregnant woman gives the child diarrhea, and that this kind of diarrhea will continue until the child dies, no matter what kind of medicine you give the child. It is not thought to harm the fetus, only the nursing child.

When the mother finds out that she is pregnant again, she is urged by the family to stop breast-feeding immediately. If after termination of breast-feeding the weanling becomes ill, emaciated, or dies, this condition is blamed on the fact that the child remained on the breast too long into the new pregnancy. In practice, however, the mother is given a few months leeway to make sure that she is really pregnant, and women say that one cannot really know until the fourth month. When pressed to say at what point further nursing becomes dangerous women say that during the fourth month the milk goes bad and changes in color and consistency, but others add that the milk doesn't go bad until you know you're pregnant.

A child who must be removed from the breast too early, at less than one year of age, because of pregnancy or sweet milk is thought to be in danger. As Hadiza explained in the

passage above, the child is not emotionally ready to give up the breast, and this makes the child very vulnerable to illness, malnutrition, and death. Traditionally the woman went to the home of her parents at childbirth and stayed there for six months and longer, sometimes until the child was weaned, allowing the child to get a good start in life and providing an effective method of birth spacing. This practice has disappeared and the Muslim rule of forty days of sexual abstinence[9] is now usually followed. Although the women in Sabon Gari did not talk about it and men would not admit that there is a problem, the nursing woman finds herself in a double bind in her role as provider of sex for her husband and provider of sustenance for her nursing child. Durrah (1980) points out that this paradox is represented in the allegory between reproduction and morbidity by the word ci, which means to eat, to have intercourse, and to kill; during the period between conception and weaning, intercourse is seen as a threat to the child's life, as it can lead to a new pregnancy. Rurrutsa (kwanika in other parts of Hausaland) means conceiving before the previous child is weaned (Abraham, 1962, p. 586), and dan rurrutsa (child of a rurrutsa) is the child conceived before the mother has weaned the previous child. When asked to define rurrutsa Hadiza said that it is when a woman spends all day with her husband. Although the practice of sexual abstinence has changed, there remains in the psyche of the Hausa woman a conflict between sex and its potential to lead to pregnancy and the subsequent death of her nursing child.

The Mother's Health or Situation

The principles having to do with the mother's health or situation are much less clear than those based on the child's readiness and the quality of the breast milk. Perhaps this is because, as Millard and Graham found in Mexico (1985b), the child's needs and health come first in the decision to terminate breast-feeding. This study found that when a woman terminated breast-feeding because she was tired of it, but without the child being ready, she was ridiculed for having behaved in a selfish way, possibly at the expense of her child's health. Sometimes women say that they terminated breast-feeding because they were ill, although it is not known whether these mothers thought their illness would adversely affect

[9] Trevor (1975) reports a devout Muslim as saying that a good Muslim man should sleep with his wife as soon as she is ritually clean, to express his pleasure that she has given him a child.

the child's health or they were mainly concerned about their own health deteriorating. A number of women said that they terminated breast-feeding because they were going to fast or they were starting a new endeavor such as working in the fields.

The family must be able to provide alternatives to the breast milk. This is not an idea which is heard often, but it is certain that it enters into the decision making process. In the case study of Balira at the beginning of this section, available food was a key issue, although it is difficult to tell how much of this emphasis occurred because the researcher introduced the idea initially (lines 27-28).

The Day on Which Nursing Ends Forever

Once the mother has decided to terminate breast-feeding she chooses a day, often Friday, as this is considered an auspicious day. Three or four days before the appointed day she takes the child to the Muslim priest where the child will be given rubutu, the water resulting from washing the ink of Koranic verses from a wooden tablet. This may be done on two or more consecutive days if the mother is worried about the child not being ready for breast-feeding to end. Women also go to the bokas (traditional healers), especially to seek protection for babies who have to be removed from the breast early because the mother is pregnant.

On the chosen day the mother typically gets up, puts on a tight one piece dress or top which prevents the child access to the breast, and refuses the child the breast. The mother tries to purchase or prepare special or favorite foods to distract the child and mothers say that they give the child anything he or she wants to eat for the first few days. Throughout the first day the child tries to pull the mother's breast out of her dress, but each time the mother gently turns the child away from her and offers something else to eat, tries to govo (tie on one's back with a cloth, allowing the mother to jiggle or rock with her body) the child to calm or rock the child to sleep, or asks an older sibling to take the child someplace else so that the mother will no longer be in the child's sight. Children usually cry and express anger by swatting their mothers' hands or chest for the first day and night, but for many this ends by the second or third day. Some children try to take the breast and nurse again a few times after this, but after a few weeks they often refuse the breast even

if it is offered.

This practice of terminating breast-feeding in one day has been criticized by researchers as traumatic and cruel to the child and leading to malnutrition of the child (Albino & Thompson, 1956). Hausa mothers, however, are horrified at the idea of gradually reducing the number of times the child nurses per day by separating oneself from the child or by refusing the child the breast or stalling to make the child wait longer and longer periods of time before nursing. For the Hausa mother the abrupt termination means that the child only suffers for one day and then the breast is forgotten, a much kinder and gentler process, in their view, than gradually reducing access to the breast.

Traditionally children were sent to the grandmother's house to help the child "forget the breast", sometimes for several weeks or months. Perhaps this is a practice which is dwindling nowadays, as only about one quarter of the mothers in this study sent their children away for the termination of breast-feeding, and all but two of those only sent the child for one or two days. If the child is taken to the grandmother's house she is given money to provide extra food for the child. Health clinic workers say that they see many cases in which the child is sent to the grandmother's for an extended period of time and comes home sick and emaciated, although not many cases like this were seen in Sabon Gari.

A few women say that they put something bad tasting on their nipples, tell their child that the milk has turned bad, or in one case that the milk had worms in it, so the child couldn't drink it anymore. The majority of women in Sabon Gari "did their own thing", as they put it, meaning that they did not send the child anywhere. They removed the child from the breast themselves, and simply covered up the breasts and refused the child the breast until the child "forgot".

Some women say that the child should be given special foods at the time of removal from the breast - others say that they gave nothing different from usual. Special foods on the first day or two after termination distract the child and keep his or her mind off the breast which is being denied. Butter, often mentioned as something purchased especially for the child at the time of removal from the breast, is said by some to help the child sleep at night rather than wake up and demand the breast. Sabara is often given to the child as are herbs with soporific properties to aid in sleeping through the night.

Hadiza's explanation of why children should be given special foods at the time of removal from the breast,

> (You give him special foods) because you removed him. So that he will keep on eating, to the point of getting full, so that his gut ties up. So that he will keep on eating and getting full, before he gets used to (saba) fura.

underlines the Hausa ideas that the child must learn how to eat to the point of getting full and that the bowels must be controlled. As the case study in the beginning of this section illustrates, the concept of special foods does not include an idea that certain nutrients are needed by the child on a long term basis. Balira gave her child special meat every day as well as beans and yams which the family might not otherwise have purchased. But her effort to provide these extra foods was intense during only the first week after termination of breast-feeding. After one week she could see that the child was not losing weight, so she stopped buying the extra meat for the child on a daily basis.

SUPPLEMENTARY FEEDING

The issues addressed in this section are crucial to the development of nutrition education interventions and are central to the treatment of diarrhea. Supplementary feeding practices as they were observed and documented in the in-depth study form a coherent system which allows the child control of its own food intake out of respect for the child's rights, views food's main purpose as that of making the stomach feel full in a country where food scarcity and hunger are familiar, and prepares the child to become a member of society by learning to eat the adult staple food independently.

The first part of this section will examine closely Hausa ideas about food and eating and the ways in which these ideas shape the introduction of solid foods and the feeding of young children, both in health and during illness. The second part will describe the young child's eating patterns and the kinds of foods children consume on a daily basis, including traditional supplementary foods. Finally the way in which Hausa views of foods and eating affect the use of PMI recommended supplementary foods will be examined.

The Hausa Child Learns to Eat

By way of introduction, the Hausa family meal and how people eat will be described from the field notes. Then the way in which Hausa children learn to eat will be shown through close examination of the actual words used by mothers in discussing both medicine to "make then get fat" and supplementary foods. A matrone's description of the government recommended first food as a bauri will be examined for the ideas that it suggests about how Hausa children learn to eat and what is expected of them in terms of independent eating. Then the Hausa view of the role of food and its relationship to being fat and healthy will be explored. The way in which these views and practices play themselves out in the situation of the anorectic child will be examined.

The Hausa Family Evening Meal

In the Hausa family women and young children eat together inside the compound near the food preparation area or near the women's rooms. The men eat in the entrance room to the house or outside under a tree, where the food has been

carried to them by an older child. Each of these groups has its own large dish that is shared. The woman who prepared the food pours the tuwo (the heavy millet porridge which forms the main staple dish in most of Niger) into the large serving dishes, one for each of these groups; then she pours a portion of the sauce on top of each dish of tuwo. If there is meat in the sauce she divides it between the different serving dishes. Each group sits in a circle, usually on a mat on the ground, with the pot of food on the ground in the center. When everyone has washed his or her hands with water and sat down, the cover is removed from the pot, and everyone begins to eat silently until satisfied.

Eating is done with the right hand only (The left hand is not used in eating or to offer something to others, as it is reserved for toilet functions.) Each person dips the right hand into the part of the dish that is the closest to where he or she is sitting. A bit of the solidified paste is dug out with the fingers, making sure that some sauce is included. Then it is squeezed in the hand by closing the fingers down around it, and popped into the mouth. A young child of five or six months who is able to sit up is usually placed on the mother's knee where she offers the child food from her fingers, that is she puts sauce on her finger and holds the finger up to the child's lips. If interested the child licks or bites the food off from her fingers. A child sitting on the mother's lap and depending on her to offer food, will sometimes grab the mother's hand every time that she picks up food and tries to bring it to her mouth, so that she barely gets to feed herself.

From the age of about seven months, when the child can sit up and is just beginning to grasp things with its hands, the child will often be placed sitting on the ground. For the beginning eater the mother scoops out a serving from the family pot and puts it in a small enamel bowl which she places between the child's legs on the ground so that the child will get something to eat even if the child eats more slowly than the older family members. If there is meat in the sauce or something which the mother thinks the child will have difficulty chewing, she will take a small piece and tear it into tiny pieces and either put the pieces one at a time into the child's fingers, hold them up to the child's lips, or place them in the child's personal dish. Children who have learned the skill of eating with their hands will feed themselves as much as they can manage or want from the family pot.

Drinking water is passed around and each person drinks as much as he or she wants and then passes it on to the next person. The mother holds the drinking vessel for young children. The vessel is held up to the lips and tilted gently so that the child can drink until satisfied. When the child makes a motion to drink by moving its lips, the mother tilts the vessel toward the child; when the child stops drinking and starts to pull away from the vessel, she takes the vessel away. If there is fura, the watery sour skimmed milk mash, this is brought out in a large bowl and placed in the center. Adults may pour a smaller bowl (one or two quart) and pass this around so that everyone can have a drink from the same bowl, or the large gourd ladle is passed around and each person drinks from the dipper. The mother scoops up a ladle of the liquid, holds it up to her young child's lips and watches the cues given by the child to know when he or she has had enough.

When the family members feel satisfied they will stand up, go get a scoop of

water from the water jar, and wash their hands by pouring water over the hands. If the young child is still eating after everyone else has finished the mother will often stay to assist or she may ask an older girl to stay with the child a few more minutes to make sure that the child has the opportunity to eat. If, however, the child begins to throw food or make a mess at any point in the meal, the mother assumes that the child is full and will remove either the food or the child and wash the child's hands. Hausas exhibit a modesty toward food and talking is generally not part of the meal. Eating is done quietly and the food is not praised nor the cook thanked for the preparation. Loud burping and the Arabic phrase "Alhamdu lillahi!" (Praise be to God!) when one feels full are the only expressions of satisfaction that are expected or appropriate.

Preparing the Child for Solid Foods

In the breast-feeding section bauri and its role in opening up the stomach and the gut to prepare the child to consume breastmilk were described. The matrones in Sabon Gari also call the bouillie légère (first baby cereal recommended by the PMI) "baurin zamani", which means modern or progressive bauri. The matrones worked closely with the Peace Corps nutritionist (PCV), encouraging women to come to the PMI activities, clarifying when they thought that the PCV was not making herself understood in Hausa, and assuming some of the teaching and demonstration responsibilities delegated by the PCV. In their self-assigned roles as interpreters for the PCV and the health education program, the matrones often couched the health message as they understood it, in terms or metaphors which made sense to them, and presumably to the village women with whom they worked. By calling the first food a bauri they are using a familiar idea, bauri, as a metaphor for the PMI recommended cereal. The resultant health message is that the PMI recommended first cereal helps one's child learn to eat and prepares the child for the consumption of solid foods in the same way that the bauri solutions at birth prepare the child to consume breast milk.

A matrone explains the connection between the idea of bauri and the first bouillie in the following passage:

Once children have eaten the bauri, they will eat food whenever they see it. When they eat bouillie légère their gut opens up and then they eat what they see. They start eating and keep on eating. Their gut opens up. They get used to [saba] eating.

Whenever they see food, they start going crazy [hauka]. They keep on

eating...Bouillie légère opens up the guts and makes the baby keep on getting bigger. It makes him look for food. It makes him put his hand to his mouth ...He keeps on looking for food to eat. He grabs people's hands and puts them into his mouth. He looks for food" [Hadiza at the dispensary after a baby cereal demonstration].

This passage illustrates several key ideas that Hausas have about how young children eat or get fed. The next several pages will discuss these ideas and will refer back to this passage. The educational implications of the matrone's role in interpreting the health message will be discussed later.

Initiation and Termination of Eating

Hausa mothers watch for their children to exhibit an interest in food and signal that they want the food. In the above passage the child learning to eat is characterized in terms of the child's physical behavior towards the food: "eat what they see", "start eating and keep on eating", "look for food", and "grabs people's hands and puts them into his mouth". When asked how they know children are old enough to begin to eat food, mothers say that they look at the food when other people are eating, opens their mouths towards the food, stretch their heads toward the food or reach for it. With these gestures the child indicates to the mother when it is hungry or wants food and the Hausa mother responds to these cues by offering whatever she perceives that the child wants.

Providing food on demand begins with the mother's role as the provider of breast milk and adds to the intake of non-breast milk foods. As the child begins to eat non-breast milk foods, food is given (if it is available) whenever the child signals the mother that it is hungry. Mothers say that they feel pity for the child and could not deny the child the breast at any time during the breast-feeding period. They also report having a hard time refusing their children when they ask for food, even when it involves buying something they can't afford. The mother or other family members cannot say "No" or deny the child food which has come into view and is desired.

