Focused Ethnographic Study – Karaga District, Ghana

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Bonnie McClafferty
Director, Agriculture for Nutrition Global Program
GAIN-USA
729 15th St NW, Suite 800
Washington, D.C. 20005
Tel: (202) 559- 8512
Fax: (202) 559-8515
E: bmcclafferty@gainhealth.org

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This report presents primary findings and analysis. The information contained within has been analyzed and summarized further in the Optifood/Focused Ethnographic Study Summary report.

FEEDING INFANTS AND YOUNG CHILDREN IN KARAGA DISTRICT, NORTHERN REGION:

A FOCUSED ETHNOGRAPHIC STUDY

Margaret Armar-Klemesu
Sawudatu Zakariah-Akoto
Sarah Osei-Menya

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EXECUTIVE SUMMARY

This report presents the findings and discussion of a Focused Ethnographic Study (FES) in Karaga District, Northern Region. The FES used research modules derived from a cultural-ecological framework to examine infant and young child feeding practices, behaviours and beliefs from a household perspective. The examination included exploration of the determinants of Infant and Young Child (IYC) nutrition (physical environment, social environment, social organization, technology and culture) in order to address the following main questions:

- What are infants and young children 6 – 23 months being fed?
- How are caregivers preparing these foods
- Where and how are caregivers acquiring these foods?
- Why have caregivers selected these particular foods? i.e what are the facilitators and constraints for infant and young child food acquisition and consumption?

Karaga district is one of the 26 administrative districts in the Northern Region of Ghana. Karaga, the district capital is about 94 kilometers from Tamale, the regional capital. The district is located in the north-eastern part of Northern Region and lies between latitudes 9^{o} 30' South and 10^{o} 30' North and longitudes 0^{o} East and 45' West, with a total area of 2,958 Km^2. Karaga district lies in the Guinea Savannah zone and has a typical tropical continental climate characterised by two seasons: a rainy season lasting from May to October and a dry season for the rest of the year. The Dogombas are the dominant ethnic group and the majority are Muslims.

The study was conducted in selected communities in Karaga sub-district. An initial census to obtain the sample for the dietary study was carried out to identify households with children 6-23. A list of all households with children 6-23 months in the sub-district constituted the sampling frame. The sampling frames were divided into sub-frames to correspond with the four age groups of interest: 6-8 months, 9-11 months, 12-23 months (breast fed), and 12-23 months not breast fed. The FES sample was selected from the master list of eligible children who were not selected originally nor as replacement (for the dietary survey), making sure that the sample was fairly equally distributed among the three geographically clustered communities representing the north, central and southern locations within the sub-district.

Data were collected with specific modules that were designed to provide insights about a range of issues related to household behaviours, including demographic and socioeconomic status (SES) characteristics; a 24-hr dietary recall for the index child and a 7-day household food record; food acquisition and preparation; estimated food expenditure; perceptions about value dimensions related to health, cost, child acceptance, ease of acquisition and ease of preparation and perceptions about factors that influence IYC feeding (IYCF); food and feeding- related problems, challenges and solutions; and effects of seasonality on IYC and family food management. Data analysis was predominantly qualitative with some quantitative applications where appropriate.

The demographic analysis indicated the majority (40%) of the 32 caregiver-respondents were aged between 30 – 39 years and only one had any formal schooling. The main occupation was farming and a few were traders in food items. Household sizes were typically large and ranged between 4-14 members with an average of 8 members. About 80% of households earned income from agricultural farm produce while a little over half also had members earning incomes from business activities, mainly in petty trading. About half of households had incomes of GHC200.00 ($75.00) or less per month. Almost all households own some livestock. Most households obtained their drinking water from tube wells and boreholes and only 5 households reported having traditional pit latrine within their premises. Majority of households had access to electricity in their dwellings and all (but 1) used firewood as the main source of fuel.

We discovered a definable "core IYC foods" for which there was strong consensus. The existence of the concept of "special IYC foods" is important for future intervention planning. The IYC core consists of porridges (mainly prepared from maize and millet) and Tuo Zaafi (TZ*)*, with secondary core foods including rice, beans, tea with powdered milk, and vegetable-based soups and stews that contain small amounts of dried, powdered fish. Fruits were absent from the core IYC diet, both in cultural perception and in practice. Concurrent with the use of special IYC foods, which continued to 23 months of age in some families, we found that children are generally integrated into the family diet after one year. The frequency of feeding and the diversity of foods fed to the 12 – 23 month old cohort is generally adequate relative to current recommendations. However both feeding frequency and dietary diversity are inadequate for most of the 6 – 11 month olds.

Some measure of food provisioning is realized through own production and this is by far the preferred source. Foods in the IYC and household diet however come from multiple sources and caregivers give consideration to several factors in their purchase decisions. Foods that are purchased either using cash or on credit are acquired from outdoor markets, small local shops, vendors, hawkers and neighbours. Several arrangements within the household exist for household food purchasing decisions with mothers emerging as primary decision makers on what is purchased for the IYC. Even though some mothers may not be favourably inclined towards crediting food for their IYC others find this an acceptable strategy for meeting their IYC food needs. These findings suggest that a positive environment exists for the acquisition of special IYC foods by caregivers: they make the decisions on what to feed and actually do the buying of foods for their children.

Household economic organization places a premium responsibility on maternal caregivers for the acquisition of family and IYC foods through home production and purchase. In Karaga, the organization of labor within households also places the responsibility on women to provide the vegetables and other ingredients that are used in preparing the soups and stews that accompany the staples. This is in addition to obtaining water and fuel for cooking, as well as for other household needs. Thus, her responsibilities cover the full range from acquisition through preparation to feeding. Given these multiple sectors of responsibility, caregiver activities in relation to IYC diet create a situation in which agricultural work in family fields and income-earning activities to acquire money to purchase food affect the time and other resources she has available for food preparation and feeding of IYC. An area of

concern for caregivers is their inability to actively participate in their household and economic (income earning) activities due to their child care responsibilities. This point is very important when we consider the fact that trading activities are an important occupation of women and also that women are mainly responsible for purchasing ingredients for household food preparation after the men have provided the grains. This conflicting situation of balancing child care and earning incomes to feed the household was often cited as a potential source of worry and stress as caregivers struggle to perform their roles.

An important finding is that caregivers' ideas about the attributes of healthy IYC foods and diets share some important commonalities with received wisdom on IYCF. These commonalities include a sense of the importance of balancing dietary components; a notion of the preventive power of certain foods; and the ability of certain foods to supply energy and support growth (in the view of caregivers by "building" or "making blood"). There is evidence that caregivers in Karaga not only understood the relationship of food quality to child survival and growth they were also strongly committed to providing their IYC with the best foods they could afford. A considerable concordance was documented between cultural constructs and dietary practices but there is a major gap between how women want to feed their children and what they were able to give them. The gap is due to several factors mainly to do with inadequate production to meet household needs, seasonal food insecurity due to inadequate economic resources to purchase foods during the periods of food scarcity as well as of vital ingredients that must necessarily be purchased. Preparing less complex dishes was one of the coping mechanisms in food secure months and caregivers indicated that they buffered IYC from food insecurity by skipping meals or eating less themselves. However, in spite of these efforts, their buffering does not compensate for the loss of diet quality and quantity that is experienced during the lean season.

With respect to beliefs and knowledge that affect practices of caregivers the findings show that in addition to generally good knowledge about nutrition caregivers were strongly committed to their view that what children eat affects their health and growth. They also have well-developed ideas about food hygiene and the importance of protecting food from contaminants. However although Karaga caregivers appear to have absorbed much sound information about the health-giving properties of particular foods their awareness of technical nutritional concepts was virtually non-existent. The majority was unfamiliar with the term "vitamins" and only a few (10%) were familiar with the idea of food fortification. Serious gaps in knowledge and practice were also identified. The most significant weakness, which appears to be fuelled by an entrenched cultural norm, is the belief that IYC should not be fed "solid" or "heavy" foods till they start walking or crawling lest this will actually prevent them from doing so. The impact of this strongly-held belief is evident in the less than ideal feeding practices of younger IYC. Another significant weakness is the unsafe storage of food after initial preparation. Safe storage of left-overs without refrigeration is a serious challenge and preparing food just before feeding may not be feasible given caregivers' time constraints and the lack of access to stoves or other quick methods for preparing food. Thus the extent to which storage practices affect child health and nutritional status by increasing diarrhoeal disease needs to be examined through appropriate research.

In conclusion, the study has yielded important insights about current IYC feeding behaviours and practices and enabled the identification of appropriate interventions to address IYC diet inadequacies and malnutrition.

CHAPTER 1: INTRODUCTION AND BACKGROUND

Introduction

Optimal child feeding practices are essential to growth, health and development during infancy and early childhood. Under nutrition is an underlying factor in 53% of children's deaths globally accounting for more than a third of child deaths. The immediate consequences of poor nutrition during the early formative years include significant morbidity, mortality and delayed mental and motor development. In the long term, early nutritional deficits are linked to impairment in intellectual performance, work capacity, reproductive outcome and overall health during adolescence and adulthood. It is well documented that the period from conception to 23 months of age is a critical window for the promotion of optimal growth, health and behavioral development (World Health Organization, 2010). Inappropriate feeding practices during this period can have profound consequences for the growth, development and survival of infants and children.

Statistics from the 2012 State of the World's Children report indicate that about 40% of children in Sub-Saharan Africa are moderately to severely stunted (UNICEF, 2012). Over the past two decades, the prevalence of childhood stunting has hovered around 30% in Ghana, leading to the country's inclusion, in 2008, in the list of 36 high-burden countries for malnutrition (GSS et al., 2009; Black et al., 2008). Ghana also has unacceptable rates of underweight and wasting as well as a high burden of micronutrient deficiencies among children with childhood anemia rate in excess of 70% (GSS et al., 2009).

Despite progress in economic growth and poverty reduction over the past decade, critical food security and nutrition problems still persist with the three northern regions having the greatest burden. As many as 1.2 million Ghanaians are considered food insecure and chronic under-nutrition, though decreasing in the past five years still affects about a quarter of Ghanaian children under 5 (GSS, 2012). The recent 2014 Ghana Demographic and Health Survey (GDHS) however shows that there are considerable gains in efforts to reduce the rates of malnutrition although regional and urban/rural disparities still remain (GSS et al., 2015). Prevalence of stunting, underweight and wasting are down from the 2008 GDHS estimates of 28%, 14% and 8% to 19%, 11% and 5% for stunting, underweight and wasting respectively. Significantly, of the four regions with the highest prevalence rates of stunting, the Central, Eastern and Upper East regions saw marked reductions from the 2008 estimates of 34%, 38% and 36% to12%, 21% and 22% respectively. Estimates for the Northern region still remain high at 33%. Whilst anemia prevalence has also reduced from 78% to 66%, rates for the three northern regions and the Central Region remain unchanged at over 70% with the Northern region again having the highest prevalence rates at 82%. The indications are that other micronutrient deficiencies are likely to be highly prevalent.

Child malnutrition and particularly stunting and micronutrient deficiencies primarily result from diets which do not meet energy and nutrient requirements to support the rapid growth of infants and young children (IYC). The 2008 GDHS showed that the majority of infants and

young children aged 6 – 23 months in Ghana are not being fed appropriately. Overall only 36% of IYC meet the minimum IYCF standards. The 2014 GDHS paints an even more dismal picture. Using the minimum acceptable diet indicator to assess adequacy of IYC feeding practices, only 13% of 6 – 23 month old children meet the criteria for being fed appropriately for their age. The breakdown by age group shows the most vulnerable to be infants 6 – 11 months i.e 6% for the 6 – 8 month group and 10% for the 9 – 11 month age group. The promoting, protecting and supporting of optimal breastfeeding together with appropriate complementary feeding are recognized as key public health strategies for child survival. Continued efforts are therefore needed to understand the myriad of social, cultural and economic influences on child feeding practices in order to develop promising and sustainable interventions to improve the feeding of infants and young children in Ghana and especially those living in rural communities.

Background

USAID/Ghana aims to improve infant and young child (IYC) feeding through strengthening linkages between agriculture and nutrition. One of the first steps in this regard is to identify strategies to improve the nutritional quality of the diet based on locally available foods. USAID/Ghana requested GAIN (Global Alliance for Improved Nutrition) to conduct a Focused Ethnographic Study (FES) (Pelto and Armar-Klemesu, 2010; Pelto and Armar-Klemesu, 2014) and dietary analysis using the Optifood Linear Modelling Tool (Ferguson et al., 2006) to identify a set of evidence-based, population-specific, food-based recommendations (FBRs) that can be promoted to improve the nutritional status of young children in farming communities of Northern and Southern Ghana. The results can also inform behavior change communication (BCC) strategies and the need for alternative interventions to meet nutrient requirements, including delivery of home fortification and/or support for fortified complementary foods.

The FES and dietary/Optifoods analysis are two related, but separate activities. The first activity is the completion of a FES which is the formative/landscape analysis aimed at understanding the cultural, social and economic contexts of infant and young child feeding behaviours from the household and marketing perspectives. The second activity is a cross-sectional dietary survey aimed at determining the gap between actual nutrient intakes and physiological requirements as well as collection of other data necessary the Optifood analysis. Each of these activities involves multiple sub-activities, which are described separately in Chapter 2 on the study methodology. This report is focused on the FES carried out in the Karaga District of Northern Region.

Aim and objectives of study

The main aim of this study is to identify strategies, based on locally available foods, to improve the nutritional quality of the diet of infants and young children in Ghana. In order to address the above aim the FES specifically seeks to answer the following questions:

- What are infants and young children 6 – 23 months old being fed?

- How are caregivers preparing these foods
- Where are the caregivers of these children acquiring these foods from?
- Why have caregivers selected these particular foods? i.e what are the facilitators and constraints (barriers) for infant and young child food acquisition and consumption?

A focused ethnographic study (FES) as recommended by GAIN was implemented in households with children 6-23 months in selected communities of Karaga District to establish household food consumption behaviours and feeding profile of infants. The holistic and modular nature of the FES methodology made it suitable for the landscape/formative research as it provides in-depth insights into all aspects of IYC feeding behaviours and their related factors. The FES integrated survey type and classic ethnographic methods to generate both quantitative and qualitative data from the sampled population. The study utilized the GAIN FES protocols in data collection. The modules used were those adapted from the original generic modules used to address similar data needs of the landscape analysis in previous studies in Kenya (Pelto and Armar-Klemesu, 2013a, 2013b; Thuita and Pelto, 2014). The rationale and theoretical underpinnings of the FES methodology have been presented in detail in the previous FES reports and is summarized here in the context of this study.

The Focused Ethnography Study Approach: Rationale, methodological and theoretical underpinning

A FES is a study that is designed to answer a set of questions that are required by an agency, policy-makers, program planners, or by project implementation teams in order to make decisions about future actions with respect to a social, public health or nutrition intervention. The Focused Ethnographic Study (FES) of Infant and Young Child Feeding (FES-IYCF) was explicitly developed by GAIN to meet the need for a tool that would provide in-depth information about household behaviors (and local marketing conditions) in a geographic area that could be used to guide planning and decision-making regarding interventions aimed at improving infant and young child nutrition.

Focused ethnography can be used for multiple purposes related to identifying nutrition interventions, identifying potential bottle-necks that are likely to affect the success of an intervention; and providing data to inform the design and development of communication strategies and content for behavior change communication. The FES methodology has the following key features:

1. It uses a mixed method approach to obtain and analyze quantitative and qualitative data on feeding patterns and practices in children 6-23 months of age, in the context of their households and communities.
2. It relies heavily on in-depth interviewing on a range of topics that affect household management of infant and young child feeding. It also uses structured, survey-type questions and techniques drawn from cognitive anthropology to round out the picture that emerges from in-depth interviews.
3. It is based on small samples, which are intensively interviewed. Representativeness is achieved first through careful sampling (based on local census data) and then on

"saturation" – the situation in which no new information or insights are obtained with further interviews. In the examination of narrowly delimited topics in relatively homogenous communities, saturation can occur with less than 25 respondents. Typically it is achieved in qualitative research with samples of 30-35 respondents (Pelto, 2013).

The theoretical underpinning of the FES-IYC is derived from cultural-ecological theory, which uses a holistic, systems-based framework to examine and interpret bio-cultural phenomena. In our case, the subject of concern is nutrition in infants and young children. The model places biological features of nutrition at the center. The status of these features in a given population or a given household are based, to a large extent, on diet, which is the primary source of the nutrients that are required to meet these needs.[1] In reality this is an over simplification because other factors, in addition to nutrient consumption, also affect nutritional status, most notably levels of enteric disease and individual differences in requirements.

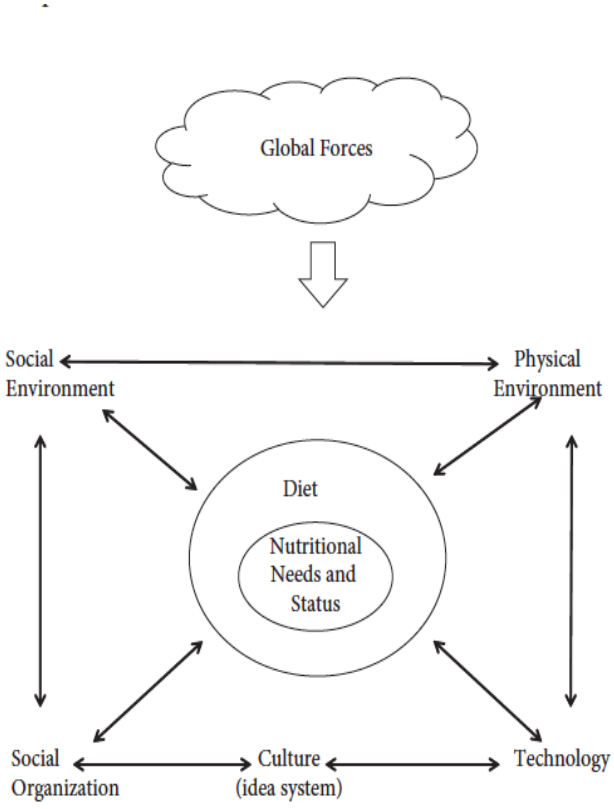


Figure 1 *An ecological model of food and nutrition. Redrawn with modifications from Jerome, Kandel, and Pelto (1980).*

[1] The Optifood studies determined the extent to which nutrient needs could be met within existing diets.

Surrounding the dietary core, the FES-IYC studies are organized to obtain critical data about each of the sectors of determinants of IYCF. In the scientific literature, the evidence for the contributions of these sectors to IYC feeding and nutrition have been amassed over decades through a large body of social and biological research. In the FES the determinants are classified into 5 main components that come together at the household level to affect infant and young child nutrition: i) physical environment (venues where IYC foods are potentially available to households and the means of access to these venues, ii) social environment (e.g. external markets, social programs, other sources of support outside the household), iii) technology (facilities available in the household for food preparation and storage, iv) social organization (e.g. economic conditions, household demographic features and composition, women's work and time allocation) and v) culture (e.g. beliefs, knowledge, values). These listed items are exemplary rather than exhaustive. For each of these areas we relied on exploratory, open-ended discussions with respondents to fill out the picture of relevant factors and to collect data about them. The interview modules are designed to elicit information about all of these sectors within the context of asking about infant and young child feeding practices and beliefs.

Study purpose and objectives

In the study in Karaga District, we sought to understand IYC feeding within the context of rural farming households who are dependent mainly on subsistence farming for their livelihoods and food. The modifications we made to the generic modules of the FES were intended to capture some of the important dimensions of feeding and caring for infants in this challenging environment, including the influence of seasonality. With this in mind the overarching purpose of this FES was to undertaken a landscape analysis with a view to profiling feeding practices of infants and young children and the cultural, behavioral and household factors that influence these practices in Karaga District. The following were the specific objectives for the FES.

1. Establish the feeding and dietary practices and patterns, among children 6-23 months
2. Assess the knowledge, attitudes and perceptions of mothers/caregivers on the nutrition and health value of complementary foods and the influence on food selection.
3. Establish sources and acquisition of the commonly consumed local foods and methods of processing, preparation and preservation.
4. Determine the challenges/constraints encountered by the mothers in feeding the children, including the effects of seasonality.
5. Establish the food and feeding-related problems/challenges experienced by the caregivers of children aged 6-23 months.

In answering these objectives, the FES will provide in depth insights into the factors affecting the feeding of infants and young children in Karaga. It is expected that the findings will inform the design of programs that will improve complementary feeding among infants and young children in Ghana in general and in northern Ghana in particular.

CHAPTER 2: STUDY METHODOLOGY

Study design

The FES was designed to assess the knowledge and behavioral environment at the household level for purposes of improving the diets of infants and young children 6 to 23 months old in Karaga. The study followed the basic design features of the Focused Ethnographic Study: *Assessing the behavioral and local market environment for improving the diets of infants and young children 6 to 23 months old.* We used two protocols that explore household behavior from the generic tool set designed under the auspices of GAIN. In Phase 1, a set of 7 modules was used to interview Caregiver Key Informants. In Phase 2, another 7 modules were employed in interviews with Caregiver-Respondents. These protocols are the modified versions applied in the latter Kenyan studies conducted in Marsabit, Isiolo and Turkana (Thuita and Pelto, 2014)

The Key Informant (KI) interviews were carried out in order to gain a broad overview of issues related to IYC feeding and care in Karaga. One of the modules, a "free listing" exercise, was used to identify culturally salient "Core IYC Foods" and "Secondary Core IYC Foods." Other modules provided general information on food preparation and feeding practices; sources of food acquisition; effects of seasonality on IYC and family food management; types of problems faced by caregivers of IYC; food and nutrition problems of IYC; and health and food perceptions. Eight caregivers with children aged 6 – 23 months were interviewed

The Caregiver-Respondent modules were applied in interviews with 32 caregiver-respondents, with children aged from 6 to 23 months. These modules were designed to provide data and insights about a range of issues related to household behaviors, including demographic and SES characteristics; a 24-hour dietary recall for the index child and a 7-day household food consumption data; food acquisition and preparation; estimated weekly food expenditure; perceptions about value dimensions related to health and food; perceptions about factors that influence IYC feeding: food and feeding-related problems, challenges and solutions.

Sample and sampling procedure

The sampling procedure entailed recruiting respondents to fill caregiver-respondent categories based on pre-defined sub-groups of the 6-23 month age range. The sample for the FES was drawn from the larger sample of respondents identified as eligible for the quantitative dietary survey but who were not selected for the survey. The procedure for the sample selection is described in detail in the companion report (Brouwer et al. 2015). The sampling procedure involved a number of steps, but basically this resulted in the selection of 1 sub-district within Karaga District and Karaga sub-district was randomly selected as the study location. A total of 40 caregivers (8 key informants and 32 respondents) were sampled for the study.

To obtain the sample for the dietary study a census of Karaga sub-district was carried out to identify households with children 6-23. A list of all households with children 6-23 months in the sub-district constituted the sampling frame. The sampling frames were divided into sub-frames to correspond with the four age groups of interest: 6-8 months, 9-11 months, 12-23 months (breast fed), and 12-23 months not breast fed. Within each sub-frame the required number of eligible children were randomly selected for the dietary survey. The FES sample was selected from the master list of eligible children who were not selected originally nor as replacement (for the dietary survey), making sure that sample was fairly equally distributed among the three geographically clustered communities representing the north, central and southern locations within the sub-district. Table 2.1 shows the sampling of caregiver respondents. This procedure was used for the sampling of the caregiver key informants.

Table 2.1: Sampling frame for caregiver respondents

Age group	**6 – 8 months**		**9 – 11 months**		**12 – 23 months (Breast fed)**		**12 – 23 months (Not breast fed)**		
Cluster	**Community**	**No.**	**Community**	**No.**	**Community**	**No.**	**Community**	**No.**	**Total**
1	Nangunaayili	1	Nangunaayili	1	Nangunaayili	1	Nangunaayili	1	4
	Gbetugu	1	Gbetugu	1	Gebrugu	1	Gebrugu	1	4
	Langu	1	Langu	1	Langu	1	Langu	1	4
	Sub total	**3**		**3**		**3**		**3**	**12**
2	Tong	1	Tong	1	Tong	1	Tong	1	4
	Nyensobga	1	Nyensobga	1	Nyensobga	1	Nyensobga	1	4
	Sub Total	**2**		**2**		**2**		**2**	**8**
3	Kpanafong	2	Kpanafong	1	Kpanafong	2	Kpanafong	0	5
	Yapalsi	1	Yapalsi	2	Yapalsi	1	Yapalsi	2	6
	Naayilifong	**0**	Naayilifong	0	Naayilifong	0	Naayilifong	1	1
	Sub total	**3**		**3**		**3**		**3**	**12**
Total		**8**		**8**		**8**		**8**	**32**

After confirming a woman's eligibility in relation to the sampling and recruitment criteria, she was asked if she would be willing to be interviewed. Trained research assistants explained to the potential respondents that the interview would involve a lengthy discussion, not just answering a few questions. None of the women who were approached refused to participate. At the initial contact, women were also asked whether they would be willing to have the interview recorded. All agreed. After a woman agreed informally to participate she was presented with a written consent form which she signed or thumb-printed. This was the procedure that was stipulated in ethical clearance granted by the Noguchi Memorial Institute for Medical Research Institutional Review Board. A date for the interview was then set.

Reconnaissance visit

Prior to the actual field work, a reconnaissance mission was carried out in Karaga District in June 2014. The purpose of the visit was to meet and brief relevant stakeholders about the study and to facilitate the rapid census in target communities. Briefing meetings were held with Officials of the Karaga District Administration and the District Director of Health Services and his staff.

Training of study team and pretesting tools

The field data collection teams comprised 4 interviewers and a supervisor. The researchers were recruited competitively mainly from the field of nutrition and were persons with strong experience in qualitative data collection. All are natives of the Northern Region and are fluent in Dagbani, the local language and English.

The research team received training for 5 days in Tamale (the regional capital). The team was trained on the FES approach and methods of data collection, procedure of obtaining written informed consent from respondents and ethics in field data collection. Content of the data collection tools (Protocol 1 and 2) was reviewed and discussed thoroughly. Extensive in house practice and role plays were done to familiarize the team with the unique methods used in a FES. Training was followed by pretesting each of the protocols in a field setting. This gave the team opportunity to consolidate their skills of interviewing and recording

Data collection

The FES was implemented in 2 phases. Phase one entailed interviewing 8 key informants. In-depth interviews were using protocol 1 which had 7 modules. The key informant Interviews were designed to provide an overview of issues related to IYC feeding and care in Karaga. In the first module of this protocol, a "free listing" exercise was used to identify culturally salient "Core IYC Foods" and "Secondary Core IYC Foods" (refer to discussion in Chapter 3). Other modules provided general information on food preparation and feeding practices; sources of food acquisition; seasonal differences in food availability; types of problems faced by parents of IYC; food and nutrition problems of IYC; and health and food perceptions. Findings from preliminary analysis of these interviews were also used to fine-tune the interview schedule for caregiver-respondents for phase 2.

Phase 2 of the FES involved interviewing caregiver respondents using protocol 2 which had 7 modules. These modules were designed to provide data and insights about a range of issues related to household behaviors including demographic and social-economic characteristics; a 24-hour recall on foods eaten for the index child; food acquisition and preparation; estimated weekly food expenditure; perceptions about value dimensions related to health and food; perceptions about factors that influence IYC feeding: food and feeding-related problems, challenges and solutions; and perceptions about vitamins, fortified foods and micro-nutrient supplements.

Preliminary analysis of the data collected for Phase 1 was undertaken and the results used to modify and fine tune the Phase 2 protocol, provide additional training for the fieldworkers as well as the list of foods to be used in the food rating exercise. The second phase of data collection was devoted to interviews with 32 respondents. All interviews were conducted and recorded in Dagbani. Collecting qualitative data depends on establishing and maintaining rapport; working directly, without the aid of a translator, is much better from a methodological perspective. In addition to improving rapport, it also supports a more uniform presentation of the questions that are used to generate the discussion with respondents. With some of the respondents, the interview sessions were very lengthy, requiring as much as four (and in some cases five) hours to complete the full protocol. The average interview, however, lasted about three to four hours. Occasionally the interviewer suggested returning at a later date to complete the discussion, however in every case respondents preferred to continue. The respondents were almost invariably patient and gracious throughout the interview process. The fact that respondents were willing to devote time to the completion of the protocol is a tribute to the skills of the interviewers, the graciousness of the women in the communities, and the advantages of the method over survey approaches to data collection. Because it provides a forum for discussion in which respondents are encouraged to share their opinions and knowledge freely, ethnographic interview techniques are much more pleasant and interesting for both interviewees and interviewers. The interviewers filled in information on data recording forms that accompany the modules as well as recording the entire interview. They also made notes on the forms of key points to direct their attention to specific parts of the recording during the translation and preparation of transcripts for analysis.

Data analysis

Each of the interviewers was responsible for creating clean data forms and transcripts for her own interviews. As the recordings were in Dagbani and the notes were mainly in English, the preparation of the transcripts involved a combination of translation and transcription. The completed record for each respondent was provided by the interviewers first to the supervisor who thoroughly reviewed and checked for data quality and then to the PI for a second round of data quality assurance.

For the analysis of variables that are amenable to quantitative analysis (including demographic, economic and cognitive mapping data) the data were entered into Excel sheets and/or transported into Statistical Package for Social Sciences (SPSS) for analysis. For the qualitative analyses the transcripts provided the corpus of data for text analysis. In the text analysis, we decided to manually code the variables rather than use a software program. Even though the data base of 40 respondents was relatively large it was feasible to work directly with the transcripts, creating files of statements on specific topics. The analysis began with a review of the transcripts and identification of emerging themes. With this general template, the process of detailed analysis of specific modules was undertaken.

Ethical considerations

Permission was applied for and authorization to carry out the research was granted by the Noguchi Memorial Institute for Medical Research Institutional Review Board (Ethical Clearance Certificate No. NMIMR-IRB CPN 087/13-14). Written consent was obtained from all study participants and thumb prints used for those who were not literate. Consent forms were administered after careful explanation of the purpose of the study, approximate time interviews would take and answering any questions caregivers had. Those who consented signed on the consent form which was also counter-signed by the interviewer. None of the caregivers who were approached refused to participate. Interviewers also sought consent for audio recording of the interviews upfront.

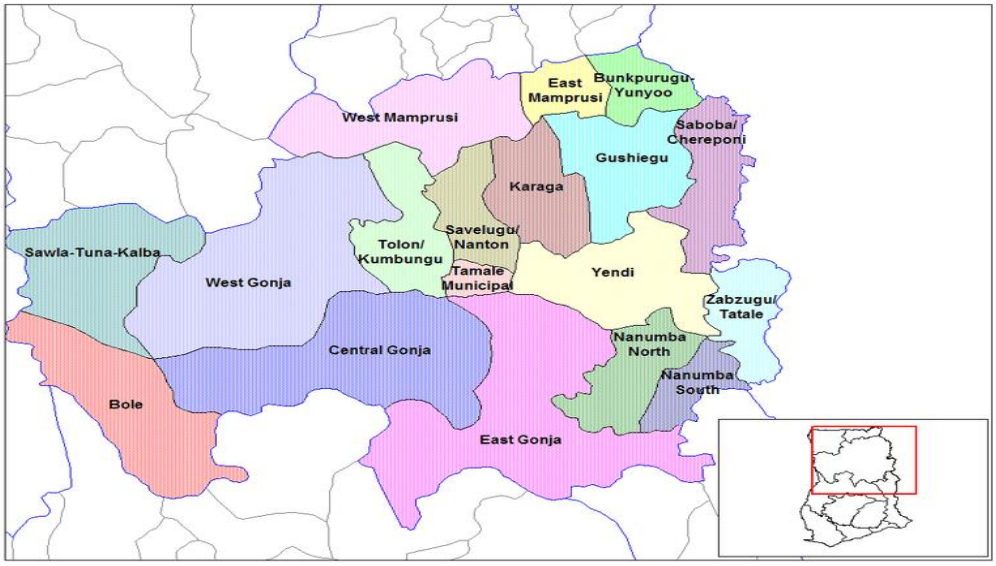
CHAPTER 3: LIFE IN KARAGA DISTRICT

PART 1: CHARACTERISTICS OF KARAGA DISTRICT

Location/Size

Karaga district is one of the 26 administrative districts in the Northern Region of Ghana. Karaga is the district capital and it is about 94 kilometers from the Tamale, the regional capital. The district is located in the north-eastern part of Northern Region and lies between latitudes 9° 30' South and 10° 30' North and longitudes 0° East and 45' West. Karaga district has a total area of 2,958 Kilometres square. It shares boundaries with West and East Mamprusi to the north, Savelugu/Nanton district to the west, Gushegu District to the east and Yendi to the south.

Figure 3.1: Location of Karaga district in Northern region



Population size and density

Karaga district has a total human population of 89,870 with 184 communities. The population is made up of 51.7% females and 48.3% males. Karaga, the district capital of the district accounts for 20.4% of the district population (Karaga District Assembly, 2013). The district is mainly rural as the population is 79.9% rural and 20.1% urban. Only eleven communities in the district have populations of more than 1000 people.

Demographic and socio-cultural characteristics

Karaga district has an average household size of 11.0 compared to the regional average of 7.7 and a national average of 4.4 (2010 Population and Housing Census). About 48.0% of the households in the district have more than 10 members. Major communities in the district include Karaga, Pishigu, Bagurugu, Tamalegu, Nyong Nayili, Tong, Nyong Guma, Sung, Langogu, Kpatari-Bogu and Zankali. In terms of ethnicity, the Dagombas are the dominant group followed by Konkombas and minorities like Gurma, Fulanis and Frafra. About 83.0% of the population are Muslims followed by Traditionalist (12.8%) with the rest being mainly Christians (2010 Population and Housing Census).

Climate and environmental conditions

Karaga district has the typical tropical continental climate experienced in northern Ghana. It experiences two seasons in a year. There is a rainy season that lasts from May – October, peaking in August and September. The rest of the year is usually dry with November to February being the harmattan period. Rainfall amount is between 900 and 1000mm per annum. Temperatures are high throughout the year with the highest of 36ºC or above in March and April. The vegetation is a typical guinea savannah interspersed with drought resistant trees such as the Shea and dawadawa.

Infrastructure

Electricity

Only 18.1% of households in the district have access to electricity from the national grid compared to the regional figure of 36.1% and a national figure of 64.2% (2010 Population and Housing Census). Only 15 communities including Karaga, Pishigu, Tong, Sung, Nyong-Guma, Nyong-Nayili, Bagurugu and Tamaligu are connected to the national grid.

Water and sanitation

There are no pipe-systems in the district. The main sources of water supply in the district are streams, dams and dugouts, shallow wells, ponds, boreholes and hand dug wells with pumps. About 48.0% of households in the district get their drinking water from bore-holes, pumps and tube wells while 41.1% drink from rivers, streams, dugouts, ponds and dams. In terms of sanitation, 77.6% of households in the district have no toilet facility and use the bush.

Roads and transport

The transportation infrastructure is in the district is poorly developed. Apart from Karaga township which has tarred roads, all the communities in the district are linked by feeder roads with many of them in a deplorable state. During the raining season, many of the roads become unmotorable and very dusty in the dry season.

Market infrastructure
There are six market centres in the district at Karaga, Pishigu, Sakulo, Zandua, Bagurugu and Nankundugu. Common items sold in these markets are food items and livestock.

Economy of the district

Agriculture is the main economic activity in the district employing 95% of the workforce. Major traditional crops cultivated in the district include maize, sorghum, millet, soya beans, groundnuts, cowpeas, cassava, rice and yam. Major livestock reared in the district include cattle, sheep, goats, poultry, and pigs.

Food security

Karaga District is predominantly agricultural with about 97% of the economically active population (18-54 years) involved in farming of staple food crops. The major food crops include maize, rice, yam, groundnut, cowpea & soya beans. The sector encounters problems of food crop production such as food price inflation, high cost of farm inputs, postharvest losses and reliance on rain fed agriculture. Though food price fluctuations could emanate from the rain fed agriculture, the absence of storage facilities poses the problem of storage of produce to sell in the lean season. Farmers thus have no alternative than to sell at what-ever price after harvest. Food prices are therefore low in the harvest period but high in the lean season. Secondly, tractor services for tilling the land are very significant. However, apart from a few available tractors, the increasing fuel prices have made tractor services expensive to farmers. Agricultural practices are also dependent on rainfall which is erratic. Thus there is great seasonal unemployment. The actions that have been adopted are small scale irrigation projects to boost Agriculture.

As in much of the Northern Region effective livestock rearing has not really caught up with the population. Animal rearing perhaps is considered a hobby rather than a business. This attitude and the lack of needed infrastructure render the sector a poor source of income for the people. However, almost all farmers keep a few animals/birds such as goats, sheep and fowls, although these are very rarely consumed at the household level. A few households rear cattle.

Health and nutrition

The health status of the people in the Karaga district is described as among the worse in the Northern Region (Karaga District Assembly, 2012). The population is said to exhibit a poor health seeking behaviour with many of them patronizing the services of quack doctors and herbalists. The district has four sub-districts for health administration and has only six health facilities comprising 1 polyclinic in Karaga, 1 health center and 4 Community-based Health and Planning Services (CHP) compounds. Malnutrition among infants is high (Karaga District Assembly, 2012). In 2010, nearly 30% of children in the Karaga district were underweight. *(http://www.unicef.org.au/Discover/Field-Stories/August-2012/Soy-beans-the-key-ingredient-in-fighting-malnutrit.aspx#sthash.k2PDuZKL.dpuf).*

Education

Karaga district has a very high illiteracy rate. About 78.0 percent of persons 11 years and older in the district are not literate (2010 Population and Housing Census). For the population 6 years and older, 63.4% and 74.1% had never attended school. The district has 182 educational facilities consisting of 71 kindergarten and nursery school, 95 primary schools, 15 junior high schools and 1 senior high school.

PART 2: DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF THE RESPONDENTS

Table 3.1 presents the socio-demographic characteristics of the 32 women interviewed in the Karaga district. Majority (40.6%) of the respondents were aged between 30-39 years, while about 16.0% were 40 years or older and two (6.3%) were below 20 years. Apart from one respondent who had primary education, almost all (96.9%) had no formal education. In terms of employment, three-quarters (75.0%) were farmers. The rest were either housewives (6.3%), self-employed (12.5%) or unemployed (6.3%) and all but 1 (96.9%) were married.

Household sizes ranged between 4-14 members with a mean of 8.2 members and more than two-thirds (68.8%) reporting between 6 and 10 members. About 19.0% had more than 10 members. Respondents had between 1 and 6 children with a mean of 3.2 children And about 56.3% having between 3 and 5 children. Households had between 1 and 4 children under six years with a mean of 1.8. Half (50.0%) of households had 2 children below 6 years. Majority (65.6%) of the respondents also had only 1 child below 6 years. The index children were equally split among the age categories as shown in Table 3.1. Majority (62.5%) were girls.

Table 3.1: Socio-demographic characteristics of respondents

Characteristics	Number	Percent
Age of respondents (years)		
<20	2	6.3
20-29	12	37.5
30-39	13	40.6
≥40	5	15.6
Educational level of respondents		
None	31	96.9
Primary	1	3.1
Main occupation of respondents		
Housewife	2	6.3
Self-employed	4	12.5
Farmer	24	75.0
Unemployed	2	6.3

Marital status of respondents		
Married	31	96.9
Single	1	3.1
Total household size		
4-5	4	12.5
6-10	22	68.75
≥10	6	18.75
Number of respondents' children		
1	10	31.3
2	1	3.1
3	6	18.7
4	6	18.7
5	6	18.7
6	3	9.4
Number of children under 6 in household		
1	11	34.4
2	16	50.0
3	4	12.5
4	1	3.1
Number of respondents' children under 6		
1	21	65.6
2	10	31.3
3	1	3.1
Age of index child (months)		
6-8	8	25.0
9-11	8	25.0
12-23BF	8	25.0
12-13NBF	8	25.0
Sex of index child		
Male	12	37.5
Female	20	62.5

Caregivers' occupation and hours worked per week

The occupational distribution of respondents and hours worked per week are presented in Table 3.2. Respondents who reported to be farmers spent between 4-56 hours per week working in their farms with a mean of 38.8 hours. On the average, the self-employed worked for 32.7 hours per week while housewives worked for 19.5 hours per week.

A closer scrutiny of additional information provided by caregivers on their daily routines and child care arrangements gives insights into how they organize child feeding around their work schedules. Majority of caregivers worked away from home on their farms (mostly) or

trading in food items for about 6 hours a day, on average. Caregivers indicated they either worked for half day from 9.00 am to 3.00 pm (6 hours or from 9.00 am to 6.00 pm for a full day (9 hours). Infants and older IYC still breastfed were more likely to be taken by their mothers to their work places whilst all but 2 of the 8 older IYC not breastfed were left at home. Reasons mothers gave for taking their children to their workplaces were 1) that children were breastfeeding and suckled frequently and 2) there was no one they could leave the child with since other household members also worked on their farms. Those who were not taken to work were left in the care of their grandmothers, older siblings, co-wives or aunts.

