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Perceptions of child body size and health care seeking for undernourished children in southern Malawi

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Abstract

Child undernutrition affects millions of children globally, but little is known about the ability of adults to detect different types of child undernutrition in low-income countries. We used focused ethnographic methods to understand how Malawian parents and grandparents describe the characteristics they use to identify good and poor child growth, their actual or preferred patterns of health seeking for undernourished children, and the perceived importance of child undernutrition symptoms in relation to other childhood illnesses. Malawians value adiposity rather than stature in assessing child growth. Symptoms of malnutrition, including wasting and edema, were considered the least severe childhood illness symptoms. Parents delayed health care seeking when a child was ill. When they sought care, it was for symptoms such as diarrhea or fever, and they did not recognize malnutrition as the underlying cause. These findings can be used to tailor strategies for preventing and treating growth faltering in Malawian children.

Keywords

children; growth and development; health seeking; ethnography; Africa, sub-Saharan

INTRODUCTION

Globally, stunting, underweight, and wasting affect 178, 112, and 52 million children < 5 years of age, respectively (Black et al., 2013). The prevalence of child undernutrition remains highest in sub-Saharan Africa and South Asia (de Onis, Blossner, & Borghi, 2012). Prevention and early treatment of child undernutrition is necessary because of its consequences for health and future social capital. All forms of child undernutrition are associated with early mortality (Black et al., 2008). Stunting, in particular, also has a number of long-term consequences, including delays in motor and cognitive development, fewer years of completed schooling, and lower income in adulthood (Gorman & Pollitt, 1992; Victora et al., 2008). Given the continuing high prevalence of undernutrition in low-resource

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settings, it remains important for parents to be able to identify when their child is affected and to seek advice or care related to child undernutrition when it is mild or moderate to prevent children from progressing to more severe forms.

Parents' ability to identify when their child is undernourished and their decision-making around care seeking is situated within a social, cultural, and economic context (Kleinman, 1980). Factors, such as lack of funds for transport to a health facility or need to obtain permission from a male relative, often delay or may even thwart health care seeking (Geldsetzer et al., 2014; Kalembo & Zgambo, 2012). Cultural models of illness that blame parents when a child has signs of severe acute malnutrition, such as wasting or edema, can influence the type and timing of health care seeking (Flax, 2015; Howard & Millard, 1997; Mull, 1991). The ability of parents to identify that their child is undernourished based on perceptions of child body size or other physical signs may also play a role in decisions to seek care for the child.

In middle- and high-income countries, numerous studies indicate that parents frequently misclassify their children's weight (Doolen, Alpert, & Miller, 2009; Lundahl, Kidwell, & Nelson, 2014a, 2014b; Mareno, 2013; Rietmeijer-Mentink, Paulis, van Middelkoop, Bindels, & van der Wouden, 2013). More than 50% of parents underestimate their children's weight when the children are overweight/obese (Lundahl et al., 2014b). Some researchers suggest that this type of misclassification is related to the prevalence of overweight in high-resource countries, making a larger body size seem normal (Binkin, Spinelli, Baglio, & Lamberti, 2013). Parental misclassifications occur for children at any weight status. A study in Norway found that parental ability to successfully classify child weight status based on international thresholds was generally poor, regardless of whether the child was under- or overweight (Juliusson, Roelants, Markestad, & Bjerknes, 2011). A recent meta-analysis found that 47% of parents did not perceive their child's underweight status across 39 studies in middle- and high-income countries (Lundahl et al., 2014a). Failure to recognize their child's over- or underweight status meant that parents did not consider the child's weight to be a problem or see the need to take action.

To our knowledge, only one study in a low-income country has reported on parents' ability to determine if their children were wasted, underweight, or stunted (Moffat, 2000). The findings aligned with studies from middle- and high-income countries, with about 32% of Nepalese parents with moderately or severely underweight and stunted children labelling them as having medium or large body size. The present study extends previous work by using focused ethnographic methods to understand how Malawian parents, grandparents, and other key informants described: 1) the characteristics they use to identify good and poor child growth, 2) their actual or preferred patterns of health care seeking for undernourished children, and 3) the perceived importance of child undernutrition symptoms in relation to other childhood illnesses.