As Hausa children receive food on demand, they also determine for themselves when they are full or have eaten enough, and they will signal this by not eating any more by making a face, or by playing with the food. Hausa mothers follow their children's signals and take the food away, saying, "He is full" (ya koshi). Darrah (1980, p. 243) cites Salamone

(1969-1970) as offering a reason why children were traditionally not given millet or sorghum until the seventh month:

> The child should be old enough to make his own choice. Very holy people do not like to eat these two grains; therefore, it is good to wait until the infant is able to reject them and thereby expose his saintly nature.

The mothers in Sabon Gari did not talk about the child exposing his saintly nature in refusing food, but they clearly accorded their young children the right to refuse food: the child itself is viewed as knowing when it is hungry and when it is full.

This is not to say that the mother does not initiate eating by offering the child food. She often tries to entice the child to eat while the food is fresh or while the rest of the family is eating by holding food up to the child's lips on her fingers. But if the child is not interested in the food the mother will not urge the child to eat or continue to hold food up to the child's mouth. She will wait until another moment or another day or until the child decides that it wants the food. The Hausa child is often sitting on the mother's lap as she eats, watching every bite of food that she puts into her mouth, so the child's curiosity about the food eventually leads to the discovery of and demand for food. A child refusing to eat adult food is not cause for worry, as mothers feel that the child will start to demand adult food when the child is ready.

Becoming an Expert at Eating

An analysis of Hausa mothers' descriptions of their children progressing from consuming breast milk and water only, to eating the family food by themselves, reveals a series of developmental stages that they see their children pass through in the process of learning to feed themselves. Arranged roughly in chronological order they are as follows: crying of hunger as a small baby, staring at other people's food and opening one's mouth toward food, licking from someone's fingers, acquiring a taste for food and gesturing towards it to indicate that one wants to eat it, grasping food with one's own hands, squeezing it into a ball and putting it into one's own mouth, looking for or going after food, eating whatever is available with one's own hands without wasting food and making a mess, and finally, at an older age than this study addresses, being able to get food by gathering it, buying it, and even preparing it oneself.

The first non-breast milk foods are the liquid foods, fura or koko, which the mother must help the child drink by holding the ladle up to the child's mouth and allowing the child to sip. As the bauri metaphor passage (p. 63-64) indicates, it is important that the child experience the taste of the food so that each time the food is offered the child will want the food and get excited ("go crazy") enough to demand some. When the child is able to sit up, reach into the pot, grasp food between its fingers, put the food into its mouth, and then let go of the food, the child is usually given its own dish. Next mothers watch for their children to "look for food". A ten month old child was crawling towards her mother and whining. The mother explained to me, "She is looking for food. She is saying that I should get her some food for her to eat." (case #5) The emphasis in the mother's words is not that the child is feeling "hungry", a word that tends to be reserved for the fast of Ramadan or times of famine, but on the child's role of "looking for food", and of signaling the mother when she wants to be fed. Although special food may be made or purchased for a child during the early stages of supplementation, as soon as the child can feed itself, it is expected to eat whatever the family eats. Once this child is eating from the family pot, the mother will not have to make a separate preparation and the child will have a better chance of surviving because she conforms to the every day diet of the family and the village.

Children are assumed to have bad taste and learning what is good to eat is one of the social skills older children are expected to acquire before becoming an adult. Mothers say that children eat all kinds of things that adults would not eat, such as dried fish, rats, mice and eggs, all of which are considered by some to be smelly or otherwise not fit for adult consumption. One woman explained, "A child, you know, doesn't know what's good, but an adult knows what's good." When pressed to say what is good mothers cite the main staple dishes based on millet, while laughing at the adult who had to ask this question.

The Meaning of Food

Getting Enough; Getting Full; Getting Fat

For Hausas the word "food" is often synonymous with millet. Hausas do not feel they have eaten if they have not eaten millet, and they do not feel full if they have not eaten tuwo. All other foods are relegated to the realm of snacks in the Hausa's eyes. When asked what a child has eaten today, a mother will often respond "nothing", but after probing

one learns that the child has indeed put many things into its mouth or the mother has given the child things to eat, but to the mother they do not count as "food" or as having eaten because they were not tuwo. Or if the mother is asked "Is she eating food?", the mother may respond "No, she doesn't eat food", because the child has not yet reached the point where she is eating the adult staple on a regular basis and as a major part of her diet. The child who has to be assisted by the mother may also be said not to have eaten because the child did not feed itself.

The Hausa word ci, means to eat in general. When talking about specific foods, however, one must know which things are drunk and which things are eaten. The word sha means to drink and any food which is somewhat liquid and some other foods and substances are drunk, including fura, koko, and all of the recommended PMI supplementary foods as well as all fruit and tobacco. The word ci pertains to non-fruit foods which are more solid. So if a mother is asked if the child "ate" something the negative answer may be misleading because the child "drank" something.

One mother expresses an idea often heard by the researcher:

> He can't eat food. He drinks breast milk and water. Only koko, if I buy it, I give it to him. But he can't eat food (a mother who stopped me on the street).

This passage illustrates all of the points above. First, because the child cannot eat the soft koko by himself but depends upon the mother to give it to him, or to hold the ladle up to his mouth, she does not consider that he is able to "eat". Second, he consumed koko, which is a liquid in the Hausa language, so he drank it as he drinks breast milk and water; he did not eat it. Third, although he consumed koko, a food consisting of millet and water the same as tuwo, since he did not eat tuwo, he did not eat ("But he can't eat food").

Hausas often complain that they are unable t "eat enough". As we saw in the discussion of bauri, cleaning the guts and the stomach are linked, in the Hausa view, with the child's ability to eat enough food and get fat. In the bauri metaphor (p. 63-64) opening up the child's gut prepares the child to eat what it sees, to start eating and to keep on eating, thus assuring that it will eat enough.

Hausas eat to get their stomachs full. One often hears, Na ci; na koshi (I ate; I got full). The happy healthy child is one who is eating what is provided and getting full. Getting full is equated with weight gain and not getting full is equated with weight loss.

When asked why she gave her child koko during the fast, a mother replied, "So that she wouldn't lose weight. Because during the fast she didn't get enough breast milk to drink until she got full." When asked how they know their breast milk decreased from fasting, mothers respond, "I know my breast milk decreased during the fast because he didn't get full from breast milk, until I gave him cereal". Another mother explains why her child did not lose weight during the fast: "She hasn't lost weight because she eats until she gets full." A mother of a child who had been ill reassured me that he would recover: "He will put his body back now (get fat again) since he's eating food and getting full". In the bauri metaphor (p. 64, line 6) the bauri opens the gut, which leads to the child getting bigger. Informants explained the connection: "If you open up the gut, you can eat enough to get full, and what makes you get fat is to eat until you get full."

Getting Used to Eating

The word saba, to become accustomed to something, (p. 63, line 3 of the quote) represents a very important idea in Hausa therapeutics, that people have to get used to new things or they will suffer. When people complain of diarrhea, stomach aches, and headaches, they will often be told that they have done something that they are not used to doing. Doing things the way they have always been done and eating foods that one has always eaten, prepared in the usual way, is better for one's health, in the Hausa view, than eating or doing things one is not used to.

In the Hausa view, the child who has not truly become accustomed to adult foods is the child who may suffer the most from the termination of breast-feeding and may die in the process. In the Hausa process of learning to eat food, the liquid foods such as koko and kunu are seen as helping the child to get used to eating food. Once the child has begun to eat tuwo, the child is considered to have become accustomed to eating food so the introductory foods are no longer necessary. Since the advent of the PMI recommended baby cereals, the Hausa mothers often readily prepare them to introduce the child to the idea of food. But once the child has begun to eat tuwo the PMI cereals are discontinued because the child has become accustomed to eating adult food.

Feeding the Sick Child

The mothers in Sabon Gari were not found to withhold food, liquids or breast milk, either during diarrhea illness or in any other situation; As the earlier discussion suggests, the maternal response of feeding on demand is very strong. This research did find, however, that Hausa mothers, much like the Malian mothers in Dettwyler's (1989b) study, do not force or aggressively encourage their children to eat or drink when they are weak with illness or anorectic[1]. As with healthy children, ill children are viewed as knowing when they are hungry and when they are full. It is children who regulate their own food intake, so when sick children refuse food or show no interest in food, they are not compelled by their mothers to eat.

The following example is one of dozens of similar situations the researcher observed in which the mother expressed her helplessness in the face of the child who was too weak to eat or seemed uninterested in food. A mother showed me her anorectic child who had already visibly lost weight (but was not yet marasmic) and was not interested in eating. I suggested that she make soft foods for him and feed him a little at a time to help him get his strength and appetite back. Her response implied that I did not understand - it was the child who was refusing to eat, and there was nothing she could do:

> You see his bowl over there waiting for tuwo? Even if I put sauce on the tuwo, he doesn't squeeze it in his hands and eat it. He doesn't even eat to take away the hunger! Even when I took him to the dispensary, he was like that. That's the reason why he doesn't eat; he has no desire (a mother who called me in to see her child).

This mother is portraying a food bowl waiting for someone to ask for the bowl to be filled. The bowl has been put before the child and the food has been offered. Now it is up to the child to demand food and to feed himself. Just as food is provided on demand, the mother above does not give food because the child has not asked.

Mothers feel that children should not be forced to eat against their will, even if they are severely malnourished. One of the children in the study had a swollen throat and then she could no longer nurse because sucking was painful. The mother let her breast milk drip

[1] Force feeding by holding the nose and pouring food down the child has been reported by Peace Corps volunteers elsewhere in Niger.

on the ground until "it got tired of dripping and so it stopped because she didn't drink it". When I asked the mother if she tried to force the child to drink, she replied that the child couldn't drink unless the mother "squeezed her mouth". The child died one week after she stopped nursing. The mother was still offering the child small spoonfuls of sour skimmed milk up until the last day, by holding the spoon to the child's mouth and allowing the child to sip what she wanted.

It should be noted here the Hausa mother is terribly distressed when she knows her child is seriously ill and anorectic precisely because it is the child who regulates its own food intake and she feels helpless to do anything to get the child to eat. In the above case of the child with the waiting food bowl, the mother knows that the child is in danger when not only does he not eat enough to get full (the sign of a healthy child), but he does not even eat enough to take away the hunger. In the case of the child with the swollen throat the mother knew that her daughter of one and one half years was going to die. At every mention of medicine or feeding, the mother would almost chant "She doesn't eat, Fatimatou, she doesn't drink", as if to say, "I don't know why you keep telling me to do these things. It doesn't matter what one does, she doesn't eat or drink, so she is going to die". This mother truly seemed to feel powerless to get any food down the child, both earlier when it hurt for the child to suck, and later in the illness when the throat was no longer painful but the child had become too weak to eat or drink by herself.

No special foods are prepared and there is no dish which is considered to be appropriate for a sick or anorectic child. Indeed, the sick child's lack of interest in eating seems to be viewed as caused by illness[2], and medicine, rather than food, is sought as a possible solution.

The Use of Supplementary Foods

When asked when one should start non-breast milk foods mothers in Sabon Gari say

[2]Initially anorexia is usually brought on by illness, but prolonged anorexia is thought to be caused by the complex interaction of malnutrition, deficiency in certain nutrients, malabsorption of nutrients in the gut, infection, and dehydration (Cho and Suskind, 1983; Dettwyler, 1989a; Mata et al., 1977).

seven months. Seven seems to be a special number in Hausa[3], but perhaps the reason the common wisdom has settled on seven months is that most normal children are able to scoop up things at that age, place them in their mouths and then let go. This means that they can begin to feed themselves with their hands. But upon further probing, many children begin tasting adult foods at five or six months. The foods most often cited as the first food offered to the child are, in order of most frequent to least frequent, koko, the fermented, hot, millet and water liquid gruel, fura, the cold sour skimmed milk and cooked millet mash which is the most common meal of adults, and the millet tuwo (or just its accompanying sauce) usually eaten for the evening meal. Fruit juice and PMI bouillies are now among the first foods offered to many children of mothers who attend the baby weighing clinic regularly, but they are usually dropped after a short time in favor of traditional Nigerien foods. This section will look at young children's pattern of eating and the use of both traditional and PMI recommended supplementary foods.

Traditional Supplementary Foods

Koko is very often cited as the first food given to children when they begin to taste foods other than breast milk. A woman describes how koko is made as follows:

> First you wash the millet, then you pound it and add spices and water and leave it to soak over night. Then in the morning, you wash it and spread it out to dry. Then you carry it to the mill and have them grind it. Then you put it in the mortar and you pound. Then you strain it through a cloth. Then you let it soak again until evening. Now this evening I will strain this water until the sediment falls to the bottom. I will strain it again and put it in the cooking pot . When it boils I will stir in the water from the bottom [of the last straining process, in other words the thicker part with the sediment in it]. Then I'll cook it in this water until it thickens. (a grandmother)

Koko takes 24 hours to make from start to finish. It utilizes a flour which is much finer than the flour used for tuwo, and the bigger pieces of grain are strained out through several straining steps. The grain is allowed to soak in water overnight and again during the following day. This produces a hot, liquid gruel which is both very fine in texture and lightly

[3]Children begin to eat "food" (or are given the opportunity to reject millet and sorghum) at seven months; babies are named on the seventh day; the fetus becomes a child at seven months; boys are circumcised when they are seven.

fermented in taste.

Koko is made every day in almost every home during Ramadan, the way fura is during the rest of the year. Breast-feeding children are often given koko daily during the fast to make up for the fasting mothers' dwindling breast milk. After the fast, people no longer make koko in their homes, but in some villages, where it is sold by street vendors year round, some mothers may buy it for their youngest child[4] frequently throughout the year.

Milk and millet form the most commonly consumed dish in Hausaland, fura. Fura takes the entire morning to make. The process involves pounding millet into flour, adding water, and forming softball-sized balls of dough. These balls are boiled in a pot of water, then pounded again. Then the dough is placed in a large calabash, skimmed sour milk is added and mashed into the dough, and water is added to reach the correct consistency. Fura is said to make one fat and women sometimes pat their tummies after taking a large drink of fura to illustrate this idea, but this reputation seems to be based upon the resultant protruding stomach and the temporary feeling of fullness from consuming a lot of liquid at once, rather than an increase in body fat from consuming a lot of a high calorie food. There are two things which may limit the amount of nutrients that anyone actually receives via fura. The first is that the milk in fura, at least in Sabon Gari, is always skimmed, meaning that it is low in calories and devoid of vitamin A (World Health Organization, 1976, p. 35). Those who have a cow or goat sell the butter and sell it. Even when told that a child needs whole milk, mothers will rarely pay the extra money it would cost to buy whole milk[5]. The second problem is that there is so little actual milk in most people's fura[6]. Hausa women are said to water their milk down so that the milk is already diluted with water when purchased. Most families buy about two liters per day. This is stirred into a huge calabash with the cooked millet balls, and another liter or two of water is added. Then

[4] For a child under one year they usually buy 15 francs CFA of koko and 10 francs worth of sugar, for a total of 25 francs for the child's breakfast. For an older child they would buy koko for 25 francs and add 15 francs worth of sugar.

