



Using Ethnographic Data for Tailoring Social and Behavioral Nutrition Interventions

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Key messages

- > Nutrition-specific interventions now largely involve specialized nutritious foods that benefit from social and behavioral considerations for improved acceptance and utilization.
- > Cultural domain data can be generated by using ethnographic methods, such as free lists and pile sorts, to gain context-specific social and behavioral insights for tailored intervention design and implementation.
- > A cultural group's guiding medical belief system, food classification systems, local food and illness terms, food symbolism and nutrition-related risk perception are areas where ethnographic data can provide useful behavioral insights.
- > The sociocultural aspects of global malnutrition are important to consider, but not in lieu of investments needed to address the underlying and basic factors that disproportionately contribute to suboptimal nutrition situations.

The challenge of using nutrition-specific solutions

In medicine and public health today, bioinformatics, artificial intelligence and big datasets come to mind. In reality, though, data do not need to be so 'big' or cutting edge to be useful for public health nutrition. To understand why this may be the case, this article will first discuss approaches used in public health nutrition and highlight important social and behavioral considerations

when implementing them across diverse cultural settings. It will then explain how cultural domain analysis can be used by practitioners and researchers alike, to generate ethnographic data for culturally appropriate intervention design and implementation.

“In reality, data do not need to be so ‘big’ to be useful for public health nutrition”

Let us first consider the rising popularity of specialized nutritious foods, such as Plumpy'Nut®, which are popular nutrition-specific interventions aimed at addressing inadequate dietary intake – one of the immediate causes of malnutrition.

Such foods are technological innovations, formulated by teams of food scientists, physicians and academics from high-income countries for introduction into low- and middle-income settings where malnutrition challenges persist disproportionately. Their popularity as a solution for addressing population-level malnutrition has been increasing to the point where, nowadays, entire product lines exist with nutrient formulations that address several different forms of malnutrition among people in nearly any life stage.¹ Globally, micronutrient powder is used to address iron deficiency among young children;² lipid-based nutrient supplements are provided for both the prevention and treatment of chronic and acute malnutrition, respectively;^{3,4} and multiple micronutrient supplements are gaining support for their potential to improve the nutritional status of pregnant women and related birth outcomes.⁵

On the one hand, these nutrition-specific solutions address important nutrient gaps that are difficult to fill using local diets alone – and in the case of ready-to-use therapeutic foods such as Plumpy'Nut®, they have been truly life-saving innovations for public health nutrition. On the other hand, these product-focused



A ready-to-use therapeutic food (RUTF) being given to a child in Nigeria using the Community-based Management of Acute Malnutrition Model (CMAM)

solutions face implementation-related challenges that stifle expected health and nutrition outcomes.⁶ Specialized nutritious foods typically come in the form of powders, pills and spreads – modalities that are familiar to populations in high-income settings but which are novel to most communities in development work. Indeed, the complexity of these challenges only increases when attempts are made to address malnutrition by relying on biomedical solutions across diverse contexts.

Social and behavioral nutrition considerations

Intervention lessons across settings underscore the importance of **adequate acceptance** and **appropriate utilization** of specialized nutritious foods for nutrition impact.^{7–10} To nutritional anthropologists, whose biocultural perspective on food and nutrition considers the many interrelated biological and social factors that define a nutrition situation, such importance is hardly surprising. From that perspective, specialized nutritious food **acceptance** and **utilization** represent just the tip of the intervention effectiveness iceberg. Facilitating nutrition-related behavior change, with or without specialized nutritious foods, is intrinsically challenging, as the underlying behavioral determinants are complex and uniquely variable across settings. Several important, yet often overlooked, behavioral considerations are discussed below.

“Facilitating nutrition-related behavior change, with or without specialized nutritious foods, is intrinsically challenging”

Firstly, medical belief systems, which serve as the foundation for health-related cognition, emotion and motivation, are complex. While some populations ascribe illness to externalizing factors (believing, for example, that kwashiorkor or edematous malnutrition is caused by evil spirits), others point to internalizing factors, including humoral imbalance within the body (for instance, the disproportionate consumption of hot or cold food during pregnancy).¹¹ In reality, every dichotomy is false, and medical belief systems do not have such clear delineation.¹² Even among biomedically oriented individuals who subscribe to clinical medicine approaches to treat illness, it is not uncommon to place trust in antibiotics to treat pneumonia (*acknowledging an internalizing factor, the pathogen*), but also to pray to a God for quick recovery (*acknowledging an externalizing factor, the supernatural beings*).