METHODS

Theoretical perspective and methodological approach

This study used a theoretical approach based on the concept of parental ethnotheories - a set of ideas on a topic, such as child growth, that are shared by community members (Harkness & Super, 2006). Parents use these implicit cultural models to understand their role as parents and to guide their behaviors and interactions with their children (Harkness & Super, 1996, 2006). Individual decision-making and health behavior is guided by prevalent cultural models, but individual practices are also influenced by the types of information available to a person and his or her own lived experiences (Blum, Pelto, & Pelto, 2004; Harkness & Super, 1996; Kleinman, 1980).

To obtain information on parental ethnotheories of child growth and health seeking behaviors related to malnutrition symptoms, we employed the methodology of focused ethnographic studies (FES). FES usually utilize several different types of ethnographic methods and the results are used for improving or tailoring public health programs (Bentley et al., 1988; Gove & Pelto, 1994; Pelto, Armar-Klemesu, Siekmann, & Schofield, 2013). In this study, the methods selected included: in-depth interviews, focus group discussions (FGDs), photos to facilitate discussion, free listing, and illness ranking.

Study setting and population

The study site was located in Mangochi District in southern Malawi. Data were collected in six rural villages in the Lungwena Health Center and St. Martin's Hospital catchment areas. Villages were chosen based on their distance from these two facilities so that some were < 5 km and others were ≥ 5 km from a facility. The Lungwena Health Center is a government facility, which offers basic preventive and curative health services for free. At the time this study was conducted, children with severe or moderate acute malnutrition who presented at Lungwena Health Center would be referred to St. Martin's or to the district hospital. St. Martin's Hospital is part of the Christian Health Association of Malawi and charges fees. It provides basic health services and has a nutrition rehabilitation unit, an inpatient ward, and surgical facilities. We also collected data at the district hospital in Mangochi. It is a government facility that provides free tertiary care and has multiple inpatient wards, including a nutrition rehabilitation unit.

Participants were from the Yao ethnic group, the third largest group in Malawi. The Yao living in this part of Malawi are predominantly Muslim, have the lowest levels of formal education in the country, and typically work as subsistence farmers and fishermen (National Statistical Office (NSO) Malawi & ICF Macro, 2011). The prevalence of stunting (42%), underweight (13%), and wasting (4%) in children in the southern region of Malawi, where the study was conducted, is the same as at the national level (National Statistical Office Malawi & ICF Macro, 2011). Child undernutrition, particularly stunting, in this part of Malawi, as well as in the country as a whole, has been high for more than 25 years (Bezner Kerr, Berti, & Shumba, 2010). It can be attributed to low dietary diversity, sub-optimal infant and young child feeding practices, frequent childhood illnesses, and high rates of poverty (Black et al., 2013). Approximately 55% of rural households in Malawi live below the

poverty line, defined as the cost of essential non-food items plus food that yields sufficient calories (National Statistical Office Malawi & ORC Macro, 2005). The bulk of Malawian farmers are smallholders. More than half of them cultivate less than one hectare of land and 70% of their land is planted with maize, the staple crop (Chirwa & Matita, 2012). Maize accounts for about two-thirds of energy intakes, but is poor in micronutrients and contains anti-nutrients that inhibit mineral absorption (Gibson, 1994). At the time of this study, approximately 40% of rural households in Malawi had shortfalls in calorie and iron consumption, and 62% had inadequate vitamin A intakes (Pauw, Verduzco-Gallo, & Ecker, 2015).

The study received ethical approval from the College of Medicine Research and Ethics Committee of the University of Malawi and the institutional review boards of the Pirkanmaa hospital district in Finland and the University of North Carolina at Chapel Hill. Informed consent was obtained by reading the consent form aloud, answering participants' questions, and asking participants to sign or affix their thumbprint, if illiterate.