[5] Whole milk was seen being sold only to orphans and foreigners.

[6] In many parts of Niger milk is apparently seldom added to fura and is considered too expensive.

as the day goes on, more water is added to thin the mixture.

Tuwo involves pounding millet to make flour and then adding different batches of flour (some finer grained and some heavier) to boiling water by stages, so that very large quantities of flour are incorporated into a small amount of water, making a very heavy porridge which fills the stomach. The mixture is then beaten with a paddle to make it viscous or elastic. It is significant that tuwo is said to be "eaten", while kunu and koko are said to be "drunk", even though the ingredients are the same (flour and water) and the preparation of all three involves stirring flour into boiling water. Tuwo is considered an adult food, in fact, the adult food, and the only food which fills the stomach. It is every child's developmental task to learn to eat and become satisfied by tuwo.

Kunu is a traditional porridge which is easier to prepare than tuwo because it simply involves stirring a small amount of fine millet flour into boiling water. The result is lighter and softer than tuwo, although the two ingredients, millet and water, are the same. According to Abraham (1962, p. 558) kunu is portrayed as a poor substitute for tuwo for the sake of speed and economy of millet. Women talked about making kunu at the house when their husband was out of town and they were left to use their personal supply of grain or else eat nothing but fura.

In many parts of Niger some version of kunu may be the preferred first food for young children, but in Sabon Gari koko seems to fill that role and women did not often say that they had made traditional kunu for their child as an introductory first food. Kunu is the Hausa word used to describe all of the PMI bouillies, apparently because of the preparation, that is, a small amount of flour being stirred into boiling water. When mothers in Sabon Gari talked about kunu for their young children they were usually referring to one of the PMI bouillies.

The Young Child's Typical Day of Eating

A child of less than six or seven months is given breast milk on demand, drinking water whenever the mother thinks the child is thirsty. Most mothers in Sabon Gari begin to offer sips of fura at six or seven months and as soon as the child gets used to the taste this becomes a regular part of the child's diet and is sipped any time of day or night.

Mothers say that their small completely weaned children wake up once or twice during the night hungry and drink fura, especially if there was no tuwo or other heavy food for dinner the night before.

Very young Hausa children are often held on their mothers' laps during meals. In this position the child can see and smell every bite of food the mother puts into her mouth. The mother waits until the child shows an interest in the food; then she offers small licks or tastes of sauces and soft foods from her finger whenever she is preparing food or eating a meal. Once the child has begun to taste soft foods the mother may buy a small portion of koko in the morning, add sugar, and begin to give it to her child in sips from a ladle or from a spoon. If the mother attends the PMI clinics she may make the PMI recommended cereals for her baby a few times or for a few weeks until the child is used to eating tuwo. Besides this special soft food in the morning, this small child is still being given tastes of adult food during the day.

Eventually the child moves from the sauce which is on the tuwo to the tuwo itself, first in small bites from the mother's finger, and finally in fistfuls which the child itself digs out of the family pot. Once the child has reached this stage of being able to feed itself from a bowl, the child will be fed small portions of the adult diet every time the family eats. This would typically be leftover tuwo and sauce for breakfast, fura for lunch, and tuwo and sauce or rice and beans for the evening meal. In addition small children are handed bits of food to eat all day long by other family members. When the child is able to walk around, practically no food is out of reach, and the child spends the day dipping its hand into the mortar and grabbing handsful of partially pounded flour or dough, crying and having temper tantrums when snack foods come through the doorway being hawked by neighbor children, and asking for and getting tastes of whatever anyone is seen eating in the household. The snacks eaten depend on the season, as some of the fruits and vegetables are available in the village during only three or four weeks of the year. A few other foods are available to those who can afford them, but those listed below are the frequently mentioned snacks eaten by the children in the study in addition to fura and tuwo and sauce. Typically a child would have a serving of two or three items from this list per day.

Starches:	macaroni with oil
	cassava

	yams millet fried cakes wheat flour fried cakes or doughnuts
Legumes:	bean flour doughnuts beans Bambara ground nuts boiled or roasted peanuts
Nuts and Seeds:	sesame seeds cooked with oil and sugar tiger nuts roasted
Fruits:	mangoes bananas limes oranges guavas Magaria - small native fruit like crabapple tamarind and lime juice drink
Vegetables:	greens of all sorts, cooked and garnished with oil and spices[7] lettuce salad garnished with oil and spices tomatoes
Meats:	dried beef cooked beef, mutton, or goat liver head and organ meat

These snacks, when combined with the family staples form the day's food consumption. The following is an example of a day's food for a child of one in a very poor family at the end of February:

Morning: millet tuwo with indigenous leaf sauce, and butter

Noon: fura

Evening: beans

Snacks: lettuce salad (case #2).

[7] See Keith (1990) for list of vitamin A rich green leaves eaten in Sabon Gari.

All of the foods in this child's day were probably produced by the family, except for the condiments such as oil, salt, pepper, and garlic. The lettuce was grown by the father during in his dry season garden plot; the beans and millet were grown in the family's fields and the milk produced by the mother's goat. The butter, though usually a luxury, was probably produced by the mother, and was dribbled melted on the tuwo.

The following is an example of a day's food at the same time of year for a one year old child in a family with greater resources:

Morning:	corn tuwo and tomato sauce (canned tomato puree) koko (purchased) with 3 sugars
Noon:	fura
Evening:	rice and beans (rice must be purchased)
Snacks:	cassava meat lettuce salad carrot (case #1).

This family has purchased both rice and corn with which to make tuwo, both considered a luxury to the poorest rural family. The cassava, tomato sauce, and the meat were all purchased, as well as the already prepared koko and sugar. The ability to buy what the Hausas consider snacks, can make the difference in the variety of foods and the nutrients a child receives in a day.

PMI Recommended Supplementary Foods

The PMI's encourage mothers to give children fruit juice at four months of age. The mothers in Sabon Gari who went regularly to the baby weighing clinic said that they gave their child juice when the PMI staff told them to. When asked if they still give the child juice at an older age, some women responded, "He doesn't need that any more; he's eating food now". The sugar, lime juice, and water solution recommended by the PMI is similar to the bauri solutions the mothers give at birth, and is probably perceived to perform a function similar to that of bauri, that is, as a purgative and stomach cleaner which prepares the child to eat food. Women seem to think that if they give the child juice over a period

of two or three weeks, that is all the child needs.

Many women go fairly regularly to the PMI baby weighing clinics, where the nationally developed cereal recipes (Appendix B) are taught to mothers when their children reach the appropriate age. Fruit juice is recommended at four months. The bouillie légère is recommended from four to six months, the bouillie kuli-kuli from six to eight months, and the other cereals at later stages. These cereals start with a base of millet flour gruel, adding oil and sugar to increase the calorie density, and adding, peanut flour, bean flour, eggs, and milk to increase the protein density.

Mothers follow the instructions of the PMI to attend the cereal demonstrations, where they prepare and feed the recipe to the child with a spoon, but very few women make them at home on a regular basis over a long enough period of time to make a nutritional difference. When asked why they stopped making the cereal mothers say, "She eats food now", implying that the recommended supplementary foods are only to aid the child in learning how to eat. Once the child has begun to eat adult foods (tuwo and fura) the recommended supplementary food is no longer prepared and the child is expected to eat whatever the family is eating. Several mothers said that they made the cereal at the dispensary under the supervision of the Peace Corps nutritionist and the matrones, but they have never made it at their own house.

Often women told me that their child did not like the PMI cereal. When the mother prepares the recommended PMI bouillies, if the child sticks out its tongue or turns its head away, the mother takes that to mean that the child doesn't like it. Then she reports to the PMI staff that "He didn't like it", or "he refused so I didn't make it for him anymore". The Hausa process of learning to like a food is a very gradual one, with the child sitting on the mother's lap, watching the mother carry food past his or her face several times per day. It only makes sense that if the food is not consumed daily by family members and therefore not seen by the child, it is not likely that the child will acquire a taste for or begin to demand it.

Perhaps one reason that the child (or the mother) does not like the PMI cereals is that they are made from non-fermented flour, so that they have a nutty granola-like taste. which is preferable to the Western taste but may not be to the Nigerien taste. The main

difference between the well loved koko and the PMI bouillies is that koko is slightly fermented. The slightly fermented grain taste occurs very often in Nigerien foods; the process of turning grain into flour which begins every morning and takes until noon to complete, involves a number of steps in which water is added to grain, or grain is washed and allowed to sit for a certain period of time with moisture in it.

To some extent the PMI bouillies are viewed as medicine, and some women make the recommended cereal only when their children are sick or losing weight. Then they stop as soon as the child seems to be over the crisis. Hausas put great stock in medicine[8] and will try all different kinds, but medicines are only given when someone is ill and are usually continued only as long as symptoms are still perceived. Even if a food is thought to have special properties of value to the child's health, it is viewed as a one time prescription. It is not understood that the child only benefits from the food's properties if continued on a long term basis.

The most compelling reason why mothers do not make the bouillies recommended by the PMI in the findings of this study, is that children are expected to learn to eat the adult food that is provided by the family daily for its survival. The most commonly heard reasons mothers have given for not making the recommended supplementary foods are some version of the following:

1. "She eats now", meaning she feeds herself with her own hands, implying that she therefore has no more need for the food that has for its purpose to teach her to eat by herself.

2. "He eats food now', meaning that he eats tuwo, implying that once he is living off from our staple food, he has achieved that important developmental step which will help him to survive in our society.

3. "She eats our food now", meaning that she eats whatever we have at the house to eat and therefore she no longer needs to have other special things prepared.

4. "He eats; he gets full", meaning that he gets enough to eat with what we have, implying that the family is meeting its obligation to the child by providing enough food for the child to get full.

[8] See discussion of magani on pages 121-122.

DIARRHEA ILLNESS AND TREATMENT

Diarrhea illness among small children is very familiar to people in Niger; PRITECH (1989, p. 81) reports that children have an average of 6.9 episodes of diarrhea per year. Hausa mothers classify diarrhea illness according to the perceived cause, using symptoms, the age and health state of the child and the situation of the mother, to identify the cause. This section will discuss how diarrhea and dehydration are viewed by the Hausa. Each type of diarrhea will be described in terms of its causes, symptoms, and the traditional treatments specific to the particular cause or diarrhea type. Then both traditional diarrhea treatments and oral rehydration therapy will be discussed, along with the use of liquids and feeding practices. Mothers' treatment decision-making and patterns of treatment will be examined and several case studies will provide examples of how diarrhea episodes are perceived, talked about, and dealt with.

Hausa Views of Diarrhea

Zawo is the Hausa word for diarrhea and tutu and bayan gida (behind the house) mean human excrement in general. But zawo is also used for any kind of bowel movement and sometimes it was difficult to know whether the woman was talking about diarrhea or just normal bowel movements; the context of the word had to be considered and sometimes further probing was necessary to clarify her meaning. But Hausa women know when their children have diarrhea, usually naming the frequency or consistency of the stools as the telling sign: "He squats all of the time", "He spends the whole day squatting," Bai da musali (There is no limit to it), "If the child has a lot of stools you know that he's sick", and "His stools are like water." Some kinds of diarrhea are recognized by other symptoms: the color and texture[1] of the stool, vomiting, fever, eye infections and skin eruptions which accompany the diarrhea, and the behavior or situation of the mother. Another symptom commonly mentioned by mothers is the idea that the child is limp or weak. The Hausa

[1] Hausas use words whose sounds suggest the texture and consistency of the stools, such as katup katup and tsalala tsalala, but these are only descriptive and are not used as ways of classifying diarrhea.

words used are langube (drooped, flaccid) and lakaikai-lakaikai[2] (languidly, apathetically). Mothers often say "He just sits there" or "She just lies there", "She has no heaviness (ba nauyi)", or "He is no fun to hold (babu dadin dauka)", describing the weak, limp state of the child.

Mothers are immediately aware of changes in the frequency, consistency, and color of their children's stools because of the way in which a baby's toileting is handled. The mother whose child has diarrhea spends a lot of time cleaning up not only the stools but must also repeatedly wash and dry the piece of fabric used to tie the child to her back. As one woman said, "Mothers suffer when their children have diarrhea".

Diarrhea is seen as a serious health problem and many women identify it as the cause of death of one or more of their children. When asked if diarrhea is a cause of concern women respond that Yana kashewa, (it kills) or Zawo mugun ciwo ne, (diarrhea is a bad illness). There is no kind of diarrhea which cannot kill "if the child's days are up". If the child does not die from diarrhea, he or she may suffer wahala (troubles). This word is often used by mothers to describe a child who is very sick with diarrhea, has had diarrhea for a long time, or has become malnourished, as well as to describe people suffering starvation in a famine situation. Wahala in this context seems to suggest a struggle to stay alive, a struggle which can include loss of weight, loss of appetite, chronic diarrhea, and a loss of hope. "Diarrhea is bad", one mother explained, "because it prevents the child from thriving; it makes the child deteriorate", suggesting that mothers see diarrhea as interfering with the growth of their children.

When asked if there is a kind of diarrhea that one does not worry about women answered "teething diarrhea", and "the small baby kind" referring to the stool of a child who has not yet started solid foods. Most episodes of diarrhea, if they occur during the teething period in the child's life, and if there are no clear symptoms suggesting other diagnoses such as blood in the stool, are first assumed to be caused by teething. Diarrhea blamed on teething is such a common occurrence that it is often thought to be a normal part of a child's life and is not treated until it worsens or until the diarrhea has continued for a long time. The types of diarrhea deemed most dangerous by mothers were dysentery and

[2]Lakai-lakai in other parts of Hausaland.

diarrhea caused by the child drinking the breast milk of a pregnant woman.

Dehydration[3] - How Is It Perceived?

When asked how they know that their child is really sick with diarrhea mothers respond with some of the following phrases: Yana ramewa, yana lalacewa, yana bushewa, or yana zubewa. Rame means to become thin or emaciated so the phrase translates "He becomes emaciated."[4]; lalace is used for food which has spoiled and has the sense of deterioration, so the phrase becomes "He deteriorates". Bushe and zube have special meanings which may shed light on the Hausa view of dehydration. Bushe means to dry up or to become thin. Women often use the phrase, Jikinshi yana zubewa (His body is pouring out) or Yana zubewa (He is pouring out). When pressed about the meaning of this they insisted that it had nothing to do with the biomedical idea that the child is losing liquids through the diarrhea stools. The image of the body pouring out seems to suggest, rather, that the child's flesh seems to disappear before one's eyes and that the mother feels unable to control what she sees as the rapid disappearance of the child's jiki (body). One informant said, "No matter what the mother does the child's body pours out like water pouring out of a jar." Abraham translates zube as "poured all", "poured out", "leaked or flowed out entirely", "collapsed (wall) or finally as "become emaciated". So diarrhea causes the body to collapse, dry up, pour out, or become emaciated, all of which convey the same idea to the Hausa mother, a loss of flesh. One informant described the loss of flesh this way: "You no longer resemble a human being." Clearly diarrhea has a very strong association for Hausa mothers with the rapid disappearance of the flesh from the body.

