

## Original Article

## Using ethnography in implementation research to improve nutrition interventions in populations

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## Abstract

'Implementation research in nutrition' is an emerging area of study aimed at building evidence-based knowledge and sound theory to design and implement programs that will effectively deliver nutrition interventions. This paper describes some of the basic features of ethnography and illustrates its applications in components of the implementation process. We review the central purpose of ethnography, which is to obtain the emic view – the insider's perspective – and how ethnography has historically interfaced with nutrition. We present examples of ethnographic studies in relation to an analytic framework of the implementation process, situating them with respect to landscape analysis, formative research, process evaluation and impact evaluation. These examples, conducted in various parts of the world by different investigators, demonstrate how ethnography provided important, often essential, insights that influenced programming decisions or explained programme outcomes.

**Keywords:** emic perspective, cultural adaption of interventions, methods in translation science.

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## Introduction

Improving nutrition and health in individuals and populations depends ultimately on voluntary behaviour change in an environment that does not prohibit the potential for change. For nutrition, the undisputed environmental barriers to behavioural change include lack of availability and access to food, lack of technological means to transform potentially edible food into food that can be consumed and physiological conditions that prevent individuals from consuming foods or utilising the nutrients that they contain. Outside of these broad parameters are sets of social, economic, ecological, agricultural, cultural and psychological determinants that facilitate or impede the potential for people to adopt behaviours that lead to better nutrition. Interventions to improve nutrition are directed at one or more of these sets of determinants. This paper is grounded in the basic premise that designing and implementing effective interventions requires knowledge about the populations and communities – the context – in which interventions are situated, including knowledge from

the perspectives of the people who are intended to benefit from the behaviour changes that are being promoted. Such knowledge is necessary even when interventions are community-initiated and/or community-led. This paper explores the role of ethnography, defined in the *New Oxford American Dictionary, Second Edition* as 'the scientific description of the customs of individual peoples and cultures', in contributing to the knowledge that can enable and improve nutrition interventions.

The enunciation of the Millennium Development Goals (MDGs) in 2000 was welcomed by the nutrition community as an opportunity to attract attention to malnutrition and garner support for activities that were essential to achieve their ambitious objectives (United Nations General Assembly 2000). Although there has been progress towards achieving MDGs, including those most closely associated with nutrition, malnutrition remains a significant social and public health problem in low-income and middle-income countries. Even in wealthy countries, some citizens are not spared from its effects, in spite of 'safety net' programmes (Ahn *et al.*

2014; Kassebaum *et al.* 2014). The new Sustainable Development Goals, which replace the MDGs and layout goals and challenges for the next 15 years, also contain important challenges for nutrition. Recently, the development and implementation of the Scaling Up Nutrition movement are providing new opportunities to expand activities to improve nutrition, particularly in the areas of national policy and the mobilisation of resources (United Nations Standing Committee on Nutrition 2010).

Policies and economic resources provide the underpinnings for improving nutrition, but they do not translate into progress without a broad spectrum of actions involving multiple public and private societal sectors, including agriculture, education, health and social welfare. Many of the critical mechanisms to realise positive change require programmes that serve as the vehicles through which nutrition-specific and nutrition-sensitive interventions (Ruel & Alderman 2013) are organised and delivered to populations, communities, families and individuals who suffer from malnutrition (i.e. therapeutic approaches) and/or are at risk of malnutrition (i.e. preventive approaches).

Recognition of the importance of maintaining a strong scientific basis for medical and public health interventions is deeply engrained in modern societies, and this recognition generally includes attention to the biological and psychological aspects of nutrition. However, appreciation of the importance of adequate, evidence-based knowledge and sound theory for designing and implementing public health interventions has been slower to develop. In nutrition, this knowledge is being recognised as essential for meeting the

challenges of scaling up nutrition (Garrett 2008; Leroy & Menon 2008; Menon *et al.* 2014; Monterrosa *et al.* 2015). Analytic models for the implementation process are being developed and tested (Avula *et al.* 2013; Rawat *et al.* 2013; Menon *et al.* 2014; Nguyen *et al.* 2014; Pérez-Escamilla *et al.* 2014). Tools and guidelines to support the components of the process – from policy analysis and landscape analysis through process and impact evaluation – are increasingly available, and systematic scoping reviews are being conducted to identify features that contribute to intervention effectiveness (Fabrizio *et al.* 2014).

In this early formative period in the development of ‘implementation research in nutrition’, it is important to encourage debate and informed discussion, as well as careful and systematically planned and executed studies. It will take time, commitment and resources to build effective implementation research for nutrition interventions. Many disciplines have a role to play, but communication is especially challenging. Eventually, one can expect to see the emergence of consensus on canons of evidence to guide decisions, a situation that has, for the most part, already been achieved in the basic biological and clinical sciences. For example, there is general consensus that in verification research, which is undertaken to determine whether an intervention that has been shown to be biologically efficacious is effective in a community setting; a randomised control trial is an appropriate design. Similarly, improved communication and an appreciation of the fundamental approaches and challenges in the various contributing disciplines in nutrition implementation research are prerequisites for achieving this consensus. This paper

## Key messages

- Designing, implementing and evaluating interventions requires knowledge about the populations and communities in which interventions are situated, including knowledge from the ‘emic’ (insider’s) perspective.
- Obtaining emic perspectives and analysing them in relation to cultural, economic and structural features of social organisation in societies is a central purpose of ethnography.
- Ethnography is an essential aspect of implementation research in nutrition, as it provides important insights for making decisions about appropriate interventions and delivery platforms; determining how best to fit aspects of programme design and implementation into different environmental and cultural contexts; opening the ‘black box’ in interventions to understand how delivery and utilisation processes affect programme outcomes or impacts; and understanding how programme impacts were achieved, or not.

is motivated, in part, by the assumption that to achieve the shared goals of improved nutrition, it is important for all of the players who are involved in implementation to understand the roles and contributions of each discipline. Towards that end, this paper describes some basic features of ethnography and illustrates its applications in components of the implementation process.