Study sample

Data were obtained from a total of 173 participants. We conducted 28 in-depth interviews and 18 focus group discussions (FGDs). In-depth interview participants were divided into two groups: 1) community key informants [village chiefs (n=5), traditional healers (n=4), traditional birth attendants (TBAs) (n=5), health surveillance assistants (HSAs) (n=2)] and 2) mothers (n=10) of children admitted to the nutrition rehabilitation unit (NRU) at Mangochi District Hospital. Separate FGDs were held with mothers (n=6), fathers (n=6), and grandmothers (n=6) of children < 5 years of age. Each FGD had 5-10 participants; interview participants were excluded from FGDs. Data from FGDs were used to understand social norms around child growth and health seeking behaviors related to malnutrition. They were also used to confirm findings from the in-depth interviews.

Community key informants and FGD participants were selected using purposeful sampling (Patton, 2001). They were recruited by a research assistant with help from village leaders. We enrolled a convenience sample of mothers at the NRU. Mothers were approached individually by a research assistant, who described the study and asked if they were willing to participate. All participants were given a bar of soap at the end of the interview or FGD to thank them for their time.

Data collection

Most community key informant interviews and all FGDs were conducted in Chiyao by one research assistant experienced in collecting ethnographic data. The interviews with mothers in the NRU were conducted by a second research assistant, who also served as the notetaker during FGDs. Both research assistants spoke Chiyao as their first language. One of the authors (VF) conducted two interviews in English with HSAs, and participated in all other interviews and FGDs. Interviews and FGDs were tape recorded and transcribed verbatim. Except the two interviews conducted in English, transcriptions were done in Chiyao and then translated into English. FGDs were transcribed and translated independently by the two research assistants to allow for comparison of their translations. Careful translation and

attention to the meaning of local concepts is an important component of cross-cultural qualitative research (Wong & Poon, 2010). Having two translations of part of our data allowed us to gain a better understanding of Chiyao words that have no direct translation in English.

Question guides were designed for specific groups of participants. The interview guide for community key informants (village chiefs, traditional healers, TBAs, and HSAs) was used to obtain information on local understandings of child growth and health seeking behaviors related to malnutrition. Mothers of children in the NRU were asked to describe the history of the child's illness and the health seeking behaviors they had undertaken. The FGD guide for mothers, fathers, and grandmothers was focused specifically on child malnutrition and health seeking.

To obtain information on local perceptions of child growth and growth faltering, we used two photos of Malawian children taken outside the study area by one of the researchers (Figure 1a and b). Children in each photo were the same age (in months) and were selected based on their anthropometric measurements. Figure 1a has one child with lower weight-for-age (child in center) and Figure 1b has one with lower length-for-age (child on right). The photos were shown one at a time to community key informants and FGD participants, who were asked open questions about how the children were growing.

To understand how important signs of undernutrition might be in terms of health care seeking, we asked community key informants to free list the most common childhood illnesses or illness symptoms. FGD participants were then given a set of drawings and photos depicting the illnesses/symptoms and they worked as a team to rank them from most to least severe. The purpose of the ranking exercise was to understand local perceptions of the relative severity of malnutrition symptoms and how this might influence health care seeking.

Data analysis

Translated data were entered into Atlas.ti software (version 6.2) for coding and analysis. The data were coded using inductive and deductive codes, which were grouped together in themes (Gibbs, 2007). Data matrices were used to examine key themes and similarities or differences in responses by type of participant (Miles & Huberman, 1994). Our data matrices revealed no systematic differences in responses by type of community key informant or FGD participant. Consequently, these data were combined for the final analysis and illustrative quotes were selected to support key themes. Interviews from mothers in the NRU were analyzed separately by coding them and identifying patterns or themes, using a similar strategy as employed for the other interview and FGD data.

This research was exploratory and the researchers had no pre-conceived hypotheses. During the analysis process, we were aware of and tried to limit possible subjectivity related to our training and experience in nutrition. In presenting the findings, we maintained a balanced perspective by including themes expressed by the majority of participants as well as dissenting opinions. The credibility of the findings was assessed during the process of data collection through regular meetings to discuss emerging themes with research assistants and

the addition of questions to FGD guides to follow-up with participants on these issues (Lincoln & Guba, 1985).