Mothers sometimes mention other signs which they notice in their children with diarrhea such as sunken eyes, dry skin "He doesn't sweat!", sunken fontanelle (madiga ba ya motsi [the fontanelle doesn't move] or madiga yana surfi [the fontanelle is sunk]), and decreased urination, although they do not associate these symptoms with a loss of body

[3] Signs of dehydration are as follows: thirst (This may be the only sign of mild dehydration.), increased pulse and breathing rates, decreased perspiration and urine, dry skin and mouth, sunken fontanelle, sunken eyes, and lax skin.

[4] All translations are from Abraham, 1962.

water. The illness kai (head), is sometimes associated with diarrhea. The kai victim's skull appears to be swollen[5], the fontanelle stops moving and the illness is thought to be accompanied by headaches. When a mother suspects that her child has kai, she has the child's head shaved so she can observe the skull carefully. If the fontanelle has stopped moving and she can see the three divisions of the skull bone she has the child examined by the kai medicine woman. If the kai medicine woman then sells the mother a salve made with a secret recipe of medicinal bark powder mixed into a base of mentholatum or similar market salve[6] and the mother is instructed to rub it on the fontanelle area every day.

Hausa Classifications of Diarrhea: Their Symptoms and Treatments

The Hausas classify diarrhea into several types, according to the cause. This diagnosis is made based upon the symptoms, the age of the child, and the other circumstances surrounding the diarrhea episode, including the body state and behavior of the mother. Each of these types has a set of symptoms and treatments which are related to the cause, although these vary somewhat from one informant to another. There are also herbal teas which are used for any kind of diarrhea, and will be discussed later under treatments. Often one cause is diagnosed and treated without success; then another diagnosis may be made and the appropriate treatment applied. This taxonomy of diarrhea types is an attempt to understand how Hausas view diarrhea and how they attempt to treat it within their own framework of causation.

Teething Diarrhea

Over half of all diarrhea episodes are labeled as teething diarrhea (gataunai or hida hakora), at least until another reason is found. "If we see a child with diarrhea we say it's because he's teething, that is, if the child hasn't yet cut all of his teeth". The symptoms most often given for teething diarrhea are as follows: the stool is described as kamar ruwa (like

[5] A nurse theorized that the head appears larger to the mother because the child has become dehydrated and the rest of its body looks smaller by comparison.

[6] A variety of aromatic petroleum jelly salves in small tins are imported from Nigeria.

water), balge-balge (yellowish) or kamar doruwa (light yellow like the locust bean tree), yegwe-yegwe (with ropes) and wari gare (it smells bad). Sometimes it is described as green with yellow ropes or strings or yellow with lighter yellow striations. One woman described these ropes or striations as kamar hatsi ciki (like grains of millet in the stool).

Teething is the most commonly named cause of diarrhea and is viewed as something every child has. When asked if it is dangerous women respond, babu lahani, (This is not a distressing occurrence), An saba da shi (One is used to it). Sai hito (There is nothing to be done except wait until the teeth have come out). This suggests that if the diarrhea is perceived as the kind associated with the cutting of teeth, it is considered somewhat normal. One woman said "A child has to have diarrhea, since the teeth come in one by one". Another mother explained that teething diarrhea may last only for one or two days. Then the teeth "wait" and the diarrhea stops. When the teeth start "to move again" the diarrhea starts up again. So there may be several diarrhea episodes before the teeth finally appear.

There is no medicine for teething diarrhea: Babu maganin wannan, (There is no medicine for this one), except to wait until the teeth appear. One mother explains, "You know what the cause is and you know that it will go away when the child's teeth come in, so there is no treatment necessary." Often when a mother is asked why she has done nothing to treat the diarrhea, her response is to tap her front teeth with her index finger nail and say, "It's because of these".

Although women's first response is that there is no medicine for teething diarrhea they actually take a number of precautions soon after birth to protect their children from the dangers of teething diarrhea. Upon further probing informants continue, "Sai tawada boka", "You have to buy an amulet from the traditional medicine person". This amulet, worn around the child's buttocks, works because the medicine person ties up a string and in doing so Yana darma zawo (he ties up or stops the diarrhea). This is accompanied by incantations or special words which in this case come from the animist tradition, rather than the Moslem tradition. Usually these amulets are purchased before the child begins to cut teeth and are worn until the last teeth have appeared. Many mothers buy their tiny babies a necklace made tiny white beads alternating with knots in the string. The knots in the string protect the child by tying up the diarrhea.

On the one hand teething is a very threatening time in a child's life and precautions are taken to protect the child from its dangers. On the other hand teething diarrhea is considered normal and requires no treatment. Many women report waiting a week or more into the diarrhea episode before seeking treatment because they waited to see if the teeth would "come out". When the child showed no signs of cutting teeth, they searched for another explanation and sought another treatment.

Diarrhea Caused by Zahi

Zahi, meaning "heat", is the name for a vague Hausa illness which has a long list of symptoms including diarrhea, especially that containing mucous or blood, dysentery (diddira), constipation, swollen stomach (kumburi), heartburn, hemorrhoids, stomach ulcers, stomach aches, and other burning sensations originating in the stomach and lower abdominal area. Although this illness is often associated with the hot season and can be provoked by a person working too long in the sun (the word for hemorrhoids is dan kanoma [because you work in the fields])[7] or not getting any fresh air; it is not heat from an outside source that makes one sick. Heat is thought to be in people all of the time because the production of heat by the internal organs is what leads to the digestion of food, first by dissolving and then by rotting the food (Darrah, 1980). Digestive problems occur when something in the stomach does not dissolve and forms a lump, and constipation, according to Darrah, is caused by eating several foods which are not compatible with each other. So heat causes digestion; not enough heat causes indigestion and constipation; and too much heat causes diarrhea. When someone has some of the above symptoms it is said that "zahi ya taso mai", the zahi rose up in him. Zahi can rise in the young child from being left on the mother's back all day without getting enough air or from being on the mother's back in the sun for long periods of time. Zahi is also provoked by eating too much of the following foods: fats, meats with fat, oils and anything oily, peanut products, sugar and anything sweet, certain deep yellow fruits such as mangoes, and red pepper.

The traditional treatment in Sabon Gari for the various symptoms of zahi usually

[7] Gudun dawa (running to the bush) is another word for diarrhea associated by informants with zahi.

include drinking soap (sabunin[8] salo), which consists of tennis ball sized black lumps made from millet ashes and animal fat. These are dissolved in a bowl of water and the bubbly mixture is drunk, both to apply heat and to cleanse the stomach or the gut of "dirtiness". The ashes provide heat "in the caustic sense" (Darrah, 1980), causing the congestion to dissolve, the idea being that heat causes digestion and more heat is needed to remedy indigestion. The other approach to the treatment of zahi caused problems is to counteract the heat by drinking foods which are considered to be "cooling" and which diminish zahi, such as water, limes or oranges, milk and fura made with sour skimmed milk. A plant called nonon kurciya (Euphorbia hirta) or nonon tsuntsuwa, (the climbing plant Alchornea cordata) (Abraham, 1962), is used as an antidiarrhetic for adults and is thought to be very effective against dysentery. Other plants used for zahi medicine are tsa, oua, and Kirya (the tree Prosopis oblonga), all barks sold by traditional medicine people.

Hausas believe that if the person has too much zahi, then the diarrhea becomes diddira (dysentery); in other words dysentery is caused by a really bad case of zahi. Mothers are very frightened by diddira because young children so often die when they have it. In two of the three deaths of children in the sample diddira symptoms appeared as a secondary illness just a few days before death. The diddira stool is described as very hard to pass, "you squat a lot but there is very little stool", with mucous and blood, and accompanied by stomach cramps and suffering. During the rainy season children seem to have a lot of diarrhea, especially diarrhea with the above symptoms. Nowadays mothers in Sabon Gari are aware that diddira requires dispensary medicine and if they can afford the shots they will seek them.

Diarrhea Caused By The Cold

Cold is thought by the Hausas to take away one's vigor and to kill blood in the body and can cause swelling and death (Darrah, 1980). Diarrhea during the rainy season can be the result of the mother sleeping on the cold damp ground at night, making her breast milk cold, and giving the nursing child diarrhea. The main symptom of diarrhea caused by cold is "frothiness" or foam, "like soap bubbles" in the stool. Hausas say that when "sanyi ya rika

[8] Sabulu in other parts of Hausaland.

zuciya", (the cold grabs your chest), you have phlegm or mucous in your chest, your nose, sometimes in your eyes (this results in conjunctivitis) and foam in your stool, all caused by the cold. "If you see foam in the stool, in that case you say mucous has entered the intestines", one woman explained, suggesting that the phlegm entered the intestines from the chest.

The first treatment for this diarrhea is to stop sleeping outdoors in the cold with the child. Other treatments involve purging the excess mucous from the body (usually by consuming potash in food or adding it to herbal teas), applying heat to remove congestion as in the treatments for zahi, washing the stomach and guts of impurities by drinking medicinal soap, and drinking various teas with guava leaves, lime juice, and various plants. These teas tend to be made with hot water when the cause is the cold. The cold is removed from the body through excretion or vomiting, which means that if a person sees mucus in his or her stool or starts vomiting the treatment is working. Pimples or sores are also a sign that the medicine is working, as the illness which was inside is now coming out to the exterior where it can be seen and dealt with. One informant describes the role of these medicines in healing the person with diarrhea as follows:

> You have to take hot water and lime juice if cold has grabbed your chest. You put in a little potash and guava leaves and false kola nut. Then you let it soak. You give it to them.
>
> If the baby vomits and has diarrhea, then in that case you say that Allah has healed him, he has gotten relief. The chest loosens up. If you see that he vomits then you say that he is relieved and is getting better.
>
> If he doesn't stop the diarrhea and vomiting then we say that it has become an illness.
>
> If he only vomits and has diarrhea once then his intestines have started to be at ease. His chest has been relieved. His intestines have been relieved. They have received their head [One informant translated this as, "They have been liberated and they can now do what they want"].

The idea here seems to be that phlegm is congesting the chest and the intestines and needs to be expelled in order to get relief. Vomiting will clear the chest and diarrhea will clear the intestines. It is interesting that in this case vomiting and diarrhea are viewed as a sign that the body is cleansing itself of the illness and are not a cause to worry unless they continue. The elimination of unwanted phlegm in the body is also done by drinking such things as boiled animal urine, and vinegar.

Diarrhea Caused By Pregnant Woman's Breast Milk

One of the most dangerous diarrheas in Hausa thinking is that caused by the newly pregnant mother continuing to breast-feed the weanling beyond the first three months of pregnancy. The symptoms of this type of diarrhea are white stool (the color of breast milk) and rapid weight loss. Usually this kind of diarrhea is diagnosed only after the child becomes ill after the cessation of breast-feeding. Then if the child has chronic diarrhea and becomes emaciated, it will be said that the mother left the child on the breast too long into the pregnancy.

Some traditional treatments for the child who has drunk mugun nono (bad milk) are roots of the sabara and dusushiya plants made into a tea.

Diarrhea Caused By Anago

During Ramadan, the month long Moslem fast, adults and consequently nursing children of fasting mothers are said to experience anago, meaning that one is used to eating or drinking something every day and then goes without it. Diarrhea or any illness, including conjunctivitis and stomach aches experienced by the child during the fast will be blamed on anago. The symptoms of anago-caused diarrhea are milk-colored watery stools. Presumably there is also no medicine for anago-caused diarrhea, except to wait until the fast is over and the mother begins to eat and drink again. Another instance of anago-caused diarrhea is that of hot milk, which occurs when nursing is delayed. When the baby finally nurses, the sediment is stirred up from the bottom (gurbacewa) of the breast, causing the child to have diarrhea. Thus anago appears to lead to zahi because when the child has waited too long to drink, lumps are stirred up and the child gets indigestion from lumps in the milk. This apparently is related to the indigestion caused by the lumps in the gut of undigested food which result in zahi. Hadiza explains the relationship:

> It's all the work of hunger, of anago. it comes with being hungry. If the mother doesn't eat right away he gets diarrhea- we say anago. Zahi comes up in him. Zahi is caused by anago. Anago is like Azumi. Now you fast, you have a kid you're feeding. He drinks milk, then he gets diarrhea, then he suffers. If he goes a long time without drinking, then he has diarrhea- that's anago.

Diarrhea Caused by Eating Things One is Not Used to Eating

Women often said that a child's diarrhea was caused by eating beans or some other seasonal food that the family had not eaten for a long time. This often happens when mangoes come in season and when meat is eaten in large quantities at Muslim holidays by people who usually eat very little meat. In the case of meat and mangoes, the type of diarrhea which occurs is the type associated with zahi. Unfamiliar foods, foods cooked by someone different, and water from another village are all things which can cause diarrhea because the person is not used to them.

Diarrhea Caused By The Swelling Of The Uvula

Being able to eat enough food is a major health concern of the Hausas and many of the rituals and therapies involve manipulation of the body in order to prepare the stomach or the intestines to properly receive and digest food. The uvula, called the "hakin wuya", or "grass of the throat" is believed to swell up at some point in a person's life and prevent proper consumption of food if not removed. In some regions of Niger, it is apparently removed on the baby's naming day, when other surgical procedures are performed by the barber. In Sabon Gari the mother waits until the child has an episode of diarrhea and vomiting before removing the uvula.

The symptoms of this kind of diarrhea vary but everyone agrees that vomiting is a symptom. If the mother suspects that it is the uvula which is causing the diarrhea she will take the child to the woman who diagnoses uvula problems. If this woman says it is the uvula which is causing the diarrhea, the mother will then take the child to the barber. For a "tiya" (about 2½ kilos) of millet, the barber removes the uvula. A special curved knife is pressed against a stick (like a tongue depressor) and clips off the fleshy pouch. One of the 24 sample mothers lost a child when this operation was performed, although barbers say that if the child dies after the operation, it is from another cause.

Because of the metaphorical parallel in the Hausa belief system between the human reproductive system and the alimentation system, there is a parallel between the uvula and the hymen and their perceived functions. The Hausas believe that in order for the female child to mature to adulthood and be able to have babies, the hymen must be examined and

if it is deemed to be too large at birth, clipped[9]. In Sabon Gari this is done on naming day. If the hymen is not clipped, the Hausas believe, it may some day swell up and prevent the woman from having intercourse and becoming pregnant.

Similarly, the uvula is seen as an impediment to the proper functioning of the digestive system. If not removed, it may swell up and prevent the child from properly consuming food and becoming fat and healthy. If the uvula begins to swell up it is feared that the inflamed uvula can burst and drain and if the pus inside is swallowed by the child it will cause death. Everyone believes in the necessity of removing the uvula for the proper development of the child and that its removal stops a certain kind of diarrhea. Barbers, villagers, and mothers all said that as soon as the uvula is removed, the diarrhea goes away. When asked how long after the operation the diarrhea continued, mothers gave a range of from one to three days.