In terms of feeding arrangements, all the mothers said they either took along or left food they had prepared before leaving for work. For the older IYCs, mothers only left the morning meals and IYC ate food prepared for the family later in the day. In most cases food prepared to be eaten later is stored in a food flask. The following quotes illustrate caregivers' description of their feeding arrangements:

"I always prepare plain rice and tomato stew without pepper to feed her on the farm; sometimes I give her koko."

"If I have to go out to sell, I leave her (IYC) with either my mother-in-law or my rival (co-wife) and I usually prepare food in a flask for them to feed him when he gets hungry but sometimes when I want to leave early and can't prepare his food I give the ingredients to my rival to cook for him whiles I am away; she takes care of him just like I would."

"Before I leave for the farm, I prepare koko saali or zimbuli (porridges) down for her before going but later in the day her grandmother will prepare TZ and soup for her to eat."

Table 3.2: Caregivers' occupation and hours worked per week

Occupation	Number	Hours worked/week (mean)	Min	Max
Housewife	2	19.5	4.0	35.0
Formal employment	0	-	-	-
Trader	3	32.7	21.0	42.0
Farmer	24	38.8	4.0	56.0
Casual labour	0	-	-	-
Unemployed	1	40.0	40.0	40.0
Total	31	37.0	4.0	56.0

Socioeconomic profiles of the households

Household economic activities and income

About 81.0 percent of the households earned income from agricultural farm produce as shown in Table 3.3. A little over half (53.1%) of the households also had members engaged in business activities, mainly in petty trading. The other sources of income to the households included casual labour (43.8%), donations (25.0%) and the sale of livestock (21.9%). The mean monthly income from agricultural farm produce was GhC322.12. The mean monthly incomes from the other sources were GhC204.82 from business, GhC186.43 from sale of livestock and GhC146.00 from formal employment.

Table 3.3: Mean household monthly income from different economic activities

Source of income	No. (%) of respondents	Mean income (GHC)	Std. Dev
Agricultural farm produce	26 (81.3)	322.12	669.31
Sale of livestock	7 (21.9)	186.43	235.35
Business	17 (53.1)	204.82	336.83
Formal employment	5 (15.6)	146.00	105.26
Casual labour	14 (43.8)	77.79	129.02
Donations	8 (25.0)	70.00	97.54

Income from agriculture

Agricultural activities in the households were carried out by the respondents, the spouses and other household members (Table 3.4). The highest earners from agriculture in the households were other household members with a mean monthly income of GhC1222.99[2]. This group of persons however did not earn any income from agriculture in the month preceding the interview. The couple and other household members (10) had a mean monthly agricultural income of GhC274.00 and earned GhC212.00 the previous month. Caregivers and their spouses (11) earned a monthly mean agricultural income of GhC165.00 but earned only GhC18.00 the previous month.

Table 3.4: Household members involved in agriculture and their earned incomes

		Monthly (GHC)		Previous month (GHC)	
Household member	No. of respondents	Mean	Std. Dev.	Mean	Std. Dev.
Husband	2	75.0	35.0	0	
Caregiver/spouse	11	165.0	125.0	18.0	60.0

[2] GHC1.00 = USD0.36 at the time of the study

Caregiver/spouse/other household members	10	274.0	212.0	119.0	125.0
Other household members	3	1222.0	1974.0	0	
Total	**26**	**322.0**	**669.0**	**56.0**	**101.0**

General Income Levels

Table 3.5 presents the general income levels of respondents' households. Close to 22.0% of the households reported monthly incomes of less than GhC100.00 while only two households reported more than GhC1000.00. Twenty-five percent reported monthly incomes between GhC101-200. For the month preceding the interview, a little over a third (34.4%) of the households did not report any income. About 19.0% reported less than GhC100.00.

Table 3.5: Income levels of households

Characteristics	No. of respondents (n=32)	Percent
Household income (monthly, GHC)		
Less than 100	7	21.9
101-200	8	25.0
201-300	7	21.9
401-500	3	9.4
601-800	2	6.3
801-1000	3	9.4
1701-1800	1	3.1
More than 2000	1	3.1
Household income (Previous month, GHC)		
Less than 100	6	18.7
101-200	4	12.5
201-300	6	18.7
401-500	3	9.4
601-800	1	3.1
1001-1500	1	3.1
No income	11	34.4

Ownership of selected material assets by households

The distribution of household assets including agricultural lands owned by the surveyed households is presented in Table 3.6. Majority of the households owned a mobile phone

(87.5%) and a bicycle (87.5%). The other common items owned by the households included a radio (43.8%), motorcycle (40.6%) and television (25.0%).

All the 32 households reported having access to agricultural land with almost all of them (29) self-owning the said land. The land sizes ranged between 2-24 acres with a mean size of 7.9 acres (sd=4.6). Majority (62.5%) of the households had between 5-10 acres of agricultural lands while 17.5% had more than 10 acres. Only two households had two acres of agriculture land.

Table 3.6: Ownership of assets by households

Asset	No. of households	Percent
Mobile phone	28	87.5
Bicycle	28	87.5
Radio	14	43.8
Motor	13	40.6
Television	8	25.0
Non-mobile phone	5	15.6
Sewing machine	4	12.5
Car	4	12.5
Box iron	3	9.4
Fridge	3	9.4
Electric iron	1	3.1
Boat with motor	1	3.1
Animal drawn cart	1	3.1
Land ownership status		
Self-owned	29	90.6
Hired	2	6.3
Other (share cropping)	1	3.1
Size of the land		
2 acres	3	9.4
4 acres	4	12.5
5-10 acres	20	62.5
>10 acres	5	17.5

Ownership of livestock by households

Table 3.7 presents the livestock owned by households of the respondents. About 56.0% of households owned between 2-100 chicken with a mean of 18. Other important livestock owned by the households included goats (48.4%), sheep (32.3%) and cattle (25.8%).

Table 3.7: Livestock owned by households

Livestock	No. of households	Percent	Mean	Min	Max
Chicken	18	56.3	18	2	100
Goat	15	48.4	6	1	16
Sheep	10	32.3	6	1	14
Cattle	8	25.8	5	1	10
Milk cow	3	9.4	4	2	6
Donkey	1	3.2	3	3	3

Housing condition and access to utilities

Table 3.8 presents the housing characteristics of households and their access to selected utilities. About 94.0% of households had used mud as the main material for the walls of their dwelling. Only one household had a concrete wall. About 84.0 had roofed their dwellings with iron sheets while a few others (16.1%) had used slate. Majority (74.2%) had cement as the main material for their floors. Few others had used mud/dung (19.4%) and wood/bamboo (6.4%).

Most (58.1%) of the households obtained their drinking water from tube wells and boreholes 22.6% had streams, dams and surface water as the main source of their drinking water. Only four households (12.9%) mentioned a public tap/standpipe as the main source of their drinking water.

For the main source of cooking fuel, almost (96.8%) all households mentioned firewood. About 61.0 percent of the households had access to electricity in their dwellings.

Only 5 households reported having traditional pit latrine within their premises. The majority (83.9%) reported using the bush as the place of convenience.

Table 3.8: Housing material conditions and access to utilities

Housing condition	Number (n=31)	Percent
Main material for wall		
Concrete	1	3.2
Mud	29	93.6
Sandcrete	1	3.2
Main material for roof		
Iron sheet	26	83.9
Other (slate)	5	16.1

Main material for floor		
Mud/dung	6	19.4
Wood/Bamboo/plank	2	6.4
Cement	23	74.2
Main source of drinking water		
Public tap/standpipe	4	12.9
Tube well/borehole	18	58.1
Unprotected well/spring	2	6.5
Stream/Dam/surface water	7	22.6
Source of fuel		
Charcoal	1	3.2
Firewood	30	96.8
Access to electricity		
% yes	19	61.3
Type of toilet facility within premises		
Flush toilet	0	0
VIP toilet	0	0
Traditional/pit latrine	5	16.1
None	26	83.9

Summary and conclusions

This chapter is in two parts. The first part provides an overview of the physical, social and economic context of Karaga District. The district lies in the Guinea Savannah zone and has a typical tropical continental climate characterised by two seasons: a rainy season lasting from May to October and a dry season for the rest of the year. The Dogombas are the dominant ethnic group and the majority are Muslims. Household sizes are typically large with about 50% of households having more than 10 members. Karaga District has very poor infrastructure: water and sanitation facilities are very poor, transportation is poorly developed with communities linked by feeder roads which become unmotorable during the rainy season and market infrastructure is highly deficient. As in other parts of northern Ghana, seasonal food insecurity is a major problem due mainly to the erratic rainfall pattern experienced in the area but also due to other factors such as poor storage, high post-harvest losses and high food prices during the lean season. The health status of the people in the Karaga district is described as among the worse in the Northern region. Illiteracy rate is very high with 78% of the population aged 11 years and older not having attended school.

In the second part of the chapter we present the demographic and socio-economic characteristics of the 32 caregiver-respondents who participated in the FES study. Majority of the women (40%) were aged between 30 – 39 years and only one had any formal schooling. The main occupation was farming and a few were traders in food items. Household sizes ranged between 4-14 members with an average of 8 members. Respondents

had between one and six children with an average of 3 children. About 80% of households earned income from agricultural farm produce while a little over half also had members earning incomes from business activities, mainly in petty trading. About half of households had incomes of GHC200.00 ($75.00) or less per month. All the 32 households reported having access to agricultural land with almost all of them (29) self-owning the said land. Almost all households own some livestock: these were mostly chicken (56%), goat (48%), sheep (32%) and cattle (26%). Most of households obtained their drinking water from tube wells and boreholes and only 5 households reported having traditional pit latrine within their premises. Majority of households had access to electricity in their dwellings and all (but 1) used firewood as the main source of fuel.

CHAPTER 4: INFANT AND YOUNG CHILD FEEDING PRACTICES IN KARAGA

The purpose of this chapter is to provide a picture of infant and young child feeding practices in the study sites in Karaga from both cultural and behavioral perspectives. The section is organized in 3 parts as follows:

a) Complementary foods in the community: results of the "Free Listing" exercise
b) Feeding practices of infants and young children
c) IYC feeding in the context of usual household food consumption

PART 1: COMPLEMENTARY FOODS IN THE COMMUNITY - FREE LISTING

In Phase 1of the study, we interviewed caregiver key informants to get an inventory of the foods that are considered appropriate for infants and young children from an 'insiders' perspective. We sought to know what foods have the highest salience for caregivers as foods for children aged 6 through 23 months. Questions asked helped us generate lists of foods for specific age sub-groups within the range of 6-23 months. Follow-up questions probed for foods the respondent doesn't give but that other mothers with children the same age as her child in the community might give. The list of foods generated was also used in cognitive mapping exercises with caregiver-respondents in Phase 2 of the study. This involved rating of specific foods in relation to various value dimensions such as healthiness, cost, acceptability etc. To derive the inventory, we used an ethnographic technique known as "free listing" (Romney and Weller, 1988).

Results of the free listing exercise, which was conducted with 8 key informants in the first phase of the study, are presented in Tables 4.1 and 4.2. Questions to elicit the list of foods were asked in relation to specific age sub-groups. Results of the food items and the frequency per age group as reported by key informants are shown in Table 4.1. Table 4.2 provides a description of each of these foods.

Table 4.1: Key informant free listing: Foods for infants and young children (N= 8)

Name of Food	Frequency				
	6-8	9-11	12-23 (BF)	12-23 (Non BF)	Total
Lactogen	--	1	--	--	1
Cerelac	--	1	--	--	1
Cow milk	1	--	--	--	1
Porridges (Koko)					8
Molikoko	2	2	1	1	6
Kokosali,	2	--	--	1	3
Koko zimbuli,	1	--	1	1	3
Koko nyina,	1	--	--	1	2
Zimbegu (Weanimix)	--	1	2	--	3
Tea with milk	1	--	--	--	1
Milo	--	--	1	--	1
TZ	2	2	2	2	8
Rice	1	2	2	2	7
Jollof rice	--	--	2	--	2
Waakye (Rice and beans)	--	--	--	1	1
Yam	1	--	--	1	2
Aduwa	1	2	1	1	5
Gableey	1	--	--	--	1
Beans	2	2	1	1	6
Kawangbana	2	2	--	--	4
Nabichinli	1	2	--	1	4
Fufu	1	1	--	1	3
Yama	1	1	1	--	3
Wasawasa	--	--	1	1	2
Gari	--	1	--	--	1
Eggs	1	--	1	--	2
Fruits					
Pineapple	--	1	--	--	1
Water melon	--	--	--	1	1
Don Simon fruit juice	--	1	--	--	1
Malt drink	--	1	1	--	2
Bra soup	--	--	1	1	2
Groundnut soup	--	--	--	1	1
Ayoyo soup	1	1	2	1	5
Alefu stew	--	1	--	--	1
Fresh okro	--	1	1	--	2
Light soup	1	--	--	--	1
Tomato stew	--	--	1	1	2
Dried okro soup	--	1	--	--	1

Discovering the cultural core foods

The concept of "Cultural Core Foods" has been used for many decades to capture the idea that there are differences from one society to another in the foods that form the basis of local diets, and that these differences have implications for nutrition programme planning and nutrition interventions. In this study we sought to determine whether there are "core foods" for infants and young children. The first set of questions with key informants was intended to yield a picture of their cultural core foods.

The free listing exercise is a cognitive mapping ethnographic research tool, the results of which reveal the "insiders" views about what infants and young children eat. The assumptions on which it is based is that the structure of the question will elicit the most central foods – i.e. those that constitute the cultural core. We rely on both salience (the first foods mentioned are assumed to be the most salient) and frequency (the number of key informants who mention them. This combination enables us to distinguish a primary group of foods (the "culture core food") and a secondary set of foods, which are also important, which we refer to as the secondary core foods.

Some of the foods elicited in the key informant interviews were mentioned by most of the respondents, suggesting a high level of cultural consensus. Porridges, TZ (maize-based dumpling) and rice were universally mentioned, indicating a high salience and therefore a high level of cultural consensus for these foods. A second set of foods elicited through the free listing exercise consists of foods that can be regarded as the secondary core. Foods qualifying as secondary core are beans, *aduwa* (pigeon peas) and ayoyo soup. A closer scrutiny of the data also shows that with the exception of rice, porridges were the only foods mentioned by mothers across all the age cohorts. All the other foods were mentioned by mothers of children in the 9 – 11 and 12 – 23 months cohorts. The finding that these foods had the highest salience for caregivers and were also elicited from the key informants indicates that culturally, they are the foundation of diets for infants and young children within the study area. However, the findings also suggest that the feeding of porridges as start-up foods is continued throughout infancy and as children grow older whilst other foods that can be classified as family foods are fed to older infants and young children. The finding that these foods had the highest salience for caregivers indicates that culturally, they are the foundation of diets for infants and young children within the study area.

The records of what children are being fed, which were obtained from the sample of caregiver-respondents using a module based on the 24-hour recall method, are shown in Table 4.3 and Table 4.6. A comparison of these behavioral data with the free listing permits us to examine the relationship between one aspect of the cognitive (ideational) component and caregiver IYC behaviors.

Table 4.2: Description of IYC foods in key informant "free listing" exercise

Name of Food item	Description
Lactogen	Instant infant milk formula
Cerelac	Branded instant infant cereal porridge made from maize, millet or wheat. Prepared by adding water and if desired, milk to taste.
Cow milk	Fresh cow milk
Porridges (Koko) Moli Koko Kokosali, Koko zimbuli, Koko nyina, Zimbegu (Weanimix)	**Moli koko** is made from sieved corn dough **Koko salli** is made from sieved corn dough mixed with spices **Koko Zimbuli** is made from millet flour mixed with T.Z to give it a sour taste. **Koko nyina** is koko salli mixed with broken boiled corn **Zimbegu** (weanimix) is made from roasted maize, groundnuts and soya bean flour.
Tea with milk	Tea usually taken with sugar and with or without milk
Milo	Branded cocoa-based beverage; usually taken with sugar and with or without milk
TZ	Hot thick porridge made from whole grain maize flour and consumed with vegetable soup (Usually green leafy vegetables (ayoyo/bra) with dried okro or groundnut paste or pounded raw groundnuts)
Rice	Boiled/steamed, consumed with stews and /fish/ meat/eggs; may also be boiled very soft and made into balls (omotuo) usually eaten with groundnut soup with fish/meat
Jollof rice	Rice cooked in tomato stew with fish/meat
Waakye (Rice and beans)	Rice and beans cooked together and eaten with tomato stew and/or fried pepper sauce with fish/meat
Yam	Sliced yam boiled in water (with salt) and served with tomato stew, and any soup of one's choice
Aduwa	Cooked pigeon pea spiced and served usually with melted shea butter and onions
Gableey	It is made from soyabeans, maize and bambara beans flour. The flours are mixed together, made into balls and cooked. It is served with powdered pepper and oil
Beans (Tuya)	Soft cooked, spiced with pepper, onion and oil and eaten alone or with gari; also made into a stew and served with rice , yam etc
Kawangbana	It is made from whole maize grains cooked with salt and eaten with oil
Nabichinli	Broken corn and beans or pigeon pea spiced, cooked together and eaten with oil
Fufu	Pounded boiled yam served with light soup/groundnut soup with fish or meat

Yama	Maize and cassava flour (with kanwa) made into dough, wrapped in leaves, steamed and cut into pieces and eaten with pepper and oil sprinkled on it
Wasawasa	Spray-steamed yam flour eaten with fried pepper sauce or pepper and oil sprinkled on it
Gilingutubaani	Dried yam peel flour mixed with cassava flour, rolled into balls and steamed; eaten with pepper and oil
Gari	Dry-fried fermented cassava dough; usually eaten with stews/soups or soaked in water with sugar, milk and sometimes roasted groundnuts
Eggs	Usually guinea fowl
Don Simon fruit juice	Multi fruit juice
Malt drink	Soft drink
Light soup	Soup prepared from tomatoes, onions and pepper together with fish or meat as the main ingredients; much easier and quicker to prepare and has a more watery consistency hence the name light soup.
Ayoyo soup	Ayoyo soup is a very slimy soup prepared similar to light soup but with added ayoyo leaves which are very slimy in nature.
Bra soup	Prepared similar to light soup but with added groundnut paste and/or pounded raw groundnuts and bra leaves.
Groundnut soup	Prepared similar to light soup but with added groundnut paste mixed with water
Fresh okro soup	Prepared similar to light soup but with added chopped boiled okro with kanwe (saltpeter),
Dried okro soup	Prepared similar to light soup but with pounded dried okro
Tomato stew	Tomato based stew prepared by cooking blended, chopped, or ground tomatoes in oil with onions and pepper to a thick texture with added fish/meat/eggs; canned tomato paste sometimes replaces or is additional to fresh tomatoes;
Aleefu stew	Prepared as tomato stew but with added aleefu leaves

PART 2: IYC FEEDING PRACTICES: FOODS CONSUMED IN THE PREVIOUS 24-HOUR PERIOD

We sought to generate a picture of household food intake patterns with an emphasis on IYC using a qualitative 24-hour recall that included information on what the index child had eaten. An initial question determined if the previous day was a usual day. If it wasn't a usual day, questions focused on the day before since the purpose was to get a picture of typical or usual child dietary patterns.

Caregiver-respondents were asked to describe everything that had been fed to their child in the previous 24 hours. Table 4.3 presents the results for 32 children, aged 6 to 23 months. Caregivers were asked to report each feeding event separately and sequentially. To qualify as "a feed" at least one hour between events was required. Caregivers were also asked the number of times they breastfed their child and whether the child was being given any supplements

Table 4.3: Twenty-four hour record of food intake prior to the day of the interview

ID No.	Age in months	Meal 1	Meal 2	Meal 3	Meal 4	Meal 5	Meal 6	Meal 7	Breast feeds	Supplement
3	7	*Millet porridge +sugar*	*Boiled beans + palm oil*	*Boiled beans + palm oil*	*Millet porridge + sugar*	*Millet porridge + sugar*			5	No
1	8	*Millet porridge + sugar*	*Millet porridge + sugar*	*Millet porridge + sugar*					10	No
2	8	*Maize porridge + sugar*	*Maize porridge + sugar*	*Maize porridge + sugar*					20	No
4	8	*Millet porridge +sugar*	*Millet porridge +sugar*	*Rice + tomato stew + fish*					15	No
5	8	*Millet porridge +sugar*	*Millet porridge +sugar*						10	No
6	8	*Maize + millet porridge + sugar*	*Rice + spaghetti + tomato stew + fish*	*Maize + millet porridge + sugar*	*Mixed cereal-legume flour porridge + sugar*	*Rice + spaghetti + tomato stew + fish*			6	No
7	8	Tea + sugar + milk + bread	Rice + spaghetti + tomato stew + egg + fish	Rice + spaghetti + tomato stew + egg + fish	TZ + bra soup + fish				12	No
8	8	Tea + sugar + milk	Maize porridge + sugar + biscuits	Rice and beans jollof + fish + egg	Rice and beans jollof + fish + egg	TZ + aleefu + groundnut soup + fish			4	Tida[R] syrup
9	9	Maize +guinea corn porridge	TZ + ayoyo soup + fish						7	No
10	9	*Maize porridge +sugar*							10	No
11	10	**Spiced maize porridge**	TZ + Ayoyo soup + fish						6+	No
16	10	Tea + sugar + milk + bread	Guinea corn porridge +sugar	TZ + bra soup + fish	TZ + bra soup + fish				6+	Multinova[R] multivitamin syrup
12	11	Maize porridge	TZ +fresh okro soup + fish	TZ + fresh okro soup + fish					4	No
13	11	*Maize porridge*	*Maize porridge*						6+	No

14	11	Tea + sugar	Tea +sugar						6+	Kina's [R] Vitamin syrup
15	11	*Tea + sugar + milk*	*Maize + guinea corn porridge + sugar*	*Beans +palm oil + fish*	*Beans +palm oil + fish*	*TZ + ayoyo soup + fish*			3	Multinova [R] multivitamin syrup
22	14	Tea + sugar + milk	Mixed cereal-legume flour porridge + sugar						10	Blood tonic
23	15	*Tea + sugar + milk +biscuit*	Guinea corn porridge + sugar	Black berries (fruits)	TZ + fresh okro soup + fish	Rice + beans jollof + fish	TZ + ayoyo +fresh okro soup + fish	TZ + dry okro soup + fish	5	Minavita [R] vitamin syrup
21	20	Tea + fresh cow milk + sugar	**Rice + beans + tomato stew**	TZ + ayoyo soup + fish	TZ + ayoyo soup + fish	Beans	Tea + cow milk + sugar	TZ + bra soup + fish	10	No
18	20	Spiced maize + guinea corn porridge	TZ + dry okro soup + fish	TZ + dry okro soup + fish	Boiled ground nuts	TZ + dry okro soup +fish	TZ + dry okro soup + fish		6	No
19	21	Tea + sugar + Nido powdered milk+ bread	**Rice + tomato stew**	TZ+ ayoyo soup +fish	**Broken maize porridge**	TZ + bra soup + fish			5+	No
17	23	*Maize+ guinea corn porridge + sugar*	TZ +ayoyo soup + fish	Nabichingli (maize cooked with beans) + pepper sauce					7	No
20	23	Spiced maize porridge + sugar	**Rice + tomato stew**	TZ + bra soup + fish	TZ + ayoyo soup + fish				6	No
24	23	*Maize porridge + sugar*	TZ + groundnut + dry okro soup + fish	*Maize porridge + sugar*	Boiled yam + tomato stew + fish	TZ + bra soup + fish			5	Multivitamin syrup
29	20	Spiced millet + maize porridge + sugar	TZ + bra soup + fish	TZ + bra soup + fish	Spiced millet + maize porridge + sugar	TZ + bra soup + fish			No	No
28	21	Spiced millet + maize porridge + sugar	Waakye (rice + beans) +	TZ + ayoyo soup + fish	Spiced millet + maize porridge	**Poha**	TZ + fresh okro soup + fish		No	No

			tomato stew + fish		+ sugar + biscuit					
26	22	Spiced millet + maize porridge + sugar	**Gabley (steamed bean cake)**	TZ + ayoyo soup + fish	**Spiced millet + maize porridge**	TZ + bra soup + fish			No	*No*
25	22	Spiced millet + maize porridge + sugar	Rice and beans jollof + fish	Tea + sugar + bread	TZ + fresh okro soup + fish	Aduwa (pigeon peas)	TZ + ayoyo soup + fish		No	No
31	22	*Tea + sugar + milk + bread*	*Beans + gari +fried fish + egg*	TZ + ayoyo soup + fish	**Spiced maize porridge**	TZ + fresh okro soup + fish			No	Heamoglobin syrup with vitamin B12
32	22	Spiced millet + guinea corn porridge	Tea + sugar + Nido powdered milk +roasted groundnuts	Waakye (rice +beans) + shea oil + fish	**Spiced millet + guinea corn porridge**	TZ + bra soup + fish			No	No
30	23	Tea + sugar + Nido powdered milk +	Spiced millet + maize porridge	TZ + dried okro soup + fish	TZ + dried okro soup + fish	TZ + bra soup + fish			No	No
27	23	Spiced millet + maize porridge + sugar	TZ + ayoyo soup + fish	TZ + ayoyo soup + fish	TZ + bra soup + fsh				No	No

Note:
Age cohorts:
6 – 8 months: ID Nos. 1 – 8
9 – 11 : 9 – 16
12 – 23 BF : 17 – 24
12 – 23 NBF : 25 – 32

Foods in italics are foods specially prepared for the IYC
Foods in bold are foods purchased for the IYC

Breastfeeding

Due to the selection criteria used 24 of the 32 children were breastfed at the time of data collection. Table 4.4 gives a breakdown of number of times children were breastfed during the previous 24 hours by age cohorts. Overall, the majority of the children were breastfed between 6 – 10 times whilst 3, all in the 6 – 8 month cohort were breastfed more than 10 times. Seven out of the 24 breastfed children were breastfed less than 6 times. It must be noted that these are caregivers' recall of breastfeeding contacts made by the infant and these reported frequencies can only be accepted as such. The frequencies are only indicative and do not account for the amount of milk consumed.

Table 4.4: Breastfeeding times by age cohort

Age cohorts	**Breastfeeding times**		
	Less than 6 N	*6 – 10* N	*More than 10* N
6 – 8	2	3	3
9 – 11	2	6	0
12 – 23 BF	3	5	0
Total	7 (29%)	14 (58%)	3 (13%)

The majority of caregivers (24 out of 32) were not giving their children any nutritional supplement at the time of the interview. Of the 8 being given supplements, 1 each were in the 6 - 8 and 12 – 23 (non-breastfed) month age cohorts while 3 each were in the 9 – 11 and 12 – 23 (breastfed) month age cohort. The supplements were mostly various brands of multivitamin syrups and one was a blood tonic.

Number of feeding events

The term "feeding event" is used to refer to discreet, planned provision of food. The World Health Organization (WHO) "Guiding Principles for Complementary Feeding of the Breastfed Child (2003)" recommends the following with respect to number of feeding events for breastfed infants and young children: "*For the average healthy breastfed infant, meals of complementary foods should be provided 2-3 times per day at 6-8 months of age and 3-4 times per day at 9-11 and 12-24 months of age, with additional nutritious snacks offered 1-2 times per day, as desired."*

The data on number of times children in the Karaga sample were fed complementary foods in the previous 24 hours is presented in Table 4.5. Three feeding events comprised snacks of black berries, boiled groundnuts and *poha,* a local tamarind drink

Table 4.5: Number of feeding events by category

Age cohorts	No. of feeding events/Number (N) of children			
	1 N	2 N	3 N	≥ 4 times N
6 – 8	--	1	3	4
9 – 11	1	4	1	2
12 – 23 BF	--	1	1	6
12 – 23 NBF	--	--	--	8
Total	1	6	5	20

The number of times complementary foods were fed to IYC ranged from a minimum of one for a child in the 9 – 11 month age cohort to a maximum of seven for a child in the 12 – 23 month (breastfed) age cohort. The findings show that with the exception of IYC in the 9 – 11 month cohort, IYC for the most part received the recommended number of feeds relative to the WHO guidelines. All but one of the children in the 12 – 23 month cohort received complementary foods 4 times and more.

Thus, from a nutritional perspective, caregiver behaviors with respect to breastfeeding is generally favorable. The findings also suggest that IYC are generally being adequately fed with respect to frequency of feeding of complementary foods. Frequency of feeding is however very low for most of the children in the 9 – 11 month cohort.

Dietary composition

In Table 4.6 we present summaries of the 24-hour food records. The summaries are of the foods consumed (categorized in specific groups), the number of eating events by age cohort and the number of children in each cohort consuming the particular food. Table 4.6 shows that the diet is predominantly maize-based making up the majority of eating events. Porridges and TZ (with soups, especially ayoyo and bra) are consumed several times in a day as the main staples and are therefore the cultural core IYC foods. Rice and beans (consumed alone or cooked together) with tomato stew and tea with milk (sometimes eaten with bread) make up the secondary core IYC foods. Fruits are completely absent from the 24 hour records.

Table 4.6: Foods consumed by IYC

Foods consumed			No of eating events/Category		
	Total	6 – 8	9 – 11	12 – 23BF	12 – 23NBF
	N	N	N	N	N
Porridges	**45(29)**	**17(7)**	**8(7)**	**17(7)**	**12(8)**
Millet	10(4)	10(4)	-	-	-
Maize	14(10)	4(2)	5(4)	4(3)	1(1)
Millet + maize	11(7)	2(1)	-	-	9(6)
Mixed cereal	8(5)	-	3(3)	3(3)	2(1)
Mixed cereal/ legume	2(2)	1(1)	-	1(1)	-
TZ with soups	43(23)	2(2)	7(5)	17(8)	17(8)
Rice	7(5)	5(3)	-	2(2)	-
Rice + beans	7(5)	2(1)	-	2(2)	2(2)
Beans	5(3)	2(1)	2(1)	1(1)	-
Aduwa	1(1)	-	-	-	1(1)
Gablee	1(1)	-	-	-	1(1)
Yam	1(1)	-	-	1(1)	-
Nabichingli	1(1)	-	-	1(1)	-
Tea + milk + sugar	11(10)	2(2)	2(2)	5(4)	2(2)
Tea + sugar	3(2)	-	2(1)	-	1(1)
Soups/stews					
Ayoyo	15(11)	-	3(2)	6(4)	6(5)
Bra	14(10)	1(1)	2(1)	4(4)	7(5)
Fresh okro	5(4)	-	2(1)	1(1)	2(2)
Dry okro	7(3)	-	-	5(2)	2(1)
Groundnut soup	2(2)	1(1)	-	1(1)	-
Tomato stew	13(10)	7(4)	-	5(5)	1(1)
Fish	59(24)	9(4)	9(5)	19(7)	22(8)
Egg	5(3)	4(2)	-	-	1(1)

Note:
N = No of eating events food was consumed;
Figures in parenthesis ( ) = No. of IYC consuming food

A description of the soups and stews provides a better understanding of the extent to which these accompaniments to the staple foods ensure the dietary adequacy of a meal.

Information on food preparation obtained during the Phase 1 interviews together with the listing of ingredients from the 24 hour recall data as well as investigators' local knowledge is used to describe the stews and soups. In Ghanaian cuisine, the basic ingredients for the accompaniments are pepper, onions and tomatoes with an animal source protein, which is usually fish for low-income households. In most rural communities in the Northern Region smoked herrings/anchovies (popularly called *amani*) used in powder form is the main (and often the sole) animal source food. There is also copious use of seasonings, spices and local condiments in addition to salt, the basic seasoning. Dry seasonings, such as Maggi bouillon cubes, were used in almost all stews and soups in addition to the local condiment, fermented locust bean paste (dawadawa).

In terms of preparation, vegetables (chopped or ground) are cooked in oil (vegetable or palm oil) for stews. For soups, they are cooked in water and pureed. Stew prepared from only the basic ingredients is tomato stew and soup prepared from the basic ingredients is "light soup". Other stews or soups derive their names from food items that are additional to the basic ingredients. Thus aleefu stew has aleefu leaves added; groundnut soup is prepared from groundnut paste and ayoyo/bra soup have ayoyo/bra leaves. Vegetables may be seriously over-cooked during the cooking process resulting in possible loss of nutrients.

In terms of actual consumption patterns, Table 4.6 shows that almost all the children (29 out of 32) consumed porridges, most often maize or millet or a mixture of the two. Majority of the children (23 out of 32) ate TZ with soups. Rice, rice and beans and beans were consumed by 5 (2 ate with spaghetti), 5 and 3 children respectively. Ayoyo and bra soups were most often consumed (11 and 10 children respectively), as was tomato stew (10 children). For animal source foods, almost all the children consumed fish (24 out of 32) although the quantities consumed may be very small. About a third consumed milk (in tea) and 3 consumed eggs. We have further summarized the information in Table 4.6 to better clarify IYC consumption of the core foods. As shown in Table 4.7, these core foods are generally consumed at least once or more times a day by the children consuming them.

Table 4.7: Mean daily consumption of core foods by IYC

Foods consumed	% of IYC consuming foods and mean daily consumption/age category				
	Total	6 – 8	9 – 11	12 – 23BF	12 – 23NBF
Porridges	91(1.6)	88(2.4)	88(1.4)	88(2.4)	100(1.5)
TZ with soups	72(2.0)	25(1.0)	63(1.4)	100(2.1)	100(2.1)
Rice	16(1.4)	38(1.7)	-	25(1.0)	-
Rice + beans	16(1.4)	13(2.0)	-	25(1.0)	25(1.0)
Beans	10(1.7)	13(2.0)	13(1.0)	13(1.0)	-
Tea + milk + sugar	31(1.1)	25(1.0)	25(1.0)	50(1.3)	25(1.0)
Ayoyo soup	34(1.4)	-	25(1.5)	50(1.5)	63(1.2)
Bra soup	31(1.4)	13(1.0)	13(2.0)	50(1.0)	63(1.4)
Tomato stew	31(1.3)	50(1.8)	-	63(1.0)	13(1.0)
Fish	75(2.5)	50(2.3)	63(1.8)	88(2.7)	100(2.8)

Note: Figures in parenthesis are number of times IYC consumed food on recall day
Fish was consumed as an integral part of the soups/stews and not separately

In addition to the content of IYC diets, and the frequency of feeding, it is also instructive to examine IYC meal patterns from the perspective of the amount of diversity in the diet over the course of the day. Are IYC receiving the same foods at every meal or is there some variety from meal to meal? To examine this question, the 24 hour records are further analysed (Table 4.8a) and summarized (Table 4.8b) to allow for assessment of the content and quality of the children's diets using the Ministry of Health/Ghana Health Service Community Infant and Young Child Feeding Counselling Package (UNICEF, 2013).

Tables 4.8a and 4.8b clearly show that the diets of 3 out of 8 children in the 6 – 8 month cohort and 5 out of 8 children in the 9 – 11 months cohorts are inadequate being very poor in both frequency and diversity and thus not meeting the minimum dietary adequacy required for their age group. In contrast, children in the 12 – 23 month cohort seem to do very well in both frequency and diversity.

A closer scrutiny of the tables would suggest a discrepancy in the lower intake of groundnuts in Table 4.6 and the frequency reported in 4.8a. This can be explained by the fact that Table 4.6 presents recipes as consumed whilst Table 4.8a presents individual ingredients contained in the recipes. Bra soup, for example, has groundnut as a key ingredient (see Table 4.2) and groundnut is therefore reported as an individual ingredient when Bra soup is consumed.

Table 4.8a: Dietary diversity of complementary foods

ID	No of meals	No. of food groups	Grains, roots and tubers		Legumes and nuts		Fruits and vegetables		Fats and oils		Animal/flesh		Milk/ dairy
			What	f	What	f	What	f	what	f	what	f	f
1	3	1	Millet	3									
2	3	1	Maize	3									
3	5	1	Millet	3	Beans	2			Palm oil	2			
4	3	3	Millet Rice	2 1			Tomato	1			Fish	1	
5	2	1	Millet	2									
6	5	4	Maize millet Rice Wheat	3 3 2 2	Ground-nut/ beans/ soya beans	1	Tomato	2			Fish	2	
7	4	5	Wheat Rice Maize	2 2 1	Ground-nuts	1	Bra Tomato	1 2			Fish Eggs	3 2	1
8	5	6	Maize Wheat Rice	2 1 2	Beans Ground-nuts	2 1	Aleefu Tomato	1 2	Palm oil	2	Fish Eggs	3 2	1
9	2	3	Maize Guinea corn	2 1			Ayoyo	1			Fish	1	
10	1	1	Maize	1									
11	2	3	Maize	2			Ayoyo	1			Fish	1	
12	3	3	Maize	3			Fresh okro	2			Fish	2	
13	2	1	Maize	2									
14*	2	0											
15	5	5	Maize Guinea corn	2 1	Beans	2	Ayoyo	1	Palm oil	2	Fish	3	1
16	4	5	Guinea corn Maize Wheat	1 2 1 1	Ground-nuts	2	Bra	2		2	Fish	2	1
17	3	4	Maize Guinea corn	3 1	Beans	1	Ayoyo	1			Fish	1	
18	6	4	Maize Guinea corn	5 1	Ground-nuts	1	Dried okro	4			Fish	4	
19	5	4	Maize Rice Wheat	3 1 1			Tomato Ayoyo Bra	1 1 1			Fish	2	1
20	4	4	Maize Rice	2 1	Ground-nuts	1	Ayoyo Bra Tomato	1 1 1			Fish	2	
21	7	6	Maize Rice	3 1	Beans	2	Ayoyo Bra Tomato	2 1 1	Palm oil	1	Fish	3	2
22	2	2	Maize	1 1	Soya beans	1							

			Guinea corn										
23	6+	4	Guinea corn Maize Rice Wheat	1 3 1 1	Beans	1	Ayoyo Fresh okro Dried okro Tomato Black berries	1 2 1 1 1			Fish	4	1
24	5	4	Maize Yam	4 1	Ground-nuts	2	Bra Tomato Dried okro	1 1 1			Fish	3	
25	6	4	Maize Millet Rice	3 1 1	Beans Aduwa Ground-nuts	1 1 1	Ayoyo Fresh okro Tomato	1 1 1			Fish	3	
26	5	4	Maize Millet	4 2	Beans	1	Ayoyo Bra	1 1			Fish	2	
27	4	4	Maize Millet	4 1	Ground-nuts	1	Bra Dried okro	1 2			Fish	3	
28	6	4	Maize Millet Rice Wheat	4 2 1 1	Beans	1	Ayoyo Fresh okro Tomato	1 1 1			Fish	3	
29	5	4	Maize Millet	5 2	Ground-nuts	3	Bra	3			Fish	3	
30	5	5	Maize Millet	4 1	Ground-nuts	1	Bra Dried okro	1 2			Fish	3	1
31	5	5	Maize Cassava Wheat	3 1 1	Beans	1	Ayoyo Fresh okro	1 1	Palm oil	1	Fish Egg	3 1	1
32	5	5	Maize Millet Guinea corn Rice	1 2 2 1	Beans Ground-nuts	1 2	Bra	1			Fish	2	1

Note: ID No. 14 had only tea + sugar

Table 4.8b: Consumption from different food groups

Number of food groups	**Age cohorts/Number of children**			
	6 – 8	**9 – 11**	**12 – 23 BF**	**12 – 23 NBF**
1	3	3	-	-
2	-	-	-	-
3	1	3	-	-
≥ 4	4	2	8	8
Total	**8**	**8**	**8**	**8**

Core foods in IYC daily diets

The first part of this section outlines findings of the free listing exercise with key informants which facilitated identification of "Core IYC foods" from a cultural perspective. The results of our examination of "Core IYC Foods" from a behavioral perspective, using the 24-hour dietary recall records to show the number of times that each core food was actually given to children of the 32 caregiver-respondents is tabulated in Table 4.6 with average consumption also summarized in Table 4.7. Although the sample is small, the results are highly suggestive with respect to the relationship of core IYC foods, as a cultural construct, and caregivers' behaviors in feeding their children. As alluded to in Part 1 of this chapter, "cultural" reflects more of the general beliefs, traditions and ideals that define local diets in any society. Behavioral on the other hand refers to actual practice, which may be determined by several factors, including seasonality in food availability, affordability or even individual preferences. Thus there may be differences between the two when what is considered to be "culturally ideal" for IYC is not affordable or cannot be accessed.