## What is ethnography?

Before shifting attention to the historical applications of ethnography in nutrition and examples of its role in the implementation process, it is important to have an understanding of what ethnography is. As stated previously, the *New Oxford American Dictionary, Second Edition* defines ethnography as ‘the scientific description of the customs of individual peoples and cultures’. The *Merriam-Webster Dictionary* definition is ‘the study and systematic recording of human cultures; also, a descriptive work produced from such research’. Note that these definitions contain or imply both the investigative activities that are involved in generating the description (i.e. the research) and the product of the effort, which is typically available in a written form (e.g. report, monograph or journal article, although a narrated visual product, a film, a video or a photographic book may also be considered an ethnography).

Ethnography has its roots in the discipline of anthropology (literally ‘the study of man’). In the 19th century and the first half of the 20th century, conducting ethnographic studies and producing ethnographies was what social and cultural anthropologists did, while archaeologists studied the remains of past cultures and physical anthropologists studied the evolution of human biological forms and traits and their contemporary manifestations. Ethnography was conducted primarily through lengthy fieldwork in living communities around the globe. Classic ethnography, which set out to describe a ‘human culture’, resulted in monographs that covered a diverse range of topics. These topics typically included technology, religion and cosmology, family and kinship, diet, food acquisition and food processing, child rearing, health and healing, local legal structure and governance, interpersonal relationships, rites of passage, relationships with neighbouring groups and

so on. Often, the ethnographer paid special attention to a particular issue of personal or current theoretical interest, but the requirement to be comprehensive was part of professional expectations. The task of generating the description of a culture took many months of research, often as many as 24 months, in a specific community or delimited geographic location. This lengthy period of fieldwork was the sine qua non for ensuring academic rigour.

The ethnographer used a combination of direct observation, participant observation and interviewing to collect data, which was recorded in notebooks over the course of his or her residence in the community. Preparation for the research included studying historical records, material goods in museums and travellers’ reports and, to the extent possible, learning the local language. In situations in which there was no written language and no native speaker available to teach the ethnographer, learning the language took place in the research site itself. Often, it was necessary to rely on bilingual community members to serve as translators until one could communicate directly. Returning home, the ethnographer spent many further months organising and analysing the descriptive data and writing the monograph. The monographs were then published in university papers and/or by commercial presses. Examples of some classic ethnographic monographs from different parts of the world include Kroeber (1902); Spier & Sapir (1930); Mead (1936); and Marshall (1976).

In addition to submersion in daily life, another critical feature of ethnographic methodology was to understand what was being observed and discussed from the perspective of the people in the community. Nearly a century ago, one of the intellectual giants in anthropology, Bronislaw Malinowski, provided a more extended definition of ethnography in which he sought to capture this basic feature, which differentiates ethnography from other types of descriptive research. In the introduction to his seminal work, *Argonauts of the Western Pacific* (Malinowski 1922), he wrote:

*[Ethnography has a] goal, of which an Ethnographer should never lose sight. This goal is, briefly, to grasp the native’s point of view, his relation to life, to realise his vision of his world. We have to study man, and we must study what concerns him most intimately, that is, the hold life has on him. In each*

*culture, the values are slightly different; people aspire after different aims, follow different impulses, yearn after a different form of happiness. In each culture, we find different institutions in which man pursues his life-interest, different customs by which he satisfies his aspirations, different codes of law and morality which reward his virtues or punish his defections. To study the institutions, customs, and codes or to study the behaviour and mentality without the subjective desire of feeling by what these people live, of realising the substance of their happiness—is, in my opinion, to miss the greatest reward which we can hope to obtain from the study of man.*

The highly influential American anthropologist Franz Boas also developed this principle as a fundamental theoretical position. In contemporary discussion, it is referred to as the ‘emic description’ (Pelto & Pelto 1978). Recognising that obtaining the emic view – the insider’s perspective – is a central purpose of ethnography, it is also clear that the etic view (the outsider’s analytic perspective) is also essential. Whether the goal of a study is to contribute to social theory or, as in our case, applying ethnography to support social actions to improve nutrition, effective utilisation of insights from ethnography and knowledge about emic realities require a clearly articulated etic framework. Moreover, an etic interpretation is also essential for generalising the results beyond the study site.

### **Conundrums, confusions and issues of terminology**

The perception that firm boundaries can be drawn around disciplines based on their concepts and methods has probably always been based on a myth about how professionals in various disciplines actually conduct their work. There is, of course, a central core to disciplines, with respect to their fundamental theories and the types of questions that they are most concerned with. However, particularly today, in our era of hyphenated sciences, methodological approaches have been increasingly ‘decoupled’ from disciplinary labels. This is certainly the case with ‘ethnography’, which is increasingly becoming a primary research mode, for example, in education and nursing (Roper & Shapira 2000; Mills & Morton 2013; Schensul et al. 2013). With the growth of research in implementation science in public health, qualitative investigations are being undertaken to help explicate context, for example, in the area of improving quality of care (e.g. Cofie et al. 2014).

Inevitably, these cross-disciplinary movements produce new communication challenges, as concepts and methods become redefined and reinterpreted. Also, as new research paradigms emerge and concepts and theories are developed, new vocabulary is introduced, often with different labels for similar ideas and methods. One consequence of these developments is conundrums and confusion, not only in issues of terminology, but also in competing views about how to achieve common goals.

In this paper on ethnography, we do not use the term ‘qualitative research’ as a synonym for ethnography. However, in other disciplines, ‘qualitative research’ is often equated with ‘ethnography’, and the terms are used interchangeably. In anthropology, ethnography generally employs a mixed-methods approach, typically using combinations of observation, participation in social life in the community, informal discussion, open-ended questioning guides, survey-type questions, cognitive mapping techniques and both qualitative and quantitative analyses of the data (Schensul & LeCompte 2012) depending on the purpose of the study and the theoretical orientation of the investigator.

### **An overview of the historical role of ethnographic research in supporting improved nutrition in populations**

When we review the ways in which ethnography has historically interfaced with nutrition, specifically with respect to research, which is concerned with improving nutrition in populations, it is useful to distinguish between ethnographic research that is directed to (1) identifying social and cultural determinants of nutrition (e.g. the various factors, characteristics and cultural features that affect nutrition-related behaviours) and (2) identifying social-cultural factors that affect population responses to nutrition interventions. Both types have a long history, stretching back to the mid-20th century or earlier.