In Sabon Gari, most children have their uvula removed between the ages of three to eight months, usually during an episode of vomiting and diarrhea. The barbers said that they would not perform the operation while the child was sick, but many mothers said that the uvula was removed while the child was having an episode of vomiting, diarrhea, and sometimes fever.

Diarrhea Caused By Stepping Over Pot Black

Another kind of diarrhea not often mentioned is called gulbi or gurbi, (depression in the ground). This is caused by the mother with a baby on her back stepping over the depression left in the sand by the cooking pot. The baby will have black or very dark green watery diarrhea which forms a round puddle resembling the charred depression in the sand. This kind of diarrhea is said to be accompanied by stomach pains and a lot of crying.

Diarrhea Classified as "Na Allah"

Some diarrheas are classified as those "na Allah" (of Allah), which signifies that there is no known organic or behavioral cause. Sometimes this designation is used after other treatments have been tried and failed.

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[9]This study found no evidence that the Hausas do any kind of clitoral circumcision of the female.

Traditional Treatments for Diarrhea

The treatments above are specific to each cause of diarrhea: diarrhea caused by heat requires heat or cool for its treatment, for example. There are also traditional herbal teas which mothers make at home and give for any kind of diarrhea. The most often named traditional tea in this village is made from a plant called dusushiya. Branches and leaves are purchased already dried and soaked in water over night or picked fresh and boiled and the child is given the resultant tea to drink until it is gone. Sometimes other plants are added including miyar tsauna, guava leaves, and nonon tsunsuwa. Homemade dusushiya tea is mentioned most often as an appropriate treatment for teething diarrhea.

The purpose of traditional teas is to stop the diarrhea. The dushushiya tea recipes I was shown were approximately a liter of water and most mothers seemed to make the recipe every two days. The majority of women made the recipe about three times or until the diarrhea was gone, meaning that the child was given the solution for about six days. It is not clear whether the water is always boiled; it may be that this depends on whether the leaf is fresh or dried. Mothers give the solution a few spoonsful at a time in the morning and in the evening; during the heat of the sun, women say, the solution of indigenous plants is too bitter to give the child. The traditional teas are kept only two days and then are thrown out because they turn bitter. The mother then makes a new batch. Because mothers usually have to go to the bush to gather the plants themselves, they often confessed to me that they had not yet made the solution two or three days into the diarrhea because they had not yet found the time to gather the plants. Dushushiya is a plant that grows in low areas where water rests on the surface of the ground for a while after the rainy season is over, and one mother told me that the place where it has always grown has become too dry in the last few years and the women have to travel further to find the plant.

Oral Rehydration Therapy

The vast majority of the mothers in this village are aware of the homemade ORT or sugar salt solution (Appendix A) since most have attended the baby-weighing clinics. Many women have heard of the SRO packets (Appendix A) but they were not often available at the dispensary during this research. In spite of their knowledge of ORT a very small

percentage of the mothers in Sabon Gari uses one of these treatments as the first step at the onset of every diarrhea episode.

I have asked many women to show me or tell me how they made the solution and have found that in general, those who have learned to make it at the dispensary and who are continuing to make it at home, make it correctly with acceptable proportions of the ingredients. A few women, however, when asked how it is made begin to recite cereal recipes or in other ways give the wrong measures of ingredients. When pressed these women admit that they have never made the solution at home themselves. When asked where they heard the recipe these women say either that they watched a neighbor make it or that they were at the dispensary when the demonstration was going on but they did not make it at the dispensary with their own hands.

When asked how they give ORT women do not think in terms of chronological periods of time; rather the vast majority say that they give the child "as much as she wants" and "as often as she wants". The easiest way to ascertain how much solution was given was to ask women to show me how much was left in the pot. Most women were told by either the PMI or the dispensary nurse to give one liter of solution per day, but a large percentage did not give the entire liter to the child. Women understand very well the instructions given at the PMI to throw out the left over solution at the end of the day. In fact many throw out solution instead of giving it all to the child, and I found a number of mothers who did not put the correct number of sugar cubes in the formula because they knew their child would not drink the entire liter and they were reluctant to spend 15 CFA per day and then throw half of it out.

Traditional teas given as diarrhea medicines have as their purpose to stop the diarrhea. This expectation that the medicine should stop the diarrhea is extended to the oral rehydration solutions, even though ORS does not decrease the stool and often increases it. The matrones tell the mothers that the ORS will stop the diarrhea. When questioned, the matrones say that ORS stops the diarrhea sooner than the traditional solutions.

Among those who make the solutions there is a perception that the solutions stop diarrhea, and that they do this faster than the traditional remedies. Perhaps the women who use them have had the experience of the diarrhea stopping within a short time after giving

the solution. Following this logic it may also be that the women who have stopped making the solutions were discouraged because the diarrhea did not decrease, or even increased when they gave the solution.

Women hearing about ORT for the first time asked me if it was all right to give children "that much sugar". Further probing revealed that three sugar cubes in one batch would be considered all right, but eight cubes in one recipe, it is feared, will lead to the illness zahi and cause the child to have more diarrhea. When I asked women familiar with ORT how they felt about the recipe with the eight sugars most mothers said that the salt and the liter of water counteract the effect of the sugar. Some also said that when the dispensary recommended putting a little lime juice in the sugar salt solution they felt comfortable because lime juice[10] also counteracts the sugar. After asking many women about this issue I came to the conclusion that in general women worry about it the first time they hear the recipe, but once assured that the salt and water counteract the sugar and are needed by the child, the zahi-causing property of the sugar does not prevent the women from making the recipe. One matrone suggested one additional property required in the diarrhea medicine:

> The sugar is all right as long as it is dissolved. You know you don't want to leave the sugar in lumps on the bottom. If it is dissolved it will not do anything (Hadiza).

She is apparently again referring to the association between zahi and lumps of undigested food.

Other Biomedical Treatments

Although the use of antibiotics, antiinfectives, and other drugs is not advised except in cases of bloody stools with fever, ganidan[11] and charcoal were given in probably 2/3 of the cases which reported the diarrhea episode to the dispensary during this study. In general ganidan and charcoal are highly respected both by health professionals and by the women, who have found that this treatment stops the diarrhea.

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[10] Lime juice has cooling properties in the Hausa system of hot and cold.

[11] sulphonamide

Liquids and Feeding the Child With Diarrhea

Women in Sabon Gari do not withhold water, breast milk, or food during a diarrhea episode. Neither do they give extra water or liquids or prepare special foods for the ill child. When asked what the child has had to eat or drink during the past 24 hours, the child in the middle of a diarrhea episode will have been offered the usual fare. But the mother will very often say that the child did not want as much to eat or drink during the episode. Mothers offer as much as the child will eat or drink and if the child becomes lethargic or "refuses" food or liquids, she worries, but does not compel the child to consume liquids or foods.

Diarrhea Treatment Patterns

Some mothers said they went to the dispensary first but when probed further they said that they waited several days before going. When asked why they waited the vast majority responded either that they thought the diarrhea was caused by teething or by anago, both types of diarrhea for which there is no treatment. One woman explains:

> I said it was Anago, an affair of this fasting that we are doing. Don't you see that I have no milk? Isn't it inevitable that they get sick? Because the diarrhea was caused by anago. He was fine before the fast. But when the fast started he started having diarrhea (case #9).

Many said they waited a few days to see if the diarrhea would go away before seeking treatment. The following dialogue illustrates women's tendency to wait several days before seeking treatment if they think the child's diarrhea is caused by teething. It also suggests that even though women are aware of ORT, they often still tend to follow the old patterns.

Nana:	You waited more than a week before you gave him ORT?
Fatima:	Yes.
Nana:	Why did you wait?
Fatima:	The diarrhea would come and then it would go away. I said that it was teething diarrhea. You know when the teeth are coming in. (She taps her front teeth with her forefinger.) You have to wait until the teeth come in.
Nana:	Is that why you didn't give him the ORT?
Fatima:	If your child has diarrhea then we say that's it's teething. Everyone here says that.
Nana:	Then one doesn't give him anything?
Fatima:	We just ignore them.

Nana: Really?
Fatima: We just leave him to just keep having diarrhea.
Nana: Until he gets tired?
Fatima: Since you (referring to the Peace Corps Volunteer) came, you told people. You said, "Here is the mother of the sick child" (probably implying that the ORT is something that the mother is told to make at home). In the past we didn't know about that. In the past we had to look for a teething amulet. We searched for money to buy the amulet, we put it on the child, around the neck. We didn't know about the other (ORT) (case #1).

Often choices seemed to be based upon the cash available at the moment.

Some women said that they sought a traditional treatment first and when pressed to say why, said that they only had enough money for the traditional medicine and they were afraid that if they went to the dispensary they would be asked to buy a more expensive prescription. Aboubacar's mother expressed this concern about money, but as she alternated between traditional treatments and ORT, she eventually spent quite a bit of money in seeking an end to the child's prolonged diarrhea:

> Aboubacar had a diarrhea episode from March 1 through March 15. The stool was watery, yellow, frothy, and the baby was vomiting and refusing to eat. At the same time he had conjunctivitis. The mother, who is divorced and has no parents, is having a hard time feeding herself and her child. She reported that for this diarrhea episode she waited and did nothing for one week. Then she prepared the tea made from dusushiya and gave that to Aboubacar for three consecutive days. When asked why she started with dusushiya she said she could not obtain the money needed every day to buy the sugar cubes to make the ORT. After three days of the traditional tea she made a litre of the ORT daily for three consecutive days. Then the diarrhea stopped.
>
> Aboubacar had another episode of diarrhea from April 12 through April 15. His mother called it teething diarrhea and it was watery and frothy with mucous. This time she gave him homemade ORT for three consecutive days and then the diarrhea stopped.
>
> Meanwhile, sometime around the end of April she decided to have his "head looked at." She took him to the "one who looks" and he was diagnosed by this woman as having the illness called kai. She paid the woman 500 CFA and received a jar of black balm made from mentholatum and one or more kinds of pounded tree bark. Aboubacar's mother put the balm on the child's fontanelle area faithfully every day for about four weeks (This meant she had to buy a second batch). When the kai did not seem to go away, she went to another woman who specializes in the illness known as kai and she purchased a similar jar with a similar looking salve, also for 500 CFA, and put it on the child's head for another two weeks.
>
> On May 7 through May 21 Aboubacar had another bout with diarrhea. First

the mother went to the PMI and received SRO packets, one each day for three consecutive days. After this she made homemade ORT for seven consecutive days. The diarrhea let up, but then returned. After the diarrhea returned she made him dusushiya for three days. Finally she had the uvula removed on May 21. Then the diarrhea stopped (case #11).

Some women try a number of traditional remedies and strategies first. Then if the diarrhea continues, they go to the dispensary and the PMI after they fail to see results from the other strategies, as Hamani's case illustrates:

> Hamani had a month long bout with diarrhea, according to his mother reporting afterward, from about January 15 to February 15. The first week, his mother reported that she did nothing. The second week she gave him the preparation made from dusushiya. The third week she took him to PMI and received SRO packets, which she prepared for him (one per day) every day for a week. The fourth week she was referred by the PMI to the dispensary, where she purchased a prescription for shots. When Hamani had completed the shots, his diarrhea stopped (case #4).

Others try the ORT first. Among the 23 sample children, there were 23 diarrhea episodes reported between March 1 and May 31, involving sixteen of the sample children. Nine of the mothers reported making either the SRO packet or the homemade ORT for the child as the first treatment. Three reported making a traditional tea first, two reported buying amulets and charms first. It is difficult to ascertain how many days mothers really wait before they begin ORT or seek other treatment, when they are reporting after the fact. But it seems quite probable that the most usual first treatment is to do nothing for as long as several days.

CONCLUSIONS, DISCUSSION, AND EDUCATIONAL IMPLICATIONS

In this chapter the main conclusions are presented in each of the research areas, feeding, weaning, and diarrhea treatment ideas and practices, and in the area of related factors such as women's roles and hygiene. In the second part of this chapter the potential points of intervention are explored, and a strategy is suggested for prioritizing and negotiating the form and content of the interventions with those who stand to benefit from any changes in practice. Some Hausa ideas about health which could be useful in discussing interventions with Hausa mothers are discussed. Finally recommendations are made for further research including suggestions for implementing this strategy through the Ministry of Health in Niger.

Conclusions

Men are expected to provide the food, clothing, and shelter for their wives and children, but the way in which the familial responsibilities are defined varies among individuals and from one socioeconomic group to another. Although functionnaires and wealthy men may consider meat, rice, butter, and occasional fruits and vegetables their responsibility, poor men may view their role as that of providing only the millet and the accompanying ingredients for the staple dishes, fura, and nuwo. When cash is available, poor men may purchase extras in the way of legumes, tubers, vegetables and fruits in season, and an occasional piece of meat for sauce. When money is in short supply, either the family goes without this variety in the diet or the wife may find a way to buy extra food with her own money. Thus, although the basic staple foods may be prepared with almost identical ingredients in the richest and the poorest families, the family with the larger cash flow will be able to purchase a much greater variety of snack foods. This can mean a much better chance of meeting biomedical nutritional requirements of calories, protein, vitamins, and minerals. The man's cash flow varies greatly from one time of the year to another. A serious illness of the working man in the family or a bad crop can push a family from a position of having enough millet for the year, to a position of not knowing from one week to the next where the family's food will come from.

Women's daily chores of carrying water, fetching wood, and preparing food require them to work most of the day, except for about two hours after the noon meal. In polygamous households women may alternate between days of heavy work and days of relative rest, during which they may pursue their trades or help their co-wives with the work. Most women probably have enough time to prepare a special dish for the child each day, as long as it does not require additional pounding of flour. During the farming season, however, if the woman works in the fields, she may not have any time to rest or to do anything extra from morning until bedtime.

Some women manage to keep a trade going all year. They may have been given initial capital from their mothers, or they may be very industrious and keep reinvesting their small weekly profits in animals and other investments which can be turned into relatively large sums of cash. The majority of women, however, do not have the capital to pursue an on-going trade. When they need cash for a social obligation, they borrow the capital, make a one time sale of prepared food, pay back the loan, and then do not trade until the next time they need money. Many husbands give their wives a small amount of money each week to meet their needs when the cash is available. In other families, the women may pilfer small amounts of grain or money from the food allowance for their own use. No matter where the money comes from, women's money is theirs to use for themselves, their children, their social obligations, or for the dowry for their daughters.