Our findings indicate that the foods that comprise the "core" from a cultural perspective are to a large extent also the "core" foods from a behavioral perspective. This reflects some consonance between the cultural construct and dietary practice. On the day preceding the interview, almost all the children (29 out of 32) ate porridge and the majority (23 out of 32) ate TZ with either ayoyo or bra soups. On the other hand, rice, which was classified as a cultural core was consumed by only a third (10 out 32) of the children. It is noteworthy that rice meals were more often than not specially prepared for the IYC. Again, tea which did not feature as a core food from the cultural perspective was consumed by about 38% of children, all but 2 of whom had powdered milk added. Indeed powdered milk in tea was the only milk consumed.

PART 3: IYC FEEDING IN THE CONTEXT OF USUAL HOUSEHOLD FOOD CONSUMPTION

Findings on IYC feeding in relation to foods consumed by the household are presented in this section. To examine this issue, a module that was modified from the typical seven day food frequency recall method was used. A three-part question guide was designed to elicit information from which we could derive further insights about the relationship of family and IYC food use. This question followed immediately after collecting information on the index child's diet in the previous 24-hours, so the respondent was already primed to structure her response in relation to the child's diet. The first part of the question was "*I would like to ask about other foods that your family eats that you have not yet mentioned. I'm going to ask you first to tell me what other foods you eat and then I'll ask you some other questions about them*. *Please tell me other foods your family eats."* The second part of the question was asking the respondent to indicate which household members consumed the food, with a special interest in the IYC. Finally, for each of the foods named through this procedure, the respondent was asked whether those specific foods had been consumed during the past 7-day period and how frequently. Findings are presented in Table 4.9.

Table 4.9: Foods consumed by family including IYC

FOODS	No. of households consuming food in past 7 days		
	1 – 2 days	3 – 4 days	≥ 5 days
Tea, milk + sugar	2	-	3
Bread	2	-	3
Porridges (Koko)	6	4	18
T.Z	-	1	20
Ayoyo soup	7	10	2
Bra	11	7	1
Groundnut + allefu/okro soup	1	1	-
Fresh okro soup	10	3	-
Dry okro	4	2	-
Kuuka	1	-	-
Groundnut soup/stew	1	-	-
Tomato stew	4	3	3
Spiced groundnut powder	-	1	-
Yam	1	1	-
Rice	2	4	1
Spaghetti	-	4	1
Dawadawa rice and beans jollof	-	2	-
Waakye (Rice + beans)	-	3	-
Beans	-	3	1
Aduwa	1	-	-
Gari	-	3	-
Gablee	1	-	-
Nabichingle	1	1	-
yama	-	1	-
Fresh groundmut	-	-	2
Eggs	-	1	1
Fish	1	1	21
Orange	1	-	-
Water mellon	-	1	-
Yellow mellon	-	1	-
Black berries	-	1	-

There are several features of family foods in relation to IYC foods to highlight:
Collectively a total of 35 foods were elicited by the food frequency question. These are the foods that were listed by caregivers as having been prepared for the household but also consumed by the IYC. It is noteworthy that women did not list many different foods (over and above what they had already listed in connection with IYC intake). This indicates that foods for IYC are generally integrated into household diets.

Findings show that overall, consumption of TZ and the various soups is central in family diets in Karaga. As shown in the 24-hour recall of the older children (12 – 23 months) TZ is typically consumed 2 – 3 times in a day and as caregivers reiterated during the interviews: *"Here it is TZ we eat all the time…"*. Porridges are the second most frequently consumed family food, being consumed almost daily by the majority of households. Fish, normally consumed in the soups and stews eaten with TZ and rice respectively is the third most frequently consumed food. Rice and spaghetti (usually eaten together at a meal) and tea with milk eaten with bread

hold third and fourth positions respectively. The frequency in consumption of these foods is however low and dependent, as explained by women, on availability since they are purchased.

Specific meal preparation and consumption patterns are evident. For example, TZ and soup is always prepared and consumed in the evenings and the left over is usually consumed in the afternoon of the following day. Rarely will two different soups be prepared on the same day. Rice, beans and other meals are usually prepared and consumed as mid-morning or afternoon meals. Porridges and tea are usual morning meals. Typically, two meals are prepared in a day. Fruits hardly feature in the household diet as was seen in the 24 hour recall.

Summary and conclusions

The purpose of this chapter is to provide a picture of infant and young child feeding practices in Karaga District from both cultural and behavioral perspectives. This chapter is organized in 3 parts:

Part 1: Identifying complementary foods in the community: Results of the "Free Listing" exercise
Part 2: Feeding practices of IYC: Foods consumed in the previous 24-hour period
Part 3: IYC feeding in the context of usual household food consumption

The data presented in this section demonstrates that caregivers have well-developed constructs about IYC feeding. The findings on feeding behaviors show that IYC are generally integrated into family diets, after one year of age and not before. This is evident from both the 24 hour recall and family food consumption records. The concept of special IYC foods, especially for the younger age group (6 – 11 months) is also evident. Thus, the two dynamics of core IYC foods and family foods exist side-by-side in the management of infant and young child feeding in Karaga. The data further show that frequency of feeding of complementary foods for the 12 – 23 month old cohort is generally adequate relative to current recommendations. The diets of the 12 – 23 month old cohort also appear to have considerable diversity. However both feeding frequency and dietary diversity are very low for most of the 6 – 11 month olds, whose diets tend to be monotonous and virtually lacking in animal source foods. The findings suggest that the diets of children in the 6 – 11 month age group, and especially those aged 9 - 11 months, generally do not meet the minimum diet adequacy or IYCF standards for feeding frequency and dietary diversity.

CHAPTER 5: PREPARING AND STORING FOODS FOR INFANTS AND YOUNG CHILDREN

PART 1: FOOD PREPARATION

Obtaining information on how IYC foods are being prepared in Karaga was a primary purpose of the landscape analysis. To acquire information on how IYC foods are prepared, caregivers were systematically asked about the specific preparation and storage procedures they used for the foods they reported in the 24-hour recall module. To provide a comprehensive framework for understanding of household food preparation procedures, information on conditions in which food preparation occurs and access to important inputs to food preparation such as access to water and fuel are described. In Karaga, sourcing of water and firewood are sole responsibilities of women in addition to general household chores including care of infants and young children. The caregiver-respondents provided simple, clear narratives on how they prepare food.

How food is prepared and who prepares food

Typically, mothers as primary caregivers prepare food for IYC and are particularly keen on cooking and feeding their infants and young children themselves. Mothers gave various reasons why they prefer to prepare their children's food themselves:

"I want it (moli koko) to be prepared under hygienic condition so that she would not fall sick when she eats it."

"I want it thick (moli koko) so that when the child feeds even a little he will be satisfied but another person will prepare it light and it will not be able to satisfy the child."

In their absence, mothers also prepare and leave food to be fed to their children or entrust that responsibility to close relatives who live in the household or nearby. Grandmothers, sisters or older female children in the family were mentioned as close family members who assist in food preparation when mother is away or unable to do so as illustrated below:

"*I leave the house for the farm at 10am and come back at 5pm. However, before I leave for farm, I cook food and put it down for A and his siblings."*

"I always prepare food and leave in a food flask for her before I go (to the farm) so that the grandmother can feed her when she is hungry……because they (grandmother and aunties) can cook the food just like the way I would have prepared it."

We asked mothers to describe how they prepare some of the foods that were fed to IYC a day prior to the interview. Mothers provided detailed accounts of how the core foods for IYC including porridge, TZ and soup, rice and tomato stew and beans are prepared. We were particularly interested in capturing all aspects of the preparation process and the reasons mothers gave for their actions. In the case of porridges, which are such an integral component of IYC diet in Karaga, we sought to find out whether mothers milled or prepared the dough or flour themselves. Their responses are quite revealing.

Millet koko (specially prepared for IYC)

Ingredients used
Millet dough, salt and sugar

Preparation
R: "I usually soak about a bowl of millet for a day and mill it; after milling I mix it with water and sieve it, then allow it to settle. I then pour the water away and dry the millet dough; when it is well dried, I store it in a container. To cook, I take a little portion of it and mix it with water. I set fire and boil a small amount of water and add a bit of salt; when it is boiling, I add the millet flour mixture and keep stirring until it is ready in about 15 minutes and serve by adding sugar."
I: "Did you mill the flour for the porridge yourself or you bought it?"
R: "I make it myself. Nobody prepares flour like that to sell; even if it was there I would still not have bought it, because they might not take their time to take out stones and other things from it and this may cause sickness to my child."

In answer to the question why they prepare the millet flour themselves two other caregivers responded:

"As I said earlier, I make it myself the way I want; I don't even know if there is some prepared to sell. We also farm the millet so it is cheap preparing it because I will not buy millet."

"I prepare it myself; .....Because they don't prepare to sell; also if they even sell, it will be expensive but it is cheap making by it myself since I use it for about two weeks."

Moli koko (specially prepared for IYC)

Ingredients used
Maize

Preparation
R: "I mix a portion of the maize dough with water and sieve with a scarf so that there wouldn't be any chaff inside. I then pour it into boiling water containing salt and stir so as to ensure that the koko is smooth. It then boils for about 15 minutes and it is ready to serve."
I: "Is there any reason why you don't want chaff inside the koko?"
R: "When there is chaff in the koko she could get choked that's why I use a scarf to do the sieving."

Zimbergu/zimbeao (weanimix specially prepared for IYC)

Ingredients used
Maize, soya beans, groundnut, mosoro (spice), pepper, ginger and sugar

Preparation
R: "I roast maize, groundnut, soya beans, add mosoro, ginger and pepper and mill together. To cook, I set fire and put small water in a pot on fire to boil; I then take a small portion of the flour mix with water and add to the boiling water and keep stirring until it is thick and ready in 20 minutes; I add sugar and serve."
I: "Why do you prepare the flour yourself?'

R: "It is easy and less costly when I prepare it myself, also because we farm some of the food items it is affordable."

Koko saali (Prepared for whole family including IYC)
Ingredients used
Maize dough, pepper, water

Preparation
R: "First of all I mix the dough with water and sieve in the night after milling it. I sieve it in the night to avoid doing it in the morning and also for it to ferment; it tastes good when fermented. Early in the morning when I wake up I set fire and then pour the fermented water from the dough into a pot and leave it on fire to boil, when it is boiling I stir the dough to make it mix then I pour into the boiling water and stir, when the porridge turns brown, it means it is ready then I bring it down from the fire and serve.

… I mill the dough by myself because we farm maize and I don't see why I should buy something we have in the house."

As we saw in Chapter 4, also confirmed here, different varieties of porridges are prepared. There are porridges that are specifically prepared for the younger IYC and others that are prepared for the whole household including older IYC. The following narratives are examples of the reasons caregivers gave for the type of porridge fed to their IYC:

"When I prepare the family koko, spices are usually added, which is too hot for W at his age, so I prepare some especially for him without pepper and spices. He likes it because there is usually no pepper in this koko as compared to the family one and therefore he takes a lot of it."

"It is specially prepared for S because the way I prepare for her is different from when I'm preparing for the family. When I'm preparing the koko for the whole family I use a "mantankeli" (colander) to do the sieving; this still leaves the koko with some amount of chaff and this would not be good for a child to consume because the chaff inside the koko could choke the child. So in preparing hers I use a scarf to do the sieving to make it more refined and not have any chaff; also when preparing the family koko spices are added to it but I don't add spices to S's koko because it will be peppery and she will not be able to take.
"It (zimbergu or weanimix) is specially prepared for her because the family doesn't consume it. It is not one of the family's menus. I just prepare in small quantities only for the child. We are also told at the child welfare clinic that it is good for children and when you feed them with it they will grow well and will be heavy when you lift them."

It is also worth noting the range of pre-processing methods involved in the preparation. These include soaking before milling, converting the milled flour into dough and allowing it to ferment, refining milled flour by mixing with water, sieving, drying and storing for use over some days.

Below are other foods specifically prepared for the IYC.

Rice and tomato stew (specially prepared for IYC)

Ingredients
Polished rice, Frytol (oil), salt, pounded fish, tin tomato puree, onions

Preparation
"I set fire in a coal pot and place a cooking pot on the fire; I add cooking oil and onions, when it is fried I add a tin of tinned tomatoes, salt and pounded fish; this will be ready in about 15 minutes. The plain rice too, I boil water, wash the rice and add to the boiling water after adding salt. I allow to cook for about 20-30 minutes and serve with the stew."

This caregiver was emphatic about using polished rice and not local rice for the following reason:

…." I want it to cook till it is very soft so that the child can easily swallow and it will easily digest as well; that is the more reason I prefer cooking the polished rice to the local rice because local rice does not easily get softened when you cook it."

Beans stew (specially prepared for IYC)

Ingredients
Beans, saltpeter, palm oil

Preparation
"I wash the beans and remove any particles that are there and put in boiling water to boil after I have added saltpetre to speed the cooking. I let it cook for 1 hour or more to make it soft enough for her to eat. When it is cooked I pound yurayura (fish) and add it to the beans. I cut onions and fry in palm oil 'to make the face attractive' and pour it into the boiling beans. I add salt to taste and it is ready to serve."

This caregiver gave the following explanation for preparing beans specially for the IYC:

"It is prepared for her alone. I prepare it for her because I was told (Child Welfare Clinic) that beans make a child healthy. That is why I prepare it for her"

Older children are mostly fed on foods prepared for the family and it is noteworthy that the food culture of the north, in terms of ingredients used (e.g pounded fish/fish powder and groundnut paste) and preparation methods (preferred soft texture of TZ) are conducive to IYC feeding as seen from the caregivers' food preparation narratives.

TZ with ayoyo soup (prepared for whole family including IYC)

Ingredients
Maize flour, ayoyo leaves, dawadawa, Magi cube, saltpetre, salt, pounded fish and pepper

Preparation
T.Z: Heat water to boil and then mix maize flour with water and add to the boiling water and stir to make porridge. Leave to boil for a while and then fetch some of the porridge and set aside; add more flour to the remaining porridge on the fire and stir; add porridge (set aside) and keep adding till TZ is soft enough and then you serve.

Ayoyo soup: Wash ayoyo and sprinkle a little saltpetre on it and then boil for a while. Put water in pot on fire and add dawadawa to it. Leave it to boil and then add pepper, pounded amani (fish), magi and salt and leave it to boil for a while then add the boiled ayoyo to the soup and stir and the soup is ready. (Cooking time: 2 hours 30 minutes)

TZ with bra soup (Prepared for whole family including IYC)

Ingredients
Bra leaves, onion, salt, amani (fish), Maggi, dawadawa, groundnut paste, pepper, maize flour

Preparation
Bra soup: *To prepare the soup, I wash and slice the bra leaves and boil. I prepare the groundnut soup by mixing the groundnut paste with water in a pot and then I put it on fire; I stir to smoothen and also for oil to appear; when the oil is out then I add water to the desired level and then add all the ingredients like dawadawa, pepper, salt and maggi to taste. I drain out the stock of the bra and pour the bra leaves into the groundnut soup. I pound my fish and add and allow to boil for an hour.*

TZ: To prepare the TZ, I use maize flour; we grind the dry maize to make a flour. A portion of the flour is mixed with water and poured into boiling water on fire to make porridge. A small quantity of the porridge is fetched and put aside. The maize flour is added to the remaining porridge on fire and stirred; the porridge that is put aside is added to the TZ on fire and stirred until the desired texture is achieved. It is ready to be served. (cooking time: 2 hours)

Feeding IYC - How food is given to IYC

Infants and young children are fed using a variety of methods and utensils. While many mothers reported using bowl (plastic or metallic) and spoon or cup and spoon, use of hands to feed IYC was also very common. Foods fed using cup and spoon include tea and porridges and those with hand include TZ, rice, beans and rice and beans. Reasons given by mothers for using a particular method to feed young children include: convenience and ease of feeding, children wanting to feed themselves and opportunity to mash food and make it softer. The following are some reasons mothers gave:

*"Because, the spoon is convenient and W likes eating with spoon**."***

"It is easy to feed with the spoon, especially when I am in the farm and I will not get soap to wash my hands before feeding her." I: "How does feeding her with unclean hands affect her?" R: "She can get diarrhea if she is fed with dirty hands and environment."

"I use my hand so that I can mash it to further make it softer."

"He eats by himself and with his hands……he eats on his own when the foods are chewable like rice and yam but if it is TZ I feed him myself."

"I use both hand and spoon, when I want her to feed fast I use my hand but if I have time to feed her I use the spoon." I: "Why would you want her to feed faster?" R: "When I am working and she is hungry so that I can continue with my work."

Given the number of times that children are being fed or feeding themselves with hands, it is a grave omission that hand washing before eating was not thoroughly investigated in this study.

Cooking multiple portions

In this section we discuss post preparation food handling and storage. Caregivers explained that they cook multiple portions as a time and fuel saving strategy as well as making it easy for the children to be fed when they are hungry or when they have to be left with others.

"Because I save fuel and time when I prepare in bulk, also when I prepare in bulk, I feed the child immediately he is hungry and don't need to set fire and prepare it when he may be crying"

"I prepare in bulk because I always want to have food ready when he asks for it, it saves time and fuel."

"The food is hot and healthy for her to eat in the flask and besides I cannot be preparing it all the time because I have to go to the farm."

Mothers store the remaining food which the IYC takes throughout the day. The following quotes are illustrative:

> Mother – 8 months child: *"How much koko do you usually prepare?" R: "I usually prepare in large quantity and feed him in bits throughout the day." I: "Why do you prepare in large quantity?" Because we go to the farm all the time, I make it so that when she is hungry there will always be food available for her to eat so I can do my work."*
>
> Mother - 11 months: *"Is a single portion (of the beans) prepared or is extra made to feed her later?" R: "I prepare extra to feed her later."*
>
> Mother - *8 months infant: How much do you usually prepare when you make the rice". R: "I usually prepare in large quantity just like the koko; I take some to the farm while I reserve some at home to feed her in the evening."*

Handling leftover food

It is worth noting that food that remains when children are fed (if any remains at all) is not perceived as 'left over' but is kept and given to the IYC later, given to other children or consumed by the mother herself or even disposed off as illustrated by the responses below:

> *"I either pour it away or eat it myself."*
>
> "*I either eat it or give my other children to eat it".*
>
> *" I cover it and put it down to feed again when she is hungry. But when I realize the day is almost coming to a close and she hasn't finished eating, I give the remaining to her elder sister to eat."*

PART 2: ADDITIONS TO FOOD AFTER COOKING AND FOOD STORAGE

Additions to food after cooking

In addition to obtaining information on cooking procedures, we used the discussion on food preparation of the individual dishes to identify ingredients that are added to food but might not be reported because conceptually, they fall into the category of "condiments." Condiments are often left out when people report about foods. For each food preparation we asked the caregiver-respondent: "*I'd like to know whether anything was added to (name of item) when you gave it to ___ (child name).*"

For the most part, the answers were negative. However three items were reported as additions to served or ready to serve foods. These are sugar, Nido milk powder and palm oil. A never missed addition to porridges and teas was sugar. Indeed all the tea and all but two porridges reportedly had sugar added. When asked why they added sugar to the porridges and tea, mothers responded thus:

"To make it sweet for her to eat."

"Just for taste and to encourage her to eat."

"To make it sweet for her to eat, if you give her koko without sugar she will not eat."

Mothers were quick to point out that without sugar children will not eat their porridges or drink their tea. In all the discussions only one mother (of an 11 month old) reported not adding sugar to her child's porridge and her reason for not doing so was actually not in response to the question on addition to foods as illustrated from this dialogue:

I: Does she eat all the food she is served at a time?
R: Not all the time
I: What happens to the leftover food that she does not eat?
R: I pour it away
I: Do you drink it sometimes?
R: No I don't. It is not sweet. I don't put sugar in it.
I: Is there any reason you don't put sugar in her koko balli?
R: I just don't want her to get used to eating koko with sugar because it is not every day that I can afford to buy her sugar.
I: Is she able to eat the koko balli without the sugar?
R: Yes she is. As for a child what you start with her is what she gets used to.

It is interesting to note though that this same mother reported adding salt to the koko, "*To give it taste for her to eat.*"

Milk is a usual addition to tea but notably, not to porridge. Indeed only one mother (of a 23 month breast fed child) reported adding milk to her child's moli koko. Her reasons are illustrated with this dialogue:

R: I add the sugar to the water before boiling to prepare the moli koko and after that I add the milk when she is about to drink.
I: Why did you add these items?

R: I wanted it to be sweet so she would eat when she tastes it that is why I added the sugar and for the milk I want her to get blood and grow well and I was told at the clinic that milk gives blood that is why I add it to the moli koko.

Caregivers who added milk to tea did so because 1) it gives blood and health; 2) it makes the tea satisfying and 3) it gives the tea taste. The following narratives are illustrative:

"I added the Nido so that it will be thick; ….When it is thick and she eats she will not feel hungry in time because the food will be heavy in her stomach."

"I also add Nido, when I have money to buy and feed her." I: Why do you add Nido to the koko?" *R: "I add it so that it will taste nice for her to eat."*

"I added sugar and Nido (to the tea)." I: Why did you add the sugar and Nido?" *R: "Because she will not eat if it was not added."* I: "Why will she not eat?" *R: "Because it will not be sweet."*

"I added sugar and Nido to the tea." I: "Why did you add these?" *R: "I added the Nido to make him healthy."* I: "How do you mean?" *R: "I am told Nido gives blood and more so since it is also milk and milk gives good health in children I decided to add it to his tea."*

A third addition to IYC foods is palm oil, which is usually added to boiled beans or ayoyo soups (sometimes) mainly to make them look attractive and appealing to the child:

"I add palm oil to it (the beans) to make "the face attractive" so she would eat more…..Usually when I finish serving her I just pour a spoonful (of the palm oil) into her beans and stir then I give it to her to eat."

"It was just the salt and a little magi I added. I also added palm oil to it….. I added all while the soup was on fire." I: Why did you add them?" *R: "I added the salt and magi to make it taste nice for her to eat and the palm oil to make the soup attractive."*

Modifications to family foods fed IYC

Enquiry was made about any modifications caregivers make to family foods when they are intended for IYC. We found that caregivers generally modify family foods to make them suitable for the child to consume. Interviews with caregivers revealed that special modifications are made to family foods to make them suitable for IYC. Following are some of the modifications caregivers reportedly make to facilitate easy feeding.

As stated earlier the northern food culture lends itself to easy feeding of IYC. The main family food, TZ is usually cooked to a soft texture. Fish used in cooking soups are always pounded and used in powdered form. This is actually how mothers are advised to use fish in preparing food for their young children to enable them get the full nutritional benefit of consuming the fish especially if they cannot chew.

Rice and beans prepared for young children are cooked very soft to allow easy mashing. Mothers also reported using their hands to feed their young children because they can further mash these foods during the feeding process.

Porridges and soups/stews fed to the younger children are prepared without pepper because

1) the food will be too hot for the child to eat and 2) too much pepper causes diarrhea in young children

Food safety and child health

The food safety theme was dominant in the narratives of most of the caregiver-respondents, regardless of the specific food they were talking about. In addition to this theme, other themes emerged in our analysis of the commentaries relating to storage of IYC food. The next several paragraphs reveal these other themes.

Caregivers were careful to prepare food that was safe for consumption by young children. Almost all caregivers said they prefer to cook their children's food themselves to ensure that they were hygienically prepared and will only delegate that function to others they can trust to do the same. They also narrated how cooked food is stored covered to avoid contamination. Effort is also made to clean items such as washing and removing particles from beans before cooking.

Food storage

Storage of foods, particularly after they are prepared, is an essential part of IYC feeding management as it has implications for the safety of the foods children are receiving and, ultimately, for their health. We therefore included questions about storage of foods especially after cooking. It is particularly relevant in communities where refrigeration is rare. Cooked food is stored in various types of containers. Porridges are mostly stored in flasks and sometimes in plastic or aluminum bowls and cups. Other foods are stored in the saucepans in which they are cooked. Regardless of the container used, mothers in all cases were emphatic that the food was stored covered and placed in the bedroom to prevent it from spilling or being spilt by the children. The period of storage is usually from morning till evening and could be up to 12 hours, especially for porridges. The long period of storage may not ensure the safety (from health perspective) of the foods given the containers used, including the so-called flasks, which are not thermos flasks but plastic/polystyrene containers which do not keep food hot for any length of time. Unfortunately caregivers were not asked how they handled stored foods before feeding them to their children and this warrants further investigation.

PART 3: ACCESS TO WATER AND SAFETY

Access to water and safety are paramount issues in relation to food preparation because of the potential for contamination especially in set ups where there is no piped water. Common sources of water in the study areas in Karaga included communal stand pipes (3), communal boreholes (20), wells, dams, streams and rivers (10) as well as treated water sold in 500 ml sachets (12). Households pay GHC0.10 – GHC0.25 per 20 litre jerry can fetched from the communal stand pipe and GHC0.10 per jerry can fetched from the communal borehole. Sachet water is usually purchased for between GHC0.10 – 0.20. Overall, two thirds (21 out of 32 caregivers - 66%) indicated that their households buy water. However, only 3 out of 32 (9.4%) caregivers reported having ever acquired water on credit.

The majority of caregivers in Karaga generally do not treat water (both for drinking and cooking). Only 13 caregivers (40%) reported sieving drinking water and 7 (22%) sieved cooking water. The only cited water treatment was sieving especially for water fetched from dams, streams and rivers. Water drawn from communal pipes and boreholes is however

perceived as clean and not needing any treatment even for drinking by the IYC. The dialogues below illustrate the two scenarios.

I: You mentioned earlier that your main source of drinking water is the river, so after you collect the water from the river how do you handle drinking water?
R: We sieve the water from the river with a net that was once given to us. We put the water in pots kept inside the rooms.
I: So how do you handle the water meant for cooking after you collect from the river?
R: We just pour it in our pots in the compound like that; we don't sieve it
I: Is there any reason why you sieve water for drinking but do not do so for water meant for cooking?
R: We sieve drinking water because there may be insects in it but for cooking the insects will eventually die in the process of the cooking if there are any.
I: How do you store the water after you have sieved it?
R: It is stored in pots kept in the room
I: How do you handle L's drinking water?
R: She also drinks the family water

I: We are now going to talk about water after you collect the water from the borehole like you mentioned earlier, how do you handle drinking water?
R: We pour it and store in the pots in the room
I: How do you handle cooking water?
R: We keep that one in the pots in the compound
I: Do you boil the water or add something to it before you use it?
R: No, we don't do anything to it. The borehole water is very clean. It is only water from the river that we handle that way but not borehole.
I: How do you handle M's drinking water?
R: I don't handle it any way. She drinks what everyone at home drinks.
I: Why don't you treat M's water?
R: We all drink from the same pot and from the borehole which is clean.

Sachet water, which is the safest drinking water, is purchased for individual use and not for the household. Those who reported buying sachet water bought only one, usually when they are away from home. Only two caregivers reported buying 2 and 4 sachets in a day.

Summary and conclusions

This chapter examined food preparation and food storage practices and provides information on the following:

a) Ways in which foods are prepared and fed to IYC including additions made to food after preparation and modifications made to family food for IYC.

b) Food storage including handling of left over foods, food safety and child health and water used in the home

c) Access to water and safety including handling practices of water for cooking and drinking

It is evident that besides preparation and feeding of IYC, women in Karaga are also heavily involved in farming and other income earning activities in addition to other general household chores including care of infants and young children. Women go to great lengths to make provision for the feeding of their IYC when they take them along to their work places or leave them with alternate care and only delegate responsibilities of food preparation and feeding of IYC to other trusted caregivers. Women are aware of and concerned about food safety and hygiene. They make effort to give their children both nutritious and safe food. However, preparation and storage practices (and drinking of untreated water fetched from steams, etc.) may put children at risk of food-borne diseases. This could however not be ascertained by this study and is worth investigating further.

CHAPTER 6: ACQUIRING FOODS FOR INFANTS AND YOUNG CHILDREN

Understanding the opportunities and barriers for improving infant and young child feeding requires information not only on what children are being fed now, but also where the foods are coming from and how they are being prepared. In the previous chapter we described how foods fed to IYC are prepared and stored. In this chapter, we examine the sources of the foods fed to children.

The module on food sources uses the caregiver's reports from the 24-hour recall and family food use record to gather more details about these important aspects of IYC food management. Thus, the questions are based on the behavioral reports of her recent experiences rather than asking about her perceptions of general patterns. For the acquisition component, we listed all the foods and ingredients recorded for the IYC 24-hour recall and the family food consumption and asked respondents to indicate how and where the listed food items were obtained.

PART 1: SOURCES OF IYC FOODS

Our analysis of the food acquisition data shows two major food sources in Karaga as follows:

1. Foods that are produced by households for their own consumption and
2. Purchased foods from within and outside the area

A more in-depth analysis amplifies the picture, revealing multiple aspects of food acquisition sources:

i) Households produce food for their own immediate consumption
ii) Households produce and store food for their own consumption later
iii) Households buy, credit/borrow or are given locally-produced food
iv) Households buy/credit produce and products that come from outside the local area as well as other areas of the country.

Items i through iii can be subsumed under a general heading of **locally sourced foods**. Items iv are **externally sourced foods**. Under the heading of locally sourced foods, we can identify further differentiations, as follows:

i) Household farms and backyard gardens
ii) Purchased from relatives' production
iii) Purchased from neighbors' production
iv) Purchased from neighborhood stores
v) Purchased from the market
vi) Gifts from relatives' production
vii) Gifts from neighbors' production

Table 6.1 below presents information on sources of foods based on caregivers' records of the foods that were fed in the 24 hours prior to the interview and foods eaten by the household

over the past seven days. A description of where they acquired the individual foods is provided.

Food items that are sourced from own production by the majority of households include:

- Maize
- Guinea corn
- Millet
- Ayoyo leaves
- Bra leaves
- Fresh okro
- Yam

The items that are both externally and locally sourced and are purchased by the majority of households (more than 50 % of households) include:

- Beans
- Rice
- Groundnut and groundnut paste
- Pepper
- Dawadawa (fermented locust bean paste)

Table 6.1: Food Sources

Ingredient	Total	Produced	Purchased	Donation
Millet/millet flour	8	6	2	0
Maize	21	20	1	0
Maize flour/dough	21	18	3	0
Guinea Corn	5	4	1	0
Soya beans/flour	2	2	0	0
Beans	7	3	4	0
Rice	5	2	3	0
Groundnut paste	11	2	9	0
Groundnut	5	2	3	0
Salt	40	1	39	0
Maggi	25	0	25	0
Fish	30	0	30	0
Sugar	22	0	22	0
Kanwa (saltpetre)	7	0	7	0
Onions	15	0	15	0
Tomatoes	5	0	5	0
Tin tomato paste	6	0	6	0
Palm oil	6	0	6	0
Frytol vegetable oil	3	0	3	0
Tea leaf (Lipton)	11	0	11	0
Nido powdered milk	8	0	8	0
Fresh cow milk	1	0	1	0
Bread	4	0	4	0
Ayoyo leaves	9	6	3	0
Bra leaves	9	6	3	0
Dry Okro	3	0	3	0
Fresh Okro	3	2	1	0
Yam	1	1	0	0
Onga	1	0	1	0
Pepper	26	3	23	0
Dawadawa	24	2	15	7
Mosoro	2	0	2	0
Ginger	6	0	6	0
Kanafuri	3	0	3	0
Salt Petre	6	0	6	0
Spaghetti	2	0	2	0
Eggs	2	0	2	0
Sheabutter	4	0	4	0
Biscuit	1	0	1	0

Foods that are purchased

The majority of the foods that comprise both IYC and household diets are externally sourced and purchased to varying degrees: some are solely purchased and some are mainly purchased. Table 6.2 shows where foods are purchased.

Food commodities consumed by IYC that are externally sourced and solely purchased include:

- Sugar
- Salt
- Onions
- Tomatoes
- Cooking oil/fat
- Palm oil
- Fish
- Tea
- Milk (Nido)
- Bread
- Spaghetti (pasta)

The externally produced foods that function as flavor enhancers in the preparation of IYC foods include:

- Salt
- Maggi, Onga (Spice blend bouillon cubes)
- Tinned tomato paste
- Saltpetre
- Ginger (and other spices)

Table 6.2 shows that food items are mainly purchased from the Karaga Market, within the neighbourhood or community as well as from other nearby communities. At the Karaga Market, purchases are mainly made from "table top" (stationary) vendors or women selling from bowls or sacks placed on the ground. Purchases made from the neighbourhood are from kiosks, "table top" vendors and hawkers.

The reasons for caregivers' preference for particular sources of purchase can be deduced from the key informant responses to the question as to their preferred sources of acquisition. Their reasons can be categorized as follows:

- Getting value for money in terms of the quantity and quality of the produce
- Proximity and accessibility
- Cost-effectiveness (taking transportation costs into consideration)
- Opportunity to borrow and return later or buy on credit to pay later

The following quotes are illustrative of the different scenarios caregivers take into consideration when making their food purchasing decisions:

I: Which of these sources would you prefer to get the maize (beans, rice etc)?

R: I prefer the farm produce to buying because with farm produce you can always go to your barns and fetch the quantity you want but with the buying there are days when you will not get money to buy.

R: I prefer that of my husband's farm because, I don't need to buy. It is expensive but when ours finishes, we have to buy sometimes from the market which contains stones, also the bowls they use to measure are small compared to that of my neighbors if l have to buy; sometimes when I don't have money I borrow from my neighbors and pay back when I get money.
I: Which of the markets will you prefer to buy?
R: I will prefer to buy from Karaga market because I don't need to travel far to buy them

R: ….because from the community it is always plenty than when I buy from Karaga and besides I will have to fare myself to Karaga before I can get it.

R: I prefer buying (beans) from Karaga because at Karaga several people sell it and so there is variety and I get to choose the best one to buy

R: I will prefer from the farm, I don't need to spend money. On the other hand, if I have to buy, I will prefer buying from the market women from Gushegu since it is cheaper buying from them

R: I will prefer from the farm since I don't have to pay anything for it, but if I have to buy during the lean season, I will prefer to buy from my neighbors since it will be cheaper there as compared to the market, I can also buy on credit from my neighbors when I don't have money.

R: I prefer from our farms to buying and borrowing because buying is expensive and money may not be available at the time when you are in need of it. Borrowing too means that you have to return when you harvest yours so even when your yields for a particular year is small you will still have to replace what you borrowed.

Table 6.2: Where foods are purchased

Ingredient	Karaga Market	Community/ neighbourhood	Community Market	Nearby/other communities	Total
Maize	6	0	0	0	6
Ayoyo	4	3	0	0	7
Kanwa	2	2	1	1	6
Pepper	16	5	1	1	23
Fish	24	4	2	1	31
Maggi	19	7	2	3	31
Millet	4	1	0	0	5
Salt	16	8	2	2	28
Sugar	5	8	1	3	17
Dawadawa	6	1	1	1	9
Beans	11	1	1	0	13
Bambara Beans	2	0	0	0	2
Rice	9	0	1	1	11
Groundnut	1	1	0	0	2
Milk	0	1	0	1	2
Eggs	0	1	0	0	1
Sheabutter	3	7	0	3	13
Gari	0	0	0	1	1
Guinea Corn	7	1	0	0	8
Aduwa	4	0	0	0	4
Palm Oil	2	0	0	0	2
Orange	0	1	0	0	1
Dry Okro	3	3	0	1	7
Koko Sali	0	1	0	0	1
Soya Beans	1	0	0	0	1
Groundnut Paste	6	1	0	0	7
Kuka	3	0	0	0	3
Tomatoes	4	2	0	0	7
Onions	9	3	0	0	12
Oil	3	1	2	0	6
Groundnut Oil	0	2	0	0	2
Bra	3	2	0	0	5
Tin Tomatoes	5	2	2	0	9
Banana	1	0	0	0	1
Ginger	4	1	1	0	6
Mosuro	0	1	1	1	3
Meat	0	1	0	0	1
Spaghetti	1	0	1	0	2

Tea	5	3	0	3	11
Cassava Flour	1	0	0	0	1
Nido	3	2	0	2	7
Bread	1	1	0	0	2
Water	0	1	0	0	1
Cow Milk	0	1	0	0	1
Yam	1	0	0	0	1
Kulikuli zim (spiced groundnut powder)	1	0	0	0	1
Gabo (dried onion)	1	0	0	0	1
Pigeon Pea	2	0	0	0	2
Kananfuri (spice)	0	0	0	1	1
Onga	0	0	0	1	1

Foods that are produced

In discussing sources of household foods, it is also necessary to understand the dynamics of household food production. Table 6.3 shows the range of foods produced by families and household members participating in the growing and harvesting of those foods.

Majority of households cultivated maize (78%), groundnuts (50%) and the key vegetables like ayoyo (66%), bra (66%) and okro (59%). Less than a third of households cultivated all the other crops listed. However a sizeable proportion of households were involved in the cultivation of some key crops: millet (28%), rice (22%), Beans (22%) and guinea corn (16%). In most cases all house members participated in food production; this is followed by the husband and wife team. Significantly there seems to be a female bias towards cultivation of vegetables, with respondents reporting doing so mostly by themselves or together with other females in the household.

Table 6.3 Household members who participated in growing and harvesting of foods

Ingredients	Myself & Husband	Myself	Husband	All household members	Women in the Household	In-law & myself	Total
Maize	7	0	5	13	0	0	25
Millet	3	1	0	5	0	0	9
Ayoyo	1	11	0	0	8	1	21
Bra	1	10	0	0	6	4	21
Okro	1	9	0	0	5	4	19
Groundnut	5	3	0	8	0	0	16
Dawadawa	0	6	0	0	0	0	6
Pepper	1	3	0	1	1	0	6
Kuka	0	1	0	0	0	0	1
Alefu	0	1	0	0	0	1	2
Aduwa	1	0	0	0	0	0	1
Soyabeans	1	0	0	1	0	0	2
Cassava	0	0	0	1	0	0	1
Yam	0	0	1	2	0	0	3
Kulikuli zim	0	0	0	1	0	0	1
Rice	2	1	1	3	0	0	7
Beans	0	0	2	5	0	0	7
Guinea corn	0	1	2	2	0	0	5
Bambara beans	0	0	1	0	0	0	1
Sheabutter	0	2	0	0	0	0	2
Pigeon pea	1	0	0	1	0	0	2

IYC food bought on credit and food credit payment plans

The purpose of this section was to find out other ways mothers acquire food for their families apart from own production or purchasing. Specifically we sought to find out if mothers take food fed to IYC on credit.

Discussions held with mothers revealed that taking food on credit is not a common practice in Karaga, with about a third of respondents - 10 out of 32 (31%) reporting having ever taken food on credit for their child. Some of the mothers actually responded with some indignation when asked whether they bought food on credit for their child. One respondent said it would be embarrassing to credit food for a child:

> *"No I haven't. How can you buy food on credit for a child like this, how much does a child eat such that you should buy food on credit for her? Even if you do that in this community everyone will hear of you and that will be very embarrassing. I have never even thought of it."*

The indications are that most mothers are able to afford food for the IYC and are not financially constrained to do so as indicated by their responses:

> *"No, I have never had to buy food on credit for Y to eat."*

> *"No, I have never had to buy food on credit for A. When I buy, I pay there and then."*

> *"No, because anytime I need something, I ask the father and he provides."*

The 31% who reported having ever taken food on credit may have done so due to an immediate lack of money to buy IYC foods. Credit is usually taken from local sellers/vendors and usually repaid on a 'when funds are available" basis and mostly within 1 week of crediting. As we can see from the following quotes mothers are not just crediting "any food":

> *"Yes, …..It is only the rice that I sometimes buy on credit for her to eat."*

> *"Yes sometimes, when I don't have money to cook for him, I buy the food on credit to cook for him so that when I get the money, I go and pay back.*
> *…..I can buy rice, oil, sugar and Nido on credit."*

> *"Yes, N drinks tea a lot so sometimes when the sugar and Nido are finished and I don't have money to buy, I will go and credit either the sugar or Nido or even both to make the tea for her."*

> *"Yes, mostly it is rice I buy on credit to cook for him…..that is what he likes most and after planting we don't have rice again in the house and because times are hard sometimes he needs it and I don't have money to buy so I buy on credit."*

> *"Yes, sometimes I buy bread or sold boiled rice on credit if I don't have money and he is hungry."*

It is clear from these narratives that mothers go to great lengths to purchase the special foods that their IYC wants/likes to eat. It is worth noting that rice (2 purchased ready to eat and 2 purchased to cook) was mentioned by 4 out of the 6 respondents.