#### **1. Identifying social and cultural determinants of nutrition**

The acquisition, preparation and consumption of food are so central to human lifeways that from the earliest period of ethnographic fieldwork, these processes

have been a subject of study. Some ethnographers, who were particularly interested in food and nutrition, organised their research around it. Audrey Richard's *Hunger and Work in a Savage Tribe* (Richards 1932) is an iconic example. Historically, much of food-oriented ethnography was motivated by a strong concern about the health and welfare of native peoples whose lifeways were being transformed and destroyed by colonisation and the inexorable march of 'civilization'. However, the research was not explicitly aimed at providing information for social actions.

On the other hand, there are also important examples of ethnographic research that were undertaken for the explicit purpose of informing and guiding decision-making and policy. Most notable is the work of the National Research Council's Committee on Food Habits during the Second World War. This project was conducted under the aegis of the National Academy of Sciences and headed by Margaret Mead (Guthe & Mead 1943). Based on the premise that culture is a major determinant of what people eat, the purpose of the project was to elucidate local food cultures in the United States to enable the implementation of more effective food programmes when food shortages occurred as a consequence of the war. The project produced a series of ethnographic studies of local food culture in American populations.

Methodologically, the committee's work was decades ahead of its time. It used a common protocol for the individual studies, which consisted of guidelines for broad areas and questions, but which left it up to the individual ethnographers to determine how best to obtain the information through interviews and observations. In other words, it was fundamentally ethnographic and sought to preserve the strengths of an ethnographic approach and avoid the pitfalls of a survey research approach to obtain emic data on beliefs, attitudes, values and practices. Fortunately, the feared, anticipated severe restrictions on food did not occur. Today, these old ethnographic reports have been relegated to the same obscurity that many ethnographies now occupy.

In the latter half of the 20th century, research that was aimed at linking diet and nutrition to their ecological and socio-cultural determinants developed when anthropologists became more specialised, and the

subfields of applied anthropology, medical anthropology and nutritional anthropology emerged. These subfields have produced a body of research on determinants of food and nutrition-related behaviours and nutritional outcomes (Jerome *et al.* 1980; Goodman *et al.* 2000). Many of these studies were undertaken in a specific population and used intra-cultural or intra-group variations in socio-cultural and economic characteristics as variables to explain food and nutrition outcomes (Pelto *et al.* 1989).

Another mode of research that is directed to producing insights to guide nutrition interventions uses cross-cultural analysis of ethnographic studies to derive generalisations about the determinants of food and nutrition-related behaviours. For example, ethnographic studies on factors that affect breastfeeding initiation and duration (Nerlove 1974; Pelto 1981; Sellen 2009) provide data and perspectives that complement the extensive research by epidemiologists on risk factors for inadequate and inappropriate breastfeeding practices. To the extent that studies of this type reveal issues that can be taken into account in planning specific nutrition intervention programmes, they can be regarded as illustrations of the role of ethnography in improving nutrition in populations. However, they are not implementation-specific in the same sense as the examples we discuss in the succeeding paragraphs.

## 2. Identifying social-cultural factors that affect population responses to nutrition interventions

Ethnographic investigators in the socio-cultural anthropology subfield of applied anthropology (or applied ethnography) (Pelto 2013) have examined and drawn attention to the mismatch between the ways in which nutrition and health interventions are delivered and how they are perceived and utilised by beneficiaries. Sixty years ago, Benjamin Paul published a highly influential book of case studies, many of which documented problems in both the delivery and acceptance of public health interventions. The mismatches occurred because the recipients of the programmes and projects had a different socio-cultural framework for interpreting and responding to them than did the programme developers and administrators (Paul 1955).

Some of the cases in Paul's book reveal tragic levels of miscommunication. For example, Adams (1955) reported the reactions of indigenous families in a rural Guatemalan area to a project intended to increase weight in children. The results are reminiscent of the Grimm brothers' fairy tale, *Hansel and Gretel*. Parents in the project feared that the purpose of the food supplement was to fatten up their children so that they could be kidnapped and sent to the United States to be eaten. The blood tests that were taken to assess progress in improved nutrient status were thought to be proof of this intention because they were interpreted as being used to test whether the children were fat enough to sacrifice. Unlike Hansel's parents, the parents in the project could not give their children a chicken bone to fool the near-sighted witch. Not participating in the programme was the only option available to them.

Another example of ethnographic work that revealed the significance of cultural perspectives in nutrition communication, published more than 40 years ago, is much less dramatic but no less iconic in its demonstration of the gap between nutrition/public health professionals and the communities in which they work. In 1971, Alan Harwood analysed how the hot-cold belief system of Puerto Rican women in New York adversely affected their interpretation of nutrition advice concerning eating during pregnancy (Harwood 1971). This study, which was published in the *Journal of the American Medical Association*, provides an ethnographic summary of Puerto Rican women's belief systems, derived from both interviews and historical research. In the study, he indicates the specific points of conflict between the nutritionists' recommendations and the women's beliefs and suggests strategies for bringing the conflicting belief systems into closer harmony.

Unfortunately, many of the descriptive observations on population responses to nutrition programmes are contained in unpublished project reports. As part of their evaluations, project leaders have often been highly sensitive to the role that socio-cultural factors played in reducing the effectiveness of nutrition programmes. However, because the field-based observations that project leaders make rarely appear in the published literature, it is difficult to use them in

planning new interventions or treat them as case study units in cross-cultural comparisons. In 1995, we attempted to derive an empirically supported picture of population responses to vitamin A interventions (Pelto & Tuoniainen 1996). We intended to use reports from individual interventions as units for an ethnographic meta-analysis. Although we had access to a large body of published and unpublished reports from many sites (Gillespie & Mason 1994), the paucity of usable information made it very difficult to draw any conclusions about socio-cultural factors that affect population responses to vitamin A intervention programmes. We expect that 20 years later, such an exercise would still be frustrating. In the rest of this paper, we hope to encourage change by illustrating how ethnographic research can be a critical input to improved programme design and implementation.