For the illness ranking exercise, FGD participants ranked illnesses or symptoms from 1-12, with 1 representing the most severe and 12 the least. The median for each illness was calculated using data from all FGDs.

RESULTS

Perceptions of child growth

A summary of the most commonly mentioned signs that a child is growing well or poorly is found in Table 1. Participants' perceptions of child growth centered on comparisons of good and poor growth either in one child over time or between children. Participants stated that parents know their child is not growing well if the child's weight stays the same or the child becomes thin. A mother explained, "If the child is not growing well, we tell by looking at the child's body. It starts to get very small; it becomes very thin. You compare how the child was at first, maybe he was fat and now he has started getting thin." Parents can also tell how a child is growing by comparing him or her to another child of the same age or to a sibling. A father said, "You need to take several children born at the same time and compare them. Then you are going to see which one is growing well or not or which one is eating well or not."

In discussing the photos, community key informants and FGD participants compared the growth of the three children in each picture. In Figure 1a, nearly all participants said that the child on the left was growing the best. They described the child as *kandapala* and *lisusa*, two words with similar meanings, defined as a child who "looks brave, tough, and very fat and does not have problems in his body". The most commonly used words to describe the child on the left were: fat, happy, and well fed. Participants generally agreed that in Figure 1a the child on the left was growing well, while the child in the middle was growing poorly and was described as *utumba* (thin) or *kunyililika* (very thin). Participants said it looks like she has been sick and that she is not well fed. They also noted that her hair and skin were not normal. One participant in a group of mothers stated, "[She] has turned brownish...and the hair is growing far apart. It is like the maize that is growing in the garden that is not fertile. "

There was much less consensus on who was growing well or poorly in Figure 1b. Equal numbers of community key informants and FGD participants said that the child on the left and right were growing the best, while a similar number said that they were all growing well. In some FGDs, participants could not agree on which child was growing best or worst.

In discussing Figure 1b, several community key informants and FGDs talked about the height of the child and this was important for a few participants, like the village chief who said, "The first child [the child on the left] is the one that is growing very well because she is growing tall." However, for other participants who talked about height, it was not usually the deciding factor in how the child was growing. For example, one TBA and one FGD of mothers said the child in the middle was growing tall but that she was not growing well because she was not fat. A quote from the TBA illustrates this point,

> "The one in the middle although she is growing tall, but she is not growing well compared to the other children. The third child [on the right] is growing well compared to the middle child, but not exceeding the first child [on the left]. The first child is growing fat compared to the other two children."

Some participants felt that height was a matter of inheritance and was not a sign of good or poor growth. A village chief explained this,

> "These two children, the first and second ones [on the left and in the middle] are growing tall compared to the third child [on the right]. Though these other two children are growing tall, it doesn't mean that they are eating better than the third child. They are all eating well, only that these two children have inherited being tall from their mothers, who I guess are also tall. With the child at the end [on the right], she is short because she also inherited from her mother, who is also very short, I think, but it doesn't mean that [the child] is eating poorly, no."

Child illness free listing and ranking

Community key informants generated free lists of common childhood illnesses and symptoms that most frequently contained the following items: diarrhea, measles, vomiting, pneumonia, malaria, headache, sores, cough, edema or swelling, thinness or wasting, fever, and eye problems. Short stature or stunting was not listed as a common illness or symptom in children. FGD participants ranked diarrhea and measles as the first and second most severe childhood illnesses and fever and eye problems as the least severe (**Table 2**). Symptoms of severe malnutrition, including edema and thinness were considered to be among the least severe illnesses or symptoms.

Health care seeking related to malnutrition

In discussing how they would react if their child showed signs of malnutrition (either wasting or edema), participants described multiple pathways for care seeking, with no one path emerging as the most frequent. Some participants thought the health facility was the most reliable place to obtain treatment, while others said traditional healers produced better results. Most described seeking care from more than one place, depending on availability of funds, perceived causes of the problem, and perceived severity. Several groups of mothers explained that if the child is very thin (*kunyililika*), they would first try giving more food, then take the child to the hospital, and then go to the traditional healer, if that did not work. One mothers' group stated,

> Mother 1) Our first action would be feeding the child a lot and giving him good care because if you don't do that the child will die. And if that fails, then take the child to the hospital for further assistance, such as *likuni phala* [fortified porridge].
>
> Mother 2) If [the hospital] fails, then we would take the child to the traditional healer for further treatment...because sometimes if at the hospital they have failed, it works at the traditional healer."