PART 2: ESTIMATED WEEKLY HOUSEHOLD FOOD EXPENDITURE

The purpose of this module is to obtain data on what households spend on food for their IYC, as well as an estimate of what they spend, in total, for all their household food. This is important information for several reasons: (1) It provides a basis for estimating the range in spending for infant foods by low income households in the community/region; (2) It permits an estimate of the proportion of household food expenditure that goes for the IYC; (3) Along with the household demographic information it permits us to estimate how much is spent, per capita, on food. This, in turn, provides a basis for comparing the situation in the research community with household economic behavior in similar types of communities around the world; and (4) Together with the information on total household income, it permits an estimate of proportion of income spent on food, which, like the previous point, provides a basis for broader comparisons

What households spend on foods for their IYC

Respondents were remarkably able to give accurate estimates of expenditures on food for the household and the IYC. However they couldn't tell what other household members spent on themselves away from home. The expenditures on households were therefore amount spent on purchasing food items and ingredients for foods cooked for the household. Respondents also reiterated that the major food items i.e the staples were available and not purchased and therefore the amounts they gave were mostly for the purchase of soup ingredients and IYC special foods when these were included in the purchases. Amounts spent on food for the week ranged from as little as GHC5.00 to as much as GHC150 for a large household that purchased a bag of maize costing GHC100 and other items, including IYC special foods, purchased for GHC50.
Table 6.3 below presents analysis of the weekly food expenditures for households and IYC by income levels. Household mean monthly income was GhC485.00 (SD=GhC747.00) and ranged between a mean of GhC117.00 (SD=GhC64.00) for the lowest earning households and GhC1,759.00 (SD=GhC1,289.00) for the highest.

Household's reported weekly food expenditures were not positively related to the household's monthly income. Households on the average, spent GhC33.56 (SD=GhC33.52; Median = GHC20.00) weekly on food. Households in the GhC401-800 income group spent the highest at GhC53.50 (SD=GhC61.99) while households in the bottom income group had a mean of GhC30.73 (SD=GhC=19.14).

On the average, households spent GhC6.76 (SD=GhC7.74; Median = GhC4.10) on IYC food weekly. Households in the GhC401-800 income group spent GhC11.20 (SD=GhC11.28) compared to GhC5.30 (SD=GhC8.29) for the highest income group and GhC7.23 (SD=GhC7.38) for the lowest income group. Households in the lowest income group spent almost 31.0 percent of their weekly food expenditures on IYC food compared to about 10.0 percent for the highest income group. Households in the GhC401-800 income group spent as high as 38.23 percent of their weekly food expenditures on IYCs food.

Relating weekly food expenditures to household income, the results show that households on the average spent 21.7 percent of household monthly income on IYC food. Households in the lowest income group reported weekly IYC food expenditures equivalent to 40.0 percent of their monthly income. For households in the highest income group, weekly food expenditures for IYCs amounted to only about 4.0 percent of their monthly income.

Table 6.4: Weekly food expenditures for households and IYC, by income levels

Household income category	Monthly income Mean (SD)	Weekly household food expenditures Mean (SD)	Weekly IYC food expenditures Mean (SD)	% of household food expenditure for IYC food Mean (SD)	% of household income on IYC food Mean (SD)
≤ 200 (N=16)	117.00 (64.00)	30.73 (19.14)	7.23 (7.38)	30.76 (29.70)	39.53 *(53.87)*
201 – 400 (N=6)	320.00 (50.00)	18.33 (16.50)	3.00 (3.39)	13.71 (6.94)	3.66 (4.23)
401 – 800 (N=5)	590.00 (125.00)	53.50 (61.99)	11.20 (11.28)	38.28 (47.22)	7.34 (6.59)
≥ 800 (N=5)	1759.00 (1289.00)	40.94 (46.98)	5.30 (8.29)	9.85 (3.97)	0.85 (0.75)
Total (N=32)	485.00 (747.00)	33.56 (33.52)	6.76 (7.74)	(25.46 (28.83)	21.73 (41.75)

Note: GHC1.00 = USD0.36 at the time of data collection

Decision making on purchasing of IYC foods

Understanding how food provisioning occurs within households will not be complete without an understanding of decision making and purchasing arrangements regarding acquisition of food for the household and the IYC. We therefore asked respondents about who makes decisions on what foods to buy for the household and IYC and who actually does the shopping for food. The findings are presented in Table 6.4

Table 6.5: Decision making on IYC foods

Who	**Father**	**Mother**	**Both father and mother**	**Others**	**Total**
Makes decision on foods for the family	8	7	4	9	28
Makes decision on IYC foods	2	20	5	-	27
Buys IYC foods	1	17	9	-	27

Table 6.4 shows that several arrangements within the household can be identified when it comes to food purchasing decisions for the household. Actors involved are mainly the

respondent and her husband (acting separately and jointly) and other household members, mainly the mother-in-law. However mothers emerged as primary decision makers on what is purchased for the IYC. In the northern traditions it is men's responsibility to provide the staple foods whilst women provide the soup ingredients and therefore there is some level of shared responsibility although the dynamics differ depending on the household structure and who has authority i.e the recognized household head. What is clearly evident though is that mothers have primary responsibility for decisions and purchasing of food for their IYC. The following narratives are examples of the dynamics of household food provisioning decisions:

R: *My husband is the head of this household so it is him who decides on the types of food to buy for the household including A.*
I: Who actually does the buying of A's food?
R: When it comes to the buying, I go to the market to buy the ingredients

R: I make the decision on what food to buy for B and the family.
I: Why do you make the decision?
R: It is my responsibility as a mother and wife in the family
I: Has there been a time someone helped you with this decision making?
R: No, for decisions on what food to give to the family, it is the responsibility of the one cooking and I cook for my family
I: Who actually does the buying of B's food
R: Both me and the father, depending on who has the money at the time

R: My husband is the head of this household, so it is him who decides on the types of foods to buy for the household, however when it comes to M, it is his father and I who make the decision on the types of foods to give him.
I: So who actually goes to buy the foodstuffs that is used to prepare the food that Meats?
R: We both buy, I mean his father and I both buy.

R: I make the decision because I prepare the food and more so I am always with her at home and know what she likes but I do sometimes consult my husband when it has to do with the family food as he gives me the money for that.
I: Who actually does the buying of R's food
R I do buy her food because the father doesn't even stay at home and so cannot know what food she would cry for. It is even because of this that I go to pick shea nuts so I can sell to use the money for her needs.
I: Do you mean to say the father does not support in buying R's food?
R: No, that is not what I am saying, he does give her money sometimes but the majority of the foods she buys like the biscuits and the milk for her moli koko I use my money to buy them.

Respondents were asked about foods bought by different members of the household for IYC. In so far as IYCs were eating family foods, fathers bought/provided the staple ingredients like maize, millet, rice, beans and yam and mothers bought soup ingredients like fish, pepper, salt, Maggi cubes, groundnut paste among others. Although both fathers and mothers buy the IYC specific foods, mothers are those who mostly buy items such as sugar (which appears to be an essential commodity), tea leaf, Nido, rice (mostly ready cooked), biscuits etc.

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Summary and conclusions

This section documents the nature of food acquisition in Karaga. Some measure of food provisioning is realized through own production and this is by far the preferred source. Foods consumed are however acquired from multiple sources and caregivers give consideration to several factors in their purchase decisions. The core IYC foods and some family foods are obtained mostly from external food sources. Foods that are purchased either using cash or on credit are acquired from small local shops, vendors, hawkers and neighbours.

Several arrangements within the household exist for household food purchasing decisions. Those involved are mainly the respondent and her husband (acting separately and jointly) and other household members, mainly the mother-in-law. However mothers emerged as primary decision makers on what is purchased for the IYC. Even though some mothers may not be favourably inclined towards crediting food for their IYC others find this an acceptable strategy for meeting their IYC food needs. Other ways in which mothers cope with the need to purchase food for their IYC is by engaging in extra income generating activities to earn money. These findings suggest that a positive environment exists for the acquisition of special IYC foods by caregivers: they make the decisions on what to feed and actually do the buying of foods for their children.

CHAPTER 7: CAREGIVER PERCEPTIONS OF CHARACTERISTICS OF IYC FOODS

This chapter presents the results of a three part module aimed at obtaining information on how care givers perceive characteristics of foods from the perspective of basic value dimensions. Value dimensions refer to the characteristics that people use in thinking about and categorizing foods. A main objective of this was also to understand how caregivers view specific IYC foods in relation to their basic cultural values.

While there are many value dimensions that one could explore in relation to infant feeding, this study focused on 5 key dimensions including "healthiness", "cost", and "convenience;" the child-specific dimension is "child acceptance" (of a food.) and "influence of others." These concepts are not inclusive of all the important dimensions of culture that affect caregiver decisions and behaviors. However, based on a large body of ethnographic, nutrition and public health literature, as well as clinical experience of practitioners around the globe, a case can be made that they are important underlying ideas for most caregivers in most places in the world. Thus, the six concepts are employed in all of the FES studies, regardless of where they are conducted. They are *etic*[3] concepts because they are derived from a theoretical framework that lies outside of specific cultural settings. Therefore, it is important to investigate the "emic" content – the cultural perspectives and interpretations in each setting in order to interpret the results of the cognitive mapping.

The purpose of the questions in this module were: (1) to prepare respondents for the mapping exercise in which they were asked to rate specific foods in relation to these concepts, and (2) to understand what the concepts connoted from the perspectives of caregivers. We used guided questions with probing and cognitive mapping with rating to gather information presented in this section. The reporting for this chapter is presented subdivided in three parts

PART 1: IDENTIFYING THE MEANING OF VALUE DIMENSIONS

Healthiness value dimension

The questions for this module commenced with asking respondents about a number of sub value dimensions of healthiness of foods. These relate to foods that give energy, strength, promote growth or body building, increase appetite, aid digestion and prevent diarrhoea or illness. Whereas previous IYC studies in Kenya (Thuita, 2014a, 2014b, 2014c) had derived the sub health dimensions from respondents' answers to the general question on healthiness, this study explored views on the sub dimensions before eliciting responses on the general concept of healthiness. In presenting this report however, a more chronological approach would be first to present the general discussions on food healthiness before the sub dimensions.

The question used in initiating the discussion on healthiness was*: "When you think about the healthiness of foods, what are some of the things that make a food healthy?"* Table 7.1 represents a summary of the key themes from the responses.

Table 7.1: Caregiver-respondent qualities that define healthiness of foods (Number of respondents = 32)**

Qualities/Characteristics	No. of Respondents Mentioning this quality N

[3] *Etic* (i.e viewed from the outsider perspective)*; emic* (i.e viewed from the insider perspective)

Ingredients	
Named foods/ingredients	25
Giving/Supporting blood	18
Gives energy	
Growth promoting	4
Physiological actions+	
Organoleptic	7
Tasty	
Food Safety	25
Clean/ Well-cooked to destroy germs /well stored to avoid contamination/ clean surroundings	
Diet Quality	12
Balanced	
Diverse/varied	

Many of the responses given for the healthiness values were either similar to or repeated for the sub dimensions question on healthiness. This seems to suggest that the context had been set by the preceding discussions on the sub dimensions of healthiness which heavily focussed on foods by asking respondents to discuss foods associated with the various sub dimensions on "healthiness." Unsurprisingly, majority of the care givers spontaneously talked about characteristics of specific dishes and foods relating to their healthiness. This tendency facilitated engaging respondents in the interviews on healthiness as well as the rating exercise of a set of specific foods, which we present in the next section.

In the interviews, it was essential to understand the meaning of the healthiness concept culturally to the respondents as it was to understand how it is applied to their care giving and feeding decisions. It was therefore important for us toask probing questions to draw out the underlying motivations of respondents' views where these had not been offered spontaneously. Respondents did not only mention the various attributes and benefits of what they consider to be healthy foods, but also mentioned other features or characteristics of the foods themselves, which make them promote healthiness or detract from it.

In addition to foods and their characteristics there were also discussions relating to the preparation or cooking methods and or environment. Two main orientations emerged from analysis of the responses: namely a positive and negative orientation of the healthiness value concept in relation to IYC feeding:

i) Healthy foods and diets are foods that promote or create positive outcomes, such as giving blood and therefore promoting growth and making the child healthy.

ii) Healthy foods and diets must be balanced and contain certain vital food items (sometimes representing the main nutrition food groups) and having certain ingredients in the correct proportions, must be tasty for child to enjoy or accept and eat more for desired benefits.

iii) Healthy foods and diets are foods that actively prevent negative outcomes.

iv) Healthy foods are foods that are prepared in a sanitary environment, ensuring hygienic practices, well cooked, cooked for a long time to avoid/ remove health hazards.

v) Some foods should be avoided because they can cause illness.

vi) Healthy foods are foods that children can tolerate, and are able to eat without making them sick.

i) Healthy foods and diets are foods that facilitate or create positive outcomes. Respondents mentioned a number of different positive outcomes associated with healthy foods. The most mentioned outcome is that of "helping to create blood" or "give blood". This "blood giving attribute" is also identified to have several benefits including "helping the child grow well", "makes child healthy", "preventing blood shortage" as well as "preventing illness".

These are examples of comments that the care givers volunteered in relation to the capacity of healthy "blood giving" foods to create or support positive health outcomes:

R: "A healthy food for children is one that is prepared with the addition of shea butter or groundnut oil and vegetables such as ayoyo…Ayoyo gives blood to the body and the oils make the soup tasty for the child to eat".
I: "So what does it mean when a child's body has blood and the soup is tasty?
R:"They would be healthy and grow well."

R: "Things like alefu, eggs and amani (fish) make food healthy for children...Amani, eggs and alefu all give blood to children. They also make food taste good".
I: "Of what importance is blood to the health of a child"?
R: "Without blood the child will always be sick and dull."

R: "You see these leafy vegetables that we grow here, they are very healthy. When you eat it a lot, you will never have shortage of blood".
I: "Why are leafy vegetables healthy and why will you not have shortage of blood when you eat a lot of leafy vegetables"?
R:" It is because the leafy vegetables give you blood when you eat them, so when you eat a lot, you will get more blood and that will make you healthy"

A related dimension closely associated with positive health functions is that some foods or ingredients added to foods help make them tasty making the child eat more/accept the food in order to achieve the maximum benefit of giving or supporting blood as identified from the first three comments above. Indeed, many more respondents expressed the basic idea of food healthiness and positive outcomes directly linking good taste with health.

ii) Healthy foods and diets must be balanced and contain certain vital food items (sometimes representing the main nutrition food groups) must be tasty for child to enjoy or accept and eat more for desired benefits. Leafy vegetables, meat and fish were mentioned by many respondents as essential items that make food healthy.

"Food can be healthy if it is prepared with the required ingredients. If you prepare food with green pepper, liver, fish and meat, the food will be a healthy one and anyone who eats such a food especially children will always be healthy".

"For food to be healthy, you must add fish and meat to the food. This will make the food healthy. But if you cook without adding fish or meat, then the food will not be very healthy and you will not get much strength from it… The nurses I told you about, they teach us all these things, even they tell us to also be eating lots of leafy vegetables, that it gives blood. So when we are preparing food for the children and we cannot even afford to buy meat, we can add anchovies to the soup or stew".

R: "Also when you prepare tea for M and children like M to drink, it is important to add milk to the tea for them to drink it is not good to give them black tea alone to drink."
I: "Please why should milk be added to the black tea for M to drink"?
R: "The black tea alone does not give the child any strength or blood. It is the added milk that gives the child the strength. As for the black tea, it is just to fill the stomach and nothing else".

Iii) Healthy foods and diets are foods that prevent or avoid negative outcomes. The other side of the coin, with respect to healthy-giving qualities of foods is that some of them have the capacity to prevent undesirable conditions. For example, some foods that are credited to give blood help to prevent illness, as expressed in the earlier dialogues.

iv) Healthy foods are foods that are prepared in a sanitary environment, ensuring hygienic practices, well cooked, cooked for a long time to avoid/ remove health hazards and harmful effects of ill health. This general category of healthiness with respect to food focuses on preparation and the importance of "clean" foods that do not cause illness. At the heart of this dimension are issues of sanitation, clean water and food hygiene in preparation and storage. The concern with the multiple dimensions of food safety was a central theme in the interviews. Here are some examples:

R: "When food is well cooked it will be healthy.
I: "What do you mean by "well cooked"?
R: When you make food boil for a long time it guarantees that the food is well cooked. This will prevent stomach upsets and diarrhea when eaten

"Some of the things that can make food healthy is cooking food in a clean environment and eating food when it is hot".

R: "Covering food to prevent flies from settling on it and also when you avoid keeping food for a long time before eating, food will be healthy".
I: "When you say keeping food for a long time what do you mean"?
R: "Some people can keep food for more than 2 days and what they do to is, to keep reheating the food, in doing so, the food may not be well reheated and that will make it harmful if eaten".
I: "What does harmful mean"?
R: "It can cause stomach pains that is what I meant by "make it harmful".

"When cooking, the water used must be clean otherwise the food will make the child sick".

v) While some foods can actively prevent illness another issue for healthiness and food safety is that some foods should be avoided or eaten in moderation because they can cause health problems. Thus, foods that are low in salt or oil are also seen as healthy because they help you to avoid problems associated with consuming too much salt and pepper. Healthy diets were therefore considered to contain certain ingredients, (such as pepper, salt or oil) in correct proportions or in moderation as too much of these could make a child ill and less of it would be healthy for the child. As many Ghanaian dishes are spicy and contain pepper it is important for mothers that the food they fed their IYC contained less pepper to enable them tolerate the meal and eat more.

> *"The way you combine your ingredients to cook also makes food healthy. You should make sure that every ingredient you add to the food is not too much. Like little salt, little pepper and little oil and these will make food healthy".*
>
> *R:"Pepper burns the gums of children and makes them eat less food".*
> *I: "What is the implication of a child not eating much"?*
> *R:" If she does not eat much she would disturb me and I wouldn't be able to do my house chores"*
>
> *"When cooking the ingredients salt and pepper must be in a minimal... During weighing period, we were also told that too much of salt and pepper will lead the child in getting diarrhea".*

vi) Healthy foods are foods that do not make you sick.

A few respondents would consider healthy any food that when eaten did not make one sick/ill. As long as this food did not cause any adverse effects such as diarrhea then they are healthy foods. The following responses were given to the question "what foods would you consider as healthy"?

> *"Our everyday TZ with soup that we eat is healthy. Once we don't get sick when we eat it and have energy to move about our daily activities it is healthy".*
>
> *"Any food that you eat that will not result in any problem like giving you diarrhea or make you sick is a healthy food".*

Sub-dimensions of healthiness

As explained earlier, specific aspects of "health" relating IYC foods were explored before the general question on healthiness. These dimensions of healthiness were selected from previous studies in Kenya in which key informants and care givers had mentioned a number of different features about healthiness. We consider these here as "sub-dimensions" of the value. These include energy, strength giving foods, foods that build the body and promote growth, those that increase appetite, foods that help with digestion and those that prevent diarrhea or/and illness. To understand these sub-dimensions further, caregivers were asked about specific foods in each category. The question was posed as "*Are there any foods for infants and young children that are especially good because they give/aid/prevent ….(sub*

dimension). Table 7.2 presents a list of the foods generated from respondents' interviews for each of the sub-dimensions of healthiness.

The table provides a snapshot view of the range of foods mentioned by respondents for each of the sub value dimensions. It is clear that the first 4 columns for energy giving, strength giving and body building/promoting growth, increasing appetite are more populated than those for, aiding digestion and preventing illness and diarrhea.

Also obvious from the table is the fact that there are more mentions for staple foods for the first 3 sub health dimensions than there are for other the food groups like fruits and beverages. Fruits receive more mentions for the last 3 sub dimensions of increasing appetite, aiding digestion and preventing illness and diarrhea. Considering that it is noted on page 37 that fruits are not reflected in the foods recalled for the 7day IYC or household feeding, it appears fruits are more likely to be perceived as "special food" to introduce to IYC diets to solve a problem and not one to be eaten as a matter of course.

Another feature of the table is the lack of or the minimum cultural consensus of the associations with the sub dimensions for many of the food, meals, ingredients and drinks, except for a few such as beans/beans stew, rice + stew, moli koko, TZ + Ayoyo/Bra/leafy vegetables and oranges

Illustrative comments from caregivers during the interviews are further analyzed and discussed in further detail in the subsequent sections following the table 7.2.

Table 7.2: Foods[4] associated with Sub Value Dimensions on healthiness

Sub health value dimension	Energy	Strength	Build body/ promotes growth	Increase appetite	Helps digestion	Prevent Diarrhea and other illness
Foods/Ingredients	**Number of respondents mentioning**					
Aduwa	2		2	1		
Banku	2	2				
Beans	12	7	7	3	1	6
Biscuit	1	2				
Eggs	2	2	7	3	2	
Fufu	4	3				
Koko (enriched)	3	3 (+ 1)	4	1		1
Millet koko	3			1		
Moli Koko	8+ soya	4+soya	3 + soya	4	4	
Koko Bali	2	1	2			1
Leafy vegetables	4	3				1
Meat	1	1	1	1		
Rice & stew(with beans)	4	5(1)	8	3		2(1)
Spagetti/Talia	1		2			
TZ with Ayoyo bra	 12 10	 10 1	 9 2	1	2	5
Yam	1	2		1		
Zimballi	1	1				
fish	1		1	1	1	1
Bones	1	4	3	1		
Dawadawa (+ jollof)		2 (+1)	2			
Tomato stew	2		1	1		
Palm oil	1		1	6		
Zimbeo/zimbergu	1	3	4			1
koose	1					
Alefu			1	1		
Ground nut soup	1		1			
Banku with okro/alefu	2	1	2			
Fufu with light soup	1	1	2			
liver				1		
Yama		1				
Bambara Beans/		1				
Guinea corn	1					
Soya bean	1					
Gablee	1					
Fruits						
pear				1		2
Banana	1	1		1	2	3
Pineapple	1	1		1		2

[4] These are multiple mentions

Oranges	1			10	5	4
Mangoes				3		1
Water melon					1	1
Wild fruit (Shea)				1		
apples						1
Black berries						2
Cereals and beverages						
Cerelac	1	1	1	1		
Lactogen		1		1		
Malt			1	2		
Milo			1			
Milk			2	1		1
Tea with Milk/sugar (+bread)	1 (+1)	1 (+1)	5	1		1
Tea	2					
Rice porridge + milk					1	
Breast milk		1	2		1	
Malt		1				1
General / Non Food specific responses						
Don't know		3	5	7	11	9
Medicine				5		2
Eating healthy/ healthy foods			1		1	3
Clean surroundings					1	4
Clean habits /washing hands with soap						2
Clean food						2
God gives strength		1	1			
Water / A lot of water					5	
Foods without pepper						2
Well cooked foods						1
Enema + ginger					1	
Food child likes				1		

Perceptions relating to specific sub-dimensions of health

Healthiness sub dimensions: Energy / Strength Giving Foods/ Growth promoting and body building foods

An analysis of the set of responses in the commentary accompanying the foods mentioned for the various sub dimensions on healthiness showed that whereas all respondents provided examples of energy-giving foods a few (3 respondents) mentioned that they were not aware of such foods that give strength and even more so for the other sub dimensions; 5 respondents for body building/growth promoting foods.

Another feature of the comments is that there were similarities or in some cases repetitions or references to comments made for both energy giving and strength giving foods. A number of respondents perceived the two dimensions to be similar or the same and therefore the same foods required to achieve the desired benefits for both as explained by these caregivers:

> *I: "Are there any foods for infants and young children that are especially good because they give strength"?*
> *R: "But the same food that gives energy also gives strength".*
> *I: "How do you mean?*
> *R: "I say that because to me strength and energy are the same".*
>
> *I: "Are there any foods for infants and young children that are especially good because they "give strength"?*
> *R: "All the foods I mentioned that they give energy can also give strength to a child*
> *I: "What other food gives strength?*
> *R: "I think a bone meal and meat also gives strength to a child…and beans as well."*
>
> *R:" The foods that give the children energy are the same foods that give them strength".*
> *I:" What foods are these?"*
> *R: "The foods I just mentioned to you such as the banana, meat, pineapple and eggs, also give the children strength because, it gives them more blood".*

Similar to energy and strength giving foods are respondents' comments/explanations mentioned for foods that promote growth and build the body. The common features/qualities common to the 3 sub dimensions are summarized as follows:

- Child is very active and plays when this food is eaten
- Food gives blood and therefore gives energy/makes child strong/makes child grow
- Food is heavy/it is heavy in child's stomach/makes child full/makes child grow
- Food is heavy and therefore makes child heavy (and happy) to play around
- Health professionals have advised these foods are good/give energy/promote growth
- Foods that are not spicy and would not irritate stomach
- Food preventing illness and making child grow (well)
- It is God who gives strength/makes the child grow not the food that he eats. (minority)
- Not the type of foods but child eating well and getting full (minority)

Table 7.3: Care givers' perceptions of attributes/benefits and selected comments on energy/strength giving and body building/growth promoting foods

Summary of attributes/benefits	Examples of supporting care givers' comments on attributes and benefits of energy / strength giving foods body building/growth promoting foods
Child is very active / evidence of being strong/having energy manifests in child being active/playing around	*R: Yes, foods like moli koko with sugar and milk, TZ with vegetable soup, fufu, rice and yam with tomato stew all give energy to children".* *I: "How do you know this?"* *R: "Like when a child eats them she is very active and runs and plays with the other children".* *" Foods such as TZ, rice, fufu and zimbuli, all these foods give energy when you eat them.* *These are the foods we eat always and anytime we eat any of these, you have energy to work on your farms and when you feed these to children like N, they will have energy to be playing around".* *"Breast milk, moli koko, Zimbeao…When children take these foods they are always active and playing around".*
Food gives blood and therefore gives energy strength /makes child strong/makes child grow.	*"Yes there are foods that give children energy. It is foods such as beans, banana, pineapple and orange. When children like K eat these foods, they get more blood which gives them energy".* *R:"Yes, malt gives strength to the bones of children. Tealeaf with milk also gives strength, TZ with any soup and rice with alefu stew also gives strength.* *I: "What about these foods makes them give strength"?* *R: "Alefu and milk both give blood and does not make children fall sick "by heart" (easily) and when a child does not fall sick by heart then such child would be strong in the body always".* *R:" I know eggs, tea with milk and moli with milk make children grow and it even gives them blood".* *I:"What about these foods gives them blood and make them grow"?* *R:"The milk added to the tea and moli gives the blood and also makes them grow but for the moli koko alone it gives them strength and energy".*
Food is heavy / it's heavy in child's stomach/ makes child full/ child has weight/makes child grow	*"Yes, foods like t.z with vegetable soup, and rice and beans give children energy because they are heavy in the stomach".* *"The foods that give children energy are, TZ with Ayoyo soup, koko and zimbeao…They are heavy so when children eat, they will be heavy".* *"Yes, foods like moli koko, tea with bread and milk, boiled yam, rice and tomatoes stew and beans make children strong in their bones. When I lift her up because she takes these foods she has weight and also from the clinic they said these foods makes their bones stronger".* *R: "Foods such as powdered milk, cerelac, milo and malt".* *I: "What makes these foods build body and promote the growth of young children like Y and infants"?* *R:" When children eat these foods, they grow fat and become heavy".*
Food is heavy and therefore makes child heavy /strong to play around	*"Rice with tomato stew, TZ with Ayoyo. When a child eats these foods, she feels heavy and happy".* *"What I know is that, foods like TZ, fufu and banku give children energy. These foods are heavy so anytime children eat it, they become strong and they will just be running around playing".* *R:"Yes, foods like zimbuli and tea with nido give children strength. Whenever B drinks them I see he is strong".* *I: "What do you see in him which shows he is strong"?* *R: "When I lift him up I also see he is heavy and that means he is strong in the body"*
Health professionals have advised these foods are good/give energy/promote growth	*"We were advised by the nurses not to be removing the outer skin of the maize before using it to prepare TZ, so that, it will give us energy. So if you prepare the TZ with the outer skin on, it will give you energy but if you remove the outer skin before using it to prepare the TZ, then you will not get the energy from it".* *R:" It is foods like beans and leafy vegetables which give the children like M strength".*

	I: "Why do beans and leafy vegetables give children like M strength"? *R: "Honestly I don't know but that is what we have been told at the clinics, that we should be giving the children beans and leafy vegetables and that, it will make the children strong"* *I: "Do you know of foods that are specially good for building children's bodies and helping them grow"?* *R: "Breast milk, Rice & spagetti with stew, TZ with Bra/Ayoyo soup, Beans, Eggs".* *I: "Why do you say these foods promote growth"?* *R: "We were advised by nurses at CWC that these foods help children to grow".* *" Just as I said, I learnt from the hospital that, beans, eggs and milk are very good for children's growth and so we should give to our children if we can afford".*
Avoiding spicy/heavy foods to prevent stomach upsets in much younger children	*R: "Madam though I don't feed my child with TZ yet there is a woman in my house who said it gives her child energy to play".* *I: Why don't you feed your child with TZ?* *R: I don't feed him with TZ because he is too young to eat it. When he eats it his stomach hurts".* *"For me what I know is that when a child starts to eat it is good to give moli koko instead of TZ..: the soups sometimes can make a child run diarrhea but the moli koko will not as it does not contain pepper. A child's stomach at this age is not strong enough to take pepper, even an adult when you take too much pepper sometimes you go to toilet".*
Preventing illness means children grow well	*Zimberu contains beans, groundnuts and soya beans and all these give children good health. When children eat them they don't fall sick often and when they don't fall sick then they would grow faster".* *"Yes, when you give a child beans with amani, and maize milled together (zimbeau) it gives them blood and because they have blood they would not fall sick often and they would grow faster".*
Growth of child depends on God not food/God gives strength not food.	*"I am not aware of any food that does this because as for the growth of a child it depends on God and not food"* *"As for strength, it is God that gives strength, if you eat all the food in this world and God does not give you strength, you cannot have it."*
Not type of foods but child eating well and getting full	*"There is no specific food that gives energy, the only thing that gives energy is making sure the child eats food very well to her satisfaction so that she would drink a lot of water; even from the hospital we were told to always get time to sit for the children to breast feed very well. They said that way the child would always be strong to run round".*

Healthiness sub dimension: Foods that increase appetite

Seven respondents reported not being aware of any foods that help in increasing children's appetite, while a further 5 mentioned being aware that there were medicines that helped in enhancing appetite as indicated below.

> *"I don't know of any foods that increase appetite the only thing I know that increase appetite is medicine".*
>
> *"I don't know of such foods, what I know of is drugs that help children and even adults to eat a lot."*
>
> *"No, I don't know of any foods that increase appetite. What I know of is B'co (Vitamin B complex) medicine that people take to boost their appetite.*"

Table 7.4: Perceptions of attributes/benefits and selected comments on foods that increase appetite

Summary of attributes / benefits	Examples of supporting care givers' comments on attributes and benefits of energy and strength giving foods
Visual appeal: Different colours of ingredients in the food make food attractive to increase appetite	*Yes, moli koko with milk, t.z with ayoyo prepared with the use of palm oil, meat, eggs, ice fish, whole Amani, ... when a child who does not want food sees the red colour of the palm oil mixed with the green ayoyo soup that child will be attracted to such food".* *"The beans with palm oil also give it an attractive look and make it appetizing. So it increases appetite"*
Good tasting food induces appetite	*"Yes, when you mix moli koko with eggs to prepare it tastes good and when a child should taste it he would feel like eating more of it".* *" if you prepare food and make it very tasty with something that would attract her and draw her attention to the food definitely she would eat more of the food.* *I: what do you mean when you say something that would attract her?* *R: I mean when you add meat or egg to a food it will call her to eat such food because she wants to get the egg or the meat to eat"*
Right texture makes food easy to eat: Slippery texture will encourage child to eat	*"Because it is slippery it will encourage her to eat a lot of it".*
Children are attracted to certain foods: Meat, fish eggs/milk	*"For the milk added to the moli koko, every child at the same age as her who sees milk being added to koko will naturally want to take such food".* *"Meat and fish always attract children to food and so whenever they see these things on food because they want to eat them they would eat the food even if they are not hungry".*
Certain foods enlarge/increase children's stomach and make them eat more	*"Yes, orange enlargens/ increases children's stomach and when that happens they go hungry and so eat a lot of food."* *"Porridge made from preparation of t.z also increases the stomach of children and makes them eat a lot; aduwa enlarges a child's stomach and makes him eat a lot".*
Appetite enhancement is explained as children being drawn to foods that they like and which they eat more of.	*"Meat, powdered milk and malt...This is because, children like these foods and when it is added to food or given to them, they will eat it."*
Appetite enhancement is explained as fruits /some foods that induce hunger thereby increasing child's appetite to eat more	*I: "Are there any foods for infants and young children that are especially good because they increase appetite?"* *R: "Foods that the child likes eating and oranges".* *I:" How does oranges increase the child's appetite"?* *R: Whenever you eat oranges we feel very hungry and the nurses advice during CWC that, we should give the children oranges since it will give them appetite to eat and fight sickness in their body".* *"Yes, foods like oranges, mango and malt. This is because when you eat them you become hungry"* *R:"Oranges, shea fruits, dawadawa fruits, Banana, water".* *I: "Why do they increase appetite"?* *R: "When one eats them you get hungry quick".*
Don't know of any foods that increase appetite / only know of medicines/drugs	*"Sometimes some medicines that give blood can increase appetite. Like the medicine my husband bought for A when he was sick".*

Healthiness sub dimension: Foods that aid digestion

Nearly a third of the respondents (11) reported not being aware of foods that aid digestion and some even seemed surprised that there were such foods, as portrayed by this respondent.

> *R: "I don't know of any such foods. Are there foods that help digestion in children?"*
> *I: "That is what I want to know from you?"*
> *R:" Ok, then I don't know of any such foods."*

Of those aware of foods that help digestion, fruits received the most mentions of 8 (particularly orange), followed by moli koko receiving 4 mentions. Orange is perceived as relieving bloated stomachs and constipation as well as "causing the stomach to reduce in size" after eating oranges when one has had a lot to eat, as described in the following interviews.

> *"Orange is good and helps in digestion in children and even adults. When you eat and you have bloated stomach, the orange can help to relieve it and help you to easily go to toilet".*

> *"Actually, it is orange that I know can help digestion. Here in this community, when someone complains that, he is finding it difficult to go to toilet, they will advise you to get an orange and eat".*

> *"Yes, whenever a child eats so much and takes oranges the belly reduces in size and that means the food has gone down the child's stomach".*

For some of the other foods mentioned, the description used in explaining their digestion aiding qualities is being able to relieve oneself easily after eating these and also with the phrase "food has gone down well" as described by these two respondents:.

> *"Are there any foods for infants and young children that are especially good because they "help digestion?"*
> *R:"Yes, foods like beans, moli koko with milk, rice porridge with milk and eggs* ***go down well in children's stomach****."*
> *I: "How do you know this?"*
> *R:"When a child eats these foods she is able to go to toilet freely and that means the* ***food has gone down well."***

> *"Yes, raw ground nuts; when a child eats raw ground nuts such a child is able to go to toilet freely and that means the* ***ground nuts has gone down the stomach very well"***

One respondent also uses the phrase of "food escaping from the stomach" in describing the role of banana in aiding digestion.

> *"Yes, banana, it makes food escape from the tummy and children are able to go to toilet freely when they eat it"*.

Additional to a few staple foods and fruits mentioned, were a few non food specific responses, with water receiving the most of 8 mentions for aiding digestion as advised at Child Weighing Clinics.

Healthiness sub dimension: Foods that prevent illness and diarrhea

This question was asked almost as a double barreled one however most respondents separated the two in their responses with more being unaware of foods that prevent diarrhea specifically than those preventing illness in general. The majority mentioned not being aware of any foods that prevent diarrhea while a few mentioned different fruits preventing illness (as advised by health workers) or other non food solutions/remedies. A few staple foods such as beans and other ingredients were also mentioned.

> *"TZ with soup and a little pepper will prevent diarrhea and other illness. Beans, and vegetables are also good. They help to prevent diarrhea and other illness."*

> *"It is rice and beans that I know prevent diarrhea and other illness. But bambara beans and red beans (sanzhei) causes stomach upsets."*

> *"Beans, TZ with ayoyo soup, koko balli (saali)and all foods without pepper."*

> "Yes, *orange, banana, pineapple, pear and all the other fruits prevent children from falling sick but I do not know about the ones that prevent diarrhea in children*"

Interestingly, but unsurprisingly, a few mentioned non food solutions (medicines) for preventing diarrhea and other illnesses.

> *R:" I know that only medicine can prevent a child from diarrhea and sicknesses but for food I am not aware of any."*
> *I: "So which medicines can do that"?*
> *R:"Amoxicillin and septrin syrups"*

A few respondents, instead of identifying foods that prevent diarrhea, rather mentioned those that cause stomach upsets or diarrhea evidenced from the two responses below.

> *"But bambara beans and red beans (sanzhei) cause stomach upsets*

> *"I know that if a child eats aduwa it sometimes makes such a child run diarrhea but the food to stop a child from running diarrhea is something I don't know."*

Blood giving foods

As discussed in the section on general healthiness value dimension foods perceived as blood giving also have qualities to prevent illness. The thinking behind this is that shortage of blood is perceived to cause illness. Dawadawa was mentioned by many respondents as having blood giving qualities.

Other health promoting fruits

One respondent mentioned banana's ability to de-worm and oranges and apple perceived to increase body fluids because of their water content.

> *"I learnt from my colleagues that banana removes worms from the stomach and then also because apple and orange have a lot of water in them they increase water in the body.*

As for black berry because it is also a fruit I know it is good for the body as I was told at the hospital that fruits prevent illnesses but I don't know exactly what they do for the body".

Negative orientation of food cooking and feeding practices: Illness prevention
A few care givers mentioned a variety of beans that must be avoided as they are perceived to cause stomach upsets and diarrhea. Also food safety or rather lack of it was to be avoided as preventative practices to promote good health.

"Madam, I don't know of any food but I think if the food is cooked well the child will not get diarrhea…When a child takes food that is not well cooked they have stomach pains and diarrhea".

Child acceptance value dimension

For many caregivers, it often is a challenge getting children to accept all of the foods they would like to feed them. The notion that foods may differ from each other in the dimension of "child acceptance" is therefore important to understand as part of mapping caregivers' cultural beliefs/knowledge. As with healthiness and its sub dimensions, it was important to first explore the Karaga caregivers' perception of acceptance before we ask them to rate specific foods on the concept of child acceptance. To elicit their views we asked: *"In your opinion*, *what are some of the things that make a child accept food?***"**

From analysis of the interviews that were generated by this question, we identified two distinct categories of responses:

1. Major theme of *food characteristics* that make children accept food
2. Sub themes of *child's own favourite foods, managing the feeding process, and child's physiological state*

Characteristics of food that promote its acceptance by IYCs as highlighted by caregivers are detailed below.

1. Food Characteristics
   - Taste: Good taste or tasty achieved through , "food well prepared", use of a range of ingredients, sugary/sweet foods, less spicy/peppery food (**22** mentions in total)
   - Texture: Watery/soft food/ easily chewed or swallowed (**12** mentions in total)
   - Visual appeal: Attracted to colourful food/attracted to proteins – meat, eggs, beans, fish (**18** mentions in total)

2. Child's favorite food/food child likes (may be attributed to a combination of the characteristics above)

3. Child's physiological state – very hungry children exhibit limited choice/sick children don't easily accept food, children with appetite easily accept food

4. Feeding practices: Devoting time and attention during feeding (only one respondent)

Food characteristics and child acceptance of food

Many respondents mentioned a combination of the above mentioned characteristics making food acceptable to children; therefore these are not mutually exclusive in that it was possible to achieve multiple characteristics in one meal.

Taste

Good taste or tasty food was achieved by adding particular ingredients to the meal such as meat, fish, eggs, alefu, wagashie, tomatoes among others. The right taste implied for some, ensuring spicy items like pepper are not too much to put the child off and also the food is cooked long enough to ensure it is well cooked.

> *"The only thing to make a child like food is to make the food taste good; every body's mouth likes delicious things and so if the food is tasty then the child would want to eat more".*

> *"If you add fish, alefu and eggs to food it would make the food taste good and this would make a child eat more of such food. Also if there is not much pepper in a food to burn the child's mouth, he would like such food and eat it".*

> *"When you cook food well so that it tastes nice enough every child will definitely accept the food…Cooking food with all the ingredients like meat, fish, maggi I mentioned and making sure the food stays on fire for a long time so that you will be sure it is a well-cooked food."*

Taste as an attribute that makes children accept food was also described by caregivers as "sugary", "sweet", or adding sugar to foods such as porridges and beverages as described by the following respondents.

> *"When sugar is added to food to make it sweet a child will accept...And milk too. When you put it in food it will make a child accept"*

> *"When the food is sweet and the child tastes it, she will accept…Putting sugar in koko or adding milk to tea. Cerelac is also sweet. So with such foods the child will accept."*

> *"Ok, with the TZ and soup, when you add meat and also fish to the soup when you are preparing it will make it tasty and the child will eat ".*

> *"When food is tasty or sweet a child will accept it such as sugary foods. If you put sugar in koko the child will accept because it is sweet and when you add Nido to moli koko, or add both to tea the child will accept because it is sweet. When you cook with fish and meat, that is if you can afford it, all these will make a child accept the food."*

Much as many caregivers mentioned several ingredients that are used to achieve the desired taste, a few acknowledged that affordability may be a barrier to achieving this, especially where the ingredients have to be purchased from the market. We stated on page 45 that mothers were mainly responsible for the purchase of soup making ingredients and essential commodities such as sugar, Nido etc. Many mentioned finding this role burdensome due to scarce household food budgets.