### **Placing ethnographic research in nutrition within an implementation research framework**

Turning to our review about how ethnography can be utilised to improve the process of designing and implementing nutrition interventions, it is important to place the discussion in the larger context of implementation science. In addition to producing an expanding body of empirical data on implementation processes and experiences in public health, this growing and maturing field of scientific study is producing guidance in the form of analytic frameworks for implementation (Damschroder *et al.* 2009; Pfadenhauer *et al.* 2015).

In nutrition, better specification of the implementation process and recognition of the need for application of scientific research to inform and improve the design and implementation of interventions is receiving increasing attention (Garrett 2008; Leroy & Menon 2008; Habicht & Pelto 2014; Menon *et al.* 2014). We can expect that in the next few years, there will be an emerging consensus about how to conceptualise and represent this process, which would be greatly enhanced by close attention to models and experiences in other areas of public health implementation research. In the absence of an established

framework in nutrition, we will use the following diagram (Fig. 1) as a heuristic device to organise our presentation of examples to illustrate the role of ethnography.

Note that the figure contains only research that is pertinent to the implementation process itself and not the larger framework of research for nutrition interventions. That larger framework contains the components of ‘discovery research’, ‘verification research’ and ‘policy research’ (de Zoysa *et al.* 1998). There are important roles for ethnography in the latter two (Jerome & Pelto 1981; Hill *et al.* 2011; Pelletier *et al.* 2011; Pelletier *et al.* 2012), but we limit the focus on this paper specifically to research designed to improve implementation of nutrition interventions.

As research is framed and undertaken in relation to the main components of Fig. 1, it is essential to remember the iterative nature of implementation research. Each stage or component may need to be restudied, as feedback from process evaluations and knowledge generated by new studies outside of the programme create the need for new information. Nonetheless, it is also useful to have a linear plan to guide the organisation of work. For that purpose, we find the concept of a ‘programme impact pathway’ (PIP) particularly helpful (Kim *et al.* 2011). The PIP concept is gaining recognition in nutrition as a way of organising and describing the many tasks and considerations that must be taken into consideration when setting out the stages and steps in an intervention (Robert *et al.* 2006; Loechl *et al.* 2009; Avula *et al.* 2013; Olney *et al.* 2013; Nguyen *et al.* 2014;

Pérez-Escamilla *et al.* 2014). For nutrition, a key feature of this construct is to conceptualise an intervention as a ‘flow’ in which the content of the intervention moves through a two-part system that begins with the ‘programme delivery system’ and continues through the ‘household utilisation system’ to the point at which the ultimate intended biological outcome has been achieved. The content of the flow can be nutrients, foods, resources to acquire foods, other resources to protect and enhance nutrition, knowledge or combinations of these. A complete PIP analysis identifies the steps in the flow, including potential inefficiencies in the flow and other features at each step that increase or decrease efficiencies. A PIP traces the flow of an intervention along the pathway from the policy instruments through the delivery system (from higher level management to front-line workers) to the household implementation system where beneficiaries reside. The PIP model for a specific intervention operationalises the implementation process, identifies the strategies and agents of agents of implementation

Conducting a PIP analysis is a prerequisite for designing an intervention because it allows the programme planners to identify the resources and behaviours essential for each step. Obtaining emic perspectives from the actors in these systems, as well as conducting analysis of structural features of context, is essential. Therefore, ethnography for nutrition and health interventions cannot focus exclusively on beneficiaries but must include the totality of the implementation pathway. Finally, a PIP also provides a focus for the

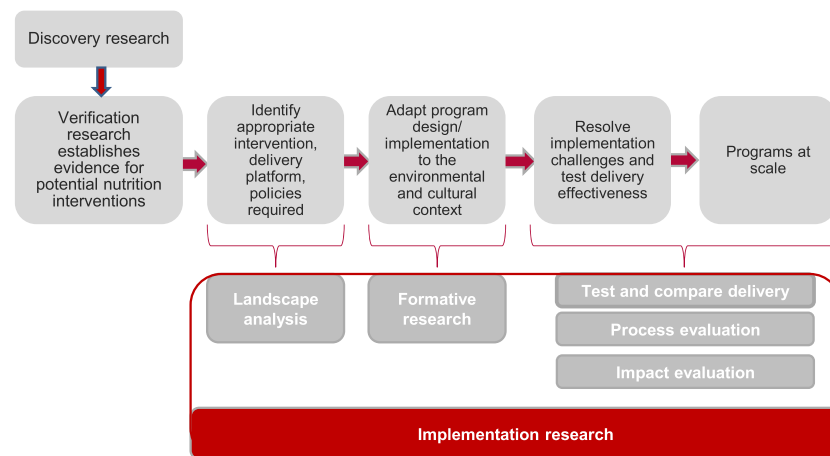


Fig. 1. Organisation of the examples that illustrate the role of ethnography.

organisation of ethnographic studies, which are undertaken to support nutrition interventions.

The premise of this paper is that ethnographic research has a role to play in each of the components of implementation research. The following sections provide examples of studies, conducted in various parts of the world by different investigators, which illustrate how ethnography provided important, often essential, support in the process of implementing interventions to improve nutrition. They are discussed in relation to the stages of implementation research in Fig. 1.

## Ethnographic research in landscape analysis

### Introduction

Many research questions can be placed under the rubric of 'landscape analysis'. Among the activities in which ethnography has a role are the following: (1) identifying appropriate nutrition-specific interventions, which are intended to have a direct impact on the prevention and treatment of under-nutrition in a population, as well as nutrition-sensitive interventions that affect associated and underlying determinants of nutrition; (2) assessing interventions that have already been selected but have not yet been evaluated for their appropriateness in the specific environments in which they are being planned to be introduced; (3) identifying the best platform or combination of platforms to use to implement a selected intervention; (4) mapping the presence and activities of other organisations and agencies in the environment that are relevant for the planned activities, including potential conflicts as well as collaborative possibilities; (5) identifying key political players who need to be involved in introducing and implementing the intervention; and (6) assessing conditions and features in a new environment for a successful intervention that is planning to expand.