“The nutritional illnesses that are most important to donors and practitioners may not be considered similarly serious by communities”



Participants in a workshop in Mozambique examine Nutributter®

TABLE 1: Salient illnesses identified during free listing among caregivers in Kiribati²⁰

Rank	Items (Kiribati)	Item (English)	Salience		
			All	Rural	Urban
1	Kabuebue	Fever	0.781	0.793	0.761
2	Bekanako, maraki beka	Diarrhea	0.628	0.595	0.670
3	Bekobeko	Cough	0.488	0.492	0.505
4	Mumuta	Vomiting	0.324	0.364	0.291
5	Ngako	Runny nose	0.146	0.082	0.200
6	Marakinnatu	Stomach ache	0.120	0.097	0.130
7	Kaikeike	Asthma	0.111	0.062	0.170
8	Kinakanaka, kinaki	Sores	0.098	0.099	0.094
9	Wiiboi	Bad breath	0.076	0.113	0.024
10	Bwakabua, nati baraaki	Sore throat	0.065	0.041	0.093
19	Bakitaia	Malnutrition	0.033	0.027	0.029
45	Matakii	Night blindness	0.007	0.000	0.015
51	Akea n rara	Low blood (anemia)	0.005	0.010	0.000

Secondly, public health nutrition practitioners typically have their own agendas, aiming to address what they consider to be the most burdensome nutrition issues in a given context. However, the nutritional illnesses that are most important to donors and practitioners may not be considered similarly serious by communities. Formative research to inform interventions with specialized nutritious foods has consistently demonstrated that nutrition-related illnesses are far less salient and less severe than other childhood illnesses including malaria, acute respiratory illness and diarrhea.^{13,14} In particular, we have found that community risk perception toward stunting, a population-level indicator of chronic undernutrition, is notoriously at odds with the high importance placed on it by the global nutrition community. There is even no local language term for stunting in many contexts and thus no associated risk perception.

Thirdly, different cultures perceive the same foods very differently, based on various factors. For one, foods have meanings associated with them based on what they symbolize, and specialized nutritious foods are particularly vulnerable to negative connotations. In Georgia, food assistance in the form of macaroni was deemed the ‘food of sorrow’ by refugees because of its negative association with reliance on humanitarian aid.¹⁵ In Malawi, adult caregivers who were using a ready-to-use therapeutic food (RUTF) called Chiponde were stigmatized because of its association with child malnutrition.¹³ Similarly, food classification systems differ greatly across contexts: nutritionists typically think about foods and food groupings based on their nutrient compositions (e.g., animal-source foods). However, in most communities where interventions are implemented, cul-

turally bound dietary rules and local food availability denote the food classification systems. Specialized foods often do not fit clearly into local food classification systems – as we found in northern Mozambique, where Nutributter®, a small-quantity lipid-based nutrient supplement to be used in stunting prevention, was classified in a food category of its own, perceived differently from all other local foods and labeled “unknown”.¹⁶

Cultural domain analysis for ethnographic data generation

Using ethnographic data from cultural domain analysis can help practitioners to better design and implement nutrition interventions that align with local cultures and improve the likelihood of success. While social norms and culturally bound food rules (e.g., food classification systems and food proscriptions or taboos) are not easily modifiable, interventions can be enhanced by using relatively simple methods drawn from cognitive anthropology, which studies the relationship between human society and individual cognition, to tailor behavioral interventions for each context.¹⁷

Free listing

Free listing is a method that can help reveal a community’s risk perception toward nutritional illnesses.^{18,19} In Kiribati, a Pacific Island country, nutrition-related illnesses were much less salient than others, ranked 19th, 45th and 51st for malnutrition, night blindness and anemia, respectively²⁰ (Tables 1–2).