> *R: "If you cook and the food tastes nice, then definitely the child will eat the food but if you cook and the food doesn't taste nice, then the child will not eat it".*

I: "What will make a food taste nice"?
R: "like I told you earlier on when cooking and you add tomatoes, meat, and amani to the food, also take your time to prepare the food then definitely the food will taste nice. You see, all the things that will make a food taste nice are sold in the market and you need money to buy but here, there is a lot of poverty and I for instance cannot afford to buy all these ingredients to cook for A".

Texture

Many caregivers are mindful that their children, especially the younger ones, are able to swallow the food to make it acceptable to them. This is achieved by both the type of meal such as porridges (moli koko) which are described as "very soft, watery", as well as the cooking process such as boiling rice for a long time to soften it enough so that minimum or no chewing is needed by the child. It was important that -the texture of food for teething/yet to teeth children do not create any discomfort for them to make the food acceptable. The following reproduced interviews reflect the various aspects of food textures that are acceptable to IYCs:

"Foods like moli koko are easily eaten by children because they are watery and soft in the mouth; like I already said if the food is soft too then a child will not suffer to swallow it"

"If a food is made to cook very well, a child would like to eat such food. What I mean is that if it is made very soft definitely a child would not suffer to eat such food. For instance if you make rice to boil very well you see a child will only put it in the mouth and swallow and wouldn't have to chew because some of them at an age like N do not have teeth and cannot chew so if food is hard and they put it in their mouth they would just refuse to eat it again."

"At an age like R's her teeth is not well developed so I make sure I give her foods she can easily eat because immediately she tries to eat a food and realize it pricks her gum or makes her feel uncomfortable in the mouth then she will never eat such a food again next time I give it to her."

Visual appeal

Care givers also identified the visual appeal of food as a prerequisite for child acceptance. Phrases such as "dress food with wagashie (fried yoghurt)" is suggestive of that deliberate attempt to use as garnish as well as the different types of protein sources such as eggs, fish, meat among others because children like and are drawn to these. Also references made to the child "seeing" these mean these are likely to be placed on top of the food for the child to see them and be drawn to the meals. The following reproduced interviews aptly explain the cooking practices and desired outcomes that care givers adopt to achieve visually attractive food for their IYCs.

R: "Like I said when you add things such as amani, eggs, alefu and beans definitely a child upon seeing them would like to eat such foods because they would be tasty".
I: "So aside these things you mentioned how again would a food be that a child upon seeing it would like to eat it"?
R:"If you dress a food with wagashie or meat every child would like to eat such a food because they like wagashie and meat a lot"

"When you prepare food with palm oil, alefu and eggs, it makes the food attractive and so draws a child's mind to the food."

Some care givers were also likely to use colour to make food attractive to children. For example, palm-oil is used in achieving such visual appeal as shown by the following quotes:

"If you cook the food in such a way that it looks colourful and attractive every child will accept. Like adding palm oil to food, it will make it look nice and the child will accept. That's why I add palm oil to soup and beans and the guinea corn to maize to make koko for her. This gives it an attractive colour and the child will accept."

R: "Food that is prepared with palm oil, and a food that contains eggs and meat will always attract a child to eat even if the child is not hungry".
I: "What about these things in a food will attract a child to them and make them like the food"?
R: "The colour of the palm oil draws their attention to the food and for the eggs and meat every child likes them and on seeing any of them on food would run to eat such food."

Feeding practices

Child's favorite meals/individual preference
A few respondents, while identifying different food characteristics as helping to make them more acceptable to children, also acknowledged what appears to be simplistic and yet obvious trigger that make children accept meal. Children are more likely to accept food they like as mentioned by 11 respondents. A respondent mentioned that her child likes tea with basic ingredients of water, sugar, and possibly milk. What is not clear is what about tea makes the child like it a lot, whether it's the liquid texture that makes it easy to drink and swallow or the sugar and milk identified by other care givers as ingredients their children like as well. In interviews where more probing was done, it was clear that many of the afore mentioned characteristics were essential to children liking foods, but also it seems ingredients like sugar, rice, eggs and milk are children's favourites as shown by the quotes below.

R: "As for child acceptance, when you prepare foods that the child likes then he would eat it."
I: "So can you please tell me what makes K accept food"?
R: "For instance, if I add sugar to his morning koko, then he will drink it a lot but if I don't add sugar to the koko, then he would not even drink it. Also when I add meat to his food, he eats a lot. Also, foods such as rice and eggs would appeal to K and he would like to eat it ".

"I told you earlier on that, H likes tea a lot, so when I prepare tea for him anytime, he would drink it. Also he likes drinking cow milk so anytime I buy him cow's milk, he would finish drinking it."

Devoting time and attention during feeding
Only one respondent referred to the actual feeding process and mentioned coaxing a child to eat and spending time feeding him will make him accept food.

Child's physiological state

For the minority of caregivers, it was important to point out that a hungry child would accept food regardless. One respondent also added that a sick child is unlikely to accept food while a child who has appetite will obviously accept food.

Ease of feeding as a value dimension

Related to child acceptance of food is how easy it is to feed the child; the two concepts somehow seem to be two sides of a coin. To obtain care givers' views on what makes the feeding process easy we asked them this question; "in your opinion what are some of the things that make a child eat food easily. Other variants of the question are used as probes. Our content analyses of the interviews indicate two main themes emerging:

I) Food characteristics relating mainly to making the food easy to swallow which is achieved through food preparation and feeding at the correct temperature
II) A child centered feeding process

A summary of the sub categories under the two main themes are presented below:

i) Child Centered feeding processes/practices

- Child easily/readily accepts food – 9 respondents
- Child's own food preference/favourite – 7 respondents
- Child being able to feed themselves – 6 respondents
- Child able to eat food without a spoon/ easily eat with fingers – 6 respondents
- Child not unwell – 1 respondent
- Child hungry – 1respondent
- Child tolerates food and – 1respondent

ii) Food attributes /characteristics

- Food is easy to swallow (generic statement) – 7 respondents
- Food is soft – 7 respondents
- Food has right temperature – 7 respondents
- Food not spicy – 2 respondents
- Food tastes good – 2 respondents

It is again worth mentioning that these attributes and benefits were mentioned in different combinations by many respondents, and many would mention more than one of these in their responses. Respondents were very forth coming in their responses, an indication that the question and concept of ease of feeding was relevant to their care giving roles and IYC feeding to achieve the best outcomes for their children. We have discussed these themes and attributes in further detail with corresponding verbatim comments in the following section.

Child centered feeding processes/practices

Child easily/readily accepts food

As solutions to easy feeding, 9 respondents mentioned usually serving children foods/meals that they readily/easily accepted. A few would go on to point out that this was because their child was a fussy eater or didn't like eating.

"When it comes to feeding her, I think the foods that she readily accepts are what I will consider as easy to feed. With such foods I don't have to coerce her to eat. She just takes it like that; like moli koko, tea, and TZ with ayoyo soup".

Child's preferences/favourites

Possibly, another way of articulating the above view by 7 respondents was to indicate that children were easy to feed if they liked the food, reiterating the view shared by 11 respondents for the child acceptance value dimension. Again it is reiterated here that mothers adopted the approach of ensuring that children who didn't eat much or were fussy eaters were given what they liked, evidenced from the following comments from respondents.

"Like I said, she doesn't like eating much. So for me any food that she likes and will eat plenty when I feed her it's what I will consider as easy to feed".

"If she likes the food well enough and accepts it when I feed her, then I will say it is easy to feed her. Any food that she will accept without struggle is easy to feed".

Child feeding himself

For 12 respondents ease of feeding was related (among other factors) to child being able to feed themselves, in some cases foods that they do not require the use of a spoon and being able to eat with their fingers. Care givers highlighted the fact that some foods were easier for the children to feed themselves as illustrated in the following quotes:

"H is able to eat all by himself but the foods that are easy to feed him is normally TZ and especially if the soup is ayoyo. Rice too is quite easy to feed him. It is normally when foods are hot and foods that he has to use a spoon such as tea and koko because though he can use a spoon, he is not very good at it."

"The foods that are easy to feed K is normally TZ. This is because, with the TZ, he can easily eat with his hands but foods such as rice, tea and koko are not so easy to feed because he would have to use a spoon to drink the tea and the koko and he does not know how to hold the spoon to eat. With the rice by the time he actually finishes eating, then half the rice is on the floor unless I feed him."

Child's physiological state

One respondent mentioned that if the meal was sweet, the child was hungry and not unwell then he would feed easily. This is the only reference to the state of hunger and health of the child.

Food tolerance

One respondent also mentioned this in relation to her own experience with her child who she reported as being sick after feeding most often. Ease of feeding for her is when her child tolerates what she's fed with.

Food attributes /characteristics

The one most important benefit of food/meals given to children relates to making it easy for the child to swallow. This could also be described as making the eating process less

uncomfortable, being able to chew without difficulty and mainly achieved through cooking practices and feeding food at the right temperature. Soft, less spicy (less peppery) and warm (not hot) foods and served in small bite sizes were all mentioned as making the feeding process easy as the following comments aptly sum them up.

> *R: "Like the eggs for instance, for a child to be able to eat you would have to cut it into small pieces so he can pick little at a time to eat and if it is TZ too, I make it very soft so he can easily swallow".*
> *I: "Why is it so important that he be able to swallow the food"?*
> *R: "If he can swallow without difficulty then he would eat more and be healthy".*
>
> *"For food to be easy for a child to eat it should be first of all delicious and then made soft for their soft mouth. Even though some children at this age have teeth but they don't have the molars and premolars to chew and so when giving them meat as part of their meal you should make sure it is cooked very soft so they can use only their front teeth to chew and swallow".*
>
> *"If the food is not hot but warm, because they say we should not give cold foods to children as it would give them cholera…then also when you are to cook a child's food you should not add much pepper because pepper burns their mouth and throat and this can cause them not to eat the food".*

It is interesting to point out that one respondent mentioned that ease of feeding was as important to the child's comfort as it was for her (the caregiver's) own peace of mind as the following interview vividly portrays.

> *"In your opinion, what are some of the things that make a child eat food easily"?*
> *R: "I always make sure I give her foods that are not very hot so she can eat by herself when she needs to. Hot foods would burn her mouth and she won't be able to eat much of the food."*
> *I: "What would her not being able to eat a hot food do to you"?*
> *R: "We all know what hunger does to a child".*
> *I: "I don't know you tell me, what does it do to R"?*
> *R: "If she is not able to eat much she would be crying and disturbing me and I cannot do my house chores".*
> *I: "Is there anything else you do to food to make it easy for her to eat"?*
> *R: "I also prepare foods that are not so difficult to swallow like tea with bread and moli koko since they are watery and she doesn't have to suffer before it passes through her throat."*

Cost value dimension

To explore care giver's perception of cost with regards to feeding decisions for infants and young children, we posed the following question: "*I would like to understand what cost means to you when it comes to feeding IYC".* We note from the responses from caregivers to the general statement from the interviewer that many began their comments with an orientation to the concept of "expensive," or "their financial standing" followed by explanations about foods that they regarded as expensive and difficult or impossible to buy. Others began by affirming that regardless of their financial standing, they were prepared to feed their children to achieve their desired outcomes. Yet a third group discussed foods that are cheap and

offered explanations for why these foods are within their reach financially. This basic division in orientation regarding concern about expensiveness versus cheapness was skewed towards those who expressed cost in a negative light within the sample. Caregivers' responses could therefore be grouped under positive and negative orientations with regards to the following:

- Cost of foodstuffs and affordability
- Financial status and barriers to food choice and meeting IYC feeding needs
- Feeding IYC exclusively or feeding on family foods
- Food seasonality and effect on costs
- Farm ownership and effect on food expenditure – food sourced from farms versus foods purchased

Positive orientation of discounting food costs as a challenge/an issue

Seven respondents reported that they did not consider cost as a challenge in meeting the feeding needs of their IYC for various reasons. Caregivers cooked whatever was available and the cost of which was within budget and considered affordable. This also depended on the kinds of food that the IYC likes as explained by this respondent.

> *"Well I cook what I have for her and it is even easier for me as she likes much of moli koko and tea, these are not so expensive to cook and I can afford."*

There was also the caregiver who is less cost/price sensitive and more interested in giving the child what they liked regardless of the costs.

> *R: "I don't mind spending a lot on her food because I know that with long life one day she would do more than I am doing now for her for me. As long as a food makes her happy when she eats it, I don't care about how much money I would have to put into cooking it".*
> *I: "So how would you know if a food makes her happy"?*
> *R: "She would eat a lot of it and will speak a lot though I don't understand most of the things she says sometimes and if she is not happy eating a food too she would eat less and would be dull because she has not eaten enough".*
>
> *R: "Although I am not rich, I always try as much as I can to cook for her foods that are healthy for her to eat."*
> *I: "Could you please explain further, I don't understand what you said".*
> *R: "When I say foods that are healthy I mean I always make sure I add dawadawa, yurayura (fish) and magi to the food to cook so she would be healthy when she eats it. Even sometimes when I don't have these ingredients I take from the other members of the house so that I return later to them when I am able to buy because what we as parents invest in children today would be nothing compared to what they would do for us when we grow old and they are stronger".*

Availability of harvested farm produce

Another positive orientation to associated costs with IYC feeding was that of the group of caregivers who farmed and therefore balanced using mainly harvested farm produce with buying a few non harvested products. To this group of 5 respondents, cost of feeding was not that much of a challenge as evidenced from the interview excerpts reproduced.

"Also there are some foods like rice that when she says that she wants it, unless I buy it to prepare it for her because we do not produce it on our farm. Besides that, we produce almost everything that we cook on our farms so I don't buy them when I am to cook them".

"…Because we produce most of the foods that we cook on our farm, cost does not really mean much to me and I don't also cook H's food separately. However, there are often times that H wants to eat for instance waagashie or biscuit and we don't produce waagashie or sell biscuit so I would have to buy it for him and these things are expensive because, I don't have money to buy".

"Y eats whatever everybody in the house eats, I don't cook separately for him and also, I don't buy any special foods for him so it does not cost me any extra money to feed Y. Besides we produce almost everything we eat on our farms".

Negative orientation of costs being a challenge

Foods/ingredients are considered expensive /barrier to food choice

Several women (18) emphasized the point that they had problems with meeting the costs of food which they considered above what they could afford. These caregivers almost seem to despair, finding "worrisome" their inability to purchase what they regarded as "better", "special" or "appropriate" foods. The following are examples:

"There are certain times when I want to prepare special foods for her but due to the cost involved I am not able to so I just resolve to feeding her with the family foods. Like Cerelac and Lactogen, they are very good for children. They make them grow big but unfortunately on my part it is very expensive. Adding meat to food is also healthy but meat too is expensive".

"If I had money, I would have prepared the food better for her to eat.
I: "What do you mean by prepare the food better for her"?
R: "Like I will buy more sugar and buy Nido and add to the moli koko for her to eat. But because I don't have, I add only sugar and even with that it is not always that I'm able to buy".

"A does not like eating food but occasionally when I wish to vary her diets money becomes a very big challenge to me, as I'm not able to afford it. When I ask her father for money and he says he doesn't have, I just forget about it and just concentrate on breast-feeding her. Even the koko that she takes, it is not every day that I'm able to buy some for her. This can sometimes be worrisome if I am not able to buy. It seems she likes rice and stew but due to the cost involved I am not able to buy for her always. She also likes beans".

A few care givers were also concerned that their inability to afford their preferred choices for the IYC may lead to undesired outcomes such as the IYC being fed unhealthily as that was all they could afford.

"As for me, money is very important to me when it comes to my child's feeding. Sometimes you may like to prepare some particular food for the child but because you don't have money, you prepare things you can afford which may not be healthy for the child".

Another care giver describes how seasonality of farm produce and running out of harvested food meant she was sometimes unable to buy maize to prepare porridge for her child leaving her with no other option than having to breastfeed her child. She expresses concern with the possible devastating effect on the child's development and a possible retardation due to poor nutrition. Similar to the experience of this caregiver, another caregiver was concerned that her inability to afford food appropriate to her child's age leads to the child not tolerating the family foods fed to her which makes her vomit after feeding. There was also the less devastating outcome of the IYC being fed with food they didn't like due to limited choices on account of food being considered more expensive than could be afforded.

Still on the issue of cost and IYC feeding another group of caregivers who reported feeding on a limited budget resigned themselves to just feeding within their limited budgets before making the feeding decisions as recounted by these 3 respondents.

> *"I don't have money and so I always look first at what I have available to me in the room before I consider which food to cook for him. It is safe to always cook what you have so that you don't think so much about your poverty situation".*
> *I: "Which food do you usually cook for him that you don't have to buy the ingredients"?*
> *R: "What else but TZ; that is what is available to me always."*

> *"Whenever I want to cook for her I look at how much money I will put into buying the food ingredients and whether I will be able to afford or not; if it is a food that would make me spend lot of money and I know I don't have it I just stop and cook what I have available to me at home and that is the TZ."*

Seasonality and cost of farm produce versus costs of purchased products

One respondent presents a different dimension to costs in relation to caregivers who are farmers. She identifies that non farm produce are costly and are therefore avoided. Cheap food therefore is food produced on her farm and which are in season. Foods out in season are avoided to meet the costs of feeding. It appears this relates generally to managing the family's feeding budgets rather than feeding meant exclusively for the IYC.

> *"Meat is costly so we don't add it to our food. We don't farm tomatoes too so it is also costly. Rice too is costly and sugar is also costly. When it comes to foods that are cheap, TZ is less costly because we produce maize on the farm. Ayoyo and bra too is cheap at this time of the year when the rains are still coming. However when it gets to the dry season, we stop cooking these soups because they become very expensive and if you want to cook it, you would have to buy it".*

Convenience value dimension

The concept of obtaining caregivers' cultural perspective of convenience in terms of feeding IYC is relevant for several reasons. In American and European contexts, the concept of convenience has both positive and negative connotations. Some of the negative connotations, particularly related to nutrition, have arisen because of its association with "convenience foods" and "convenience stores." These call up images of inferior products, produced without concern for nutritional qualities. It is associated with foods that sacrifice health for speed and ease. We suspect that the concept of convenience also has negative connotations because it implies taking short-cuts, and perhaps, at an even deeper cultural level, when it is applied to

women's domestic activities, subtle implications of deviations from expected performance standards and dedication to the roles of "housewife" and "mother".

To introduce the discussion of convenience we broke the concept into two themes of ease of access/acquisition on the one hand and ease of preparation on the other. We asked: "*Now I would like to know what you consider to be convenient in terms of preparation and acquisition when you think about feeding …(name of child).* The interviewers ensured that respondents answered both aspects of the question by prompting and or probing if the either concept was not covered in the response provided. What is clear from the content analysis of the interviewers is that the majority understood the questions. Caregivers' responses fell into a set of two attitudes with regards to convenience: One group considers the value as important or an issue while the second group did not consider it important or of any value, categories which can be summarized as follows:

I. There is the group that considers the value important or think it's an issue as expressed in the following excerpt:

> *"I cook foods that I wouldn't have to buy ingredients to prepare and also foods that he can eat and leave some for later consumption. I also look at the time I would use to prepare the food to see if it takes less or more time to prepare, if it is less then I prepare but if it is much then I change the food"*.

II. The second group is those who consider that the convenient value is inconsequential in making feeding decisions for IYC feeding. Care givers' dispositions to the two orientations in attitudes are highlighted in the discussions on the following sub themes that emerge from the content analyses for each aspect of the two convenience value sub dimensions.

Convenience - Ease of food acquisition/access

- Ready availability of ingredients and food stuffs **–** general statement (11 respondents)
- Easy food availability (from farms/barns) (13 respondents)
- Access to money for shopping (6 respondents)
- Shorter travel time for food shopping (4 respondents)
- Distance to acquire food not considered an issue/problem (2 respondents)
- Less/cheaper food costs (3 respondents)
- Availability of all resources including non food items (1 respondent)

Ready availability of ingredients and food stuffs – *(11 respondents)*
A common theme relating to acquisition is that ready availability of ingredients /foodstuffs is considered convenient in feeding IYC. This is mentioned by a third of respondents. Ready availability mainly refers not only to close proximity in terms availability at homes but also expressed in other ways such as having ingredients that the caregiver would not have to buy as commented below.

> *"In feeding her, availability of the ingredients at home is what I consider as convenience".*

> *"I cook foods that I wouldn't have to buy ingredients to prepare".*

> *"Getting the maize sometimes is difficult especially when those who sell in this community do not have any and for me, going to Karaga is far for me. I sometimes will have to borrow*

maize from neighbours. So for me what is convenient is what will be closer to me and is available at home so that I will not have to travel far to acquire it. Therefore if we have food at home I think feeding her is always convenient for me."

"Not having to buy" ingredients/foodstuffs also had different connotations. It could be an expression of having the food items at home, on the farm or already harvested in the barn and therefore there was no need to purchase these. Convenience is also not having to part with money and it appears monetary value is not placed on food harvested on their own farms as described in the following excerpts.

I:" When it comes to food preparation what do you feed him?"
R: "TZ is what I mostly prepare for him."
I: "Why do you mostly prepare TZ for him"?
R:"It is because I have the maize and vegetables to use for it and I don't have to buy".

"I like preparing the moli for her because I have the maize available to me and I don't have to buy. Also I can always prepare it at any time she wants to eat it".

"When it comes to acquiring food, we don't buy food stuffs except some of the soup ingredients like magi, amani and kanwa. So getting foodstuff to cook is not a problem to me".

Easy availability of food (from farm/barn)
Farm produced foods were considered convenient as this also makes food preparation easier because it cut out the time for going out to acquire food. Some respondents who have easy access to food would comment that convenience was not an issue for them.

"When it comes to getting the ingredients, I look at what I can easily harvest from the farm to cook for her. "

"When I don't have to buy the food and it is just about fetching from our barns I find it convenient. If the food is available preparation becomes very easy and fast because you will not have to roam to look for the ingredients to cook".

"When it comes to getting the food, it is not a problem because we farm some of the foods , some are found in our community, besides when we are out of stock, we buy from the Karaga market on market days. I usually do not have a problem with preparation if only the food is available and the child likes it".

Shorter travel time/distance for food shopping
Where care givers had to purchase food items, then the obvious convenient choice was to obtain these from within the community.

"If it is not something I can get from the farm then I think if I would get it around the community to buy like the tea, nido and sugar".

"I always prefer it if the food is available in the community so I don't have to travel far to get it".

Distance for food acquisition not considered an issue/problem

Only 2 respondents mentioned that they did not consider the distance of travel to acquire food as an issue so far as there is money available to buy that food.

Access to money for food shopping

Other respondents mentioned that having easy access to finance to prepare the meals of their choice for their IYC as well as being able to buy food in bulk made acquisition convenient. as indicated in the comments below.

> *"If I also have the money to buy whatever food I wish to prepare for her, I will consider that one too as convenient… Like I will buy meat and bones and prepare light soup for her to eat."*

> *R: "If I can get money to buy the foods stuffs or ingredients that I desire to prepare for her I would consider feeding her as convenient."*
> *I: "What food stuffs do you desire to prepare for her?"*
> *R:" Like rice and beans, and the stew ingredients like tomatoes"*

> *"When there's money available, I can always buy in bulk and the preparation is not a problem at all since I always want to cook for my children".*

Less/cheaper food costs

Convenience was also described in terms of paying less or buying at cheaper prices even while some respondents found the trip to Karaga market as convenient in terms of proximity due to the cheaper prices.

Availability of all resources required for cooking including non food items

Only one respondent regarded the easy availability of resources other than food items as creating convenience in feeding her IYC. This is a very important angle to the discussion on the ease of acquisition and preparation of food but which surprisingly does not feature in the discussions. It is possible that either these are easily accessible to the rest of the respondents or they are not considered as important as food items.

> *"The foods that I can easily get access to without struggling is what I consider as convenient also when I have all the resources like charcoal, ingredients and water needed to prepare the food I see that one to also be convenient as far as feeding F is concerned".*

Convenience: Ease of food preparation/cooking

- Shorter food preparation and cooking time (12 respondents)
- Bulk preparation (4 respondents)
- Low fuel consumption for cooking (1 respondent)
- Ease of preparation not an issue (1 respondent)
- Time consuming preparation not an issue (1 respondent)

Shorter food preparation time

Many women responded to our question about convenience in relation to food preparation by talking about the need to avoid negative features of the preparation methods of some of the foods they prepare. The main feature mentioned was the long preparation time, and most reported making a conscious choice of choosing foods that required less time when it comes

to feeding their IYCs. Meals like moli koko, tz and soup and boiled rice with stew are preferred choices for relatively shorter preparation time. Energy intensive foods such as fufu, involving pounding and aduwa are not considered convenient due to the longer preparation time required.

One respondent, who considered convenience in terms of preparation time, mentioned that occasionally she would cook beans which had longer cooking time but was healthy food for her IYC. She describes in detail that she would have preferred owning a rice cooker as the ideal source of fuel for reducing cooking time and energy. Excerpts of her interview are reproduced in context below. Another respondent made reference to the quantity of food prepared to reduce cooking time and to enable her feed her child before she gets hungry. This may be very relevant in homes with large families, a feature of the Northern Region cultural family set up, where the need for large quantities of food may prolong the preparation and cooking time. The following excerpts below capture how decisions on food choice are dictated by the need for convenience in preparation.

> *"What I find as convenient in feeding S is cooking food in smaller quantities so that I can finish cooking in time before she is hungry.."*

> *"I also consider the time I would use to prepare the food to see if it takes less or more time to prepare, if it is less then I prepare but if it is much then I change food".*

Low fuel consumption for cooking

Related to longer cooking times for many Ghanaian meals, is the use of natural wood burning fuel in the form of charcoal and firewood and particularly for our caregiver respondents. As indicated earlier respondents' focus on food items for meal preparation resulted in very little mention of other supplies required for the food preparation process. One respondent identified how much fuel was consumed by food preparation in determining what was convenient as succinctly summed up below.

> *I: "Is there anything else you consider to be convenient when it comes to feeding her"*
> *R:"I also consider a food that does not consume a lot of fuel (firewood) and also cooks fast".*
> *I:"Can you give me example of food that you give to her that does not consume fuel and cooks fast?*
> *R: Moli koko like this does not take much time to cook and it does not also use much fuel but if I have to prepare aduwa then I would use a lot of time and firewood to prepare that for her and because of this I always buy the aduwa for her when she needs it."*

Bulk cooking

As with bulk food purchases, bulk cooking is similarly perceived as convenient in managing the food preparation process. This may be a feature of getting the best out of the complex, laborious and time consuming meals, cooking more to last longer to minimize the incidence of cooking. Four respondents who shared this view in relation to the importance of bulk cooking for convenience are reported in the excerpts below.

> *"I consider foods I can prepare and leave some down for her to drink later. If I am able to cook food she would eat later then it would be a matter of just pouring for her when she needs it and that would save me time to do other chores in the house".*

"I like preparing TZ because I can prepare a lot of it at a time and leave some for Z to eat later"

Ease of food preparation/acquisition

Positive orientations
A few caregivers rejected the value of convenience of ease of preparation by declaring that any difficulties associated with the food preparation process were inconsequential to them. They opined that availability and eating healthy was of more importance, while one care giver explained that she had limited options for food choice anyway which seem to influence her view. The narratives reproduced below capture the analyses above.

"For me, once the food is available and it is healthy, I don't really bother about the cooking because, it is not of any problem to me. I can always prepare any food for my child, even if it will take time to prepare it".

"As far as I have money to buy the ingredients, I don't mind about whether the food is easy or difficult to prepare. If I want to cook and the food would be nice for A and the other children to eat, these things should not even matter to me so far as the money is there for me to buy the ingredients. For us here, our main problem is the money. I know what I am supposed to do but because there is no money, I don't do them".

Influence of others as value dimension

In many cultures, the opinions and views of other household or family members may be important influence on what caregivers feed young children. For example, mothers and mothers in law often have strong views about what and how to feed infants and young children and this influences what mothers do. We included this value dimension to gauge caregivers perceptions on extent to which their child care and feeding decisions are influenced by 'others'.

We sought to understand who (if anyone) wields influence on caregivers in issues of feeding of IYC. To obtain caregivers' views on this value we asked respondents "I would like to know whether other people's opinion influences the way you feed (name of child)". If respondents responded in the affirmative, they were asked who it is and further asked how this / these person(s) influence(s) them. Besides telling us who influences feeding practices of young children, caregivers also detailed some of the advice they receive from various influential people in their lives when it comes to their care giving responsibilities.

Health professionals
The strong influence of health professionals by 28 out of the 32 respondents reinforced the insights that emerged earlier in the interviews. Many respondents made reference to having received advice from health professionals including doctors and nurses especially at ante-natal and post-natal care clinics (weighing) regarding care and feeding of IYC. The majority of caregivers acknowledged the professionalism of doctors and respected their advice for being knowledgeable in their chosen professions as reported in the two interviews below.

I:" Who influences you, and how do they influence the feeding of your child"?

R:"The health workers, they also tell us what to feed our children with when we visit the health center. Sometimes they can say we should cook beans for our children to make them healthy and also bones."

"The health workers, they educate us on what to do. Like when I gave birth, we were told by the nurses not to give the child water (exclusive breast feeding) until the child was 6 months old and I did it. They know best when it comes to our health so it is good to always heed to their counsel."

Many however were quick to point out that the health professionals' advice on enhanced feeding practices was only as good as they the caregivers were financially capable to take onboard and put into practice. The following 3 excerpts capture how caregivers react to advice from health professionals.

"Sometimes when I take him to the hospital the nurses advise me to always prepare food with green leaves, and dawadawa for him since it will help him to be healthy and grow well. So sometimes when I have the money I try to prepare some of the meals they recommend".

"Doctors from the clinic influence the way I feed her. They tell me to give her beans and eggs and that it would give her blood and once in a while when I have money I do give her these foods as I want her to be healthy".

"It is the health workers who do. During child welfare clinics, they educate us on the various foods that we can feed our children with to make them healthy. Knowledge of these foods is what makes. me want to vary the foods I cook for her at certain times but due to financial challenges I'm most often unable to do what that they say."

Mothers in law

Next to health professionals are mothers-in-law, mentioned by seven respondents as the other source of influence. Mothers in law's advice is also about feeding. The role of mothers in law as influencers in the Northern Region cultures is reiterated in this study. Most live with their husbands and their extended families, therefore the mothers in law tend to take on the role of mothers evidenced from the comments reproduced below. It is worth pointing out that only 2 of the caregivers reported that they were influenced by their own mothers

"It is my mother in law. Like the way R doesn't like eating, she suggested to me to buy the tea and prepare for her and when I did she drank".

R:" My mother in law also recommends foods for me to feed her with".
I: "Which kind of foods does she recommend"?
R:"Beans, TZ with soup and any other food she feels is good"

R: "For me mostly it is H's grandmother and father who influence what he eats.
I: How do H's father and grandmother influence the kinds of foods you give him to eat"?
R: "It is his father and grandmother who produces and provides what we cook at home and that is how they influence what H eats"

Husband
Mentioned by 6 respondents as a source of influence, the husbands' influence is mainly in the form of providing financial and material support in feeding the family. Besides this, they occasionally advise the caregiver regarding care and feeding of the IYC. The following excerpts summarize the role of the husbands as influencers of caregivers' opinions. The patriarchal family set up of the Northern Region societies seems to support this perception of wives being influenced by husbands through their dependence on them financially and for provision to run their homes.

> *"My husband has gone to school a little so sometimes he knows the foods to buy for M to keep him healthy and also anytime the nurses advise us to give a particular food to our children and I tell him, he if has money, he buys it for me to feed M with it".*

> *"Yes, sometimes my husband advises me to give her certain foods.*
> *There are days she just cries for foods like rice and stew and biscuits and when I have no money for that I don't mind her. The father sometimes upon seeing this will give me money to buy the rice for her or the biscuit".*

> *R: It is my husband who usually influences what all of us eat and not just Y.*
> *I: How does your husband influence what you and everybody in the house eat?*
> *R: It is my husband who provides what we cook at home. If he provides maize, then it is maize foods that we will cook, like koko and TZ and if he provides rice, then it is rice foods that we will cook. That is how he influences what we cook"*

Mother
Two respondents cited their mothers as another source of influence supporting them in providing care to their children.

> *"My mother, she always ensures that I prepare special foods for S and on days that I have no money she gives me money to cook for her".*

Father in law
One respondent mentioned that her father in law also providing material support of foodstuffs and also financially

> *"Normally, my father in law will buy the bag of maize and put down and every week, he will give me money to go to the market especially on Karaga market days to buy soup ingredients, so I would say that he influences what we all eat in this house and not just K"*

Friends and neighbours
One respondent each reported that sometimes friends and neighbours were also handy with pieces of advice which they have found helpful when they have put them in practice.

Not influenced
Whereas almost all respondents reported being influenced by health professionals, family and other acquaintances one respondent pointed out that she was not influenced by others' opinion at all. Her reasons are aptly summed up in the following excerpt from her response.

> *"No, I just use my own sense to feed him because I am the mother and the one living with him and I am also the only one who can tell what food he likes or does not like".*

Conclusions

In part one of this chapter we explore respondents' perceptions and cultural meanings of the value dimensions. Many respondents mentioned foods associated with healthiness. We see from the content analyses of the discussions accompanying the named foods that most of the respondents answered the question as expected where they had the knowledge. They talked about the qualities or characteristics of foods that make them healthy or contribute to their health-giving qualities as well as for those for the sub dimensions. Some of the respondents immediately began to list qualities and attributes of healthiness. Some of them began by first naming specific foods and then talking about the qualities and characteristics that made them healthy.

We also see that the associations between food, diet and health are complex and multi-dimensional. Many of the care givers' perceptions reflect an appreciable level of nutritional knowledge, which have become an integral part of "local cultural knowledge." Some of them are complex in relation to current thinking in nutrition such as the blood giving qualities of almost all foods, while other aspects reflect deviations from technical understanding of nutrition and public health disciplines such as banana's ability to de-worm and oranges adding to the body's water content to prevent illness.

Some of the ideas are relatively vague and devoid of any substantiating evidence whether probed or not, whereas others are highly specific. The strong emphasis on the need for foods to give or support blood, as well as sanitation and hygiene shows how much these ideas have been accepted in the communities. The discussions provide some evidence of the interactions the care givers in Karaga have had with the formal health system, as well as with other sources of public health messages. Many made references to having obtained information and advice from health workers some of which are sound others rather scientifically questionable. It would therefore be interesting to see how health workers influence care givers' choice of diets and foods for their children in the cognitive mapping section to be presented later in part three of this chapter.

Responses generated for the child acceptance value also showed respondents' understanding of the concept. The main drivers for child acceptance of foods identified include the key attributes relating to taste, texture and visual appeal/attraction. For most respondents it is combinations of these that make children accept food. It was therefore important to them that the food preparation processes reflected how best to achieve these qualities. While most mothers were able to achieve these qualities in the foods that they fed their IYCs, for others cost implications of purchasing ingredients from the market was a barrier to meeting these needs.

Many care givers mentioned that children were likely to accept foods that they liked (obviously), however this meant that when children were fussy with what they were fed or refused foods, some mothers would resort to going the extra mile to offer foods that IYCs liked. A few mothers opined that, children's physiological state of hunger was in itself a trigger for food acceptance while ill health was a barrier.

Feeding practices as triggers or barriers to the feeding process and food acceptance did not feature much at all in the discussions on child acceptance as they did for ease of feeding, as only one respondent mentioned the need to devote time and attention during feeding as a route to enabling IYC acceptance of food.

On ease of feeding as a value, we identified two main category of triggers that enable children to feed easily: one relates to the feeding processes and context while the other relate to the food characteristics. For most respondents, the main trigger is that the child likes the food and enjoys it with very minimum fuss, describing a number of attributes that contribute to making food preferred or likeable. Similar attributes were mentioned as triggers for food acceptance and the two values therefore, seem intrinsically woven. Many of the responses relating to the ease of feeding value dwelt very much on making the feeding process comfortable, congenial and enjoyable for the IYC. Additionally a few respondents consider a child's ability to feed themselves without help as ease of feeding.

Cost as a value dimension generated two main perceptions, with the majority considering cost of food products or ingredients as a barrier to providing nutritious and age appropriate meals. It was not much of a problem where the IYC feeds on the family foods, however complementary feeding that required foods exclusive to the IYC sometimes presented challenges of affordability. Having own farm produce and using foods in season sometimes do cushion the need to stretch household feeding budgets but the reverse holds true, in that the seasonality of food stuffs and having to purchase all food items can adversely affect how feeding budgets are apportioned for IYC feeding. Some mothers were adamant that regardless of costs of food they are able to manage their food budgets within limits without compromising on the needs of the IYC

The convenience value is mutli-faceted and the complexities associated with this value dimension were very well captured in the interviews. The two main perceptions were those that seem to suggest that the value was a consideration when making feeding decisions and those that discounted the importance of the value. Ease of acquisition was more likely to be perceived in terms of following excerpts from two respondents, one appreciating that this value is convenient in making decisions for IYC feeding and the second explaining that the value was of little or no importance in feeding decisions for IYC. This dichotomy is contextual and influenced by several factors as we have discussed earlier, relating to both caregivers' circumstances and the food choices that they make.

The influencing role of health workers in IYC feeding has been evident throughout the interviews, either mentioned spontaneously or when probed for source of information provided in responses. Husband's influence on feeding decisions rests mainly on the kinds of foodstuffs and farm produce they provide for the homes. Mothers in law and mothers are respected for their opinions as experts with experience in childcare.

PART 2: MAPPING CAREGIVERS' PERCEPTIONS ABOUT FOODS AND DRINKS THEY FEED THEIR IYC

Part 2 of this chapter focuses on the results of respondents' rating of various foods and drinks frequently consumed against the value dimensions. To start this exercise, the interviewers explained the purpose of the module and how it is and then presented to the respondents with pictures of the 20 foods we wanted them to assess. The foods presented were foods that the key informants reported in the free listing exercise selected to reflect a high salience for respondents: they were foods that were frequently mentioned and were at the top of respondents' lists of foods for infant and young children.

The respondents were also introduced to the concept cards, which consisted of 6 concepts that were labeled Healthiness, Cost, Convenience - Ease of Acquisition and Ease of Preparation, Acceptance for IYC and Ease of feeding IYC. As the preceding interview topic was about the concepts, we felt that respondents were already well-oriented to the general task and its purpose. In fact, we expect that the exercise must have been a welcome relief for both the respondents and the interviewers, after the intense and lengthy discussions that preceded them.

Table 7.5 on the next page shows the ratings for the 20 foods and drink consumed by the 32 respondents in the Northern Region. These are mean scores derived from the ratings of the number providing a rating for each value of a highest score of 5 and lowest of 1 on each of the 6 values.

Across the 6 values, caregivers perceived all the foods in the porridges and beverages group as "easy to feed", "easy to prepare and accept" and with the first two values scoring a minimum of 4.2 on all foods and the last value a minimum of 3.2 mean score. This group of foods also scored relatively well on "healthiness" except Tea without milk unsurprisingly, as already mentioned by many respondents in the value perception interviews. Koko + enriched (4.7), Powdered Milk (4.7) Cerelac (4.5) and Milo + Nido / tea + milk (4.3) all scored well above average on healthiness. With the exception of Koko + enriched and cow milk, all these protein rich foods were also perceived as costly, with Cerelac and Powdered Milk scoring the lowest of 1.1 mean score on cost. Cow milk is likely to cost less.

The food in this group that stood out with above average scores across all 6 values (minimum of 4.0 and maximum of 4.9) is Moli Koko a favourite of many caregivers and IYC alike. As the first weaning food most children are introduced to, respondents affirmed that majority of children accept and easily feed on Moli Koko.

There was less cultural consensus for the staple foods except for ease of preparation that was scored relatively lower than the other groups. Much as most foods in this group were considered healthy, Yama (1.8) and fufu (2.9) were scored lowest on healthiness within this group. However, Yama is perceived the cheapest (4.8) and easiest to acquire (4.8) but the least accepted by children. This may present a challenge to mothers who repeatedly stated that they were cautious with spending on food due to limited household feeding budgets if cheaper foods are less acceptable to IYCs.