It is extremely difficult for an outsider to ascertain exactly how decisions are made within the household to purchase extra food or medicine for the children. It appeared, however, that the lack of trust between husband and wife in financial matters could potentially have a negative effect on the nutritional status of young children. Since requests for food money and money for medicine for children must go through the husband, a woman in a polygamous household may be reluctant to appear to be the wife making the greatest demands. It was not determined in this research whether women who pilfer from the food money allotted by the husband are decreasing the nutritional resources available to their young children. I saw many instances of women selling their possessions or asking friends for loans, trying to get money for medicine. On the other hand it often appeared that women try not to spend their money on medicine and food for their children, as these

expenses are viewed as the responsibility of the husband. It is not known how much this waiting for the husband to provide money, rather than using one's own money, delays medical treatment.

The lack of hygiene is a serious problem in most households. It begins with a lack of potable water sources. Lack of knowledge of germ theory and the difficulty of getting water, mean that hand washing is not done routinely before preparing food or after defecation. Soap is considered to be a luxury, valued for its perfume and cosmetic properties. People usually urinate in a corner of the compound and defecate on the ground in the nearest field. In those few village homes where there is a pit latrine, it is rare to see the hole covered to deep out flies. All wells except one, are open and most are surrounded by wandering animals or animals are tethered nearby. The staple foods are prepared once per day, then covered and set aside to be eaten later by those who were absent at meal time or by children who get hungry between meal times. Besides the issue of sand and dirt blowing into everything the multiplication of pathogens within cooked food in a setting with no refrigeration may be enormous.

Nearly all children in the village breast-feed on demand until age two or until the mother becomes pregnant. The traditional practice of withholding colostrum is changing now, as mothers are exposed to the health facility message to begin breast-feeding on the day of birth. Drinking water, medicinal teas, and sometimes animal milk are given from birth, even when lactation is successful. The majority of pregnant and nursing women fast during Ramadan even though they say that their breast milk decreases and their nursing babies lose weight. This research did not determine whether the total amount of breast-milk produced actually decreased while the mother is fasting. There may be an increase in diarrhea during the fast because children are given additional solid food during the day. Often this is leftovers rather than something prepared fresh during the day, increasing the dose of pathogens consumed.

Environmental and behavioral factors are thought to make the mother's milk turn "bad", leading to diarrhea and sometimes death. Various kinds of bad milk are sometimes the reasons given for the early termination of breast-feeding. The age at which women say that children should stop breast-feeding is two years, but termination often takes place much

earlier. The decision to terminate breast-feeding is based on considerations of the child's psychological and physical readiness as well as the mother's health and situation. Termination of breast-feeding takes place in one day, in order to avoid trauma for the child.

The child's body is prepared for the consumption of breast milk and food through the use of purgatives and surgical procedures at birth. This view that the gut must be prepared to properly consume and utilize food, may influence the way in which weaning foods are viewed later on. Once the child seems to be successfully consuming solid foods, the special soft weaning foods, which may be viewed in part as preparing the child's body to consume food, are viewed as no longer necessary. Solid foods are introduced by seven months and most children experience a weaning period of 8 - 18 months. Learning to eat solid foods is a socialization process in which the child learns to feed itself and become satisfied with the staple food eaten by the rest of the family. The child is expected to ask for food when hungry and it is the child who decides when it is full. The child regulates its own food consumption and the anorectic child may not be compelled to eat. The liquid foods, koko and fura, are the first non-breast milk foods offered to the child and serve the purpose of getting the child used to eating. Special preparations or extra meals are often not made for the young child, who is expected to eat from the family pot.

The staple, millet tuwo, is synonymous with "food" and people do not feel that they have eaten if they have not eaten tuwo. The purpose of eating is to fill the stomach; the person whose stomach is full has eaten enough; being able to get full is equated with getting fat and being healthy. This view of the role of food has implications for young child feeding. If the mother feels that the child feels full after having drunk a lot of watery fura or after having eaten bulky tuwo, she may not see the value of adding certain ingredients to meet biomedical nutritional requirements.

The family who can afford to may buy snack foods for the child during the day. Children scrounge and beg food from others as well as eat bites of whatever is being prepared at non-meal times. This between meal snacking and nibbling can greatly increase the young child's nutritional intake for the day.

Government recommended supplementary foods are viewed either as medicine or as preparation of the child to eat from the family pot, rather than as having a nutritional

benefit. Therefore they are usually not prepared on a daily basis or continued on a long-term basis in addition to the family pot.

Diarrhea is attributed to a number of environmental and behavioral factors, including too much heat in the digestive system, being exposed to the cold, lumps in the breast milk caused by the breast going too long without being nursed, and the mother having too much sex or becoming pregnant.

Teething is blamed for the majority of diarrhea episodes and since teething diarrhea is viewed as normal, treatment seeking is usually delayed, while the mother waits for the teeth to come in or for the diarrhea to show symptoms suggesting another cause. Mothers often use traditional treatments which have as their goal to "tie up" the diarrhea or to protect the child from the dangers of teething.

Dehydration is not viewed as a loss of water from the body, so rehydration is not seen as the appropriate treatment. Water is not viewed as having any role in the body except to quench thirst, so the idea of replacing lost water does not make much sense to most mothers. Traditional herbal teas are given and are expected to stop the diarrhea. ORT is widely known, but not the first step taken in the majority of diarrhea episodes. ORT is expected to stop the diarrhea, and when the diarrhea stops after giving ORT, ORT may have a better chance of being used again by that mother. Traditional treatments and ORT are often given concurrently or one after the other, depending on the money at hand at the time, the perceived cause and the results.

Liquids, breast milk, and food are seldom withheld during diarrhea episodes, but the anorectic child may not be compelled to eat or drink. The mother's reluctance to control what her child consumes by compelling or helping the child to eat and drink must be addressed in any educational strategy dealing with nutrition education or oral rehydration therapy.

Discussion and Educational Implications

This section proposes a strategy for developing interventions using Jordan's model (1983)[1] in which the form and content of educational interventions are negotiated between

[1] See p. 43.

the culture which stands to be affected by the change and the culture of the change agent. During the current study this model of negotiating the form and content of interventions was suggested by the way in which the matrones interpreted the Peace Corps volunteer's health messages to the mothers in the PMI clinic. To illustrate how this might work, the findings on each health event documented by this study are discussed first from the Hausa point of view and then from the biomedical point of view. The biomedical criteria of the health or nutrition change agent are compared with the criteria of the Hausa woman, and the most likely negotiable and non-negotiable areas discussed. Then possible ways of negotiating the content and form of interventions are suggested.

A Model for Developing Interventions

The process of change as suggested by Jordan (1983) involves both cultures looking at several possible ways of doing a health event such as child birth or breast-feeding. Then each culture evaluates the other's way of doing things using their own criteria based on their own definition of the health event. Each culture decides which elements it cannot give up and which elements are open to negotiation, and a set of procedures or innovations is developed which meets the basic requirements of both systems. This process gives recognition to what is useful in both systems and does it within the local context and with the participation of the people who will be affected by any changes.

The matrones in Sabon Gari worked closely with the Peace Corps volunteer nutritionist (PCV) in the PMI, often assuming the role of interpreter. The PCV spent many hours in conversation with these older women in which they explored each other's cultures and ways of doing things. The matrones would ask the PCV how babies are fed in her culture and why people do things certain ways, and the PCV would ask them the same questions about how and why things are done in Sabon Gari. In this way the PCV's health messages were discussed, the matrones usually trying to grapple with the principles of the biomedical system which the PCV exemplified and trying to fit these into their system in such a way that the principles in their own system would not be violated. At the same time the PCV was trying to reconcile the biomedical standards she had learned in training with the Hausa standards of doing things. The PCV evaluated the Hausa system using

biomedical criteria; the matrones evaluated the biomedical system using the Hausa criteria. Although no one intentionally set out to do the kind of negotiation of interventions that this section is recommending, the matrones nevertheless went through a process of deciding which elements of the PCV's message they could live with and which elements of their own system they could not give up.

The result was that the matrones modified the prepackaged health messages, keeping the non-negotiable elements from both systems. For example, when the matrones used the bauri metaphor to describe the purpose of the first cereal, they had grappled with the principles of two seemingly different health systems and come up with an explanation which fit logically into both. For the Hausas the idea of feeding a child food before the child is developmentally ready to feed itself is surprising. And the idea of poking the food into the child's mouth is contrary to the Hausa views about the child's right to decide when he or she wants to eat. The matrones, however, saw a parallel between bouillie légère, a thin watery drink with a small amount of grain in it, and bauri. Not only do the solutions look alike, but they have a parallel function, in that they both "get the child accustomed to" eating.

So bouillie légère became bauri in the matrones' health messages. This modification of the health message guarded the health educator's non-negotiable point of getting the child used to eating. At the same time it avoided violating the Hausa non-negotiable point that the child should be old enough to feed itself. By calling the cereal a bauri, it became a medicine which prepares the child to eat. With the issue of breast-feeding, to look at another example, the matrones were willing to give up the three to four day wait to initiate breast-feeding as long as women could still take the kaikai medicine to protect the child.

I am suggesting that if the development of health messages were set in the context of negotiation and compromise from the outset, the results might be much more fruitful in terms of developing interventions which the Nigeriens could live with and would adopt. Instead of one national message determined by the Ministry of Health at the capital, based on biomedical principles and guessing what would be acceptable to the target audience, health educators would learn a process which would involve the participation of the people to be affected by the proposed changes.

Discussion of the Findings

Cultures base their standards for practice for a health-related event on their definitions of the event and any changes which are made in the belief system and practices are grounded in this definition. The health educator's standards of young child feeding, weaning, and diarrhea illness are usually strongly rooted in the medical, physiological, and nutritional definitions of these events. The health educator's intervention, therefore, usually involves changes in hygiene, nutrition, and to some extent, a concern for the psychological effects believed to be related to mother-child bonding. The Hausa mothers of Sabon Gari, as the presentation and analysis of the findings have shown, do not always share the same views and therefore do not see the same remedy as the biomedically oriented health educator.

In the discussion which follows the findings of this study will first be discussed using what has been learned from the research about the definition and standards for each health event held by the Hausa woman of Sabon Gari. Then the biomedical definition and standards will be reviewed and compared with the Hausa views gleaned from the study. Each culture's non-negotiable points will be discussed and some suggestions made as to areas of possible negotiation and the possible final form and content of interventions. This is not meant to be the definitive word on how Hausas view these health events, as we cannot know without asking Hausa women, what their non-negotiable points might be. This section is rather an attempt to illustrate a step which seems to have been missing in the development of interventions in the past and which could be pursued with Nigeriens in the process of developing interventions. This model allows discussion of the findings in a way which gives credence to the Hausa view, instead of simply summarizing the findings and then discussing the implications from the biomedical view alone. For each of the four health events, breast-feeding, termination of breast-feeding, supplementary feeding, and diarrhea illness, a chart summarizes for the reader the points made in the discussion.

Breast-feeding

The Hausa definition of the event of breast-feeding has as its priority the assurance of the quality and quantity of the breast-milk, and the preparation of the child's body to be

Figure 1 - Breast-Feeding

Culture	Hausa	Health Educator
Definition of health event	* Ensure quality and quantity of breast milk. * Ensure the ability of the child to consume and utilize breast milk.	* Ensure successful long-term lactation. * Meet nutritional needs of child. * Achieve bonding of mother-infant pair.
Framework for practice	* Mother's body must be monitored and medicine given. * Baby's body must be monitored, purgatives given and surgery performed.	* Physiological and nutritional. * To some extent psychological.
Standards for practice	* Avoid kaikai. * Avoid dakashi. * Increase milk production. * Satisfy baby's hunger and thirst needs and avoid weight loss.	* Ensure successful long-term lactation. * Meet physiological needs of baby. * Meet psychological needs of baby. * Provide protection against infection. * Evacuate the meconium. * Return mother's uterus to normal.
Non-negotiable standards	* Ensure quality and quantity of breast milk. * Avoid illness, weight loss, and death of child.	* Initiate breast-feeding immediately after birth. * Meet child's nutritional needs.
Possible areas for negotiation	* Day of initiation of breast feeding. * Use of animal milk for body. * Possibly others if mothers were shown that colostrum can accomplish removing impurities from baby's body and satisfy hunger and thirst needs.	* No other liquids given during first 4-6 months.
Possible form of intervention	* Give breast immediately after birth: dakashi prevents weight loss and kaikai. * Dakashi has medicine to protect from illness. * Dakashi cleans out the child's gut. * Immediate sucking "pulls" the mother's milk, makes her produce more milk. * Immediate sucking prevents illness of the breast.	

able to successfully consume and utilize breast-milk (see Figure 1). The Hausa technology and procedures are developed within a framework of monitoring the quality and quantity of breast milk and the functioning of the child's body. The quality of milk must be monitored to avoid giving the child dakashi (colostrum) or the illness kaikai, and the mother is given medicine to prevent kaikai. The mother is also given galactogogues to increase her milk production. Preparation of the child's body to consume and utilize breast milk is accomplished through the evacuation of the meconium and cleansing the gut by using purgatives, and by various surgical procedures. Meeting the baby's hunger and thirst needs often are accomplished by giving water and animal milk.

Hausa standards, then, are to avoid kaikai and the dangers of dakashi, to increase the mother's milk production, to remove impurities and impediments from the child's body, to satisfy the baby's hunger and thirst needs and prevent weight loss. The Hausa woman's non-negotiable standards would probably be the avoidance of illness, weight loss, and death of the baby, and the assurance of the quality and quantity of the breast milk. The negotiable areas for the Hausa woman would probably be the details of how these non-negotiable standards would be met. The Hausa woman, for example, might be willing to be flexible about the day of initiation of breast-feeding, the use of animal milk for the baby, and possibly other areas if she were convinced that her non-negotiable standards were being met.

In the biomedical view the sooner the child is put to the breast the sooner the entire physiology of the breast becomes fully functioning, returning the child to birth weight and possibly even producing catch-up growth for low birth weight babies, furnishing needed protection for the baby against infection, evacuating the meconium from the newborn, returning the mother's uterus to normal, and perhaps most important, enhancing the chances of long-term successful breast-feeding. The probable high number of low birth weight babies in Niger[2] and the frequency with which women complain of breast illness and insufficient milk probably make putting the child to the breast immediately after birth a

[2] Figures on birth weight are not known except in the case of babies born in hospitals and maternities in the large cities.

non-negotiable point for the health educator[3]. Since Hausa mothers do not express the milk, congestion of the breasts can make nursing difficult and lead to breast infections. A child who because of delayed iniation of breast-feeding does not succeed in establishing successful breast-feeding in a rural village, has a very poor chance of surviving.

Such practices as giving purgatives and traditional medicines could be considered potentially detrimental because they introduce pathogens, but might be negotiable items to the health educator, if the child were getting the full benefits of the early initiation of breast-feeding. The health of the mother and the psychological and economic advantages of breast-feeding are also key elements in both cultures' definitions of breast-feeding.

In the Hausa view putting the child to the breast immediately means giving the first milk, which could lead to death. From a biomedical point of view, however, it could be argued that all of the Hausa standards or requirements could be met by initiating breast-feeding immediately after birth. A few cases of kaikai would probably not be preventable by the implementation of this intervention alone. Low birth weight, umbilical tetanus, and certain other biomedical causes of death soon after birth would require additional interventions.