Importantly, neither overweight nor obesity was mentioned during free listing, despite 80% and 50% prevalence among Kiribati women, respectively.^{21,22} Low risk perception toward

nutrition-related illnesses has important implications for preventative health behaviors, yet is not unique: we have found similarly low risk perception toward malnutrition using free lists across diverse cultural settings, and believe it to be an important yet underappreciated determinant of optimal dietary practices globally.^{13,14,16}

Changing the behavior of a population where the target illness is not perceived to be a threat, such as is often the case with stunting and micronutrient deficiency (i.e., ‘hidden hunger’), remains a foremost public health nutrition challenge. Free listing can shed light on this important behavioral determinant for better intervention design.

Free listing also identifies local, or what anthropologists refer to as emic, words and phrases that are unique to a particular lexicon.²³ Social and behavior change communication (SBCC) often uses only clinically derived terms (e.g., nutrients) and phrases (e.g., vitamins and minerals) that reflect biomedical perspectives and have little or no meaning to local communities. Ensuring technical accuracy in SBCC messaging does not have to exclude communicating with understandable words, phrases and pictorials that resonate with vulnerable populations in which formal education and health literacy are often very limited.

Pile sorting

Pile sorting is another method that can generate data to improve interventions.¹⁹ Items specific to a cultural domain, such as

those of ‘young child foods’, can be sorted by community members and then analyzed using multidimensional scaling, an analytic approach that statistically produces visual representations of items based on their perceived similarities and differences. Multidimensional scaling of food items will reveal clusters of those foods based on their underlying characteristics – a representation of local food groupings, which we know usually vary by cultural context.^{16,24} Most people conceptualize foods differently than trained nutritionists, who tend to think in terms of nutrients (e.g., proteins, carbohydrates and vitamins).

“Most people conceptualize foods differently than trained nutritionists”

Local food classification systems derive from what is locally available and culturally prescribed, not from the underlying nutrient values of food. Pile sorting in Mozambique revealed that young child foods are thought of as *common foods*, *special foods* and *early meal foods*, which include categories quite different from those nutritionists conceptualize¹⁶ (Figure 1).

Notably, when Nutributter®, a specialized nutritious food, was introduced into the Mozambique pile sort, data revealed that participants did not perceive it similarly to local foods or food groups.

FIGURE 1: Multidimensional scaling map of Macua cultural group (northern Mozambique) food classification, including Nutributter®, a specialized nutritious food for the prevention of chronic malnutrition¹⁶