Table 7.5: Caregivers' Perceptions about foods they feed their IYC (N= 32)

Food	Health	Cost	Acceptance	Ease of prep.	Ease of Acq.	Easy to feed
Porridges and beverages						
Moli koko	4.0	4.8	4.4	4.2	4.9	4.7
Zimbuli (koko sarli)	3.3	4.8	3.8	4.2	4.8	4.5
Zimbergu	3.8	4.1	3.4	4.2	4.2	4.5
Koko+Enriched food	4.7	2.7	4.7	4.2	3.7	4.7
Cerelac	4.5	1.1	4.5	4.4	1.5	4.5
Cow milk	3.9	4.5	4.2	4.9	4.0	4.9
Powdered milk	4.7	1.1	4.7	4.8	1.8	4.9
Tea and milk	4.3	2.6	5.0	4.6	3.4	4.9
Tea without milk	1.7	4.6	3.2	4.6	4.0	4.2

Milo+nido	4.3	2.0	4.9	4.6	3.4	4.9
Staple foods						
Fufu	2.9	2.5	2.8	1.3	3.2	2.9
TZ and ayoyo	4.2	4.1	3.4	2.9	4.2	3.9
TZ and bra	3.9	3.8	3.0	2.6	4.0	3.2
Beans	4.4	3.1	3.7	2.7	3.8	3.5
Wakye	4.2	2.4	3.4	2.3	3.6	3.2
Rice+tomato stew	3.7	2.4	3.6	3.0	3.3	3.0
Yama	1.8	4.6	2.5	3.4	4.8	3.2
Drinks						
Malt	4.3	1.6	4.3	5.0	3.4	4.4
Fruits						
Mango	3.3	3.0	3.6	4.9	2.8	3.5
Orange	4.0	3.7	3.2	5.0	2.9	3.7

Fruits were also perceived as healthy, scoring 4.0 for Orange and 3.3 for Mango, but not as healthy as Malt drink (4.3) or many of the porridges and beverages. Mango is also perceived less healthy than orange possibly on account of the side effects of stomach upsets it causes.

Conclusions

The ratings above as well as accompanying comments seem to confirm those views expressed earlier by care givers in the interviews in part one, discussing their understanding of these values. Respondents were in agreement on their perceptions of the beverages and porridges foods across all the values while less so for the staple foods. Foods without milk are rated much less healthy than their enriched counterparts, but are also considered more costly.

PART 3: PERCEPTIONS ABOUT THE RELATIVE IMPORTANCE OF THE VALUE CONCEPTS AS DETERMINANTS OF CAREGIVERS' DECISIONS

We developed this module to use in conjunction with the ratings of the individual foods and dishes described in part 2 of this chapter. This module was designed to examine perceptions about how respondents' values influenced their IYC feeding decisions. The six concepts we used to map their beliefs/knowledge can also be thought of as "values." It is generally acknowledged that both overt (conscious) and covert values influence our behaviors; thus, as an explanation of behavior, one's perceptions about the influence of values on one's behavior are incomplete, at best since some of them are tacit and not necessarily available for conscious discussion. However, any examination of values and behavior would be incomplete without the perspective of the actor herself or himself.

Another value introduced was that of Influence, which was further sub-categorized under Influence of husband", "Influence of mother- in- law and "Influence of health professional" as sub dimensions.

As the caregiver respondents had just been asked to rate individual foods with the concepts presented above, we used these same concepts to ask them about influences on their

behaviors. In designing the exercise, we felt it was important not to set up a forced choice situation in which respondents would have to create a hierarchy among the values. The forced choice technique is often used on the grounds that one gets a better understanding of how multiple factors are regarded. However, all of us have had the experience of making forced choices on a questionnaire that we felt did not reflect how we actually feel. Therefore, we asked the respondents to consider each of the potential determinants on a Likert-like scale from very important to not important. We used the same "game board" format that we used for the individual food ratings. We introduced the respondents to the rating exercise with the following instructions:

"All of these issues – health, cost, and so on, are things we've just been talking about, and they may be things you consider when you decide what to make for your family. Probably some of these are more important to you than others. Could you put each of these cards on to the slot that shows how important they are for you. If you think a reason is very important, put it here (indicating high end*) or if it isn't't very important, put it here* (indicating low end*). You can also put it in between. If all of them are the same, you can put all of them on the same place".*

Interviewers were required to note the respondents' comments and encourage them to talk about their rating choices, probing with further questions if they needed to.
The results of this exercise for the Northern Region are shown in Table 7.3a.
The Table shows that caregivers as determinant of their behavior and feeding decisions for IYC rate highest in rank order, the values of "Healthiness", "Costs", "Influence of Other", "Easy of acquisition", "Acceptance" "Ease of feeding" and "Ease of Preparation",
For the sub dimensions on "Influence of other" the rank order of importance was health professional, Mother and Husband.

Table 7.6 Rating of values that affect caregivers' IYC food management decisions (N=32)

Value	No. of times rating was assigned to factor						
	5	**4**	**3**	**2**	**1**	**Mean**	**Ranking**
Health	16	5	4	3	1	4.1	1st
Cost	13	3	7	5	1	4	2nd
Easy to prepare	-	3	3	6	17	1.8	7th
Easy to acquire	6	10	4	1	8	3.2	4th
Acceptance	3	9	7	3	6	3	5th
Ease of feeding	1	4	8	3	6	2.4	6th
Influence of Other	4	8	3	2	2	3.7	3rd
Inf of Mother	7	3	4	6	8	2.8	*2nd*
Inf of Husband	2	4	11	4	9	2.5	*3rd*
Inf of Health worker	12	8	8	2	1	3.9	*1st*

In general the complexities associated with many decision making processes including that of care giving and feeding of IYC. There was some divergence as expected, in the views of respondents rating values similarly or at opposite ends of the scale: however in some cases similar reasons are given for rating values very differently unearthing the nuances associated with each caregivers own personal circumstances and values vis-a-vis those of and their family but also expected societal behavior, norms and attitudes. Not many responses indicate deviations. The discussion of the analyses are presented below in order of the rankings assigned to the value but to ensure clarity and a better flow, the "influence of others" value is discussed together.

Healthiness

The cultural consensus among caregivers, on "Healthiness", "Cost" and "Influence of health professionals" as value determinants of behavior is unsurprising as we have already identified these perspectives in the early sections of this chapter. What we find interesting is the introduction of a few new attributes, benefits and values that the respondents introduce into the discussions explaining their thinking behind the mapping. A number of sub themes emerge under healthiness some already discussed and a few new.

Mum's peace of mind

While the majority of the mothers equate healthiness of food to physical and emotional well being of their children a few pointed out that this was only a means to a deeper level of seeking contentment and peace of mind for themselves. This respondent rated this value 5 with the following comment.

> *"If a child eats well enough, and is healthy she will not worry you. All sorts of unnecessary cries will be avoided; hence she will always be healthy because she is satisfied".*

The need to work and earn incomes is also a trigger for considering the healthiness of food provided, to ensure that IYC in turn is healthy. Three respondents, two of whom rated this value 5 and the third rating it 3, explain in the following extracts the peace of mind they crave from being able to work when their children are healthy.

> *R: "The health of A is of paramount importance to me. As a result, each time I cook I ensure that it is well prepared so that when she eats she will remain healthy so that I will have peace of mind to do my farm work and household chores."*
> *I: "What do you mean by well prepared?"*
> *R: "A well prepared food is one which is made to boil and cook for a long time on fire. When food stays long on fire you can be sure it is well cooked and this will prevent the child from stomach aches and other diseases. I want my family and especially my child to be healthy so I would have to prepare healthy food for him. If I don't and he falls sick, then I can't do any work and I would have to take care of him"*

> *"I always think about the health of the child because, my child needs to be healthy to be able to eat well. I also think about foods that will make my child healthy. When the child is sick, I'm not happy and cannot do any work".*

Yet another respondent rating this value 5, explains that the healthiness of the foods for her child is of paramount benefit and that is what drives her to work hard to be able to afford healthy food.

"*The health of my child is important because, I struggle to work for money due to the good health I want for my son, so I think first about his health before deciding on the food to make for him".*

Prevention of illness

This theme is not new to the discussion that many givers mentioned feeding their children healthily to avoid sicknesses as reiterated below by these respondents who rated this value 5.

"Why would I not want to prepare healthy foods? It is because we want our families to be healthy that is why we cook food for them in the first place. So before cooking, I make sure I prepare foods that are healthy so that my family would not be sick".

"I consider this most because he needs to be healthy all the time so I prepare foods that will give him blood and prevent sickness".

However, for two respondents rating healthiness 5 and 4 respectively, they explained that preventing ill health meant that they saved on hospital fees particularly when they are living on shoestring budgets themselves.

"No mother wants to cook food and your child would eat and fall sick. If I do not cook healthy foods, and he eats and fall sick, then I would still have to spend money to take him to the hospital."

"If I do not cook foods that will make my family healthy, then they will fall sick from eating foods that is not healthy and I would have to spend money that I don't have on medicine or taking them to the hospital."

Healthiness not considered as behavior determinant

For 2 respondents rating this value low for different reasons, the first respondent rated this value 1 and explains that all food is healthy anyway; she therefore didn't see the need to make conscious decisions about how healthy a food is, as explained below.

R: "To tell you the truth I don't think of the health of food because I assume all foods I give her are healthy".
I: "Why do you think all foods are healthy"?
R: "Because I also eat them myself and I am healthy".

The second respondent rating this value a score of 2 for a different reason, explains how the interplay of cost of feeding the family may change one's perception on how healthy the food should be. Her prime driver for her feeding decision is to achieve satiety and this is what drives her decision making process.

Cost

Affordability a challenge

The content analysis of the interviews showed that many caregivers who rated this value a higher score were concerned with affordability as we identified in part one of this chapter. For this group of caregivers the cost of ingredients was a major determinant in making feeding decisions and choices to feed their IYC tasty meals that the child would enjoy eating to be

healthy. Respondents again reiterated how cost could become a barrier to achieving their desired outcomes for feeding their IYC and have to resort to various coping mechanisms such as depending on what was available at home or plan their menus in such a way that certain basic ingredients/food items such as milk and sugar that have to be purchased are just avoided. The following are comments from respondents who rated cost high scores of 5 and 4 respectively.

> *"Anytime I want to prepare food for L, cost of the ingredients is always my main concern as a result I may just prepare what I have".*

> *"Though I think of her health first, cost is also a big obstacle when it comes to what to feed her with. Even though I know what to feed her with I am not able to do so. She takes more of the koko when milk is added but I can't always afford it, hence she eats the koko like that. She also likes beans and rice but I just have to prepare it occasionally for her when I have money".*

Other respondents sharing similar views as the ones above did not rate the cost value that high with scores of 2 or 3. They are able to achieve food security by being clever with money or the choice of ingredients in achieving healthy meals or even buying on credit as solutions to feeding their families healthily,

> *"Around here, there is a lot of poverty so when cooking, we must consider the amount that goes into the cooking. If you cook with a lot of money, your family can go hungry the next day".*

> *"You need money to cook a healthy meal, but sometimes it is a challenge. I don't do any work and it is not every day that my husband makes sales during such times I cook what is available at home for her when I am at home or I buy her food on credit when I am away from home. But these critical moments occur occasionally".*

Affordability discounted

On the contrary, some respondents mentioned that cost was not that much of a consideration in making feeding decisions and rating this value with low scores of 2 explained that either they chose to cook inexpensive foods, had help from relations such as their mother when they cannot afford food or just depended on farm produce as they are farmers.

An interesting finding reiterating the theme of farm ownership and the impact on feeding decisions, is that for both farming and non farming respondents cost is scored very high on 5 as a determinant for feeding behavior as a source of concern. While respondents who farm may sometimes be constrained in what they feed their families due to seasonality of farm produce, their solutions lie in depending on farm produce to contain the costs as explained below.

> *" I don't do any work besides the farming and my husband too does not do any work besides the farming and we all know that farming is seasonal so it is not always that we can get money from it so if I am cooking I would have to cook foods that we produce on the farm and I don't have to buy".*

Similarly some respondents who have to purchase most of their food because they do not farm have to be savvy with managing their feeding budgets to meet the needs of their family as this respondent explained.

> *"We don't farm so if you don't buy things which are not costly it will not be enough for the whole family so before I prepare food, the first thing I consider is the price of the food".*

Concluding on the discussions on respondents' rating of cost, we have shown that this value has many facets and is associated to many complexities for respondents as a behavior determinant. The various scores given to this value are not by themselves fully explicable of respondent's perception of it with regards to making feeding choices. It is therefore important that the comments that accompany the value mapping exercise are considered in interpreting what cost as a value mean to caregivers of IYC.

Convenience – Ease of preparation and acquisition

Another set of related values, ease of acquisition ranks higher than ease of preparation which supports the themes we have already presented in part one of this chapter for the two. From the content analyses of the comments related to this ranking ease of acquisition as behavior determinant impacting feeding decisions for children are identified as follows:

- Proximity to where food is acquired influences choice; the closer to home or within the community the more preferred
- Meal choice driven by costs of ingredients, availability of ingredients at home and seasonality of food products and food items

For ease of preparation care givers were keen to avoid foods that were time and labour intensive however most stated that the types of food choices for their IYC do not make this value a determinant for feeding behavior as evident from these comments.

> *"Preparing her food is not intensive. How much does a child eat that preparation should be a problem? It is the least of my problems".*

> *"Preparation of food is not a problem at all. If your ingredients are available preparation is not an issue. You only have to ensure that before the child will be hungry the food will be ready for her to eat".*

> *"Food preparation is not any work and for R it is just the tea she drinks as at now and its preparation is no work for me."*

Caregivers were also mindful that preparation methods were not too long to avoid children having to wait for their food hungry.

Acceptance and ease of feeding

These two related value dimensions ranked 5th and 6th respectively in level of importance as behavior determinants, with more respondents (12) rating "acceptance" on the two top scores than "ease of feeding" (5). Associated themes from the comments accompanying the ranking exercise reiterated those already identified in part one of this chapter. Mothers' are influenced by the following in meeting the needs of child acceptance and ease of feeding:

- Ensure fussy eaters are fed the foods they like so they do not reject food.
- Most children are not fussy eaters therefore making feeding decisions is easy.
- Children's health needs are linked to the two values and drive foods that are perceived to be easy to accept and feed
- Children eat family foods and therefore feeding decisions are not specific to IYC
- Mothers crave their own comfort and peace of mind in ensuring that IYC accepts food and feeds easily.
- The need to avoid food waste drives food choices for child acceptance of food and ease of feeding

Influence of others

Influence of health worker

With an average mean score of 3 and ranking third, the value of "influence of others" is to a large extent driven by the importance of health professionals and the advice they offer to mothers. This is reflected in the high scores awarded to health professionals as a sub dimension of this value. We have already explained in the early parts of the report that caregivers place a high premium on the advice of health professionals. Rating this value mainly 5s and a few 4s, the following comments are testament to respondents' perspective of this sub dimension of influence explaining that they have indeed made feeding decisions influenced by the opinions of health workers:

> *" I have to put in practice their (health professionals) advice concerning the way we should feed our children. Like I said earlier, they know the best as far as the health of our children is concerned".*

> *"As for me, I adhere to the advice of the health workers. I know they know best and they know what is healthy for us and our children so whatever they say I take it very serious as I know it will be for both my good and that of my child".*

> *"I always want to prepare the foods that they tell us to prepare for our children when we go for CWC. Because I want her to be healthy."*

> *"I therefore prepare most of the foods that the health workers recommend to us. They have more knowledge on foods that will improve on the health of a child".*

The following extract from one respondent sums up the high regard that caregivers have for health professionals and the role they play in influencing their attitudes and behaviours regarding IYC feeding choices.

> *"I heed to their advice when it comes to the feeding of my child. Had it not been because of them, God forbid, I am sure I would have lost that my daughter (the one index child comes after) I was telling you of. They taught me foods to prepare for her to make her healthy because of that knowledge when I gave birth to M this time and she started complementary feeding, I have been preparing the foods that were recommended by the nurses for her elder sibling for her. Like the foods I mentioned to you earlier, the zimbiao, beans, and the cerelac that they sell at the CWC. Their education has helped me to make good food choices for M. They really influence what I feed her with".*

Notwithstanding the pivotal role played by health workers, we also came across respondents who while acknowledging their value and the advice that they offer explained that financial constrains could limit the value of their influence.. Besides, the infrequent visits to these child welfare clinics has also been identified as impacting what value is placed on health professionals' opinions. Interestingly for these explanations, 5 respondents awarded 5 different scores to this value (scores are indicated in front of the quotes):

"We are told what to feed our children with by health workers at times when we visit them. But the fact is if you don't have money, what they say will not really count. You will just feed the child on what is affordable and available."

"The health workers tell us what to feed our children with when we go for Child Welfare Clinic (CWC). But since we don't go there all the time, they don't really count much when it comes to feeding my child like my mother in law who is always with us at home".

"When we go for weighing they educate us on foods to feed our children with. But it is just once a while they do this education".

"They have knowledge on foods a child is supposed to eat but they don't live with us and they don't give me the foods to feed him"

"The health workers educate us on foods to give to our children to make them stay healthy. Though I am not able to do all that they say always occasionally when I'm capable I try to feed the child on what they say".

Influence of mothers/mothers in law

This rated second among the sub dimensions on the influence of others value with almost equal numbers rating it at the extreme opposite ends of the scale, while a combination of the two low mean scores indicate that more respondents rated this lower. Nevertheless, respondents who rated this value very high (4s and 5s) were full of praise for the mothers and mothers –in –law. Firstly their experience and knowledge of childcare (not limited to feeding) is acknowledged by many respondents as indicated in these 4 comments:

"My mother in-law has delivered before and knows a lot about taking care of children and besides I live with her in the same house and she knows R as much as I do so she would be able to feed her well just as me".

"They only come in when I realized all my efforts to feed her proved futile. I consult them on what to feed her with because I think they are old and will know better. Anytime she doesn't want to eat I first consult my mother in law or mother on what to feed my child with at times when she refuses to eat. Since they are older than me and know better than I do. They can tell me to prepare beans, rice or any other food for her".

"My mother in-law is also of age and has had so many children before so I believe she has a lot of experience when it comes to feeding children as a result I don't hesitate to consult her on any issue regarding the feeding of A. When I realize A is losing appetite she is my first contact before I go to the hospital. Sometimes she will tell me to buy her blood tonic to help boost her appetite".

"When I started feeding R with koko and she was always vomiting up it was my mother in law who suggested that I buy the tea and feed her and when I did she drank and has since been fed with tea".

Mother the provider

Secondly, mothers and mothers in laws' influence is explained by the material and financial support that they provide to caregivers as these comments by respondents rating them a score of 5 explain:

> *"My mother sees to it that I prepare my daughters food especially for her. When I don't have money, she gives me money to buy food to cook for her".*
>
> *"I live with my mother and she provides food for me and my children to eat".*

Family living arrangements - Living with mother/mother in law

Thirdly, family living arrangements influence caregivers' decisions, with those living with their mothers or in laws likely to be subjected to their advice. Mothers and mothers in law's opinions may not necessarily be solicited, however their very presence in the home, and in the case of in laws in the matrimonial home, may place wives in a situation where they have no alternative than adhere to pieces of advice from these sources.

Not living with Mother in law

We explained earlier that from the content analyses there were not many comments explaining the low scores for this sub value on influence. We identified the living arrangements as determinant for this. Respondents rating the lowest score of 1 explained that they do not live with their mothers and in laws and therefore their influence is limited.

Worth highlighting is the only one respondent (scoring this 1), who was rather critical of her mother-in-law in that her views are contrary to those of health workers and therefore refuses to be influenced by her to avoid the displeasure of nurses. Culturally, many daughters in law in this community would hesitate to present their elders and mothers in law for that matter in a negative light.

Influence of husband as provider

We reported in part one of this chapter that husband's influence on feeding decisions is evidence of their ability to support their wives materially and financially. This was a recurring theme that we identified in this section of the report for respondents rating their husband's influence as an indirect one; however there was no consensus on the scores awarded for this as a determinant for feeding decisions. There were as different scores as there were different views. Two further dimensions emerge from the content analysis: there are those who refer to the support as indirect influence and the second group who categorically describe the support as direct influence. The following are examples where the husband's influence in feeding decisions is inferred.

> *"When I am told about the kinds of food to prepare for her by either my mother in-law or mother I ask my husband for money to buy the ingredients which we don't produce at home. If he gives me then I go and buy, but if he doesn't I may just have to feed her with what is available at home".*
>
> *"When my husband gives me money, I try to prepare some of the foods that the health workers tell us that it is healthy for children".*
>
> *"He provides the money for me to cook or buy food for A. On days he doesn't have money, I will just prepare what is available. He also provides the money to buy the blood tonic".*

"Occasionally he gives me money to buy maize and prepare koko for L. He could also buy her cow milk to drink."

"The role he plays is to occasionally give me money but not necessarily for feeding my daughter and I then decide what to do with it".

Respondents quoted in the following comments perceive their husbands' financial and material support as direct influence on feeding decisions, explaining that their provision determines what is fed to the family and IYC for that matter.

"It is my husband who influences what I cook. Before cooking, it is what he provides that I cook. If he does not provide a particular food, then I would not cook it".

"My husband has the most influence because he provides what I cook, so no matter what the health worker or my mother/mother-in-law says, it is what he provides that I would cook. If they ask me to prepare a particular food for Y and he does not provide that food, then how would I prepare it"?

"My father-in-law and my husband provide what we should prepare. If they do not provide it, then I cannot cook. So what they give me is what I cook".

The role of the husband as provider is aptly summed by this respondent explaining the clear divisions of caring responsibilities between husband and wives in this community.

"Whatever my husband provides is what I would have to cook because, for us, it is the responsibility of the man to provide the food for the woman to cook".

Husband's opinions and direct influence

Another theme that emerged from the content analysis on husband's influence is the view held by wives that husbands may have some knowledge of child care however little, and therefore their advice is considered important. For other caregivers, the husbands' role of a provider also places him at a position where his opinions should matter, however there is some ambiguity as regards how this happens practically in everyday life from the responses below.

"My husband is responsible for me and the child. He provides the money for what is to be prepared at home so his advice is very important to me".

"I consider the advice of my husband, though he might not know much about the foods but once he is the provider I have no option".

While we have so far discussed wives considering their husband's influence as a determinant for feeding decisions, we will now turn our attention to the contrary views held by other caregivers regarding the role husbands play in their feeding decisions as care givers. One perspective from the content analyses of responses is one of husbands not having much or any influence at all on feeding decisions for various reasons, some of which are rather critical of what appears to be lack of interest on the part of fathers in their children. The following 3 comments, the tone of which is uncompromising in criticism, all scored 3 on this value.

"My husband spends most of his time out side home and so he cannot tell me what to give her that would be healthy for her".

"I don't consider what my husband would say about feeding her because for a husband he can even go out and forget that he has children at home".

"For a husband whatever you do with your child they don't care unless of course the mother tells him to help you out with money he would sometimes not mind".

The intermediate scores awarded for these accompanying comments above, do not seem to reflect how strong wives feel about this apparent lack of interest from husbands. This may be culturally contextual, in that wives may not have such high expectations of their husbands as providers of advice/opinion on how their children should be fed.

Much less critical are the views of the following two respondents with like minded views on the husband's influence as behavior determinant. The second view is a good explanation of what expectations wives have of their husbands regarding this value dimension;

"He doesn't really have any influence on how I feed my child but he takes us to the CWC. Sometimes when he gives me money I buy food with it for R".

"He does not take care of children because that is the responsibility of his wife and other women in the house so he might not know what is good for them".

Living arrangements and influence

We have identified that the family's living arrangements play a role in the extent to which caregivers are influenced by relatives' opinions. As with mothers and mothers-in-law, caregivers who do not live in the same home as their partners/spouses reported being less influenced by them.

"I don't live with him. So he doesn't play any role in the feeding of my daughter".

"I don't live with my husband so he doesn't influence how I feed my child".

It is not uncommon for spouses to have different living arrangements especially in polygamous marriages where the main home of the man is occupied by the first wife and other wives are visited in the their homes by the husbands. There are also situations when it is more financially sound for spouses to remain living in their extended family homes and visit each other intermittently.

Husbands have little or no knowledge on childcare

The last theme to be discussed under this sub value of husband's influence is caregiver's perception that husbands have little experience or knowledge on childcare to influence wives on feeding decisions as captured in the following two excerpts.

"He does not have any experience when it comes to taking care of children".

"He knows little when it comes to little children because he is a man, he is not always with the children, because taking care of the children is my responsibility so he knows little about children much less what is good or not good for children to eat".

Conclusions

In part three of this chapter we present respondents' mapping of the values in relation to their importance as determinants of feeding decisions for their IYC. Respondents' mapping of the values confirms the pivotal role of healthiness in determining what foods are fed to IYC. Not only do mothers want their children to physically benefit from healthy meals, they also ultimately want their peace of minds to engage in economic activity and generally support their families.

The influencing role of health professionals is also affirmed as knowledgeable in advising caregivers on healthy feeding practices which when applied then translates into infants and young children. Husbands' influencing role was mainly considered as providers and bread winners for the families.

The complexity of the role cost plays in feeding decisions emerge from analysis of the interviews and reflect respondents' concerns with affordability and access to feeding budgets. Many consider the costs of food produce before making decisions, while in most cases affordability was balanced by the choice of feeding healthily as well as well as the seasonality of foodstuffs and ingredients for meal preparation.

In this part of the chapter, we also provide evidence that further support the majority view of respondents that ease of food acquisition was considered of much more importance than ease of preparation as behavior determinants in feeding choices for IYC and indeed the whole family. Relative to the other values these two values were the least important probably because respondents had more control over these, particularly ease of preparation. Moreover, most IYC foods, like the porridges were also considered relatively easy to prepare and few caregivers went out of their way to prepare foods exclusively for their infants and young children.

Summary and conclusions

The data in this chapter were obtained through interviews with the sample of caregiver-respondents, which used a cognitive mapping methodology to "map" their beliefs/knowledge about infant and young child feeding. We presented the results in three parts.

In Part 1 we explored caregivers' definitions of concepts we use in the mapping exercise. These concepts are: "healthiness, "child acceptance," "cost" and a set of related concepts: "ease of preparation," "convenience" and "ease of access." The most striking finding is that 25 of the 32 respondents discussed healthiness by mentioning foods or describing food characteristics and why these are considered healthy. There was much discussion on positive and negative outcomes of consumption of foods that are perceived as healthy or otherwise.

The respondents' discussions concerning the concepts of child acceptance are also noteworthy. The two themes emerging are the focus on characteristics of foods that lead to child acceptance, and the other is focused on managing the feeding process.
Respondents' perception of cost relates to concerns for affordability particularly in the absence of produce from respondent's own farms and for exclusive needs of the IYC during complementary feeding.

In Part 2 we presented the results of the cognitive mapping task in which respondents were asked to rate 21 different foods in relation to the concepts listed above. The rating utilized a

5-point scale (e.g. from “very healthy” to “not very health.). A key finding is the consensus across almost all the values for porridges and beverages whereas this was mixed for staples.

In Part 3 we presented the results of the rating task in which caregivers were asked to assign values on a five point scale for each of the concepts, which this time also included “influence of others.” Health and cost are the values that receive the highest ratings and that also have the highest cultural consensus. Influence of others as a value ranked third while the sub value of influence of health workers ranked the highest as a sub value. Caregivers’ comments made in connection with the influence of health professionals reinforced insights that emerged earlier in the interviews.

Health care personnel, including community health workers, are clearly respected and regarded as important resources, whose opinions influence what caregivers feed their infants and young children. The opinions of older generation family members are generally important particularly when they live in the same households as mothers.

Compared to these three, child acceptance, ease of feeding and convenience in acquisition and preparation showed a fair amount of variability among caregivers. There was considerable diversity within the group on how caregivers felt about the role of their husbands as decision-makers with respect to IYC feeding.

CHAPTER 8: SEASONALITY AND FOOD INSECURITY

This chapter presents results of Module 4 in the FES Phase 1 study that dealt with food insecurity and the effects of seasonality on household food use in general and infant feeding in particular. We sought to understand how seasonal variations affect families, how families cope with the challenges of seasonal food insecurity and the consequences for diet. In particular, we sought to establish whether or not children are "buffered" from food shortages or decline in quality when there is less food in the household.

For the examination of the effects of seasonality on household food insecurity it is important to distinguish the basic components: a) food availability, b) food acquisition, c) food preparation, and d) intra-household food distribution. By food availability we refer to environmental and community contexts, particularly issues of what crops are being grown and harvested and what is available in the market place. Food acquisition refers to the household capacity to obtain the food it requires from the local environment and draws attention to use of home-produced foods, as well as acquisition from local markets through barter, payment, donation and credit. Within the context of food insecurity, food preparation calls attention to the modifications households make in recipes and substitutions of preferred foods for less desirable items. It also includes changes in the number of meals and snacks eaten over the course of the day. Intra-household food distribution refers to modifications in the usual patterns of dividing foods among household members and differential allocation of foods. In this study the matter of food availability in the larger social environment was outside the scope of our investigation. This study did not examine the first component of food availability at the community level, except as it emerged as an issue from the perspective of households; therefore we begin here with the matter of seasonal aspects of food acquisition.

PART 1: SEASONALITY AND HOUSEHOLD FOOD ACQUISITION

The term "acquisition" as used in this context refers to the foods that caregivers prepare for their families. As indicated in previous sections of this report, caregivers utilize a number of sources in acquiring food for their families and young children. These sources include: home production (from farming), purchasing from markets, local kiosks and neighbours, borrowing, gifts or buying on credit. However, the commonest source of food acquisition of the main staple, maize, is from home production. Farming in Ghana, as is the case for much of sub-Saharan Africa is heavily reliant on rainfall. Northern Ghana has two main seasons characterizing the climate and these are the dry and rainy seasons. The rainy season usually spans from about April/May through to October, peaking in August/September while the dry season begins from about November through to March. In recent times however, changes in climatic conditions especially in the northern part of the country have resulted in very erratic rainfall patterns to the extent that reliance on rainfall to ensure household food security is becoming a big challenge. For instance in July and August of 2014 when this data was collected, the major rainy season was just beginning, implying that the rains for that year had delayed, with consequences of a possible late harvest. Some caregivers confirmed this in some of the interviews:

> "…….*But since the rainfall pattern has been worse this year (August 2014) it's even hard to tell when our food will be ready for harvesting. So may be until November we will continue to buy.*

The poor rainfall pattern was not only witnessed in 2014 but in previous years as another caregiver lamented:

> "This *year in particular we run out of food so early, we have depleted our stock and this I think is because of the poor rainfall pattern last year, which affected our yields".*

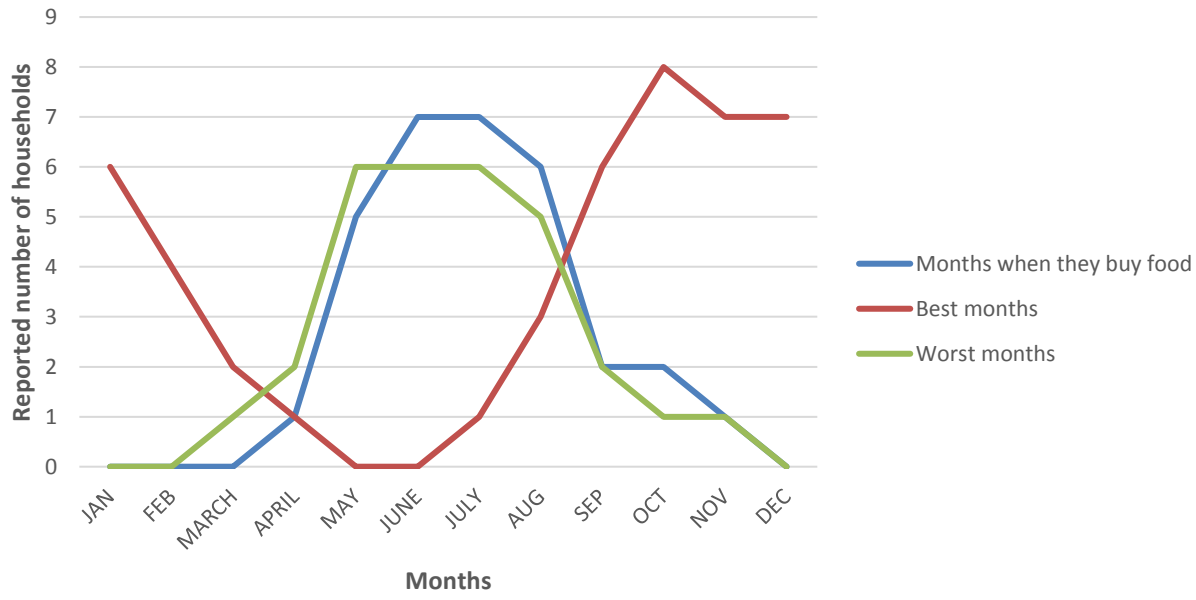
Three questions were asked to gather information on the effects of seasons on food acquisition. In one question we asked: *"When it comes to the amount of food that you have to feed your family, what is the best time of year?"* A second question was: *"What is the worst time of the year when it comes to the amount of food you have to feed your family?*" and the third question was: *"Is there any time of year when you have to buy food?"* The interviewers' probes for detail included asking for specification by month of the year, as well as discussion about the reasons for the answers.

The results shown in Figure 8.1 show "best months" and "worst months" for food acquisition, as well as the months in which households buy food rather than obtaining it from their own production. Respondents were not requested to categorize their situation for every month, which means that some months were neither "best" nor "worst" from the perspective of the individual. As shown, May to August are the months when most families buy food, with June and July being the months when almost all families buy food. These months are also perceived by respondents to be the worst months. On the other hand, September through January are months in which most families are eating food from their fields and home gardens, and do not perceive themselves as purchasing food.

Best months for household diets

Fig 8.1 captures the relationship of food purchasing to women's perceptions about the " best" and "worst" months for household diets. There is an inverse relationship between months in which food is plentiful ("best months") and food purchasing. On the other hand there is a positive correlation between months in which food is scarce (worst months) and food purchasing.

Fig. 8.1: Perceptions about seasonality in food acquisition and purchase



In response to the question of which the best months are in terms of feeding their families, all the respondents mentioned the harvest and postharvest periods as the best time for feeding their families. This time was variously mentioned as being from August through March. Indeed in the local farming cycle these months traditionally coincide with the harvest and late post-harvest periods and the months indicated may therefore depend on how early crops were planted and harvested as well as crop yields. However, as depicted in Figure 8.1 there seems to be some consensus around September to January, suggesting the 5 – 6 month period being one of great abundance. According to the respondents, during the months of August through to December, when new crops are being harvested, there is a lot more food for families. But as the months approach the next farming season, the quantity and variety of food available to households starts dwindling. This period of less food for the family coincides with the months of February through to April when most household grains are diverted to planting and therefore putting some pressure on the amount of food available to households. Respondents' individual description of the best time/months for feeding their families is captured in the following narratives:

> *"In October when farmers are harvesting crops. During this time food like maize, millet, soya beans, groundnut, beans, yam and green leafy vegetables are available. The harvesting period lasts for 4 months (October – January). Food is cheap and I feel very happy because I can easily feed my children."*

> *"During the harvesting time which begins around September until sometime in April when it starts raining, there is abundance of food in different varieties and people eat what they want."*

> *"I consider between September – March as the best time because it is the harvesting season so we have enough food, so we eat what we want and not what we have."*

"During harvesting times like from now (August) to December food is in abundance because new foods are out and everyone is harvesting so there is plenty and variety of foods to eat. It normally last from now (August) to February so that's like 7 months ahead from now".

During this time there is variety and increased availability of fresh vegetables and caregivers are able to make choices regarding what to feed the family because there is a lot more food and more variety to choose from. This is especially the case when it comes to the main staple food, TZ. TZ is consumed by households throughout the year, whether in best times or worse times. The difference between the best or worse times rests in the quantity of TZ prepared and the kind (quality) of soup the TZ will be consumed with. During the months of August through to November, households have access not only to plenty of maize for making a lot of TZ, but also a variety of fresh vegetables to make more nutritious soups to accompany the TZ.

Caregivers advanced a number of reasons why these months were considered the best months of the year for feeding their families. What stood out from their narratives was that the best months are when:

- Food is in abundance and there is enough to eat to one's satisfaction
- There is a lot more food to eat and even sell to buy other varieties of food and also meet financial obligations
- There is a lot more variety in foods available so they eat what they want
- There is very little buying of food and if food had to be bought it was cheap
- There are no worries about feeding the family

The following are examples of some respondents' narratives:

"During these times food is in abundance and there is plenty to eat and variety of food and we don't have to buy food because we have enough from our farms."

"During this time food like maize, millet, soyabeans, groundnut, beans, yam and green leafy vegetable are available. Food is cheap and I feel very happy because I can easily feed my children."

" It is the best time because at this time there are a lot of different kinds of food and I don't buy foodstuffs like maize and rice and this alone makes me happy."

"This is the time of plenty food because we have harvested and there is enough to eat, sell and make a choice in our meals, we don't have to buy food because we have enough from the farm."

"….for this family we buy food all year round because we don't farm but food is rather cheaper during harvest time as it is in abundance at this time."

"D*uring these times cooking is made much easier. If you want to cook you will not have to worry about what to cook or how you would get your food stuffs because they will all be available and if you have just a little money to buy some other items which we don't farm, it will be enough because most of the major things will be available."*

"During these times we have much food in storage so in times of financial difficulties you can take some of the foods in storage to the Karaga market and sell, hence you will be able to solve your problems."

Worst months for household diets

According to the respondents the worst time of the year for feeding their families was between the time of planting and just before the time of harvesting. This is because during this time, most households had run out of food stock and are patiently waiting for their crops to mature. This period coincides with the months of March through to August as indicated in Figure 1. Again as in the "best times" respondents' mentioned various time periods to reflect their perceptions of the worst months and this may depend on their individual circumstances, as noted earlier for the "best times". Months described as the worst months begin from March, ending in August. In probing further into the duration of this time, respondents estimated that the number of months they experience this period ranges between 3 to 5 months and as one respondent stressed, "the real worst months are 2 months".

"Usually let's say like 4 months after Christmas (i.e. December). Foods are not in abundance from that time to about this time (August) that we are sitting. The worst time is from April to now (August)".

"During the planting season when there is no food,. This starts around May through to the end of August".

"…the worst time is from March to July".

Within the period of food insecurity for families, all respondents said there were times when their families did not have food to eat from their own stocks and they had to buy food for a period lasting between 2- 5 months, with the exception of one respondent who had to buy food throughout the year because they do not have access to farm land and therefore unable to produce any food.

Respondents advanced a number of reasons for describing these months as being the worst for feeding their families. Their reasons include:

- Not enough food in stock and difficulty in feeding family members
- A period when all seeds are used for planting
- Most households resort to buying food
- Food is costly and families cannot afford to buy as much as they wish
- Families tend to eat less
- Families tend to eat more of alternate foods (Mostly one pot meals)

Respondents described the period as follows:

"It is the worst time because that is the farming season when serious farming activities have begun and all the food items will be used for sowing."

"*During this time there is extreme hunger and farmers have to buy food themselves because, they are out of stock".*

"This is the time some families eat twice a day and sometimes once instead of eating as much as you want".

Foods fed to family during best times and changes in IYC feeding

To learn more about how seasonality affects diet, we asked caregivers to consider four questions: *1) "Are there any foods you give your family during the best time that you don't give during the worst time?"* We also asked: 2) *"Are there any foods you give your family during the worst time that you don't give during the best time?"* We then asked the same questions specifically about feeding the index IYC. Our goal in asking these questions was to gather insights into how caregivers perceive seasonality challenges. As we do not have dietary data across different seasons, the data from the responses are best regarded as reflecting caregivers' perceptions rather than "reality" from a behavioral, dietary intake perspective.

Even though TZ and aduwa (pigeon peas) were mentioned, respondents explained that these foods were consumed throughout the year, whether best or worse times. However, families tended to eat the TZ and aduwa in larger quantities and more frequently during the best times of the year when a lot of the food stuffs have been harvested and more of maize (for making the TZ) and aduwa were available for home consumption. As stated by one respondent:

"We always cook TZ… whether best or worst times. It is only the quantity of the food that may change during the worst times."

In addition TZ is mostly eaten with soups prepared from fresh vegetables such as ayoyo, bra, okro and aleefu. During this period of food availability, some respondents mentioned specific foods as the most commonly consumed foods (in addition to TZ). These are:

- Rice (4 respondents)
- Yam (3 respondents)
- Yam fufu with groundnut soup (3 respondents)
- Fresh groundnuts (3 respondents)
- Fresh corn (2 respondents)
- Beans (1 respondent)
- Shea fruits (1)

Respondents were further asked whether the diet of their IYC changes during the best time of the year. Only 2 out of the 8 respondents answered in the affirmative. The two respondents explained that when food is abundant, they tend to give the IYC a lot more of the foods they enjoy eating and preferred. Both respondents' IYC were in the older age category (12-23 months, BF).

"*Yes, during the best time there is yam and because he doesn't like TZ, I pound fufu for the family and he also eats that. There are also fruits like water melon which I give to him at this time*

For the majority of respondents (6), IYC feeding did not change during the best times of the year.