Mothers and grandmothers also said that if the child had swelling/edema (*kuimbangana*) or was malnourished because the mother became pregnant again too quickly (*chitukula*) then

they would usually take the child to the traditional healer as the first treatment “because there is not treatment for this at the hospital”. Fathers noted that in many cases of childhood illness they first purchase pills from local groceries, “No villager takes his child to the hospital when he has any kind of illness at its early stages. At first, we buy some pills in the shops and if it fails then we take the child to the hospital and it is there that we are told the problem of the child.” A participant in another father's group explained what happens if none of the treatments are successful, “If at the hospital they have failed, then take the child to the traditional healer for herbs. If all fails, you sit at home until the child dies or recovers.”

Illness histories of children admitted to the NRU confirmed the findings from community key informants and FGDs indicating that parents take multiple steps in care seeking for a malnourished child and initiate care seeking only when the problem is severe. This point is illustrated by the illness history of a boy aged 36 months:

> “Interviewer (I)) Can you tell me the story of your child's illness?
>
> Mother (M)) I just noticed that he was swollen.
>
> I) What did you do?
>
> M) I went to the health center then to the local hospital then I came here [to the district hospital].
>
> I) How long did it take before you went to the health center?
>
> M) At first we tried to give him herbs, but it didn't help.
>
> I) How long did you give them?
>
> M) Two weeks. Then I went to the health center.
>
> I) How long did you take between the health center and the local hospital?
>
> M) It took me one week.
>
> I) How long did you take before coming to the district hospital?
>
> M) After four days I came here.”

The interviews with mothers at the NRU also corroborate the findings from community members showing that they tend to focus on symptoms, like fever or diarrhea, and rarely recognize that malnutrition is part of the problem. The second illness history of a girl aged 21 months demonstrates both a focus on malaria, rather than malnutrition, and delays in seeking care:

> “It started with malaria for one month... and when I tried to feed her she refused to eat. I tried cooking different foods, but the child wouldn't eat... Then she had sores in her mouth. Then she became swollen and her hair changed. When I noticed the child was not okay, I went to the health center. She was referred to the hospital for the swelling.”

Delays with seeking health care and lack of awareness of malnutrition as an underlying cause of the symptoms were also flagged by one of the HSAs, who explained,

> "Most of the people, as far as I have seen, most of them try to take some action when malnutrition is worse, not when it is still mild. They still wait, wait, wait, but when it is severe they try to seek assistance... But most of the time when there is malnutrition, they say ... 'Ah, he was suffering from diarrhea' or 'Oh, he was suffering from malaria, that's why the weight has gone down.'"

Common reasons for delayed health seeking cited by participants included lack of funds for transportation to the health facility and the need for mothers to get permission or money from male relatives. As noted above, participants also explained that the perceived cause of the problem could influence the type of care sought first and could delay seeking care at a health facility.

DISCUSSION

Our data indicates that Yao parents in southern Malawi valued adiposity rather than stature in assessing child growth. During interviews and FGDs, fatness was the most frequently mentioned sign that a child was growing well. Participants easily identified the photo of a child who was fatter than other children of the same age, but did not consistently recognize the photos of children who were thinner or shorter. The emphasis on adiposity or fatness in children is potentially advantageous in settings, like Malawi, where child mortality remains high and greater weight-for-age during the weaning period serves as a buffer against the effects of frequent infectious diseases (Caulfield, de Onis, Blossner, & Black, 2004; Kuzawa, 1998).