A compromise might be reached in which the Hausa agree to put the child to the breast immediately after birth as long as they could continue to give kaikai medicine and perform other traditional preventive measures. If information about the role of colostrum in the evacuation of the meconium and in successful prolonged lactation were included in the health message this might lead to a gradual reduction in the amount of sugar-water currently recommended by the health care providers, and other purgatives given to the child at birth, as well as elimination of the use of animal milk. A reduction in umbilical tetanus and an improvement in maternal nutrition during pregnancy might lead to a decrease in the incidence of kaikai, which should lead to an increase in the adoption of the practice of immediate initiation of breast-feeding.

The fact that early initiation of breast-feeding is being adopted wherever it is recommended suggests that this kind of compromise has been taking place even without

[3] In contrast, Millard has suggested that giving colostrum may not always be important enough nutritionally to warrant trying to change practice in this area (Millard, 1985).

anyone intentionally facilitating the process. I would suggest that this change has taken place largely because the Hausa view of the event of breast-feeding and Hausa non-negotiable criteria are closely aligned with those of the biomedical culture; Both cultures have as their main criteria the quality and quantity of breast milk and successful lactation, as measured by the growth of the child. The relatively widespread adoption of this intervention may be because of the clearly visible immediate advantages to the mother and the child, i.e. freedom from pain and fever of congested breasts for the mother and rapid weight gain for the child.

Termination of Breast-feeding

The Hausa definition of the termination of breast-feeding focuses on the socialization of the child (see Figure 2). The child must have learned to feed itself from the family pot without "rebelling" or must be satisfied eating what the family has to offer as food. Physically, the child must be able to feed itself and must be properly utilizing the food as manifested by the child getting full and continuing to grow. The child is also expected to be psychologically ready to forget the breast, making it less likely that the child will have the fatal illness which can happen at the termination of breast-feeding. The Hausa framework for practices at the termination of breast-feeding can therefore be said to be social, physical, and psychological. Early termination of breast-feeding is warranted in the Hausa view if the quality of breast milk is deemed bad. Early termination of breast-feeding may sometimes be indicated if the mother's health or work or family circumstances suggest that it is no longer possible to breast-feed.

The Hausa's non-negotiable points might be the psychological readiness of the child, the degree to which the child has achieved social awareness around eating, and the protection of the child from poor quality breast milk. For the actual day of the termination of breast-feeding the important Hausa standard is that the child should quickly forget the breast with as little trauma as possible.

Both the biomedical culture and the Hausa culture of Sabon Gari take into account the psychological and developmental readiness of the child and the health and situation of the mother, in deciding when to remove the child from the breast. For the health educator,

Figure 2 - Termination of Breast-Feeding

Culture	Hausa	Health Educator
Definition of health event	* Child must be ready to feed itself and get full and get fat on adult foods. * Avoid fatal illness at termination of breast-feeding.	* Meet child's nutritional needs with solid food. * Avoid psychological trauma.
Framework for practice	* Physical, psychological, social.	* Nutritional, psychological.
Standards for practice	* Child must be used to eating adult foods. * Child must be eating and getting full on adult foods. * If quality of milk is bad, breast-feeding must be terminated early. * If mother's state or situation warrants, breast-feeding may be terminated early. * Child must be psychologically ready to give up the breast. * Breast-feeding must be terminated abruptly to avoid trauma.	* Child must be ready and able to eat solid foods. * Child must be able to get nutrients needed for growth. * Breast-feeding must be decreased gradually before termination to avoid trauma.
Non-negotiable standards	* Protect child from poor quality breast milk. * Child must be ready.	* Meet child's nutritional needs. * Avoid trauma for child.
Possible areas for negotiation	* Nursing after pregnancy if protection is assured for nursing child.	* Abrupt vs. gradual withholding of breast.
Possible form of intervention	* Probably no change in area of abrupt termination. * Interventions would probably be the same as for supplementary feeding.	

the definition of the termination of breast-feeding has mostly to do with meeting the nutritional needs of the young child, and to some extent, the avoidance of psychological trauma in removal from the breast. The biomedical framework for practice, therefore is nutritional and psychological. The standards for the health educator are that the child must be ready and able to eat solid foods so that he or she can get all of the nutrients necessary for continued growth.

The abrupt termination of breast-feeding in one day practiced by the Hausa has as its purpose the avoidance of suffering for the child, which is ironically the same reason given by Western mothers for the gradual withdrawal of the breast. I believe that the issue of abrupt termination of breast-feeding would not be a non-negotiable issue for the health educator.

The non-negotiable criteria for the biomedical culture is that the child's nutritional needs must be met and avoidance of trauma for the child. This is accomplished by the child being used to eating other foods and having sufficient foods available to replace the nutrition formerly provided by the breast milk. For the Hausa mother the emphasis is not on the nutrient value of the food, but on the child's socialization around the breast and food and the ability of the child's body to consume and utilize the food to grow. The difference, as with the supplementary food discussion, is that Hausas generally do not associate specific nutrients with growth and health. Therefore the goals of the biomedical interventions become the same as those under the discussion of supplementary feeding, that is, increasing the caloric and nutritional content of foods and feeding more often.

Supplementary Feeding

For the Hausa woman in Sabon Gari the period of supplementary feeding is defined largely as a social process which prepares the child to become a member of the family and the community (Figure 3). The child must learn to feed itself to the point of feeling full and getting fat on the food provided by the family. The standards which shape practice have to do with food seeking behavior of the child and the staple character of the food. First, the child must be physically able to feed itself, first by grabbing its mother's hands and then by reaching for and grabbing food and putting it into its mouth. The foods must make the

Figure 3 - Supplementary Feeding

Culture	Hausa	Health Educator
Definition of health event	* Prepare child to be a member of society. * Assure that child grows.	* Assure normal growth of child. * Meet nutritional needs of child for growth and repair.
Framework for practice	* Socialization. * Assure growth.	* Nutritional, psychological.
Standards for practice	* Child must be physically able to feed self. * Child must want food and actively seek it. * Foods must make child want more. * Food must be acceptable adult food, preferably the staple. * Food must be affordable, available, and not too much work.	* Meet required amounts of each nutrient daily.
Non-negotiable standards	* Perhaps, same as standards for practice, above.	* Sufficient calories. * Sufficient frequency of feeding. * Balanced diet.
Possible areas for negotiation	* Occasional purchase or preparation of foods to prevent certain illnesses. * Occasional purchase or preparation of foods to obtain certain kinds of good health. * Perhaps addition of ingredients to child's foods.	* Which foods are used to supply which nutrients. * Certain aspects of preparation.
Possible form of intervention	* Beans and meat increase the blood and make the child strong. * Buying a child liver and fruit will protect the child from illness. * Feeding more times per day will keep the child from crying so mother can work. * Adding butter and oil to the child's food will help child sleep through the night and make him fat.	

child want more so that the child will feed itself and demand food when hungry. Foods must be those which the Hausa family considers to be appropriate adult food, generally the staple, millet, prepared in the way in which the family prepares it. The food must be available and affordable. In short, it is important for the child to learn to eat with the rest of the family from the family pot.

The biomedical definition of supplementary feeding focuses mainly on the nutritional requirements of the human body during the infant and toddler period. The framework in which the health educator develops guidelines for practice is largely nutritional and physiological. According to this biomedical view, the human body requires a complex set of nutrients in certain amounts at a certain frequency and at certain points in the child's physical development.

The biomedical non-negotiable criteria for supplementary feeding have to do with making sure that the child consumes sufficient nutrients to support the rapid growth of the child and to meet the body's needs for catch-up growth and repair during illness. This emphasis on nutrient requirements is so important that the Western mother in many societies sees it as her role to control the quantity and the choice of foods that the young child consumes. To accomplish this the child is fastened into a high chair as soon as he or she is able to sit up. Instead of waiting until the child begins to gesture toward the food out of curiosity or can feed itself with its own hands, he or she is fed with a spoon, foods which are nutritionally recommended at that age or that are thought by the mother to make the child feel full and sleep through the night. When the child makes a face at new or strange food being poked into its mouth the mother coaxes the child, mixes the strange food with familiar foods the child likes, or in other ways coerces the child to eat foods which she believes that the child needs.

Contrast this with the Hausa view that the child has the right to decide whether or not to eat, and that it is not the mother's place to interfere by poking food into the child's mouth or otherwise coercing the child to eat. If the Hausa child makes a face when offered new foods the mother views this as the sign that the child does not yet want the food or is not yet ready to eat foods and the mother waits until the child decides that it is interested in the food. The most important implications of this are the following: 1) If the food is not

consumed by family members daily and therefore not regularly seen by the child, it is not likely that the child will acquire a taste for or begin to demand that food, since the child is allowed to decide when he or she wants to begin to eat. 2) If a child is ill or anorectic mothers may not feel it is appropriate to put food in the child's mouth or in other ways compel the child to eat. The issue of the amount of caretaker control of eating becomes particularly significant when combined with anorexia.

For the Hausa mother the non-negotiable criteria for supplementary feeding might be that the child be able to feed itself to the point of feeling full on the food that is available to the family. For the health educator the non-negotiable points would be sufficient calories daily at sufficient frequency and a balanced diet which includes appropriate quantities of various nutrients. I would expect that the area of supplementary feeding would be much more difficult than breast-feeding to negotiate between the two cultures, because of the great differences in the explanatory model.

Careful exploration of the areas of commonalities and differences between the two cultures, however, could yield a number of shared values upon which interventions could be negotiated. These might include the high value in both cultures of having a good appetite, getting full so that the child doesn't cry and interfere with the mother's work, seeing children grow fat and strong, and seeing children exhibiting certain signs of good health such as playing, laughing, sitting, crawling, walking, and food-seeking behaviors. The negotiable areas for the Hausa might be the occasional purchase or preparation of snacks for the young child or special foods when the child is sick, occasional purchase or preparation of foods to bring certain kinds of good health or to prevent certain illnesses, or the addition of certain ingredients to the child's portion of the family pot.

A biomedical intervention, for example, might be adding oil to the child's food (Dearden et al., 1980) to increase its caloric content. A Hausa mother might object on the grounds that it is not what the family eats: oil is expensive and one does not traditionally add oil to koko or tuwo. But the mother's criteria of the child feeling full after eating would be met by adding oil to the child's food. Soft adult foods and thin gruels might meet the Hausa woman's criteria of increasing the child's appetite, especially during illness. Encouraging the mother to buy a daily portion of plant and animal protein foods meet the

Hausa criteria of making the child strong. Oils and starches may meet the Hausa criteria of making the child fat. Vitamin and mineral foods may be seen as a way to prevent illness. In the area of feeding the sick child the Hausa mother might find that providing more assistance to her child when he or she is sick might help the child to maintain a good appetite and strength.

Although the multi-mix idea uses foods locally available, they are a separate preparation and are not the family pot. Ways must be found, I believe, to utilize the staple food served to adults as the primary weaning food rather than focusing on separately prepared dishes. And ways must be found to convince mothers to take more control over their children's eating, at least when they are sick.

Diarrhea Illness

For the mother in Sabon Gari, diarrhea illness can be caused by a number of factors: teething, bad breast milk, the mother working too long in the sun, the mother having too much sex, and other environmental and behavioral factors (see Figure 5). Hausa practice in the area of diarrhea illness is set within the framework of trying to identify and address the cause of the diarrhea. The standards of Hausa practice are to discover the cause and give the appropriate treatment. If the first treatment does not give the desired result, than another cause will be assumed and another treatment tried. The goal of treatment is to get the body back to a healthy state, as measured by an end to the diarrhea stools, and a return of strength, appetite, and growth. This return to a state of health, including an end of the diarrhea and a strong, healthy, playful child, might be the Hausas' non-negotiable standard, while the type of medicine used might be negotiable.

The biomedical or health workers's view of diarrhea illness is physiological and nutritional. The immediate danger with diarrhea is dehydration from loss of from 2.5% to 10% of body fluids within a few hours through frequent stools and vomiting. The next concern is nutritional. For the health educator, then, the main thrust of diarrhea treatment and the non-negotiable standards are to keep the child hydrated and to meet the child's nutritional requirements. Standards required for treatment are the maintenance of breast-feeding, giving additional liquids with each stool, giving extra foods during convalescence,

Figure 4 - Diarrhea Illness

Culture	Hausa	Health Educator
Definition of health event	* Diarrhea caused by teething, bad milk, environmental or behavioral factors.	* Physiological; diarrhea caused by pathogens through oral-fecal contamination.
Framework for practice	* Discover the cause; treat the cause.	* Reverse or prevent dehydration. * Maintain growth.
Standards of practice	* Identify cause and give appropriate treatment. If that doesn't work, assume another cause and try another treatment. * Goal of treatment is to get body back to healthy state. Sign of this is the end of diarrhea stools.	* Rehydrate if dehydrated. * Maintain breast-feeding during episode. * Give additional liquid with each stool. * Give extra food during convalescence. * Prevent dehydration with ORS. * Give antibiotics only in case of bloody stool or fever.
Non-negotiable standards	* Diarrhea stools stop. * Child seems healthy: strong, playful, has appetite, etc.	* Prevent dehydration or rehydrate. * Meet child's nutritional requirements.
Possible areas of negotiation	* Type of medicine -- as long as it accomplishes non-negotiable standards above.	* Base of rehydration solution.
Possible forms of intervention	* SRO cleans the gut and stomach (use packets). * Sick children are hungry but are too weak to eat by themselves. They need help to eat.	

rehydration if the child is dehydrated, and antibiotics only in the case of bloody stool or fever. Hausa non-negotiable standards of a return of appetite and strength, could be met by preventing dehydration and meeting nutritional requirements, but stopping the diarrhea would not necessarily result from ORT and additional food. Although it may save many lives, ORT does not reduce the duration of the diarrhea episode nor decrease the stool.

The problem of reconciling these two views is that the Hausas blame the symptoms of weakness, loss of appetite, and loss of weight, on the illness itself. Therefore, for them, the origin of the illness must be diagnosed and addressed with the appropriate medicine. When the illness has been addressed, and leaves the child, then the stool will stop and the child's strength, appetite, and weight will return to normal. Again, the biomedical view is that these symptoms are due to a nutritional and water deficit, brought on by the illness, and aggravated by the fact that the child eats and drinks less than usual. The remedy is to give the child extra liquids and foods.

Hausas have a great concern for the quality and quantity of certain fluids within the body: blood, mucous, breast milk, and sexual fluids. Hausas, however, do not ascribe any role to water in the body, except to quench thirst. Women are very aware of the consistency of their children's stools, although they have not associated watery stools a loss of water from the body. A commonly used educational tool is the gourd doll, which loses water out its bottom (as in diarrhea), as fast as water is poured into the top, (as in drinking). The doll is supposed to help mothers understand the loss of water in their children when they have diarrhea. This approach has been internalized by the matrones, who now verbalize the idea that one has to replace the water in the body, but I have not seen evidence that the idea really makes any difference in how women behave. Another approach, that of likening the human body to a plant which has wilted form lack of water, does not work either. The use of metaphors in teaching nutrition is very appealing and widely recommended (Nichter & Nichter, 1986). It is important to understand, however, that asking Hausas to think of themselves as plants is not compatible with Islamic teachings or Hausa ideas.