Foods fed to family during worse times and implications for IYC feeding

Respondents listed some specific foods in response to the question of the kinds of foods families eat during the worse times which are not eaten during the best time. These are foods that are one item dishes or one pot meals which are consumed without any accompaniments as well as foods that can best be described as inferior. The foods listed include:

Gabley: This is made from maize, soya beans and bambara beans flours mixed together, rolled into balls, steamed and served with powdered pepper and oil
Nabichingli: Broken corn and beans or pigeon peas, spiced, cooked and eaten with oil
Nyombeka: Prepared from bean leaves, crushed maize and spices
Yama: Maize and cassava flour dough (with saltpeter), wrapped in leaves, steamed and eaten with powdered pepper and oil
Gilingu Tuubani: Dried yam peel flour and cassava flour dough, rolled into balls, steamed and eaten with powdered pepper and oil
Kawangbana: Prepared from whole maize grains cooked with salt and eaten with oil
Thick bra soup: Prepared from wild bra with very little or no groundnut but with a little corn flour to thicken; eaten by itself without TZ as accompaniment

In addition to these foods, some respondents also said that during the worst time, some households prepare TZ from inferior maize flour gathered from the floor of the grinding mill.

In responding to whether the IYC diets change during the worst time of the year, half the respondents (4 out of 8) said they did not change the IYC diets, while the other half confirmed changing the IYC diets.
For respondents who said they change IYC foods during the worst time, the following reasons were given:

- **Whatever affects the family affects children:** Respondents were of the view that since food insecurity affects families, it also affects IYC in the same manner
- **IYC gets to eat less fruits at this time**
  "*At this time I am not able to buy much fruits for him since money is hard to come by and this saddens my heart."*

For respondents who did not change IYC foods, two main explanations were given. The respondents clearly stated that in the first place a child's food is so insignificant and the quantity required to feed them is so small mothers could always afford to feed them.

> "*No, because all that he eats now is available, if not at home, I can buy them".*

And secondly children find it more difficult adapting to new foods and their feeding may be adversely affected if the food insecurity is going to compel them to eat new foods they are not used to.

> *"No, because he might not eat, because he is not used to that food. So I try very hard to buy what he likes eating. So he can sleep for me to do my work".*

PART 2: TYPES OF SEASONAL CHANGES IN DIET

The discussions that were triggered by our questions on "best" and "worst" month foods reveal two different types of seasonal changes in household and IYC diets:

i) Changes in specific foods that depend on having money to purchase them

ii) Changes in specific foods that are due to differences in seasonal availability in household fields and gardens

The following are respondents' narratives of the situation:

> "A*t this time we buy almost all our food stuffs and so we try to cook foods that can satisfy everyone in the house particularly in the afternoons and at the same time we won't have to spend so much in buying the ingredients for that food"*
>
> *"Because we are aware of such times during the best times when we peel yam we keep the back and other parts of the yam, dry it and store in sacks so that during times that food is not enough we will now mill it and use it for the 'Gilingu Tuubani'".*
>
> *"When it happens like that, I buy corn flour from the grinding mill. This is flour that is usually collected from the floor of the mill by the owners and sold to people when food is not in season. Also Nabichingli can also be eaten during this time. It is boiled corn with beans eaten with oil".*

Food insecurity and changes in food preparation

The discussions with the caregiver-respondents revealed other aspects of household dietary changes during periods of economic stress and food scarcity. Respondents provided descriptions about how their food preparations and recipes are modified in periods of scarcity. Changes in how foods are prepared reflect two different strategies:

> i) Modifications to recipes because of reduced availability of foods from household production
>
> ii) Modifications due to a shortage of funds to buy ingredients that are used in preparing foods

Reduced availability of foods from home production is particularly reflected in the preparation of vegetable stews and soups. When a variety of vegetables are available in home plots, TZ is mostly eaten with soups prepared from fresh vegetables such as ayoyo, bra, okro and aleefu. When vegetables have to be purchased, dried vegetables (e.g dried okro) replace fresh vegetables. In some instances, wild varieties are also used.

> "*We also harvest from the wild farm, bra leaves to make thick soup and add a little flour to the bra soup and roll into balls to eat*"

Seasonality, meal patterns and intra-household food allocation

Other ways in which families make adjustments to seasonal food insecurity involve alterations in the number of meals (typically shifting from 3 meals to 2 or even 1), alterations

in when meals are eaten (extending the time gap between meals to adjust to eating only twice a day) and, most importantly, intra-household food allocation. The following quotes illustrate these points:

> *"This is the time some families eat twice a day and sometimes once instead of eating as much as you want".*
>
> "*Also at these times when you manage to cook, sharing the food becomes another challenge because you have to share in small quantities so that everyone can at least have some to eat. At times when you share the food and it's not enough for everyone we have to cook again, that is if there is any otherwise we just survive with the little."*

The data from Karaga reveal the response to food shortage that is characteristic of families all over the world. The most common theme in caregiver's responses about how their IYC and other children are affected by food shortage was to describe their efforts to buffer their children by various means, particularly skipping meals and eating minimal amounts. Across the globe families' efforts to buffer children from food shortage has received a great deal of attention in studies that are aimed at understanding responses to hunger and food insecurity. Parental buffering has been described for virtually every society where investigators have examined household behaviors in the face of food scarcity. It occurs in resource poor countries and industrialized countries alike.

Caregivers offered many comments to explain to the interviewers why they buffer their children, particularly their IYC, in times of household food insecurity. Many of these statements directly or indirectly related to protecting their children's health and growth

Summary and conclusions

Data from this study confirm the erratic and unpredictable nature of the rainfall pattern and agricultural cycle of northern Ghana which is characterized by the late onset of the rains and its short duration. Farming activities are thus disrupted with food insecurity implications for households and to some extent, IYC feeding. In spite of these inconsistencies, respondents were able to distinguish between the best and worst times for feeding families. According to respondents, the best time for feeding families is the harvesting period, between the months of August through to January, with September to December, being the peak period. These are times when food is available to families in greater variety and quantity. The worse time for feeding families was also identified to be the period between April through to July, when food stocks are depleted and households resort to buying food for a period lasting between 2 to 5 months.

Our analyses show that seasonal food insecurity is characterized by 1) changes in household diets resulting in changes in specific foods that are due to differences in seasonal availability in household fields and gardens and those that depend on having money to purchase them; 2) changes in how foods are prepared, reflected by modifications to recipes because of reduced availability of foods from household production and inability to buy ingredients due to a shortage of funds and 3) changes in meal patterns i.e alterations in the number of meals (typically shifting from 3 meals to 2 or even 1) and intra-household food allocation (serving minimal amounts or skipping meals all together).

Most caregivers tried to maintain some stability in IYC feeding, as much as they can. Thus seasonality has little or no influence on IYC diet. During the best times however, caregivers are able to feed their IYC the foods they preferred and enjoy most as well as fruits, especially for the older IYC. Caregivers who did not change IYC diet during periods of food insecurity reasoned that IYC food constitutes a very small proportion and besides costs very little compared to food for the household. More importantly changing IYC food may adversely affect their feeding as they may reject unfamiliar foods so as much as possible they try to feed IYC their usual foods. Explanations offered by caregivers who affirmed changing IYC diet were that IYC tended to eat less fruits and also that once the entire household is affected by food insecurity, IYC is equally affected.

CHAPTER 9: CAREGIVER STRATEGIES TO MEET THE CHALLENGES OF FOOD INSECURITY

In this chapter we present a review of the strategies caregivers and their families employ to meet the challenges of chronic, recurring seasonal food insecurity. To elicit information on coping strategies the following questions were posed to caregivers: *Is there any time of year when you have to buy food? How long (months) do you usually have to buy food? Do you ever have a time when you don't have enough food for the family? What do you do then?* All 8 caregivers in our sample of key informants answered in the affirmative and through probing and encouraging them to discuss the problems they face as a consequence of food insecurity we learned not only about the nature of the problems but also about their approaches to dealing with them. They described actions and strategies they use to obtain money to buy food and/or obtain food for their children.

Caregivers in Karaga can best be described as active and resourceful in the face of food security challenges, as they are in relation to the myriad of other challenges and demands they encounter. They are by definition, mothers, and domestic managers, and nearly always, farmers who have major responsibilities for acquiring food for their families, as well as preparing it and feeding it to children who are too young to feed themselves. The emphasis on food acquisition cannot be understated. The difficulty of farming in Karaga and the fact that, at best, households can only meet a portion of their food needs through agriculture, means that all of them must engage in income earning as well as food producing activities. As we learned from previous chapters, the culture of northern Ghana dictates that men/husbands have the responsibility for providing the staple food items for the household and while women assist the men in producing the staples, they have the sole responsibility of providing the vegetables and other ingredients that must be purchased and used in preparing soups and sauces that accompany the staples. Women who are fortunate can rely on their husbands to provide the cash that is necessary to purchase food. While many husbands are regarded by their wives as the primary "breadwinner," not all of them, however, are able or willing to undertake these responsibilities. Ultimately it is mothers who must ensure that their children have food to eat. It goes without saying that women, as caregivers responsible for the feeding of their families bear the brunt of the challenges related to food insecurity. They expressed their views in graphic detail as follows:

> "*Because these are times when we have scarcity of food and anytime the thought of cooking even comes to your mind, your heart begins to beat because you are not sure of what you will cook and you can't tell if it will be sufficient enough to feed the whole family or not and that's worrying*
>
> *"at this time almost all foods consumed in the house is bought and so we spend a lot of money buying food stuffs and this makes me worry a lot during this time as my only source of income is usually from the farming and when there is no food from harvest yet it means there would be nothing for me to sell to support my family."*
>
> "*at this time food is not much for the family to eat because we would have exhausted our stores and since at this time they are still planting, food is costly to buy. This period lasts for about 4 months in a year and everyone, particularly me, becomes sad as I have to use all the money I get on food."*

The following dialogue between one interviewer and a caregiver perfectly sums up the situation:

I: Do you ever have a time when you don't have enough food for the family? What do you do then?
R: Yes, just as we sit now there is not much food for the family to eat. At the time between when they plant to when the foods are to be harvested it becomes so hard to buy food for the family.
I: Why does it become so hard to buy food for the family at this time?
R: At this time prices of foods are higher because food is not in abundance as it normally is during harvest time. The only foods sold are the old ones from the previous year because the sellers know people want them to buy they price them high and here in Karaga it is not easy to come by money so we don't eat enough at all compared to the harvest season.
I: What do you do then?
R: I just cook what we can afford and that is the TZ and sometimes rice. If it is during harvest time I usually buy the maize one bag and the rice about ten bowls for the family but during the hard times I buy one bowl of each for a time whiles I search for money to keep till when those bowls would take us.

The strategies that caregivers in Karaga use to address the challenges of food insecurity in general, and particularly its seasonal nature, take a number of different forms. We have classified them into two broad categories: (1) income earning activities and (2) Non-income earning food acquisition strategies.

Income-earning strategies

1. Intensify other income generating activities

Income generating activities women engage in include going for firewood several times a day and collecting shea nuts (which grow ubiquitously throughout northern Ghana) to sell to enable families buy food

> *"Go for firewood twice a day to sell and buy food"*

> *"……usually when the rains is about setting in that time is shea nuts season and so I go for shea nuts from the farms and when I gather enough I sell and keep the money for times like this so I can use that money to buy food for the family"*

2. Resort to causal labor

Caregivers and their husbands engage in casual labour such as washing for people or working on other people's farms to earn money.

> *"I had to also do jobs like washing for people, fetching firewood to sell before I can feed my children."*

> *"My husband goes to farm for people to get money for food"*

Non-income earning food acquisition strategies

1. Borrow money to buy food

> *"I borrow from known people to pay back when I get money.*

2. Borrow food from neighbors

> "*We also buy from the market or borrow from our neighbors who still have some in stock so that when later we harvest we can return it"*

Borrowing food to return is however a strategy that only offers immediate reprieve. As explained by this caregiver it may also have dire consequences for the future:

> "*...Borrowing too means that you have to return when you harvest yours so even when your yield for a particular year is small you will still have to replace what you borrowed."*

3. Reliance on gifts from relatives

> *"Rely on some of our family members in Tamale (capital of Northern Region) for assistance".*

Access to food aid programs

In the context of feeding children during periods of food scarcity, caregivers were asked if they get food from food programs. The questions that were posed to generate some discussions on food aid programs in the community were: *Do families get food from any food programs in this community? Who are they and what is the nature of the aid? How do families around here feel about these programs?*

All the respondents were very much aware of the presence of food aid programs in the community even though not all community members or households directly benefited from such aid as one respondent vividly explained, "*yes, some people come to the community to give some families bags of rice once every year but I don't know the name of those people. Mostly it is the family heads they call together to give the rice and so the women don't know what goes on there."*

The impression created by the above respondent could also mean that, some caregivers did not understand the modalities these organizations used to extend assistance to households since the sharing of these foods involved only the heads of families (who are usually men).

The question of who these organizations were revealed that most caregivers (6 out of 8) had no idea as can be deduced from the above quote. The other two respondents who had some knowledge of the names of these organizations mentioned the World Vision International and a local community church. Thus:

There is a church in this community called 'Alibarika' church. They give food stuffs during this time (August) when it is difficult for families to get food to eat.

The response from the above caregiver also show that these organizations only come in to assist families during times of difficulty for feeding families.

According to respondents, the nature of the aid assistance to communities include mostly food items such as rice, maize, gari, sugar, beans and cooking oil . Money (cash) was also mentioned as part of the package. However, details of the frequency of distribution and the quantity per household were not thoroughly investigated. However, discussions with respondents about the impressions families had about the food aid programs reveal that even though not all respondents (4 out of 8) were direct beneficiaries of the food programs, all 8 respondents were impressed with the presence and activities of these aid programs. The following quotations reveal how respondents felt about these food aid programs operating within their communities:

> *"Families are happy about such programs because there are times when a family may not have food to cook and from nowhere they come to our aid with these foods. So it is a good program."*
>
> *"We would have loved it if they were sharing the rice to all families because times are hard for everyone in the community now but all the same I think they are doing a good work and I pray one day my family also benefit from them too."*
>
> *"Everyone is happy but we those who are not beneficiaries will have been glad to receive some of the financial assistance so that we buy food when times are hard. I only heard that some orphans and physically challenged people in this community received some financial assistance from some organization."*
>
> *"I feel very happy especially during the worst times when we don't have food and the girls are being given food items. Also children are being fed in schools* (referring to the School Feeding Programme) *this also reduces the burden on parents."*
>
> *"Those who receive are happy. We those who don't receive too would have been happy to receive some but here is the case our husbands are not dead".*

Even though caregivers were not specifically asked to explain the criteria these Aid organizations used in extending assistance to families, the above impressions of some respondents reveal that not all households in the communities were eligible for the food aid. A few of the narratives that made reference to this effect indicated the criteria for inclusion as a beneficiary as: Widows, orphans, the disabled and households with young girls who were in school as seen in the above responses.

Summary and conclusions

All respondents affirmed running out of food in the course of the of the year, and all also agreed to buying food for some months within the year. As a way of managing the food insecurity situation households face during this period, respondents resorted to a number of coping strategies. These strategies include engaging in income generating activities to earn money as well as non-income generating activities such as borrowing money to buy food, borrowing food and reliance on other family members for finanicial support.

Even though reliance on food aid programmes for food support was not mentioned spontaneously by respondents, prompting respondents to seek their views reveal that, such programs constitute alternate strategies caregivers resort to in managing their food

insecurity situation. Even though all respondents knew about food aid assistance to the community, not all households, however, were eligible for such aid. The responses generated from their impressions of the organizations reveal that only half of the respondents have ever benefited from such food programs and only two respondents knew who these organizations were (World Vision and a local church). In spite of the fact that not all respondents have benefited from these aid organizations, they were all generally very impressed with the activities of these organizations especially when they tend to buffer families during times when they have difficulties in accessing food.

CHAPTER 10: CULTURAL AND PSYCHOLOGICAL ASPECTS OF INFANT AND YOUNG CHILD FEEDING IN KARAGA

This chapter presents what we learned from the key informants and caregivers about the beliefs, values and knowledge related to nutrition of infants and young children (IYC) in Karaga. Of particular interest is our understanding of how food and feeding related decisions and behaviours fit within the larger context of taking care of IYC. Understanding this is essential because it is the caregiver's larger "framework" that ultimately influences her food and feeding decisions and behaviours. Data from both Phases 1 and 2 of the study are used to address these issues under five sections as follows:

1) Challenges related to child care giving
2) Food and feeding related problems/challenges
3) Actions taken by caregivers to support child health
4) Knowledge and perceptions about vitamins and food fortification
5) Perceptions on foods that are bad for IYC

Section 1 focuses on the childcare challenges viewed from the perspectives of the 8 Caregiver key formants (Phase 1). The 4 remaining sections examine the issues with both key informants and respondents (Phases 1 and 2).

Challenges related to care giving

To initiate a discussion of the challenges of caregiving, we asked key informants the following question: "*I would like to ask you about problems that families have when they have an infant or young child. Please list for me the kinds of problems that you and other mothers often have when they have an infant or young child*?"

In their free listing exercise in Phase 1 of the study, key informants generated a list of problems they encounter in caring for their children. The essence of the free listing was to identify what the most salient problems were; saliency being determined by what was uppermost in the minds of key informants, hence receiving first mention and the frequency with which an issue was mentioned. An analysis of the free listing exercise is quite instructive. Issues that appeared at the top of the lists and were also most frequently mentioned were:

- Food and feeding related difficulties (first on 3 KI lists and mentioned by 8)
- Health of IYC (first on 2 KI lists and mentioned by 7)
- Inability to work i.e farming or trading (first on 1 KI list and mentioned by 3)
- Difficulty in doing household chores (first on 1 KI list)
- Crying children (first on 1 KI list)
- Inability to provide clothing for IYC (not listed first but mentioned by 3)

Appraising the free listing of the individual responses portray a picture of childcare challenges that can best be described as an interlinked vicious cycle of cause and consequences that threaten women's psychological health (described as worrisome and lack of peace of mind) and income earning capacity and consequently their ability to adequately provide for their children.

Food and feeding related problems

These relate to inability to provide food/nutritious food for IYC due to lack of money and IYC not feeding well due to food refusal/rejection or lack of appetite. The following quotes from mothers are illustrative:

"Sometimes there's difficulty in getting food for my children; when this happens they cry a lot and worry me throughout the day"

"Sometimes I find it difficult to buy his weanimix especially at times when I am not able to go out and sell."

"*I am unable to give her the kinds of foods I would have loved for her to be eating always. Because of her I am not able to go to different community markets to collect shea nuts to sell and so I get less money to buy the foods I like for her to eat so she can grow well"*

"S*ometimes the child rejects food; if he does not like it, he will not eat"*

"If a child feeds well she will always be happy; she will be playing around with other children of similar age and will not worry you. Feeding well also prevents frequent sickness."

"A child who doesn't feed well is a problem, as all the time, the child will be falling sick and the mother will not have peace of mind to do her chores"

Health related problems

Illnesses such as diarrhoea, fever/ high temperature, vomiting, stomach pains and not passing frequent stools were mentioned as disturbing their children. To most of the key informants, the health of their children was important as ill health affects the children's inability to feed well. Secondly, ill health also meant spending a lot more time caring for the child and taking the child to the hospital. Children's sickness is worrisome to mothers because it does not give them the peace of mind to carry out their daily chores coupled with their inability to afford healthcare for their IYC.

"When the child is not well he refuses to eat"

"When a child is always sick as a mother you will not have the peace of mind to carry out your daily chores and the child will always be crying and that is worrisome"

"When he is sick I cannot do any work since he does not go to anyone"

"When this happens you do not leave the child behind and go to the market"

"Sometimes when the children are sick you cannot do anything but take care of them and also take them to the hospital"

"When my child is sick I cannot take him to the hospital because I don't have money"

"Because I have no permanent job I am not able to take my child to the hospital when he is sick and resort to herbal medicine

One "knowledgeable" KI shared some very noteworthy medical and cultural perspectives on child health. According to her views on high body temperature of a child "*…if a child is sick to the point of being infused it is an indication of the severity of the sickness and you stand the chance of losing the child"*. She went on further to make a particularly interesting observation on diarrhea and vomiting: "*even though it is a worry if a child falls sick, it is not also good for a child not to fall sick at all; once in a while as the elders say, "it is good".* When asked why it was believed to be okay for a child to fall sick once in a while, her response was *"I don't know why they say so but I think it may be because you may be tempted to think that the child is abnormal. For how can a child be there and never fall sick?".* Finally, expressing her concerns on a child's inability to walk after 1 year, *"This will make me worried because in Dagomba tradition if a child does not walk after 2 years they believe the child is evil and should be banished from the society."*

These latter two perceptions need further investigation to ascertain whether they are generally held cultural beliefs as they may have adverse implications for child health and survival.

Constraints and inconveniences posed by childcare responsibilities

It was a revelation to find that childcare responsibilities were perceived to be a challenge by a good number of key informants. The key informants lamented that child care responsibilities prevented them from actively participating in some social, economic and household activities to the detriment of adequately caring for household members including the IYC themselves. Key informants mentioned two key areas childcare responsibilities affected them. They held the view that, work that involves taking care of IYC prevented caregivers from having enough time to actively participate and carry out their trading activities and this affected their earning incomes for the household. This point is very important when we consider the fact that trading activities are an important occupation of women and also that women are mainly responsible for purchasing ingredients for household food preparation after the men have provided the grains. Therefore caregivers inability to continue their economic activities because of IYC care, really does affect household food consumption and ultimately IYC feeding. One key informant put this more clearly when she lamented that:

"*Sometimes by the time I finish bathing him and washing his rags, it will be so late for me to go far to trade and so I am not able to sell more… as such this leaves me with less money to buy food for the family."*

Lack of alternate child care was a challenge linked to constraints posed by child care responsibilities. One mother expressed her limitations in engaging in certain activities because she finds it difficult to find alternate child care for the IYC as follows:

"*You cannot go to the farm or market when there is no one to help take care of the baby."*

The second key area where childcare posed problems to key informants was the key informants' inability to effectively carry out their household chores. To them child care responsibilities were so demanding that they take up their whole time. They further explained that this problem is compounded by a child who cries incessantly:

"*They prevent you from doing your chores because their cries are worrisome to you the mother."*

And again, "*As she is still breast feeding, she doesn't just like separating from me and this makes it difficult for me to do my house chores."*

Clothing for the children

Key informants were also concerned about clothing for their children. Some key informants wanted clothes to protect the health of their children: "*A child needs to be clothed well in order to prevent her from contracting diseases associated with cold air"*

Others were more concerned about getting clothes for special occasions: *"What happens this time is that, during festivities, children expect new cloths…"*

However, in both cases, the underlying problem was lack of money: "*It's sometimes difficult to buy these cloths due to lack of money"*

While lack of money was not explicitly listed as posing a challenge to caregiving, it is clear from the foregoing that it is very much a central issue linked to all the problems listed.

Food and feeding related problems/challenges

Food related challenges associated with care giving initially explored with caregiver key informants were further explored with the caregiver respondent sample in Phase 2. The purpose was to obtain information about the personal experiences of the caregiver respondents concerning food and feeding-related problems. We therefore asked direct questions on challenges relating to feeding and nutrition from the caregivers own perspective. We started the discussion by asking: *"Many mothers have some challenges when it comes to food and feeding. Have you had any problems or worries about this?"* It is worth noting that the problems listed by the 8 caregiver key informants were also mentioned by the 32 caregiver respondents in the same direction. The problems enumerated were:

1) difficulty in getting food for IYC due to lack of money (mentioned by 6 key informants and 16 respondents)
2) difficulty in feeding IYC when ill (mentioned by 4 key informants and 10 respondents)
3) Rejection of foods by IYC (mentioned by 4 key informants and 10 respondents)

Before further discussion of these problems it is worth mentioning that 7 respondents claimed not to have any problems with feeding their children. The following is the mother of an 11 month old's response to the question and the follow-up discourse with the interviewer:

"No, I don't have any challenge when it comes to food and feeding her, she eats very well," I: "What about when she is sick, how is her feeding?" R: "She still eats well."

Difficulty getting food for IYC

Difficulty in getting food for the IYCs was the major challenge caregivers encountered. Caregivers explained these difficulties as follows:

a) Difficulty in buying foods for IYC especially during periods when farm produce have been exhausted:

"Yes, I have difficulty in getting food to feed him. Sometimes I borrow money from neighbours to prepare food for the family and later pay back…"

"Sometimes when she wants to eat rice or any other food that we don't have at home, I don't have money to buy it for her."

b) Inability to fulfill their desire to provide nutritious foods for the children because of financial constraints:

"Hmm madam, money problem is the worry I have; sometimes I don't have money to prepare a particular food for my child meanwhile she likes it; sometimes during weighing, the nurses advise us to prepare some foods for the children but because I don't have the money I could not continue to prepare it for her."

"As she has just started eating I wish I could afford the Cerelacs and milks for her; the last time I gave the Cerelac she took it and when it got finished she was crying for it but because I don't have money I cannot buy it again for her. "

c) Difficulty in providing foods that the IYC liked or preferred:

"Although he likes food sometimes I find it difficult to afford the food he likes to eat."

"Lack of money to give her foods she likes. She likes beans and rice with stew as well but because of the financial challenges of the house, I only prepare it or buy for her occasionally when I have money."

On the basis of the above expressions, it is clear that the difficulty in getting food for the IYC by caregivers was primarily due to financial constraints.

Difficulty in feeding IYC when ill: The second major challenge was the difficulty caregivers encountered in feeding their IYC when they are ill. Their issue was basically how sickness affects the child's ability to feed.

"When he is sick, he does not eat or when he has diarrhoea he doesn't eat." I: "How do you deal with it?" R: Sometimes I continue to force and feed him with the tea which he may vomit after taking it."

"Anytime he gets sick it affects his eating and he grows very lean." I: "Can you please tell me more about this?" R: "Anytime he is sick he losses appetite and refuses to eat. Sometimes I would have to force him before he eats something small to fill his stomach."

Rejection of foods by IYC

This problem basically had to do with some children who: 1) by nature did not like food and therefore ate very little, 2) did not like any solid foods and therefore stuck to mother's breast milk as their main source of nourishment, 3) generally had poor appetite and 4) rejected certain foods because they did not like them and preferred others. Again, some mothers found it difficult to provide the foods their infants liked because of lack of money.

"I complained to my mother about her poor eating habit and how she rejects or vomits any food at all that I try to feed her with. She then asked me to try tea and when I did she accepted that."

"Yes she doesn't like eating solid foods, especially TZ with soup. Each time I feed her with TZ she spits it out. She only takes the soup. J have resorted to giving her only soup these days when I prepare TZ. What she eats most is the koko salli." I; "Why is this a problem to you?" R: "She can't keep feeding on only koko salli alone; she should eat other solid and heavy foods like TZ so that she will strong and healthy but unfortunately she doesn't."

We further analysed the data to examine these findings in the context of the food consumption patterns observed in Chapter 4 and ascertain if there are any associations. The result presented in Table 10.1 below is quite illuminating and does improve our understanding of the results of the dietary adequacy analysis presented in Table 4.8a (Chapter 4). The table shows the low adequacy of the diets of the children in the lower age groups: 38% (3 out of 8) of children in the 6 – 8 month cohort and 62% (5 out of 8) children in the 9 – 11 months compared to children in the 12 – 23 month cohort. Whilst the small sample sizes give little room for generalization, the two tables together, provide some evidence of a relationship between the identified feeding problems and IYC food intake. Disregarding food refusal due to sickness (because the food consumption data was collected only for "usual" days when the IYC was perceived to be in good health and food intake was supposed to be normal), the feeding problems relating to lack of money appear to be common across age groups whilst the problem of poor eating or rejection of food appear more common to the 9 – 11 month age cohort. On the other hand the 12 – 23 month old non-breastfed children had few feeding problems. Indeed half of the mothers of children in this category claimed to have no problems feeding their children. The following quotes from this group of mothers are worth noting and should provide some food for thought in our understanding of the situation:

"He eats a lot…unless he doesn't see food. It was when I was introducing solid foods and semi-solid foods to him, that was when I encountered this problem of him not wanting to eat but gradually he became used to the food and since then I have never experienced any such challenge."

"*It was only when I was beginning to introduce other foods to him that he used to reject it at first, but with time, he started eating very well, so I do not have any problems when it comes to feeding"*

These observations confirm the findings of an earlier study among 300 mother-infant pairs attending the University of Ghana Hospital Child Welfare Clinic to investigate the relationship between exclusive breastfeeding and subsequent child feeding adequacy (Aryeetey and Goh, 2013). The findings of the study suggest that feeding adequacy were independently predicted by caregivers' attitudes and perceptions towards the feeding experience as well as child

health. Clearly there is a need for further research around caregivers' perceptions of the problems they encounter in feeding their children and child feeding adequacy.

Table 10.1 Feeding challenges by age groups

Food and feeding challenge	Age groups/No of children			
	6 – 8	9 – 11	12 – 23	12 – 23NBF[1]
Lack of money to buy food	5	4	5	2
Refusal of food due to sickness	4	1	2	3
Poor eater/rejects food	2	5	2	1
No problem/challenge feeding child	-	1	2	4

NBF[1] - Not breastfed

Caregiver actions for dealing with specific food and feeding related problems

Having identified the feeding problems caregivers experienced in taking care of their child and their possible impact on food intake, further discussions ensued on actions and approaches adopted by caregivers for dealing with these problems. Below are examples of how caregivers went about resolving some of these problems

Difficulty in getting food for IYC due to lack of money

The most frequently mentioned strategies were the same as those key informant caregivers said they adopted for meeting the challenges of food insecurity in Chapter 9. These strategies were reiterated by caregiver respondents and include:

- Income earning strategies (Engaging in casual labour on other peoples' farms, picking and selling shea nuts when in season, and selling farm produce for cash Some caregivers even take the more drastic measures of dipping into their trading capital or savings to buy food for their IYC)
- Non-income earning strategies (Borrowing food or money to buy food or buying food on credit, relying on support/remittances from spouses and other relatives such as mothers and mothers-/fathers-in-law, aunties and uncles
- Other less frequently mentioned strategies include those relating to alteration in IYC food intake (Managing with the little family food available, reducing frequency of feeding IYC's favourite foods, reducing amount of food fed to IYC, resort to giving only moli koko (porridge) to IYC

Difficulty in feeding IYC when ill

- Breastfeed more frequently
  "*Like I said before I will just breast feed her or give her the family food which she will eventually vomit out*"

- Coax and feed IYC in bits
  "Occasionally when she refuses to eat maybe because of ill health, I take my time to feed her. I pamper her and feed her little by little until she has eaten enough"

- Forced feeding
  "Anytime M is sick he loses appetite and refuses to eat. Sometimes I would have to force him before he eats something small in his stomach"

- Buy drugs including vitamins for IYC, seek medical attention or seek herbal treatment
  "Sometimes her father will buy her some drugs for her sickness from the chemical shop at Tong and at other times her grandmother will gather some herbs from the farm and that is what we will be cooking for her to drink and bath until she feels better. Yes, sometimes when the sickness gets severe, my husband will take her to the clinic at Tong and the nurses will give her medicine".

  "When it happens, my husband buys the syrup I showed you (haemoglobin syrup) and that is what helps him to eat"

  "When I realize she is not eating I give her the medicine (multinova syrup) I showed to you earlier and she resumes eating again"

- Give foods that are easily accepted by IYC such as koko and milk

Rejection of foods by IYC

Even though most caregivers attributed IYC rejection of food to IYC preferences for certain foods as well as IYC not liking food by their nature, a couple of other caregivers attributed this to the fact that the IYC was just being introduced to other foods apart from the breast milk. Thus:

"R just started eating not long ago and because of that she does not eat much of every food I give her and this worries me a lot because I want her to eat and grow fat so that when I go for weighing her weight will go up"

In solving this problem however, the following strategies were adopted:

- Vary foods for IYC
  "*I complained to my mother in law and my mother and they told me to vary her diet, maybe she will eat…. it did help to some extent. I'm sure with time she will get used to food"*

- Give IYC only soups, koko and tea which are easy to feed and easy to accept
  "I complained to my mother in law about her poor eating habit and how she rejects or vomits any food at all that I try to feed her with. She then asked me to try tea and when I did she accepted that one"

  "Yes, my problem with F is the way she doesn't like eating. When you feed her especially with solid food she spits it out. The koko is better. As for that one she will take, but just small. This worries me a lot"

- Give foods that IYC likes
  With the food, N likes tea so that is what her father will buy and we will be giving her to drink anytime she refuses to eat TZ."

Other strategies adopted were: 1) taking IYC for medical check up to find out why IYC is not eating well and 2) forcing IYC to eat the family foods they are rejecting or just leave them alone and do nothing as one mother lamented:

> *"Madam, what can I do, because I don't have the money to buy it (food IYC prefers) for her, so I will give her TZ which is always available. Sometimes she will eat but at other times, she will cry that she does not want the TZ. So in that case, I will just leave her to cry when she is tired, she will stop"*

Actions taken by caregivers to support child health

Shifting from challenges and problems, we initiated the discussion of positive, preventive actions by asking: *"Can you tell me all the things families can do to keep their children healthy*?" The ensuring discussions with caregivers centered on general care giving as well as food and feeding related strategies. The general strategies can be grouped into the following:

1) **Ensuring environmental, personal and food Hygiene:** Ensuring good hygiene was the most commonly mentioned strategy all key informants made reference to in keeping their children healthy. They mentioned different dimensions of this strategy in their discussions. According to them, it was important for a mother to keep herself clean especially when they are still breast feeding so that the breastfeeding child does not contract germs while breastfeeding. They also mentioned the cleanliness of the children, washing their clothes, and ensuring that cooking and feeding utensils used for the IYC were clean. The need for children to have their hands washed with water and soap before eating, preventing houseflies from contaminating the child's environment ensuring a mosquito and fly free environment by making sure stagnant water that could breed flies and mosquitoes does not collect in the surroundings to.

2) **Wearing Protective clothing:** Wearing the child clean and heavy clothes *to* prevent the child from contracting respiratory infections such as pneumonia, coughing and catarrh

3) **Seeking medical attention, giving appropriate medications and heeding expert medical advice:** Giving children medications (drugs) when they are sick and taking them to the hospital to seek treatment was mentioned by some key informants. Other key informants stated that caregivers should save money to take their children to hospital when they are sick: *"Save money and send children to the hospital when they are sick and give them the appropriate type of medicine…."*

4) **Using traditional/herbal medicine:** The use of herbal medication was especially recommended in situations where caregivers did not have money to seek medical care for their children**:** *"Give children herbal medicine when they are sick an**d** when there is no money to visit the health centre*

5) **Sleeping in treated mosquito bed nets:** This was mentioned as a means of preventing mosquitoes from giving IYC malaria and severe sickness that may result in hospital admission.

Food and feeding related strategies taken by caregivers to support child health

Most key informants indicated that poor feeding by their children most often did not give them peace of mind to go about their daily household chores and other activities as it largely resulted in ill health of their children. To be able to fully concentrate on their duties key informants enumerated a number of feeding strategies, which they employed to ensure that their children fed well in other to keep healthy.

Ensuring that the child is fed to satisfaction

According to majority of the key informants, feeding the IYC to be satisfied will allow them to grow well and make them very active:

"When some children are not satisfied with food or do not get to eat they appear dull and you might even think they are sick but once they have food to eat they are back to their playful nature"
"if a child is well fed, he will be strong, grow big and be very healthy. Unnecessary crying is avoided and I will always be happy and have a sound mind to do my trading. To feed a child well means that, as a mother you make sure that the child eats plenty till the child is satisfied".

Breast feeding mothers should also ensure that they make time to breast feed their IYCs since breastfeeding makes the children happy and cheerful always:

"When a child breastfeeds to her satisfaction you will see such a child being happy and cheerful always".

Key informants added that parents should monitor how their children feed to ascertain whether or not they are eating well.

Feeding the child nutritious foods

Eating well also entails giving the child nutritious foods such as beans, fruits, rice, alefu and soft TZ with ayoyo and other vegetable soups to promote the child's health. According to one key informant giving fruits in particular to children *" .... would make the children grow fat and have a smooth skin"*

Some key informants however held the view that giving groundnut soup to infants should be avoided since it causes stomach ache and running stomach:

"Groundnut soup makes children's stomach pain and sometimes they run diarrhea"

Feeding the child hot/warm foods

Feeding well also means feeding the child warm or hot foods to ensure that germs are not contained in the foods.

Maintaining good food hygiene

Other strategies mentioned by key informants include ensuring that the IYC's food is well covered to prevent flies from settling on it, and ensuring that the environment for cooking is kept clean:

"*if foods are not prepared under hygienic condition and a child eats it, it can make the stomach pain and such a child may even run diarrhea. I was told from the hospital that when flies settle on food they leave a disease on that food and when any one eats it you run diarrhea and vomit at the same time"*

Beliefs/knowledge related to vitamins and food fortification

To learn more about the environment for introducing micronutrient and behavior change interventions to increase IYC nutrient intake, it is essential to know about caregivers understanding and perceptions about "vitamins" as well as fortified foods and other supplements. To learn about caregivers familiarity with and perceptions of this concept as well as micronutrients and fortified foods we administered a series of questions in two modules in Phases 1 and 2 of the study. In Phase 1 key informants' awareness of vitamins and food fortification was explored within the context of the food and feeding strategies they use to keep their children healthy.

Thus we asked a follow on question that depended on what the respondent had already said. For example, we asked: *You did not mention vitamins in your list, have you ever heard of vitamins?* Or *"You mentioned vitamins, can you tell me more about that?"* In Phase 2 we were more direct, beginning our discussions with caregivers with the question: *"More and more nowadays it seems that people are talking about "vitamins". Have you heard this word before?*

Both key informants and caregivers generally had very little knowledge and of awareness of vitamins. Only 25% (10 out of the total sample of 40) of caregivers had some awareness of vitamins. These caregivers mentioned Child Welfare Clinic (CWC) session, television, books, traders and educated people in their communities as the sources of their knowledge. Significantly, none of them could give any specific example of a vitamin, though they showed some knowledge of their functions when probed further. The following quotes are some remarks made by caregivers in response:

> *"I don't know any specific vitamin but I heard that when you eat foods containing vitamins you will not easily fall sick and you will increase in size or gain weight."*
>
> *"I heard they are some ingredients that are kept in food or medicine for people and it prevent sickness"*
>
> *"I heard Vitamins gives appetite and help children not to be sick "*
>
> *"It is some type of medicine that is given to children who are poor eaters so that they can eat well"*
>
> *"I heard the name from the clinic and also from the hospital but they were speaking English and because I don't understand I wasn't able to hear what they were saying about vitamins"*

"They are medicines and they help children to be healthy"

Even though it can be deduced from these quotes that vitamins were generally perceived to be medicines, caregivers were unanimous in their awareness that foods with vitamins make people healthy – they help children to be healthy and prevent sickness; they give us blood and do not make us fall sick easily; they help children to be healthy; they are given to children who do not have appetite or are poor eaters so that they can eat well; they help babies and young children gain weight.

A wide range of foods that are considered nutritious were named as vitamin containing food. These include leafy vegetables (like alefu), fruits (like mangoes, watermelon, Caregivers frequently said they were encouraged by health care providers to give their children food with vitamins to prevent them from falling sick.

"We were told at the clinic that leafy vegetables and fruits give blood."

"We were told at the CWC that alefu (green leafy vegetables) contains vitamins."

"I was told at the clinic when I sent him for weighing that eating fruits like mango and water melon contain vitamins and gives us blood and does not make us fall sick often."

Asked whether they have ever given their IYC vitamins, three (3) of the caregivers answered in the affirmative adding that, the vitamins were all in liquid form. These 3 caregivers shared the following as their experiences in giving their IYC vitamins:

"I thought it would have helped her to eat food but she never ate anything even after the medicine

"She couldn't breast feed and when I took her to the clinic and they gave her some she started breast-feeding again."

"When IYC is sick, he does not like eating so it was this vitamin that they showed us to buy for him, and at least, now he eats better when we give it to him. Also, the medicine is not bitter so he does not reject it. He likes it."

To these caregivers, their reasons for giving the vitamins to their IYC, were because 1) they were told at the clinic it will facilitate their IYC 's growth, 2) it was prescribed at the hospital and 3) they wanted their IYC to be healthy.

As to whether they ever encountered any problems giving vitamins to their IYC**,** only one caregiver claimed she had to force her child before she took the medicine. None of the three caregivers were currently giving their IYC vitamins. Their reasons were mainly financial.

On the concept of food fortification we asked caregivers if they had ever heard about vitamins being added to foods, and if so, what foods*.* Caregivers' awareness of food fortification was much less, with only 10% of caregivers (4 out of the 40) claiming to be aware of food fortification. Examples caregivers gave of fortified foods included "*Don Simon (multi fruit drink), Malta Guinness, Cerelac, Lactogen, Tom brown (wheat-soy blend)* and Plumpy Nut.