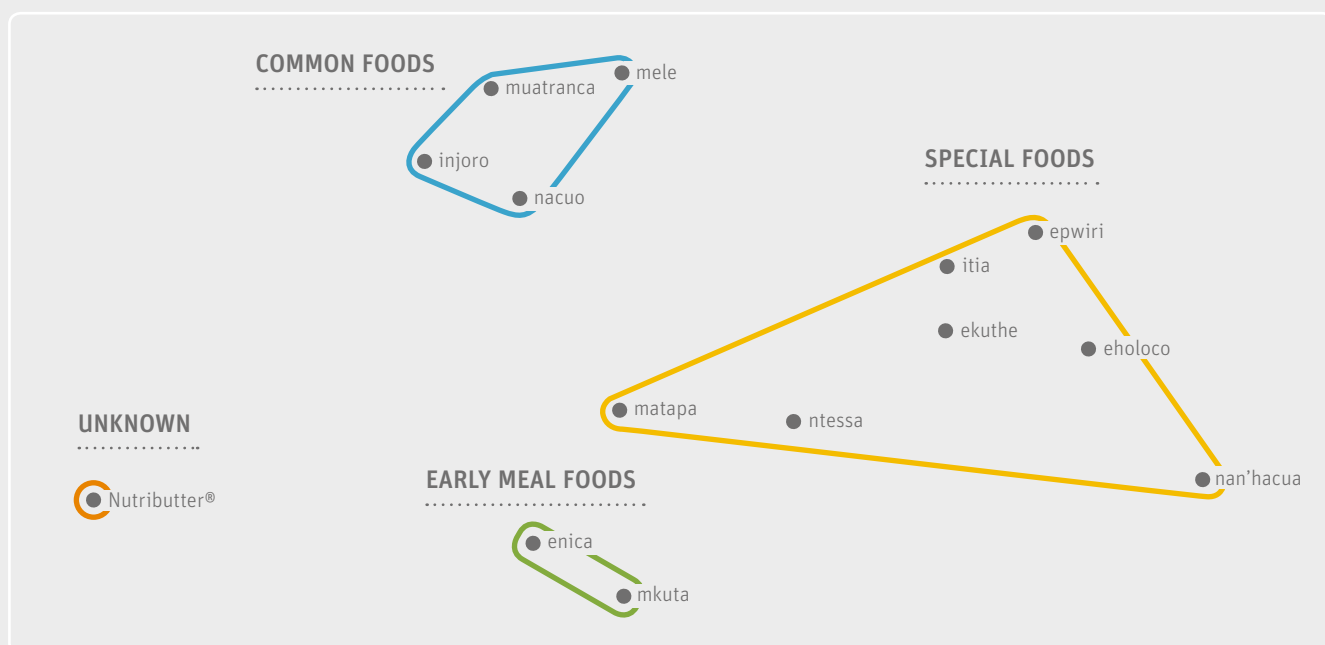


TABLE 2: Descriptions and examples of useful ethnographic data collection methods

Method name	Brief description	Example of question prompt	Output
Free listing	Listing activity whereby a participant is asked to list as many items as possible within a cultural domain.	“Please list as many illnesses as you can.”	A rank order of listed items, such as illnesses, reflecting their relative salience to a culture.
Pile sorting	Sorting activity that asks a participant to classify or sort familiar items into groups based on how similar or different they are.	“Please put these illness terms into piles based on how similar or different they are.”	Clusters of items that reflect local classification systems (e.g., ‘illnesses caused by evil spirits’ versus ‘illnesses caused by food’).