Short stature was rarely mentioned as a sign of poor growth during interviews and FGDs and was not included in free lists of childhood illnesses or symptoms. To our knowledge, this study is the first to document parental inability to identify stunting or short stature in children in a low-resource setting. These findings align with the concept put forth in other studies that parents' understandings of child size are based on what is considered "normal" (Lucas et al., 2007; Thompson, Adair, & Bentley, 2014). In the Malawian context, where 42% of young children are stunted, parents who compare the height of their child to that of other children in the community are likely to conclude that their child is growing normally, even if he or she is significantly shorter than standard growth curves. Similar findings have been reported in relation to overweight and obesity in middle- and high-income countries, where parents fail to recognize their children's overweight because the prevalence of overweight makes children seem normal, even when they are heavier than recommended by public health agencies (Binkin et al., 2013).

Another likely explanation for the emphasis of Malawian parents on child weight rather than height is the use of weight-for-age as a marker of child growth in health clinics and during community-based growth monitoring sessions. Weight-for-age charts are used globally to track child growth and the majority of countries use this as the only index (de Onis, Wijnhoven, & Onyango, 2004). Mothers in Malawi track their child's weight on individual road to health cards and are regularly told that they should seek care if the child's weight stays the same or goes down from one visit to the next. Child height is rarely measured in Malawian health facilities and recumbent length boards, for measuring children < 2 years of

age, are not part of facilities' standard equipment. Without the tools for health workers to measure child height, the relationship between child stature and health is not discussed during clinic visits or growth monitoring sessions. Consequently, the importance of height has not been integrated into parental ethnotheories of child growth.

In this study, stunting was not recognized as a sign for seeking health care and signs of severe malnutrition, including thinness or wasting and edema or swelling, were ranked as some of least serious child health problems. Our findings were consistent with those of a study among the Chewa in central Malawi, which used free listing of all childhood illnesses in the community and examined rank and frequency to determine the salience of nutrition-related illness (Kodish, Aburto, Hambayi, Kennedy, & Gittelsohn, 2015). They reported that stunted growth was less salient than other nutrition-related illness, including wasting, edema, and anemia, and that salience of nutrition-related illness was generally low. The similarity between some of our key findings and those of Kodish et al. (2015), collected more recently, suggest that our results are transferable to other geographic areas and ethnic groups within Malawi.

Data from our study indicate that parents have trouble recognizing even severe forms of malnutrition in their children, and other illnesses, such as malaria or diarrhea, precipitate health care seeking before malnutrition symptoms. This is not surprising given that fever, diarrhea, and cough are the most common illness symptoms in young Malawian children (Mangani et al., 2014), whereas cases of severe malnutrition are less frequent (National Statistical Office Malawi & ICF Macro, 2011). Further, in a context where fever, diarrhea, or cough could indicate a life-threatening condition in the short-term, parents are more likely to spend funds to get to a health facility for these types of symptoms than for longer-term signs of malnutrition, such as underweight or stunting.

Several other factors related to health care seeking for a malnourished child were also identified. Mothers and other participants frequently noted that they did not have the funds needed to pay for transport to take the child to the clinic. This is a common complaint since nearly half of Malawians live > 5 km from a health facility (WHO Regional Office for Africa, 2009). Other studies in Malawi have found that transportation issues were instrumental in late or missed clinic visits (Bwirire et al., 2008; Tweya et al., 2014). Lack of funds for transport may explain, in part, why parents wait until a health problem is severe before seeking care at a health facility. Delays or failure to seek health care have been documented in up to 80% of cases of severe childhood illnesses in low-income settings, and these delays contribute to child mortality (Armstrong Schellenberg et al., 2004; El Arifeen et al., 2004).

The perceived causes of the child's symptoms also play an important role in determining where the child is taken first for care. The Yao believe in a variety of causes (i.e., illness, inadequate quantity or quality of food, and parental carelessness) for thinness/wasting or edema/swelling (Flax, 2015), which may explain, in part, why there is no single pathway for health care seeking when a child is malnourished. In the Yao conception, parental carelessness includes parents' failure to maintain periods of sexual abstinence (e.g., after delivery, following a death in the family), thereby resulting in thinness or edema in the child

(Flax, 2015; Minick, 1973; Munthali, 2007; Van Breugel, 2001). Children with these symptoms indicate parental misbehavior, and the embarrassment parents feel can delay treatment seeking (Van Breugel, 2001). When they do seek help for a child with symptoms of severe malnutrition, they typically go first to traditional healers, who are thought to know the best and most appropriate treatment when parental carelessness is involved. However, these rules are not hard and fast. The data described here indicate that treatment choices by Yao parents for child malnutrition symptoms are quite fluid. Even if parents choose to go to the traditional healer or buy pills first, they are perfectly willing to try using the government health facility if other strategies have failed and the child is still ill.