In general, caregivers were unable to articulate clear views on food fortification but to probe further the following additional question was posed: *I'd like to ask if there is anything else besides food that mothers can give their children to help them have good nutrition*? Out of the 32 caregivers 12 responded in the affirmative. Ideas shared by caregivers included giving herbs to the children, giving vitamins, continue breastfeeding children well and ensuring personal, environmental and food hygiene. The following quotations are samples from the narratives to buttress these points:

> *"Sometimes we give herbs to help improve the child's eating*
>
> *"Sometimes they give us some medicine in the hospital to help children eat and grow well*
>
> *"They can give "done well" (multivitamin syrup) to make the child eat if she is a type who doesn't like eating*
>
> *"They can give medicine so that it will boost appetite for the children to eat and stay healthy"*
>
> *"Make the child breast feed up to two years of age so that the child would be a strong child"*
>
> *"Since he still breast feeds I just make sure he breast feeds very well and then also I buy for him petty things like biscuit so he would get thirsty and drink more water"*
>
> *"mothers should take time to breast feed children; even at the clinic they do tell us that for a mother it is important to always be happy when breast feeding a child so that the breast milk would come in for the baby to suck. It is also good to bath a child twice a day so that he doesn't become sick from the touches of flies"*
>
> *"Mothers should not say because their children now eat other foods they will not breast feed the children very well, a mother should get time for the child to breast feed well so that they would grow well. They should bath them very well and cook their food in clean environment so they don't fall sick*
>
> *"Make sure children are always neat and cook their foods under hygienic condition. Make children breast feed enough, this makes them increase in weight"*
>
> *"When you bath them always and wash their cloths and also make sure their food is always prepared under hygienic condition"*
>
> *"What I know is that it is good for a mother to bath your child every morning so she doesn't look dirty"*

Finally caregivers were asked whom they would go to for information on their children's nutrition. Their responses included husbands, mothers and mothers in law, aunties, grandmothers, brothers, hospitals and health workers while some specifically mentioned doctors and nurses. Almost half the caregivers mentioned more than one group of persons they will go to for nutrition advice. The majority of caregivers (84% i.e 27 out of 32) mentioned health personnel, split as follows: health workers in general (8), nurses (9), doctors (5) and hospitals/clinics (5). The next group of people caregivers will go for nutrition

information were their husbands (7), mothers and mothers in law (5) and lastly one each for other relatives (brothers, aunties, grandmothers) and students.

Caregiver's perceptions about foods that are bad for IYC

Following on from the discussion about challenges that caregivers face in feeding children, we sought to understand whether there are any foods they are not giving to children on account of their being perceived as bad for them. This was intended to discover whether there are any foods that caregivers in Karaga regard negatively. The information was also important for interpreting the ratings of foods by the sample of caregivers. Foods that are regarded as 'bad' for children may be ranked low. Additionally a mother's perception and understanding of what food is and does to her child's health influences her decision to give/not give such food to her child.

The question asked to gauge this was *"We have talked a lot about foods that are good for children and that help them to be healthy. Are there foods that you feel are bad for … (index child)? A follow on question was, are these foods bad for all babies and young children or only for your child? And lastly, why is ___ food bad for your child? Information obtained from caregivers complements that obtained from key informants in phase one.*

Findings reflect strong cultural consensus on foods regarded as bad for young children by caregivers in that foods mentioned by key informants in Phase 1 were also mentioned by respondents in Phase 2. There was however some divergence among respondents as to whether the foods mentioned were bad only for their IYC or for all other children.

Foods most frequently cited as bad for young children where TZ, nabichingli/kawangbana, aduwa and yama. Groundnut soup, spicy foods (too much pepper) and sugary foods were mentioned less frequently whilst foods like cow milk, mango, gari, kanwa koko, zimbuli koko, fufu and gabley were mentioned only once. Reasons why these foods are considered bad are mainly that 1) they are hard and difficult to chew (children do not have teeth) and/or swallow and therefore cause stomach upsets, indigestion and/or diarrhea, 2) they cause stomach upsets and diarrhea and 3) they cause diarrhea. With the exception of TZ, the foods were classified as harmful more because of their physical characteristics or other intrinsic nature rather than for cultural reasons. A sampling of caregivers' comments about the foods considered bad for young children are illustrative of these points.

T.Z

All 10 mothers who mentioned TZ did so with a caveat indicating that it was bad only for some children.

"..Difficulty in the child's ability to swallow which may lead to choking and also make the stomach pain because the wall of a baby's stomach is not strong yet

"It is not bad for all children but some, it depends on which child

"It causes stomach upsets but it is good for them only when they have stopped breast feeding; At that time, their stomach will have been strong enough to contain such hard foods"

"When you feed a child TZ early in life the child gets to an age that he/she is supposed to crawl or walk and it does not happen and in this case it means that the child is not growing well because of the early introduction to TZ"

"It is not as if the TZ is not good for children; it is good it just depends on when you introduce it to a child. Because if you give a child TZ before she walks it may retard development and she will not walk early enough. The same thing applies to all heavy foods. They also retard development in a child"

Nabichingli/kawangbana

All 10 caregivers who perceived this food as bad for their IYC's also indicated it was bad for other children. One caregiver had this to say to that effect:

"Kawangbana is very difficult to chew and if the child swallows the maize it may result in stomach pains. Even some adults don't find it easy when they eat this food how much more children? One can easily develop stomach upsets after eating this food if the stomach is not strong enough to contain it"

Other views were:

"The child has no teeth so cannot chew and swallow so he may pass watery stools

"It makes it difficult for children to pass stool (constipation)"

"Children cannot chew the foods well and cannot swallow them and this could cause stomach upsets."

"They cannot chew. It bloats the tummy and causes pains

Aduwa

Of the 8 caregivers who said this food was bad, 4 said it was bad for only their child whilst the other 4 said it was bad for all children.

"It has to be chewed before it can be swallowed and if they swallow it whole, it will result in stomach upsets"

"They are bad for all children; Aduwa has to be chewed before it can be swallowed so if they have no teeth and they swallow, it will result in stomach upsets"

"They are too hard and children cannot digest it".

"It can cause stomach upsets. The child could also have a running stomach (diarrhea) if foods are not well cooked

"It is too heavy for a child".

One caregiver who held a contrary view that aduwa was only bad for her IYC said:

"It is not bad for all children. It varies from one child to the other. Some may take without experiencing any complications and others too may""

Yama

Out of 7 caregivers who perceived this food as bad, 6 agreed that it was bad for other children as well:

"It only gives children stomach upset and makes them run diarrhea when it is not well prepared"

"The yama is prepared from maize flour so I think mostly the yama does not get well cooked so when children eat it, they get stomach upset

The caregiver who said yama was bad for only her child indicated that *"Whenever B takes yama he runs diarrhea and so although he likes it I don't like giving it to him*

Groundnut soup

Three caregivers viewed this food as bad for other children. In their view,

"Groundnut soup causes diarrhoea when children eat it"

"Groundnut soup causes diarrhea when children eat it"

"It makes the children run diarrhea as well. It is an observation, but when you add vegetable leaves, it does not happen"

Spicy/peppery foods

All three caregivers who perceived this food to be bad for their IYC indicated that it was bad for other children as well. *"For every child, foods with so much pepper are not good for their stomach"*

"It makes their stomach pain and they have mucous in their stool when they go to toilet. It would make them run diarrhea"

Sugary foods

Two caregivers indicated that this food was not only bad for their children but for other children as well. *"If a child eats too much sweets or sugary foods, then you would have to give the child enema if not, the child will get "gbini" (Gbini is when a child passes loose stools often but it is not diarrhea)*

Zimbuli
"It has a lot of chaff, which may choke a child when she is fed with it"

"It pains his stomach when eaten"

Cow milk
"Cow milk is bad for some children; If some children drink it, they begin to run diarrhea

"Child passes watery stool when eaten."

Tubani

,*"Children at 7 months have no teeth and so may find it difficult to chew this food but older children with teeth can chew and so they can eat"*

Gari

"This can hurt the child's stomach since his stomach is not strong"

"Makes the belly of the child bloated"

Kanwa koko

"His stomach is not strong; if he eats he will run diarrhea"

Fufu

"He is small and his stomach is not strong also, it may not digest"

Gabley

"Some children have no teeth to chew and cannot swallow it."

Mango

"It makes children run diarrhea"

Uncovered foods

"It causes diarrhea, I also see the flies settle on toilets and I know toilet is not a good thing so definitely if it settles on food it would make a child fall sick

Summary and conclusions

Caregivers faced a number of challenges in their child care efforts. The most common problems being food and feeding related difficulties, health of IYC and constraints posed to caregivers' ability to earn incomes and perform household chores because of childcare responsibilities. Other problems relate to inability to properly cloth children and incessant crying of children. The food and feeding related problems are difficulties in accessing food for the IYC due to lack of money and poor feeding resulting from illness and poor appetite, rejection and refusal of food when IYC are being introduced to solid or family foods.

Actions caregivers take to address childcare giving problems include general health seeking behaviours such as ensuring good hygienic practices, seeking both medical and herbal care/ treatment and appropriate management of IYC feeding. Specific actions taken to improve IYC feeding include 1) ensuring accessibility of IYC foods by earning incomes, borrowing food or money to buy food and crediting food from vendors to pay later among others; 2) managing difficulty in feeding IYC in situations of ill health or food rejection/refusal by i) breastfeeding more frequently, ii) coaxing/forced feeding, iii) feeding IYC their preferred foods or foods that are easy to feed and easy to accept, iv) varying diets of IYC, v) administering medications and vitamins to IYC mainly to improve appetite.

Caregivers' knowledge of the concepts of vitamins and food fortification was generally very poor with only a few of them having some awareness of vitamins. Even though none of them could give an example of a single vitamin they were very much aware of their functions based

on information they had received from Child Welfare Clinics (CWCs) about the functions of vitamins and the benefits of consuming vitamin-rich foods.

Caregivers listed a number of foods that they classified as being bad or harmful to young children. Some foods were described as being bad for some children depending on their age while others were bad for all children. With the exception of TZ, these classifications appeared to be based more on the physical characteristics or some intrinsic nature of the food and caregivers' personal experiences rather than cultural factors. Thus foods that needed to be chewed or contained a lot of chaff were perceived to be bad because young children have no teeth or their stomachs were not well developed. Others like groundnut soup and cow milk were also perceived to cause stomach upset and diarrhea in some children.

Significantly TZ was also perceived to be bad for children under one year old or children who have not yet started walking. The reason caregivers gave was that feeding such a child TZ or heavy foods might actually delay or prevent a child from walking. TZ is the main staple dish and this cultural prohibition has adverse implications for diet adequacy of children under 1 year old. The fact that this is a culturally ingrained belief should be a cause for concern. The following reproduced dialogue between the mother of a 9 month old IYC and an interviewer is illustrative of the seriousness of the situation:

I: So sister B, when you finally decided to give her food because of her frequent cries, which you perceived, was because she was hungry, what happened to her?
R: Nothing happened to her
I: Had it not been because of your hand getting swollen at what age would you have given her food?
R: I would have given her later and not now.
I: Why not now?
R: Because in the Dagomba tradition it is believed that you don't give a child food until the child is able to crawl and dip her hand in a bowl and eat by herself. So I was waiting for that time.
I: So did breaking the tradition have any effect on F?
R: No, it didn't. You know there are even times when I will be giving her food and some of my neighbours passing by will say " this child is not yet up to the age of eating foods". People normally say that if you introduce foods to a child at an early age the food will move to the legs and make the child not to walk in time (retards development).
I: What kind of foods do they say retards development when introduced to a child at an early age?
R: They say it is TZ with soup

CHAPTER 11: THE HOUSEHOLD CONTEXT OF INFANT AND YOUNG CHILD FEEDING IN KARAGA: DISCUSSION AND CONCLUSIONS

PART 1: INTERPRETING THE FES FINDINGS THROUGH A CULTURAL-ECOLOGICAL FRAMEWORK

This report is intended to address the broad questions set out in the Terms of Reference for our Landscape Analysis and to place this information within the larger socio-cultural context of infant and young child (IYC) feeding in households in Karaga District in the Northern Region of Ghana. The questions for the landscape analysis are:

- What are infants and young children 6 – 23 months old being fed?
- How are caregivers preparing these foods
- Where and how are caregivers acquiring these foods?
- Why have caregivers selected these particular foods? i.e what are the facilitators and constraints (barriers) for infant and young child food acquisition and consumption?

As discussed in Chapter 1, the decision was made to answer these questions through an FES study, using the tool developed by GAIN: *"The Focused Ethnographic Study: Assessing the behavioral and local market environment for improving the diets of infants and young children 6 to 23 months old."* It is important to note that in answering these questions the emphasis is on household behaviors as there is strong evidence that changes in household caring behaviours can also result in improved infant and young child nutrition. It is however important to recognize that many of the barriers and facilitators for improving diets of IYC lie outside the household. In fact, many have argued persuasively that without major attention to conditions outside the household – in the larger society in which households are embedded - the amount of improvement that can be achieved in improving nutrition and health without societal changes will be limited. Thus, the findings of this study should be seen as contributing to the information requirements for effective intervention planning in the USAID FtF target areas in Northern Ghana. However, it is also important to be clear that information on household behavior alone is inadequate as a basis for actions to reduce malnutrition in the contemporary world.

In Chapter 1 we described the cultural-ecological framework, which is the theoretical underpinning for the study. The framework (reproduced below) guided the research in Karaga. The generic IYC FES is designed to obtain information on all of the sectors in the cultural-ecological framework, as all of them are important for understanding and interpreting IYC feeding practices and behaviors in any given setting. A primary feature of a Focused Ethnographic Study is that it is addressed to answering specific, predefined questions and as in the previous FES in Kenya the seasonality module was included to examine seasonality and its effects on IYC and family diets.

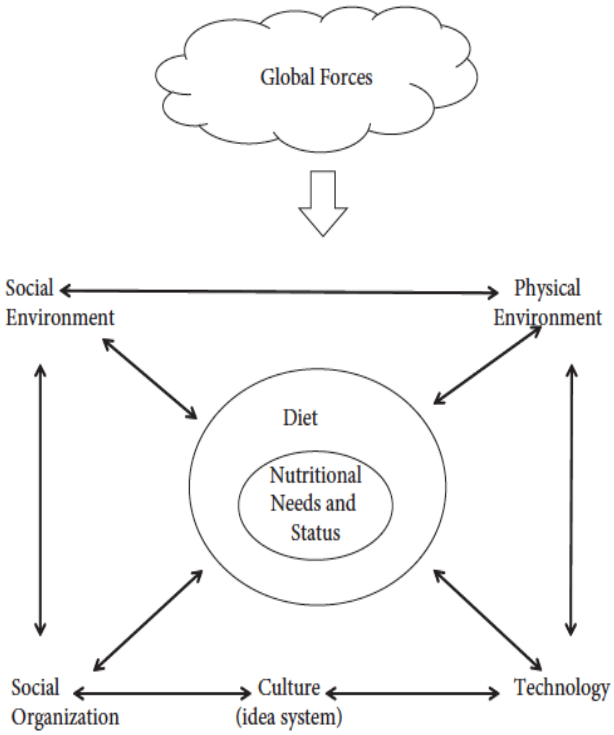


Figure 1 *An ecological model of food and nutrition. Redrawn with modifications from Jerome, Kandel, and Pelto (1980).*

Information pertaining to the various components of the model are integrated into the data presentation and discussion in all of the chapters, beginning with Chapter 3. In the following paragraphs, we highlight key findings of the study in relation to the model. We focus on findings that are of primary interest for the specific landscape questions. The discussion in this chapter is not a definitive review of all of the relevant findings contained in the early chapters. In fact, we invite readers and users to review the results independently of this discussion, as we are sure that the different perspectives and experiences that readers bring to the interpretation of data are essential for potential applications of the study findings in the planning of interventions.

Diet

Preamble: IYC diet is the central focus of this report. The primary description of diet is given in Chapter 4; additional information about IYC diets in Karaga is presented in other chapters.

1. A major finding of the study is that there is a definable "core IYC foods." In the second half of infancy (6-13 months) the most salient foods in this core are porridges. Five different types of porridge were recorded: the most popular, especially for younger IYC are the smooth textured maize and millet porridges (*molikoko)*, multigrain and multigrain-legume porridges (usually spiced and of varying textures). The selection of one type over another depends primarily on IYC age and household circumstances. The other foods in the IYC core are: *tuo zaafi* or *TZ*, a thick porridge prepared from maize flour eaten with vegetable soup. The

secondary core foods are rice and beans (cooked separately or together) and tea with milk.

The importance of the core and secondary core IYC foods in children's diet are demonstrated in the 24-hour dietary recall records. What is also evident in these records is that IYC are not fully integrated into the family diet till after the first year. The relationship of IYC core foods to household foods is also examined in Chapter 4.

2. The core staple dishes are consumed with soups and stews in which fish is the predominant animal source ingredient. Small quantities of fish are contained in the recipes for the vegetable soups and stews that accompany the main staple dishes. In Karaga, *TZ* is eaten with *ayoyo* or *bra* soup (both green leafy vegetables) and rice is eaten with tomato stew. Fish in the form of powdered dried anchovies or herrings, is virtually the sole animal source ingredient. Eggs and milk (as milk powder in tea) are the other animal source ingredient consumed by only a few children. Fruits were seldom consumed.

3. Foods fed to younger IYC included porridges and other foods that are specially prepared and not shared with other family members. This indicates a cultural commitment to the concept of special foods for IYC and a sound basis for nutrition education.

4. The foods that comprise IYC diets come from multiple sources. There are foods from home production, foods from the local area (purchased or given from other people's home production), and foods that are purchased in from local vendors and markets. The foods in the market are a range from agricultural products that are locally produced to agricultural products from other parts of Ghana to commercial products that arrive in local markets from various national and international sources.

5. Several factors compel caregivers to rely on a variety of sources to access the ingredients of common IYC foods, despite a strongly expressed desired self-sufficiency of staple grains. These factors include seasonal fluctuations in staple reserves, constraints on access to land or productivity, and the necessity (regardless of staple grain availability) of purchased ingredients. The off-farm sources of IYC food ingredients include markets, vendors as well as food borrowed from relatives and neighbours to return later. Without question, caregivers' express preference was to source all their food from their farms. However no household is completely dependent on own production for its food needs and there is seasonal reliance on the market for staple foods. Significantly the main ingredients used in preparing the core and special IYC foods are solely purchased. These include food items such as fish, milk, palm oil, oil, tomato puree, sugar and bouillon cubes that are important contributors to variety and improved nutritional content of the diet as well as taste.

6. In the lean season when resources are scarce and home production is low or non-existent, caregivers seek to buffer IYC from the most pronounced effects of seasonality. Some caregivers described deliberate efforts to minimize alterations to the IYC diet during the period of scarcity that affects farming families during the planting season reasoning that the quantities consumed by infants are already low, and that the disruption to a mother's own work and mental state caused by an unhappy infant was not worth the trouble, especially given the meager savings realised through altering the infant diet. Nevertheless there are significant differences in IYC diets during annual cycles of scarcity.

Physical environment

Preamble: Shifting attention to the component of the cultural-ecological model labeled "physical environment, " we begin by stressing that the physical environment in Karaga, plays a major part in explaining the dietary and economic adaptation of households and the challenges they face in acquiring the foods they need to meet household requirements. In this section our highlights focus on issues that emerged from the FES study from the perspective of the caregiver-respondents.

1. As noted in the introduction, this study did not directly address issues of agronomy and agricultural productively and their links to IYC feeding. Such an investigation is outside the scope of our assignment. However our data confirms that the erratic and unpredictable nature of the rainfall pattern and agricultural cycle of northern Ghana, which is characterized by the late onset of the rains and its short duration causes major disruption in farming activities with food insecurity implications for households and to some extent, IYC feeding.
2. We also note that many of the issues related to environment stem from social conditions and interactions between social and environmental conditions. Our analyses show that seasonal food insecurity is characterized by 1) changes in household diets resulting in changes in specific foods that are due to differences in seasonal availability in household fields and gardens and those that depend on having money to purchase them; 2) changes in how foods are prepared, reflected by modifications to recipes because of reduced availability of foods from household production and inability to buy ingredients due to a shortage of funds and 3) changes in meal patterns i.e alterations in the number of meals (typically shifting from 3 meals to 2 or even 1) and intra-household food allocation (serving minimal amounts or skipping meals all together).

   In Karaga, where families' own production represents a greater proportion of total consumption needs, the principal challenge is to compensate for shrinking maize reserves and the absence of fresh vegetable ingredients – especially leafy greens – provided from mothers' gardens. Lean season adjustments include substitution of gathered "wild" ingredients (the common family dish of TZ and *bra* soup, for instance, can be produced in the lean season with the substitution of "wild *bra*" for the preferred *bra* produced at home).
3. A feature of the physical environment worth noting is the use of firewood as the main source of fuel. Currently wood is still available and there were no indications from caregivers' narratives that accessing firewood is a problem. However reliance on wood for cooking is unsustainable and one can anticipate a crisis in the future.

Social organization

Preamble: It must be noted that the only social organizational elements highlighted here are those that relate to social organization of the household. The ways in which households are affected by social organization at higher social levels – from the community to the nation and beyond – is touched on but only as they are reflected in the experiences and perceptions of caregivers.

There are several aspects of social organization as they relate to IYC feeding we highlight in this summary.

1. Household economic organization places a premium responsibility on maternal caregivers for the acquisition of family and IYC foods through home production and purchase. Thus, her responsibilities cover the full range from acquisition through preparation to feeding. Given these multiple sectors of responsibility, caregiver activities in relation to IYC diet create a situation in which agricultural work in family fields and income-earning activities to acquire money to purchase food affect the time and other resources she has available for food preparation and feeding of IYC.
2. In Karaga, the organization of labor within households also places the responsibility on women to provide the vegetables and other ingredients that are used in preparing the soups and stews that accompany the staples in addition to obtaining water and fuel for cooking, as well as for other household needs. These responsibilities affect the time and other resources caregivers have available for food preparation and feeding of IYC. The extent to which she can delegate these responsibilities depends on household structure and the presence of others who can take on these tasks.
3. An area of concern for caregivers worth mentioning is their inability to actively participate in their economic and household activities due to their child care responsibilities. Work that involves taking care of IYC prevented caregivers from having enough time to actively participate and carry out their trading activities and this affected their earning incomes for the household. This point is very important when we consider the fact that trading activities are an important occupation of women and also that women are mainly responsible for purchasing ingredients for household food preparation after the men have provided the grains. Therefore caregivers inability to continue their economic activities because of IYC care, really does affect household food consumption and ultimately IYC feeding. This conflicting situation of balancing child care and earning incomes to feed the household was often cited as a potential source of worry and stress as caregivers struggle to perform their roles.
4. A feature of social organization that relates to all aspects of IYC diet, from food availability through preparation to feeding behavior is household structure and composition. Throughout the study, in the application of all of the modules, the effects of household structure are visible, and its importance was often articulated by caregivers in connection with different aspects of data collection. Households in Karaga (as is traditional in northern Ghana) is characterized by large household sizes with multigenerational members and polygamous family units. More than two thirds of households had 6 – 10 members, often comprising of grandparents, siblings and their wives and children. Some households are environments in which multiple adult women caregivers are available – usually grandmothers, co-wives an aunties. In a few cases only older siblings provide alternate. Caregivers' narratives of their feeding arrangements suggest that IYC feeding is adequately taken care of in their absence.
5. Another aspect of social organization that is paramount for IYC feeding is social support for food acquisition. The commitment of fathers/husband is essential. The extent to which caregivers' partners participate in providing food from agricultural activities, money to buy food and help with IYC feeding affects IYC diet both directly and indirectly. The value of this support, and of mutual problem-solving with respect to IYC feeding and care, was explicitly noted by a number of respondents.

   In addition to support within the household, support from family members who reside outside the house is another major feature of social organization in Karaga that protects IYC diet. This support comes in various forms – gifts of food and/or money, and loans of food and/or money. Neighbors are another source of support, often critical at particularly

difficult times. Finally, we note the importance of credit from local vendors as another source of support in times of need.

6. In some poor populations, social welfare and food programs play an important role in buffering household food insecurity and ensuring minimum levels of dietary adequacy. To examine whether caregivers get support for IYC diet from programmes in their community, we asked respondents a specific question: *"Do you know of any food/nutrition programmes in this area?"* Even though all respondents knew about food aid assistance to the community, not all households, however, were eligible for such aid. The responses generated from their impressions of the organizations reveal that only half of the respondents have ever benefited from such food programs and only two respondents knew who these organizations were (World Vision and a local Church). In spite of the fact that not all respondents have benefited from these aid organizations, they were all generally very impressed with the activities of these organizations especially when they tend to buffer families during times when they have difficulties in accessing food.
7. The role of health services is another aspect of social organization that is located outside of the household, but directly affects households and is frequently mentioned by caregivers. Caregivers in Karaga regard health workers as important sources of information about how to feed their IYC. They also make use of services for preventive and curative care.

Culture (Idea Systems)

Preamble: We use the term "culture" to refer to the domain of the various different aspects of shared, cognitively-mediated experience, particularly those aspects of experience that are included under the labels of beliefs, values, attitudes, and knowledge. This component was a central focus of our landscape analysis because it is essential to answer the question: "Why have they chosen those particular foods?" In addition to investigating sources and resources of food acquisition, understanding caregivers' beliefs, knowledge and perceptions is essential for understanding what they give to their IYC. Chapter 5 and parts of Chapter 10 are devoted to a detailed examination of the cultural ideational component of IYC feeding in Karaga. A few key points are highlighted here.

1. A major finding from our study is the demonstration that caregivers in Karaga have a clear understanding of the importance of food for child health and growth. In many cultures, caregivers are fully aware of the connection between food and survival, but are much less aware of the importance of food quality for child wellbeing. This is not the case in Karaga. To the contrary, our results provide strong evidence that caregivers in Karaga not only understand the relationship of food quality to child survival and growth, they exhibited an awareness of the importance of balancing dietary components; a notion of the preventive power of certain foods; and the ability of certain foods to supply energy and growth (in their view by "building" or "making blood"). They are also strongly committed to providing their IYC with the best foods that they can.
2. Although Karaga caregivers have absorbed much sound information about the health-giving properties of particular foods, the majority of caregivers were unfamiliar with the term "vitamins" and none could identify any individual vitamin. Among the minority who recognized it, vitamins were likened to a medicine that can restore appetite and IYC health. Despite this lack of knowledge/beliefs in relation to nutritional science constructs caregivers

seem to be firmly committed to the fundamental idea that the ingredients in food matter, and some foods make greater contributions to IYC health and growth than others.
3. The rating exercise we used to explore caregivers beliefs about specific foods revealed a relatively high level of cultural consensus about many of the foods that comprise IYC diets in Karaga. This is not the case for all foods and all value dimensions, but a general level of consensus is an advantage when one begins to plan the communications component of interventions aimed at improving household behaviors related to infant and young child feeding.
4. Another finding of note concerning cultural beliefs is caregivers' strongly held beliefs about not feeding IYC "heavy" foods until after 1 year or after they begin to walk. Though not frequently encountered in the course of the discussions, caregivers assertion that it is unwise to feed a child solid or heavy foods before he/she begins to walk. The reason given is that consuming such food during this period will prevent or retard the child's ability to walk. Whilst there is no evidence of these being regarded as a "food taboo" the impact of this practice will depend on how the concept of "heavy" or "solid" is interpreted by individual mothers. What is of concern is that the classification of IYC cultural core food, *TZ* as food bad for some children is likely to have a negative impact on the diet of younger IYC since for many the only animal source food (albeit in small quantities) can only be consumed in the soups that accompany the *TZ.* (This issue needs further exploration.)
5. The study provides solid evidence that the caregivers in Karaga have clearly articulated cultural values concerning their personal responsibility for their child's well-being. This is captured in an often-repeated phrase to the effect that "It is up to me to ensure that my child is healthy." This perspective contrasts markedly with cultural settings in which child health and ill health are, at least to some degree, attributed to forces outside the mother's control. When child illness is seen as emanating from supernatural forces or innate characteristics of the child, it is more difficult to persuade caregivers that their own actions can make a difference. There is, of course, a negative side to this cultural perspective as it can lead to self-blame and blame from others, caregiver depression, and a failure to accept the idea that some aspects of child health and development are, in fact, outside the control of the caregiver.
6. The cultural value of helping relatives and neighbors was another theme in the discussions with caregivers. Particularly during the difficult months the cultural norm is to respond to help with food if one has the means to do so. The response may be structured as a loan, with the expectation that the petitioner will return the help, either in money or in kind; that is, it is not necessarily an outright gift. In theory, the cultural value of sharing, on one hand, and the value that one is responsible for the health of one's child, on the other, could be a source of psychological tension for mothers. They are simultaneously independent and interdependent. Thus, we can postulate that for psychological health, caregivers of IYC have to find a balance between these two cultural features.

Social environment

Preamble: As described in Chapter 1, the label "social environment" refers to social conditions and institutions outside the group that is the focus of attention. In this case we can define it as the society outside of Karaga District. This definition puts goods and other influences from other districts, national Ghanaian factors, and factors that reside outside of Ghana into this component.

1. A primary finding with respect to the social environment is that significant amounts of "core IYC foods" (e.g. sugar, powdered milk, rice, oil, tomato paste, fish) come

from external sources as well as other ingredients that are also used in the preparation of family foods.

2. Another major finding also relates to the social environment; namely the extensive nutrition and health knowledge of the respondent-caregivers. While it is possible that traditional culture in this region contained similar ideas and therefore provided a supportive environment for nutrition education, the language and substance of some of the women's commentaries indicates that they have been exposed to ideas and concepts from the wider world of nutritional science. With the majority of respondents not having any schooling at all, the source of these ideas and concepts are likely from interaction with health workers. With respect to the current study we note that this finding demonstrates an important aspect of the wider social environment that is often unrecognized: namely, the transfer of knowledge from external sources to caregivers via health workers and/or others with whom caregivers interact.

3. A third finding concerning the external social environment is the documentation of the role of local stores and markets as intermediaries between externally sourced foods and households.

Technology

Preamble: In the context of applying the cultural-ecological framework to infant feeding, technology refers particularly to the tools and associated practices that are involved with the production, preparation and feeding of foods to IYC. Baby bottles would be an example in many parts of the world, but fortunately this particular tool, which can cause serious problems of food borne contamination and inappropriate feeding behaviors, did not surface as an issue in Karaga.

1. A finding with respect to technology and IYC feeding in Karaga is the apparent lack of appropriate equipment for storing IYC foods. Use of thermos bottles was rare and the containers used by caregivers to store food and beverages for IYC for long periods of time of up to six hours are ordinary plastic and polystyrene containers, which do not keep food hot for any length of time and may potentially foster the proliferation of pathogens. Storing food for many hours in clearly unsafe conditions may not ensure the safety (from health perspective) of IYC foods. The matter of food storage and food safety of IYC complementary foods needs further investigation.

2. Water management in the household is also a fundamental aspect of technology that directly and indirectly affects infant and young child feeding. There are two aspects of water management that directly affect IYC nutrition and health: i) water quantity and ii) water quality. Both of these aspects involve technological as well as environmental issues. With respect to access to quantity, majority of households have access to water from communal taps and boreholes. These they deem safe and not needing any further treatment even for drinking by IYC. However, about a third of households use water from dams, rivers and streams. With respect to quality the only treatment given water drawn from such sources is sieving with a net, which obviously does not ensure safety. Caregivers seem not to be aware of the importance of boiling water before they give it to IYC neither are their water storage practices sufficient to prevent recontamination.

3. Another essential feature of household technology that affects IYC feeding is cooking equipment and the use of firewood and charcoal as the fuel for cooking. The consequences of the current technology specifically for IYC feeding include: i) the time requirements to obtain firewood, ii) the need to re-establish the fire to heat or reheat food, which affects caregivers

ability to respond to infant and young child hunger cues in a timely fashion, as well as creating the potential for illness through food-borne diseases that are stored beyond a safe period of time (see item 1 above).

PART 2: IDENTIFYING OPPORTUNITIES FOR INTERVENTIONS TO IMPROVE IYC DIET

This landscape study is intended to generate data and insights to inform the design of interventions to improve nutrition of infants and young children in rural farming communities in Northern Ghana. The major barriers to IYC dietary adequacy are affordability and poor access to some of the components of core IYC foods as well as their availability during the lean season. None of the households studied were able to produce the annual household food requirements. The resultant reliance on markets coupled with the limited availability of cash and earning opportunities was considered by caregivers as the primary limiting factor to purchasing food in general and the nutritious food for IYC feeding in particular. This situation highlights the importance of placing a greater focus on improving local access to nutritious foods at a low cost.

Despite these challenges, the FES findings suggest a generally positive environment that present opportunities for interventions to improve the quality of IYC diets. Features of this positive environment include: 1) a cultural commitment to the concept of special foods for IYC which may serve as an entry point from which to build targeted nutrition education to increase the nutritional quality of the IYC diet; 2) Caregivers (mothers) have primary responsibility for deciding on and purchasing food for their IYC and the fact that they make every effort to provide their IYC their preferred foods suggests that interventions that will involve the marketing of special IYC foods may be easily adopted; 3) caregivers' narratives and comments demonstrating knowledge or perceptions of healthiness of foods and the perceived benefits that ensue from feeding IYC healthy foods suggest a motivation for caregivers that may be appealed to if nutritious IYC foods could be made more accessible.

Identified opportunities for interventions include nutrition-specific approaches that address the direct causes of dietary inadequacy and nutrition-sensitive approaches that address the underlying and indirect causes of under-nutrition in IYC. In discussing opportunities for interventions it is important to acknowledge some past and current interventions as there may be important lessons to learn.

Nutrition-specific interventions

- **Enrichment of porridges with nutrient dense foods in the diet:** Maize and millet porridges are central in the IYC diet and are consumed on a daily basis by the majority of IYC. Mothers recognize the healthiness value of adding nutrient-dense foods to porridges. Their prohibitive cost however restricts their use. Despite this constraint caregivers could still be impressed upon to consider spending more on their IYC for the reasons stated above and with the right BCC messaging. In a previous project that implemented food-based interventions to increase micronutrient intakes among IYC in the Savelugu-Nanton District, enrichment of porridges with groundnut paste, egg, palm oil and fish powder to *moli koko* was "sold" to caregivers as feeding different variants of *moli koko:* this ensures that IYC do not only have the benefits of the health

giving properties of the different foods added, IYC will also not get tired of eating the same *moli koko* everyday (Armar-Klemesu and Zakariah, 2003).

- **Home fortification with micronutrient powders and supplements:** Lower cost options for enriching these porridges are needed. The use of MNPs may be the most effective means of increasing the nutrient adequacy of porridges however current national policy advises caution on their use for home fortification due to inadequacy of measures to control malaria (GHS, 2014). Excerpts from the report specifically says that "home fortification should be implemented only under operational research conditions to ensure adequate monitoring of adverse events and also provide information to inform policy for possible scale-up". Another product that may well fill this gap if appropriately priced and effectively marketed is *KOKO Plus* (Ghosh et al, 2014), a soy-based micronutrient supplement currently being marketed and only available in some areas in the Northern region.
- **Blended multigrain flour mixes:** Long-standing national efforts to promote the use of specific blended IYC multi-grain flour mixes (popularly called weanimix) have generally not made significant headway. Weanimix dates back from the mid-1980s when the Ghana Health Service, UNICEF and other partners undertook large-scale campaigns to promote the feeding of infants with a 4:1 cereal/legume mixture. This approach typically focused on home production by individual mothers or women's groups. In this and a similar study (Pelto and Armar-Klemesu, 2011), weanimix is virtually absent from the feeding repertoire of caregivers. Some of the reasons given are the high cost of the individual constituents and the time and effort needed to process the mixtures. Various local manufacturers are now producing variants of Weanimix under several brand names. However these low-cost products have had limited success in displacing the more expensive established brand names such as Cerelac, even among consumers who supposedly cannot afford them (Masters et al, 2011). In Accra, for instance these cereal-legume mixes are mostly sold in the larger supermarkets and shops. Vendors in the low-income neighbourhoods did not sell them because of past experiences of losses they incurred: they were not patronised and ended up being infested with weevils and had to be discarded. Despite this dismal picture there are indications that promotion of weanimix especially in the northern regions is still worth pursuing. Weanimix *(zimbergu/zimbeao* in Karaga) was reported in the 24-hr dietary records of 2 IYC in Karaga and was also rated weanimix favourable on all dimensions. This suggests a positive environment for the promotion of weanimix in the northern regions. This must necessarily be supported with appropriate BCC messaging possibly after research to unearth reasons why they are not being used.
- **Fortified blended multigrain mixes and beverages:** The consumption of chocolate drink powder, fortified infant cereal, and milk powder, indicates the availability of these products in the market, but accessibility is constrained by their cost. This might indicate that there is room for a low-cost (locally produced) fortified beverage or porridge mix specifically formulated for IYC. These could provide great nutritional benefit if offered at a low cost. Public-private partnerships already exist in Ghana to provide low cost fortified products (such as *Maisoy Forte* produced by Yedent[5]) for these age groups, but these products are not yet available at the public markets. A scoping study of the infant food market in Accra, Kumasi and Tamale found that Maisoy Forte was sold in only one up market supermarket in Accra.

[5] A local agro-processing company

- Fish is the main animal source food in IYC diets but quantities consumed are negligible. Since preparing IYC food separately is an accepted practice it is possible to increase consumption by appealing to caregivers to add more fish to IYC specially prepared stews and soups or to portions of family food served.
- There is urgent need for targeted BCC messaging to address the belief that feeding IYC "heavy" or "solid" food before they begin to crawl or walk actually delays this developmental milestone. It seems plausible that consumption of some nutritious ingredients is being delayed in at least some children due to this proscription. There is also a need to educate Karaga caregivers on the core nutritional value of fruits to enhance their awareness and potentially the inclusion of fruits as part of their regular feeding repertoire particularly for IYC.
- Although the traditional beliefs about health-giving foods for IYC in Karaga were relatively consistent with what we know to be nutrient-dense foods, there may still be value in fostering a more modern understanding of nutrition concepts. This may be helpful to support the uptake of different nutritional products targeting the improved nutritional adequacy of IYC diets that may be introduced in the future. Following from this, awareness raising in Karaga District about the concept of vitamins and nutrient fortification may be an important precursor to the introduction of any new fortified food products that might be introduced to fill nutrient intakes gaps in the IYC diet.

Agricultural approaches

Agriculture-based interventions that may improve IYC diet include increasing the local production and marketing of the core foods in the IYC diet, such as maize and millet, (green leafy) vegetables and legumes.

- Interventions to reduce post-harvest losses of own-produced maize and millet reserves would help to extend the availability of these into the lean season.
- Beans are an important part of the IYC diet and mothers use salpetre (kanwa) to speed the cooking process. It is not known whether saltpeter has any adverse health effects and this needs to be investigated. In the interim it may be prudent to consider promoting consumption and cultivation of quick-cooking cowpea varieties currently available on the market.
- Although vegetables are generally available, the limited amounts and the seasonal absence of fresh vegetables were noted as important limitations to the use of these in IYC diets. Promoting horticulture activities may contribute to increased access to vegetables, and specific messages to increase the frequency of feeding these among the youngest age groups, should be included. In Karaga, the use of dried green leaves and dried okro is already practiced. Introduction of improved drying (such as solar drying) and storage practices to reduce post-harvest losses of those vegetables would not only help extend their availability outside the main growing season, it would also maintain some of the desirable characteristics of fresh vegetables. Solar drying of green leafy vegetables was included in the package of food-based interventions previously described in SaveluguNanton. Respondents interviewed as part of a process evaluation carried out found solar drying to be preferable. The following are some quotes:

  "It is advantageous because if we dry the vegetables in the direct sun it changes the colour of the vegetables to grey but the solar dryers maintain the colour of the vegetables as if it were fresh."

"If you dry in the direct sun the aroma of the leaves is like dried leaves but in the solar dryer, the aroma is still fresh like fresh vegetables which have just been harvested."

Additionally ensuring the local availability of quality seed and introduction of water-management practices may also support year-round availability of vegetables.

Other nutrition sensitive interventions

- **Untreated drinking water:** Most households source their drinking water from boreholes and stand pipes which are deemed safe. However some use water from streams, rivers and dams. The only treatment given to such water is sieving to remove insects. There is a need for BCC to ensure treatment of drinking water, such as simple boiling. There is also a need to investigate the safety of water storage and handling practices in the household.
- **Food storage practices:** Current storage practices of IYC foods is less than ideal. There is a need to assess the effectiveness of storage containers used with respect to pathogen growth and food safety. This will ensure the design of appropriate BCC messages and also facilitate the adoption of interventions that will ensure that household have access to the safest storage procedures that are compatible with their limited resources

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