### Example 1. Identifying appropriate interventions in Zimbabwe and Zanzibar

Paul *et al.* (2011) explored the contextual determinants of nutrient gaps in the diets of children 6–12-month-olds in two food insecure settings (rural, central Zimbabwe

and Pemba Island, Zanzibar, Tanzania) to identify intervention strategies. The study was a holistic, comparative analysis that revealed that broad assumptions about solutions (e.g. 'food insecurity requires food supplementation') can lead to erroneous and even harmful conclusions about which interventions have the potential to have an impact on a population's nutrition.

Based on the recommendations in *The Lancet's* 2013 Maternal and Child Nutrition Series on effective complementary feeding strategies in food insecure areas (Bhutta *et al.* 2013) and the definition of food insecurity (daily per capita income of less than US \$1) used in the series, both sites in the study were food insecure and should require food supplementation with fortification and nutrition counselling. In its landscape analysis, the research team used several methods – dietary recalls, in-depth interviews and focus group discussions with caregivers – to identify and explore factors that contributed to nutrient gaps and dietary insufficiency.

The study examined the interactions of determinants of food insecurity and local beliefs and practices and found differences between the sites that have clear implications for the selection of interventions. In Zimbabwe, the low energy density of the infant and young child (IYC) diet was due in part to the unavailability of two locally important foods that were culturally acceptable as foods to enhance complementary foods: cooking oil and peanuts. Another significant factor was the belief that babies could not swallow thick porridge or semi-solid foods. Mothers were hesitant to give vegetables, meat and other nutrient-dense foods because they feared that their babies could choke. They were not aware of techniques to process foods so that children could swallow them before they develop teeth.

In Pemba, the dietary pattern of adults in the household played a large role in the dietary pattern of infants and young children. Following the tradition to eat light meals in the morning and evening, both consisting of tea and bread, children were not given sufficient amounts of nutrient-dense foods throughout the day. Adding to the problem was a widespread belief among caregivers that fish (a dietary mainstay in Pemba) was unsuitable for young children because it could cause tooth decay or worms.

Paul *et al.* concluded that children in both sites have the potential to benefit from behaviour change



interventions. They could also potentially benefit from iron and zinc supplementation because dietary sources of these micronutrients are not accessible. However, only in Zimbabwe did a food-based supplement appear to be necessary to fill energy and protein gaps. In Pemba, the local food system supported the potential to improve infant diets without adding a food-based supplement, and implementing a diet supplement intervention could potentially displace locally available sources of energy (coconuts) and protein (fish).

### **Example 2. Identifying new approaches to combat obesity in the South Pacific**

McLennan (2015) and McLennan & Ulijaszek (McLennan 2015; McLennan & Ulijaszek 2014) are examples of ethnographic research that provide insights into nutrition interventions that can be used to combat the serious problem of obesity in the South Pacific and specifically in the Cook Islands and Nauru. The authors observed that public health education programmes in the region, which predominantly attempt to change attitudes about food and physical activity, have had little success. As a starting point for their research to understand why the interventions were not working, they examined the validity of the basic premises about the historical origins of obesity on which the failed interventions were based. They argue that the current approaches to deal with obesity in this area start with the assumption that the obesity epidemic is because of the co-occurrence of a genetic predisposition (the 'thrifty genotype hypothesis') coupled with a recent transformation in the local food system to one that is characterised by abundance and Western food practices. They asked: 'Are these assumptions correct?'

Over a period of several months, McLennan, working in Nauru, and Ulijaszek, working in Rarotonga in the Cook Islands, used a mixed-methods approach consisting of participant observation, life history interviews, archival data and document analysis of ethnographic research dating back to the 1800s. Ulijaszek also collected anthropometric data and conducted surveys focused on nutritional health and physical activity in his research site. The findings, which were similar in the two study sites, showed that the assumptions about the origins of obesity were incorrect:

- There is little evidence to support the thrifty genotype hypothesis because complex social and technological processes of food preservation date from the earliest days of migration. Therefore, it is unlikely that the early migrants faced the extreme food shortage that is the basis for the 'thrifty gene' explanation.
- The related requirement of the hypothesis that the island groups were isolated from one another is also not correct. The islands have been inter-connected for centuries through a long history of sophisticated sea travel, inter-marriage and exchange of resources, including food.
- Exposure to the global food system and modern food practices is not recent, but has been occurring since the earliest days of European colonisation.

In their analysis of the aetiology of obesity, McLennan and Ulijaszek place an emphasis on the role of recent changes in social values and norms. New values have changed expectations related to long-term trust and obligation to one's social network. The traditional cultural principles of giving and sharing, which solidified the inter-dependence and inter-connectivity among people, is being transformed into an emphasis on economic profit, on the importance of saving time and on low-cost and high-volume foods. These changes have direct implications for nutrition interventions. For example, the repeated failure of kitchen garden projects in Nauru reflects the erosion of trust and loss of expectations of inter-dependence. This is exemplified by an incident in which an outraged respondent expressed her anger that other family members had taken the vegetables she had planted in a communal garden. Fearing that her produce would be 'stolen' again, she abandoned the garden and went back to purchasing food from local shops stocked with imported food. To address this type of problem, McLennan and Ulijaszek suggest allying nutrition interventions, such as kitchen gardens, with cultural activities aimed at reclaiming and celebrating traditional values and tying these interventions to other efforts to help communities rediscover and embrace the concepts of inter-dependence and inter-connectivity, which are part of their cultural heritage and that could be harnessed to improve community nutrition interventions.