FIGURE 2: Ethnomedical model of nutrition-related illness in Ntchisi, Malawi¹³

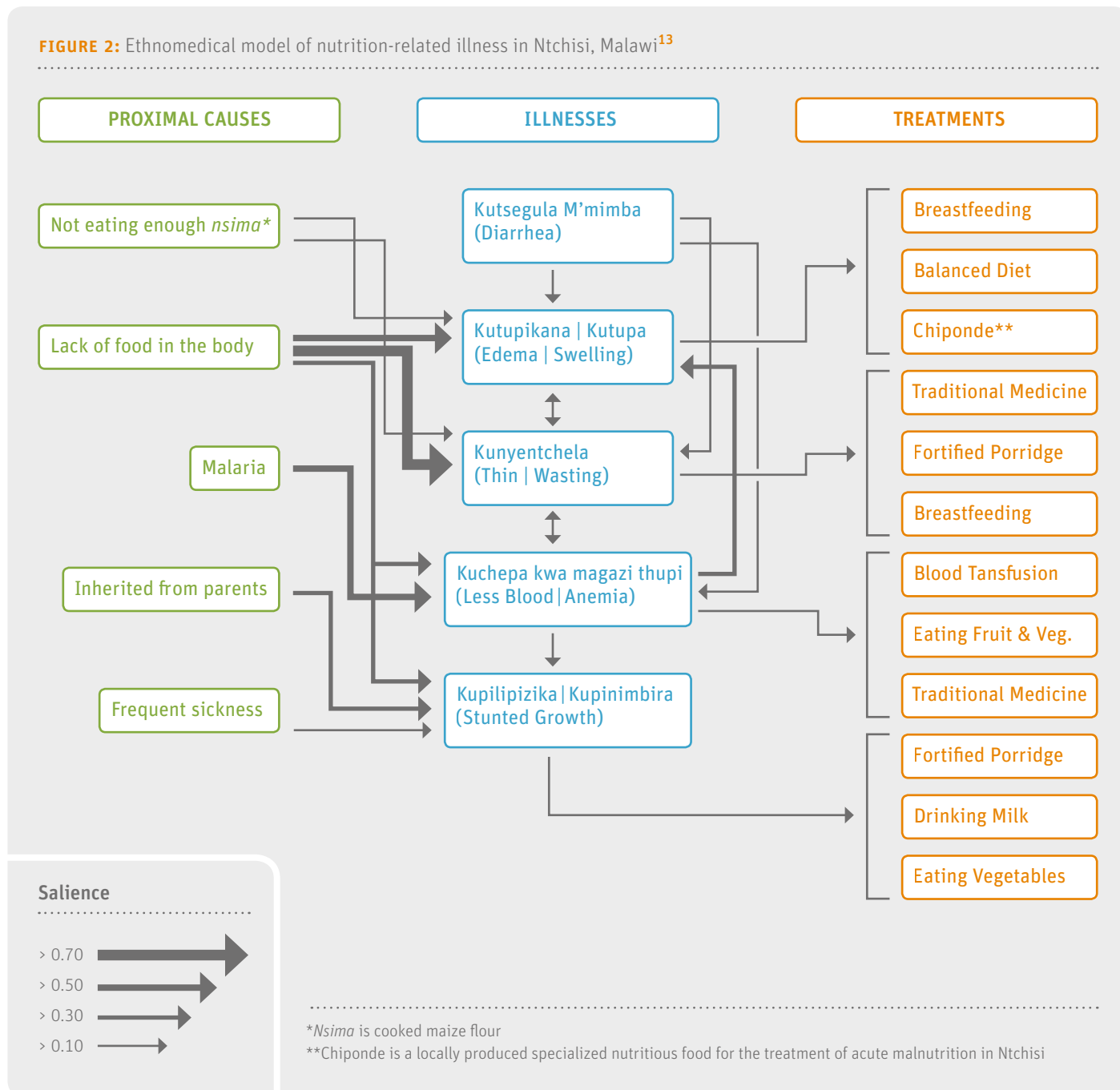


FIGURE 3: Ethnomedical model of diabetes in the Republic of the Marshall Islands²⁷

Source: Cortes LK, Gittelsohn J, Alfred J, Palafox NA. Health Education & Behavior, Vol. 28, Issue 6. Formative Research to Inform Intervention Development for Diabetes Prevention in the Republic of the Marshall Islands. pp. 710, copyright © 2001 by SAGE Publications, Inc. Reprinted by permission of SAGE Publications, Inc.

Promoting nutritious local foods, as well as specialized nutritious foods where these are introduced, is often a core aspect of SBCC, yet without such data describing local classification systems it is not possible to tailor health messaging for behavior change.²⁵ Nutritious food promotion that does not align with local classification systems may cause confusion or disregard among communities. Further, misaligned messages may hurt the credibility of implementers, who are usually ‘cultural outsiders’ to the communities that they are trying to serve. Pile sorting can generate useful data to tailor SBCC for improved nutrition communication that resonates with local communities.

Ethnomedical models of nutritional illness

Free list and pile sort data, when combined with in-depth interview and direct observation data, can form ethnomedical models. An ethnomedical model of illness is a visual representation of the collective factors locally defining a disease and based on the community perspectives. Often, an ethnomedical model will differ greatly from a purely biomedical model, which focuses primarily on the biological causes of disease.

Ethnomedical models can thus be very informative tools that not only depict local medical belief systems around health and nutrition, but also inform intervention design by highlighting important entry points reflective of sociocultural dynamics^{13,26,27} (Figures 2–3).



A mother and child with Nutributter®, Mozambique



RUTF for severe acute malnutrition, Nigeria

Visual presentation of cultural domain data in an ethnomedical model is often appealing and digestible, and thus a useful advocacy tool for communication with policymakers and management, who often do not appreciate the importance of cultural context in effectively addressing malnutrition.¹²

“The cultural contexts in which specialized nutritious foods are proposed as solutions need to be understood before intervening”

Conclusions

The cultural contexts in which specialized nutritious foods are proposed as solutions need to be understood before intervening. The factors contributing to food acceptability and utilization are much more complex than perceptions of packaging or organoleptic characteristics (e.g., taste, odor, color and other characteristics associated with sensory perception), which tend to be the primary focus of most formative work.²⁸ Dietary traditions are by nature longstanding, and perceptions of foods and community-level norms manifest uniquely in each setting. While ethnographic information is not a panacea for public health nutrition challenges, which require systems-level investments for sustainable change, it is a prerequisite for culturally appropriate programming, especially where interventions necessitate behavior change.

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