A more effective approach, it would seem to me, would be to appeal to the burdens or difficulties which the mother experiences or sees her child experience, such as: making the stool decrease, making the child want to eat, keeping the child from deteriorating,

keeping the child from losing his or her flesh. ORT might be described as cleaning the gut and stomach, which is closer to a Hausa idea about what needs to be done when there are "digestive" problems. Pamela Schmoll, an anthropologist who is studying Hausa therapy, (as per conversation, Oct. 6, 1990) suggested that talking about replacing blood in the body in cases of dehydration might make more sense than the idea of replacing water.

It might be useful to develop a millet-based ORT for Niger for these reasons: it has been shown to decrease the stool, it has been shown to be absorbed faster, and the additional nutrients might help to keep the child's appetite at the usual level, helping to avoid the awful wasting which happens to some children. Another approach might be to develop an intervention which urges the frequent feeding of a common weaning food, especially while the child is sick. For the ill child, I believe that something needs to be negotiated about greater caretaker control of feeding, perhaps in order to meet the mother's criteria of keeping up the child's strength and appetite.

Some Hausa Ideas About Health

Magani (medicine) in Hausa has several meanings: 1) medicine as in a treatment for an illness, as the word medicine is used in English, 2) method of obtaining something, as in medicine to help you get money or some other kind of good fortune and 3) means of avoiding or protecting oneself against something, as in medicine to keep others from beating you (Abraham, 1968). Although health educators may feel squeamish about telling people that certain foods are medicine, rather than emphasizing permanent changes in food habits, Hausas have a different concept of "medicine" than Westerners. Indeed, medicine is often used for prevention in the Hausa way of thinking.

To illustrate, the curative meaning can be used in the case of vitamin A in talking about the value of liver to a child or woman who already has dundumi, or night blindness. Thus the person might be advised to eat 50 CFA of liver every day for two weeks to cure the night blindness. Maganin dundumi ne, "this is night blindness medicine", suggesting that she has to follow this advice if she wants to be cured.

The preventive meaning of the word magani is very appropriate for talking about the role of vitamins and minerals in the body, that is a protection against a certain illness. For

example, in the context of telling a mother about the value of eating liver once per week or of offering children some mango and green leaves every day, maganin dundumi ne, means that eating more of these things will prevent your child from getting night blindness.

The procurement idea of magani can be used to talk about the positive side of the vitamin, in other words, If you increase the amount of these foods in your child's diet, it will make the child stronger or healthier. Then green leaves, mangoes, or liver become maganin karfi (medicine to make you strong) or maganin lafiyar jiki (medicine to make the body healthy).

In putting together a culturally relevant communications strategy educators should try to put health messages in terms which reflect the health concerns of the population. For example, if you are addressing middle class Americans, you might try to find a way in which your health intervention improves physical fitness, lowers blood cholesterol, strengthens the heart, or helps one control weight. Hausa health concerns are quite different from current Western ideas. Some examples of Hausa health concerns and how they might be used in wording an intervention are the following:

1. Hausa health concern: the quality and quantity of blood in the body

   Possible health message: Urging mothers to serve more liver because it "increases the blood" , "Yana kara jini".

2. Hausa health concern: having a good appetite or being able to eat enough to get full

   Possible health message: Eating fruits and vegetables daily increase one's appetite so that one can eat and get full. In ka ci x kullum, c'est ka ci abinci, ka koshi. (If you eat x every day, then you will eat food and get full).

3. Hausa health concern: getting fat or having a good body

   Possible health message: Urging mothers to serve more butter to children or to add oil to greens and other foods because it will make them fat[4] (maganin kiba means medicine to make one fat).

[4] Fat eaten with vitamin A makes the vitamin more accessible to the body because it is a fat soluble vitamin.

These are just of few of the ideas which could be used in developing educational interventions. Others include the many proverbs used by Hausas and an examination of the use of metaphors which have the potential for use in the health context. Development of interventions also requires a discussion of the different audiences and their roles in young child health: fathers, grandmothers, gardeners, and village leaders, to name a few. Space does not permit an elaboration of all of these considerations here, but they are mentioned because they should be included in the process of developing interventions.

Recommendations for Further Research

There are a number of specific research needs suggested by this study, such as the need to:

1. Determine the caloric and nutrient of fura, tuwo, dried leaves, and a serving of sauce.

2. Determine the amounts of staple foods consumed by young children per day.

3. Determine if the total amount of breast milk received by a child during the fast during a day decreases or remains the same. Determine if nursing children's weight curves are affected by the fast.

4. Develop a millet-based ORT and /or a cereal or food which mothers would be encouraged to give when their children are sick or have diarrhea.

5. Observe and document children feeding 24 hours per day including detailed observation of feeding styles for each age group and during different situations such as illness of the child or heavy work days for the mother.

6. Study the treatment of malnourished children including the following:
   -factors affecting parental behavior in treatment seeking, feeding.
   -factors affecting the family decision to seek treatment at a hospital or nutritional rehabilitation center.
   -parental behavior and ideas once they believe that their child will die.

7. Determine how mothers know when the small child is thirsty, and specifically whether or not they perceive increased thirst with the onset of dehydration.

The most important next step suggested by this research is to develop interventions, and to include the Nigeriens in the process, incorporating the strategy outlined in this

section. The goal would be to negotiate the content and form of interventions with those who would be affected by them. There is a great need to develop skills among the health service providers at all levels in the areas of local community diagnosis and the development of community-based interventions. Therefore participatory methods should be used in the planning, development, and implementation of these interventions.

I would suggest the following broad steps:

1) Compile and examine the results of all child survival research in Niger:

   a. this study.

   b. other studies by this author (Keith, 1990, 1991a, 1991b).

   c. the Africare survey in the Dosso and Diffa Departments (Baptiste et al, 1990).

   d. the CARE study in Zinder (Swimmer, 1990).

   e. the 1988 USAID Rapid Ethnographic Assessment in the Niamey Department (Brandstetter & Fishman, 1989).

All of these studies combined should provide a great deal of information on Nigerien attitudes and practice in the areas of young child feeding, weaning, and diarrhea illness. The gaps could be filled in through a quick ethnographic investigation.

2) Select a cadre of health care providers at all levels to be trained in negotiation and development of interventions.

3) Train the group in the techniques of quick ethnographic assessment.

4) Implement the quick ethnographic assessment to fill in the gaps in information.

5) Examine what is known and consider possible interventions.

6) Train the group in the process of negotiation outlined in this section.

7) Implement the process of negotiating specific interventions at the local level.

8) Convene the team to develop interventions.

9) Field test the interventions.[5]

10) Convene people to share information from different parts of the country, looking for similarities which might be useful for national campaigns including radio and television messages.

[5] Griffiths et al. (1988) outline a process for developing and testing interventions in the area of feeding during diarrhea illness.

GLOSSARY OF FRENCH AND HAUSA WORDS

French - Note: Some of these words are peculiar to African French.

Bouillies - baby cereals.

Canton - district.

Charette - two wheeled cart.

Chef - chief.

Commerçants - businessmen.

Contre saison - off season or dry season.

Exode - exodus, in West Africa, to leave the country to seek work on the coast.

Fonctionnaires - functionaries or civil servants.

Ganidan - sulphonamide.

Mandat - money order.

Matrones - traditional midwives.

Niébé - cowpeas.

Nime - a large imported shade tree

Nivaquine - malaria medication.

PMI (Protection Maternelle et Enfantile) - mother-child protection, refers to mother child health services.

Pépinière - tree nursery

Quinamax - malaria medication.

Quartier - quarter or neighborhood.

SRO - Solution Rehydration Orale - oral rehydration solution (refers to the packets).

Hausa

Adashi - women's traditional credit associations.

Alhaji - title of a man who has made the pilgrimage to Mecca.

Alhamdu lillahi - God be praised!

Anago - missing something that you have been used to eating or drinking (particularly milk).

Arziki (azziki) - prosperity.

Azumi - the fast of Ramadan.

Bauri - medicinal solutions given to babies at birth.

Baurin itatuwa - bauri made from trees or herbs.

Baurin zamani - modern or progressive bauri.

Bayan gida (behind the house) - human excrement.

Biki - feast.

Bismilla - Arabic formula said on beginning something.

Boka (pl. bokaye) - traditional healer.

Bori - the cult of being spirit possessed.

Bushe - became dry, (or if describing a person) became thin.

Calabash - a bowl made from half a large gourd.

Ci - verb meaning to eat, to have intercourse, and to kill.

Ciki - stomach.

Ciwo - illness or pain.

Cuta - illness, offensive act or oppression.

Daura - tied a thing on to.

Dafa - cooked.

Dakashi - colostrum.

Dame - mixed something into a paste.

Dan kanoma - hemorrhoids.

Danye - unripe or raw.

Diddira - dysentery.

Dundumi - night blindness, the first sign of vitamin A deficiency

Dushishiya - plant used as diarrhea medicine for children.

Fadama - marshy ground, used to mean watered gardens.

Fulani - the Hausa name for the ethnic group known as Peule in French, or the speakers of Fulfulde.

Fura - sour milk millet mash.

Gasa - grilled meat.

Gobe - tomorrow.

Goyo - baby carried on the back.

Gulbi or gurbi - depression in the ground, also the name for a certain type of diarrhea.

Gunku - a woman whose menses do not return before pregnancy.

Gurbace - sediment that has become stirred up from the bottom.

Habaci - a kind of innuendo used between co-wives.

Hauka - crazy.

(Hida) Fitar da - take something out, used in Sabon Gari for the cessation of breast feeding.

(Hida) Fida hakora - teething.

Hanji - intestines.

Ilimi - knowledge, especially of Muslim Theology.

Isa - is or was sufficient.

Jiki - body.

Kai - head, and a childhood illness involving a splitting head.

Kaikai - infant illness carried in the mother's breast milk.

Kala - gleaning the fields.

Kanwa - potash, natron, or saltpeter.

Karfi - strength

Karho (karfu) - leather belt.

Kashe - killed.

Kawa - a woman's close woman friend.

Katala - antidote.

Kayan dadi - snacks.

Kayan daki - things of the room (bed linens, pots and pans etc.).

Koko - hot, spicy, slightly fermented semi-liquid millet gruel.

Koshi - became replete.

Kubli - Aderawa variation of "kulle", meaning locked, or keeping a woman in purdah.

Kulikuli - peanut solids after the oil has been removed.

Kumburi - swelling.

Kunu - traditional millet cereal.

Kurji - sores, pimples, pustules and rashes.

Kwarakare hanji - to dip out small remaining liquid.

Lada - reward.

Lafiya - health (good health)

Lalace - spoiled.

Lalame - the millet drink consumed by the parturient after birth.

Laya - amulets with verses folded up inside.

Limam - head Muslim priest.

Mabugi - convulsions which accompany cerebral malaria.

Madiga - fontanelle.

Magani - medicine

Magori - medicine sellers who travel to other countries to sell their wares.

Maha - see mabugi.

Mai gida - head of the household.

Mai magani - medicine sellers.

Malam - Muslim priest (pl. malamai).

Mata - women or wives.

Matunai - teeth or teething.

Mugu - bad, evil.

Mugun nono - bad milk.

Nono - breast milk, breast, or sour skimmed animal milk.

Ramce - borrow for a short time something which itself is not to be paid back.

Rame - became thin or emaciated

Rika - grab or hold.

Rubutu - act of writing and water resulting from washing Koranic verses from a wooden board.

Rurrutsa - conceiving before the previous child is weaned.

Saba - become accustomed to.

Sabara - *Guiera senegalensis*, a medicinal plant.

Sabunin salo (sabulun salo) - indigenous soap drunk as medicine.

Sana'a - one's trade or profession.

Sanyi - damp coldness.

Sha - drank.

Talakawa - peasants, or poor people.

Tasha - station, stopping place for buses and bush taxis.

Tawada - ink or Koranic writing.

Tiya - a standard measuring calabash or bowl, which holds about two and one half kilos (5½ lbs.) of millet.

Toya - fried.

Tsaba - threshed grain.

Tutu - human excrement.

Tuwo - millet staple starch.

Ungozoma (pl. ungozomai) - midwife.

Wahala - troubles.

Yaji - pungent spices such as cayenne, cloves and ginger.

Yan bori - spirit mediums.

Yaye - weaned from breast-feeding.

Zahi - heat, illness caused by heat.

Zaure - entrance hut (Men who are not members of the family may enter here, but may not go any further into the interior of the compound.).

Zawo - diarrhea

Zawoce - defecate.

Zuba - poured.

Zuciya - heart.

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APPENDIX A
Oral Rehydration Solution (ORS) Recipes Used in Niger

The following are the two recipes which are referred to repeatedly in this report. Both recipes should be made with boiled water.

Homemade Sugar Salt Solution

This is the homemade solution which women are taught to make in their homes for their children when they have a diarrhea episode.

1 liter of water (the standard small enamel sauce pan filled to the level of the handles)

2 pinches of salt (each pinch must be made with three fingers)

8 sugar cubes

Packet or sachet (SRO)

This is the prepared packet that is distributed through the health facilities in Niger when it is available.

1 liter of water (same measure as above)

1 packet

APPENDIX B
Government Recommended Baby Cereal Recipes

These are the standard baby cereal recipes recommended by all PMI's throughout the country. Bouillie Légère is referred to in this dissertation.

Bouillie Légère (light cereal)
1/2 ladle of grilled flour (millet)
6 ladles of water
3 pinches of sugar
1 pinch of salt

Bouillie Enrichie au Lait de Vache (cereal enriched with cow's milk)
1 ladle of grilled flour
3 ladles of water
3 ladles of fresh milk
3 sugar cubes

Bouillie Enrichie au Torteaau d'Arachide (cereal enriched with peanut solids)
1 ladle of millet flour
6 ladles of water
12 ladle of peanut solids flour
3 sugar cubes

Bouillie Enrichie au Jaune d'Oeuf (cereal enriched with egg yolk)
1 ladle of millet flour
6 ladles of water
1 egg yolk
3 sugar cubes

Bouillie a la Farine de Nièbé (bean flour cereal)
1 ladle of millet flour
6 ladles of water
1/2 ladle of bean flour
1 ladle of peanut solids flour

Bouillie au Bouillon de Légumes (cereal with boiled vegetables)
1/2 ladle of grilled flour
6 ladles of boiled vegetables and leaves in season: green papaye, carrot, green mango, eggplant, onion, manioc, sweet potato leaves
3 sugar cubes
1 pinch of salt