### **Example 3. Identifying an unexpected food crisis in Mozambique**

Ethnographic research by Chaiken and colleagues (2009) illustrates its value in identifying the need for a nutrition intervention, which had not been previously recognised. The research produced a nuanced understanding of food access and prevented a humanitarian crisis among communities in Nampula Province in northern Mozambique. Chaiken was conducting a short-term assessment of the ways in which gender and household incomes influenced participation in Save the Children development programmes. As the gender assessment was under way, it became clear that the harvest had not, as expected, ameliorated seasonal hunger, and many people were engaging in behaviour that was more characteristic of the hungry season, precisely at the time of year when food should be most plentiful. The Save the Children staff working in the region had been concerned that the rains in the coastal districts seemed inadequate that year and that harvests were poor, but the international and national Famine Early Warning Systems Network (FEWS NET), based on agro-climatic data and satellite imagery to predict shortfalls in production, had not yet identified any significant problems in Nampula. In their interviews, the team members began to probe more deeply about food access and utilisation and quickly concluded that there were many signs of a growing food shortage. For example, the research team observed children being permitted, and even encouraged, to eat non-nutritive items to assuage their hunger, especially the chaff from grain processing, which is indigestible and normally used as animal feed. While acknowledging that this was not appropriate food for children, mothers said that they did not have an alternative. Some families sent children away to live with family members in distant locations in an effort to reduce their total household needs. Because FEWS NET data were aggregated at the level of the province, there was no window into the local-level variation in shortfalls of rain or recognition of the significance of localised crop failures in the lives of local people. Fortunately, the ethnographic data collected by Chaiken and her team were used to justify swift intervention, including providing food rations for 50 000 households to prevent large-scale hunger.

## **Ethnographic research in formative research**

### **Introduction**

Formative research is a broad component of implementation research that includes a number of different types of studies that address different aspects of the implementation process in nutrition. The list of these aspects includes, but is not limited to, developing and testing foods and supplements, instructions for beneficiaries, designing communication strategies and framing messages, developing communication materials, testing the strategies and messages and developing training materials for the communication system. As elaborated by Bentley, formative research aims to determine how best to incorporate aspects of programme design and implementation into the environmental and cultural contexts of its beneficiaries (Bentley *et al.* 2011; Bentley *et al.* 2014). It provides crucial data and insights about how to: introduce the intervention; approach the community; operationalise the required behaviour change in ways that make the recommendations actionable for recipients; identify the facilitators and barriers to adopting recommended behaviours; determine how best to frame messages; and motivate the adoption of the recommended behaviour changes. Formative research also provides data on and insight into numerous logistical issues, including effective approaches to staff training and supervision, development of pilot testing materials and how to make adjustments based on pilot testing experiences. Compared with other components of implementation research, ethnographic studies in this area are well developed and have been a linchpin of formative research for many decades. The case studies listed in the succeeding sections are but a few of many excellent examples of the application of ethnographic studies in formative research.

### **Example 1. Developing a nutritionally adequate and culturally appropriate weaning food in Kwara State, Nigeria**

Bentley *et al.* (1991) conducted ethnographic, epidemiological, dietary and clinical studies to inform the development of a culturally acceptable intervention to improve IYC nutrition and complementary feeding

practices as part of the Dietary Management of Diarrhoea Programme in Kwara State, Nigeria. Landscape analysis identified the traditional pap (porridge), *eko*, as the complementary feeding intervention with the most potential to improve IYC nutrition and complementary feeding. However, the challenges for behaviour change included identification of appropriate fortification ingredients, lack of a felt need by mothers to fortify what they already considered to be the best food for their infants, the additional time required by mothers to prepare and feed a fortified *eko* product and the cost of the additional ingredients. Moreover, Bentley and other team members were not certain that they could adequately fortify the traditional pap without changing it to a thicker consistency, which would require a shift from hand-feeding to spoon-feeding, and ethnographic research had shown that the majority of mothers in both urban and rural areas favoured hand-feeding because it saves time.

The ethnographers conducted a series of focus group interviews and 'recipe trials' in several villages to test possible ingredients for fortifying *eko* using a research protocol, which was later developed into Designing by Dialogue (Dickin *et al.* 1997). Working closely with participant mothers, the research team identified a nutritionally improved and culturally acceptable *eko* recipe. The recipe included sprouted grains to prepare a malt flour high in amylase, which breaks down the starch of a thick gruel and produces a liquid consistency, allowing for hand-feeding. Although mothers and infants in the trials liked the improved *eko*, adopting the new preparation still required more time and costs. The research team continued using an ethnographic approach to address these barriers and develop behaviour change messages as implementation of the intervention was tested by the Ministry of Health.

### **Example 2. Including grandmothers in interventions for infants and young children in West Africa**

Another role for formative research is identifying to whom behaviour change activities should be directed. This requires emic data, particularly to avoid imposing inappropriate assumptions on the study participants. For example, middle-class development planners from Western cultures tend to assume that in interventions

to help infants and young children, the mother is the only significant person who needs to be reached, and the concept of 'caregiver' is essentially synonymous with 'mother'. Ethnography provides a means of overcoming this (and related) erroneous assumptions by identifying and subsequently involving all of the key players.

Aubel and her colleagues in French-speaking Africa conducted a series of studies aimed at identifying the key players at the household level who are responsible for maternal and child feeding and care (Aubel *et al.* 2004; Aubel 2012; Aubel *et al.* 2013). Their research showed that grandmothers are fundamentally important, often taking on much of IYC feeding of non-breast milk foods, as well as participating in the preparation of foods. Working with international humanitarian organisations (e.g. World Vision and Helen Keller International), Aubel and her team developed behaviour change interventions that were directed specifically to grandmothers. Their projects also involved compound heads, fathers, midwives and nurses, as appropriate for the specific types of interventions they implemented. For each type of 'player', they first collected data using ethnographic methods (e.g. direct observation, participant observation and in-depth interviews) and constructed descriptions of the areas of concern (e.g. birth, early lactation management and complementary feeding) from the perspectives of each of these types of participants in the process. They also studied the roles of the various participants to better understand how they could be involved in improving practices that are less than optimal from the perspective of evidence-based nutrition and health. They then developed detailed models of how these players related to each other and to the outcomes of concern. Guided by these analyses, they used collaborative and participatory techniques to develop the interventions and the process evaluations, to identify what was working well and where modifications and additions were required.