Conclusions and implications for public health

This study indicates that parents in southern Malawi do not recognize stunting or short stature as a sign of poor growth. When a child has other malnutrition symptoms, like thinness or edema, or other illness symptoms, like fever or diarrhea, combined with nutritional problems, parents may delay seeking facility-based health care.

Primary and secondary health facilities in Malawi currently have a relatively limited toolbox of services to address child undernutrition. For children with severe acute malnutrition and without other complications, facilities throughout the country provide ready-to-use therapeutic food (RUTF) and enroll children in a supplementary feeding program, through which they receive RUTF for home use until they are no longer wasted. For children who are underweight or stunted, their parents participate in health talks or counseling about optimal infant and young child feeding practices offered by health facility staff or community health workers. In a setting where parents rely on subsistence agriculture and fishing as their main source of food and income, nutrition education is valuable, but may not be enough to address their child's problem and is unlikely to be a strong enough motivating factor for spending limited funds for transport to a health facility.

What would make care seeking for child undernutrition expedient and salient for Malawian parents? Our findings suggest three areas where public health policies and interventions are needed. First, parents will not take action to address child undernutrition if they do not know or recognize that their child is undernourished. Weight is already measured in growth monitoring programs in Malawi, but height is not. Global and national policy makers should consider including measurement of height and use of height-for-age charts in growth monitoring programs. This shift may be feasible with the current policy and programmatic focus on stunting prevention by donors, in the Scaling Up Nutrition movement, and as demonstrated by the United Nations Secretary General's Zero Hunger Challenge (Tullo, 2014; United Nations, 2014). Second, delays in health care seeking when a child has signs of moderate or severe acute malnutrition could be prevented by incorporating the supplementary feeding program into integrated community case management, which has successfully used community health workers to provide treatment for acute childhood illnesses, including pneumonia and malaria (Bagonza, Kibira, & Rutememberwa, 2014; Langston et al., 2014). Third, to help parents address insufficient livelihoods and adequate complementary feeding, health facilities and community health workers should make referrals to existing community-based nutrition or integrated agriculture and nutrition

programs, some of which cover large parts of the country (FAO, 2015; USAID, 2015). These strategies would help put stunting on the agenda for parents, prevent deaths from moderate and severe acute malnutrition through earlier treatment, and connect parents to programs that offer longer term solutions to nutritional problems.

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a)

b)

Figure 1a and b.

Photos used during focus group discussions to understand the characteristics parents and grandmothers use to identify good and poor child growth

Table 1

Most commonly mentioned signs that a child is growing well or poorly (n=46 community key informants and FGDs)

Signs of growth	Percent of community key informants or FGDs that mentioned item
Growing well	
Child is fat	80
Child eats well and willingly	55
Child is rarely ill	35
Child plays actively	35
Child looks brave	25
Growing poorly	
Child is frequently ill	65
Child is thin	45
Child has widely spaced or thin hair	30
Child loses weight	30
Child is short	20

Table 2

Ranking of severity of childhood illnesses or illness symptoms by FGDs (n=18)

Illness or symptom	Median rank
diarrhea	1.5
measles	2
vomiting	4
pneumonia	4.5
malaria	6
headache	7.5
sores	7.5
cough	8
edema or swelling	8
thinness or wasting	9
fever	10
eye problems	11

The illnesses or symptoms were generated by community key informants through free lists and then ordered by each FGD from most severe (rank=1) to least severe (rank=12). The median rank for an illness or symptom was calculated from all FGDs. Edema or swelling and thinness or wasting are signs of severe malnutrition.