### **Example 3. Bringing health beliefs to bear in the design of nutrition interventions**

Before the second phase and expansion of the Global Alliance for Improved Nutrition's Infant and Young Child Nutrition programme in Bangladesh, formative

research was conducted using the focused ethnographic study (FES) tool. The purpose of the study was to improve the current social and behaviour change communication strategy to prevent malnutrition through both home fortification, which is based on a micronutrient powder (MNP), which is added to children's food, and messages delivered by front-line workers. Several important themes emerged from the FES concerning cultural and behavioural features, which have implications for a communication plan:

- The dominant cultural 'explanatory health model' of caregivers contains a complex mix of hot/cold humoral theory of disease, modern biomedicine and traditional beliefs related to supernatural forces. For MNP to be routinely used, it must avoid being associated with the properties of either 'heat' or 'cold', because this would preclude its use in many conditions (e.g. a certain season of the year or child health status).
- Drawing from families' strategies for preventing excess heat and cold, likening the effects of MNPs to the effects of rubbing oil on a child's head and body each day to prevent sweating in summer and to mitigate the effects of cold in winter could be useful for BCC messages related to MNP.
- Another finding, also potentially significant for MNP delivery in other parts of the world, was that, although caregivers' reporting giving one packet of MNP per day, the typical pattern was to put part of the packet into the food and reserve the rest for later feedings. The partitioning of the MNP packet is a strategy to ensure that it is not wasted, as infants and young children often do not finish all of the food prepared for them. However, it is probable that these children do not routinely receive the recommended MNP dose because of an essential feature of complementary feeding among this study population, namely, that caregivers do not feed leftovers to their children once the food has been placed in the child's bowl. In addition, implications for the biological integrity of the MNP once the packet is opened and exposed to the air are problematic and require more study. Furthermore, feeding instructions for MNP need to be carefully crafted so that they do not undermine the progress that is being made to foster 'responsive feeding' in Bangladesh so that children

are not exposed to the negative consequences of forceful feeding, as caregivers try to feed the portion of food that has been mixed with the powder.

## Ethnographic research in process evaluation

### Introduction

The phrase 'process evaluation' is a relatively recent term to the field of nutrition, but the practice of examining an on-going programme to assess progress and identify problematic issues that emerged after the intervention was initiated has been an important aspect of nutrition implementation research for some time. Sometimes, it has been characterised as 'operations research' (Loechl *et al.* 2004), and it is also known, in epidemiological circles, as 'formative evaluation' (Rossi 2004). Process evaluation looks inside the so-called 'black box' to see what happened in the programme and how that could affect programme impacts or outcomes (Saunders *et al.* 2005). We can distinguish two basic types of process evaluation. The first is studies that have been formally planned as part of the implementation process from the inception of a programme and involve making a judgement about the extent to which the intervention was implemented as planned and reached intended participants. The second centres on fine-tuning or trouble-shooting studies, which are initiated when feedback from the field or the results from an initial process evaluation indicate that there are problems or that programme impact is less than expected (Saunders *et al.* 2005). We will describe ethnographic examples of the former under the heading 'planned studies' and those of the latter as 'trouble-shooting studies'.

### Example 1. Sale of donated foods

In 1996, the appearance in the marketplace of donated foods from refugee camps in Zaire (now the Democratic Republic of Congo) prompted the World Food Programme to cut rations. The donors' interpretation was that the refugees were getting too much food and were selling their excess. To understand why this was happening, Reed & Habicht (1998) began their process

evaluation study with observations and open-ended interviews with key informants drawn from refugees (especially women), Zairian camp workers and Zairian farmers. This study illustrates that assumptions made without knowledge of the insider's perspective can lead to misguided programming decisions. It also illustrates a methodological approach that uses ethnography to design confirmatory quantitative surveys.

Refugees across a range of socio-economic levels and ages were selected to discuss food preferences, food acquisition, market purchases, food sales, problems in the camps and income. Based on the results from the first phase of the study, the investigators developed and administered a survey that permitted them to quantitatively examine the magnitude, range and distribution of buying, selling and eating patterns. For the analysis, Reed and Habicht developed an emic classification of income groups using a ranking exercise. In the exercise, they asked refugee informants to sort cards representing their neighbours' households into groups of similar 'well-being' (using their own definition). The refugee informants were then asked to describe characteristics for each group, including sources of income.

Among the important findings were that fewer than 23% of refugee households were eating adequate diets, in which the poorest one-fifth of households were twice as likely to sell or exchange food as were other households and that their diets were the poorest among all households. Because young children could not or would not eat the donated maize, parents sacrificed their own food intake by selling rations to buy fruit, cassava flour and sugar for their children. The most common non-food purchase from income generated from food aid sales was a bar of soap, which was essential to prevent rampant scabies. Reed and Habicht concluded that instead of reacting punitively by reducing donated foods, relief organisations should have seen this as a coping strategy and responded by addressing the refugee's needs more effectively.

### **Example 2. Determining why a proven intervention was not working and redesigning the delivery and messages**

A study in Mexico used ethnography to understand why children were not benefiting from a nutritional

supplement (*papilla*) with established biological efficacy, which was delivered through a conditional transfer programme (*Oportunidades*) (Bonvecchio *et al.* 2007). The ethnography indicated that, contrary to the initial programme instructions, mothers typically mixed *papilla* with a substantial amount of water to create a thin drink, which was given to everyone in the household, rather than giving it as a thick pap only to the intended beneficiaries (children 6–24 months of age). Women were unaware of the correct administration of the supplement because they were not receiving adequate or appropriate instructions from health workers. Based on the first phase of the study, new messages were developed:

- *Prepare papilla with four tablespoons of powder and three tablespoons of water*
- *Give papilla to your child everyday*
- *Give papilla to your child between meals*
- *Give papilla only to your 6–23-month-old (or older children who were in a programme for malnourished children)*

Additionally, a new delivery stream using community volunteers was established. The next phase of the study, with the new messages and the complementary delivery stream, was tested with a randomised trial using observation, ethnography and survey techniques. The results showed that three of the four recommendations were acceptable to the mothers and easy for them to adopt. Importantly, the fourth recommendation, which had already been identified as potentially not culturally acceptable during the initial ethnography, particularly to indigenous women, was often not adopted by mothers who adopted the other recommendations. The non-adopters were unwilling to withhold a valuable substance from their other young children who were above the age cut-off.

## **Ethnographic research in impact evaluation**

### **Introduction**

The use of ethnography in the evaluation of public health programmes dates back to the early

anthropological investigations of public health interventions described earlier. The proposition that it has an important role in impact evaluations and should be systematically used as an evaluation modality in nutrition was proposed by Scrimshaw under the rubric of Rapid Assessment Procedures (cf. (Scrimshaw & Gleason 1992)). Systematic guidelines to apply ethnographic methods in programme evaluations were developed by Scrimshaw & Hurtado (1987) and have been widely applied. As with process evaluations, impact evaluations that reveal less than expected biological impact are strengthened by ethnographic studies. These are valuable not only to shed light on the causes but also to produce insights that provide guidance for future interventions.

#### **Example 1. Reducing poor dietary practices and improving fitness in an American Indian group**

The ethnographic landscape analysis described in the succeeding paragraphs illustrates the value of building ethnography into an intervention from its initial stages through its evaluation. The rapport the ethnographers established with the community over a long period of engagement made it possible to work closely with all of the key players throughout the process and to obtain high-quality quantitative as well as ethnographic and dietary behaviour data.

In the Zuni reservation in New Mexico, a 4-year intervention was undertaken in the high school (Teufel & Ritenbaugh 1998; Cole *et al.* 2001; Ritenbaugh *et al.* 2003) to lower the risk for type 2 diabetes, which is a severe problem in the student population. Initially, an ethnographic landscape analysis identified the high school as a promising intervention point. That analysis also identified community supporters and the target behaviours: reducing soft drink consumption and increasing exercise. Soft drink consumption was very high among all community members because local water was unpalatable, even if safe. The second ethnographic assessment, the formative research phase, provided a wide range of social and cultural data for the design of the multi-pronged intervention, which included establishing a Wellness Centre in the school; youth task forces; educational modifications to school curriculum and faculty workshops to support these

changes; and modifications in the means of acquiring foods available to students at school, including vending machines, water coolers and school lunches. All of the interventions made use of Zuni cultural beliefs and practices in the communication materials, as well as Zuni social structure and expectations in relation to projection organisation. The longitudinal evaluation design, with baseline measurements, 1-year and 3-year surveys in Zuni and a control sample of non-Indian high school students in the region, obtained data on anthropometry, dietary intake, pulse rates and insulin-glucose. The quantitative results showed that the project had positive effects on body mass index, bringing both boys and girls closer to their non-Zuni counterparts. Dietary fibre increased and consumption of high sugar beverages dropped significantly. Pulse rates were significantly reduced, and differences in fasting levels of plasma glucose were highly significant. Since the end of the project in 1997, all of the elements of the intervention have been sustained (Ritenbaugh *et al.* 2003).

#### **Example 2. Understanding why a micro-nutrient package programme failed to have expected effects**

In a 2009 study of a large-scale MNP programme targeting the entire population of the Kakuma Refugee Camp in Kenya, we observe that several factors involving both the delivery system and the intended beneficiaries were involved in the low utilisation of a multiple micro-nutrient supplement. Note that the research was developed to find an explanation for poor biological improvements associated with an intervention of proven efficacy.

An impact evaluation (Ndemwa *et al.* 2011) showed a small improvement in iron status, but no significant change in haemoglobin among women and pre-school children. The uptake of MNP at distribution points dropped from 99% in February 2009 to a low of 30% 5 months later. Social marketing efforts helped improve uptake to approximately 50% until June 2010, when the programme came to an end.

The investigators theorised that low adherence in the form of not consuming the contents of the packets may have played a role in the less-than-anticipated improvements in iron status. Anecdotal reports indicated that

many refugees who had collected the packets at the distribution point soon discarded them. To understand the reasons for low uptake of MNP, Kodish *et al.* (2011) conducted an ethnographic study, interviewing beneficiaries, community leaders, programme stakeholders and implementing partners. In addition to direct observations, in-depth interviews and focus group discussions, the investigators also used formal cognitive mapping techniques (free listing, pile sorting and paired comparisons). The research was conducted in four phases, with each phase building upon information collected in the previous phase. This iterative approach allowed for full exploration of emerging themes and served to build a comprehensive picture of the multiple factors that led to low MNP uptake. On the delivery side, the investigators found that the social marketing campaign lacked coverage and intensity, and community health workers often gave incorrect information. More seriously, many of the problems with 'MixMe' (the name of the MNP product) stem from discordance among implementing partners and insufficient formative research to design culturally appropriate packaging and clear information, education and communication materials. For example, some beneficiaries thought that MixMe might be a contraceptive, some believed it had been derived from deleterious ingredients (the cartoon logo was perceived to symbolise the information that ingredients of MixMe included chopped bones) and others thought it was a medicine. Some creative individuals discovered that MixMe could be used as an adhesive when mixed with water, and the beneficiaries reported using it to patch roofs of dwellings and fix torn footwear.

## Summary and conclusions

Dictionary definitions of the noun 'intervention' include the idea of 'an action undertaken to improve something', 'an act of interposing one thing between others' and 'an action or object that changes an outcome or course of a condition or process, so as to prevent harm or improve functioning' (*Merriam-Webster.com*, 2015, McKean 2005). Usually, when we implement nutrition programmes, we are introducing new information designed to change only behaviour, or to

change behaviour in addition to new food or food products or micronutrient supplements, and/or to change other activities to make it possible for individuals, households or communities to obtain better nutrition and/or to prevent malnutrition. These changes always occur in a socio-cultural context, and therefore knowledge about that context is a fundamental prerequisite for effectiveness. Ethnography provides a means for acquiring and interpreting this knowledge. It provides us with methods to understand 'insider perspectives' on features of local life and conditions that relate to intervention actions.

In the preceding sections, we have presented examples of ethnographic research that illustrate its utility across the components of interventions, from 'landscape analysis' and 'formative research' to 'process evaluation' and 'impact evaluation'. Some of the case studies contain surprising findings, while some of them seem, after the fact, like common sense, but were clearly not part of common sense in the initial implementation process. Some of them reveal human suffering and difficult choices in the face of adversity, which could have been prevented with better understanding of the context. Some of them illustrate the ingenuity and imagination of people who are presented with new objects, which are not part of their cultural repertoire. Some of them illustrate how inputs about local culture enabled appropriate and wise decisions. We hope that as the movement to scale up nutrition grows, there will be many more examples of the latter and many fewer examples of the former.

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## Conflicts of interest

The authors declare that they have no conflicts of interest.

## Contributions

All authors conceptualized and contributed to drafting the manuscript.

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