

ASSESSMENT OF MOTHERS AWARENESS OF ACUTE MALNUTRITION

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PROCENA SVESNOSTI MAJKI O AKUTNOJ NEUHRANJENOSTI

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ABSTRACT

Objective. According to the American Society of Parenteral and Enteral Nutrition (ASPEN), pediatric malnutrition is defined as “an imbalance between nutrient requirement and intake, resulting in cumulative deficits of energy, protein, or micronutrients that may negatively affect growth, development, and other relevant outcomes.” The purpose of this study was to assess guardians’ awareness of acute malnutrition and its management in Ghana.

Methods. This qualitative research employed the grounded theory study design. 15 participants were interviewed from the SMALCHILD (Save the Malnourished Child) clinic of Holystic Nutrition Organization, Ghana. Microsoft Office Excel was used for analysing data.

Results. In the current study, guardians shared their ideas on malnutrition and their previous knowledge of it before seeking for clinical services and four themes emerged: Signs and symptoms of manifested acute malnutrition reported by participants as manifested in their children, Misconceptions that participants had about acute malnutrition, Initial response by participants to treat acute malnutrition and How participants found out about clinical management of acute malnutrition.

Conclusion. From this research, we observed that participants were able to identify some of the initial signs and symptoms for acute malnutrition but had some misconceptions. Most thought that the condition was Asraam (which meant that a witch is a cause of that condition), and sought help from Asraam doctors with the use of herbal medications. This alone shows how important it is to educate guardians on acute malnutrition to prevent further complication of their children.

Key words: awareness; malnutrition; severe acute malnutrition.

SAŽETAK

Uvod. Prema Američkom društvu za parenteralnu i enteralnu ishranu (ASPEN), dečja neuhranjenost se definiše kao „neravnoteža između potreba za hranljivim materijama i unosa, što rezultira kumulativnim deficitima energije, proteina ili mikronutrijenata koji mogu negativno uticati na rast, razvoj i druge relevantne ishode“. Svrha ove studije bila je da se proceni svesnost staratelja o akutnoj neuhranjenosti i njenom upravljanju u Gani.

Metode. Ovo kvalitativno istraživanje koristilo je dizajn studije zasnovan na teoriji zasnovanoj na podacima. Intervjuisano je 15 učesnika iz SMALCHILD (Save the Malnourished Child) klinike Holističke organizacije za ishranu u Gani. Microsoft Office Excel je korišćen za analizu podataka.

Rezultati. U ovoj studiji staratelji su podelili svoje ideje o neuhranjenosti i svoja prethodna znanja o njoj pre traženja kliničkih usluga, a generisana su četiri tematska okvira: znaci i simptomi akutne neuhranjenosti koje su učesnici prijavili kao manifestovane kod njihove dece, zablude koje su učesnici imali o akutnoj neuhranjenosti, početni odgovor učesnika na lečenje akutne neuhranjenosti i kako su učesnici saznali za kliničko upravljanje akutnom neuhranjenošću.

Zaključak. Iz ovog istraživanja uočili smo da su učesnici mogli da identifikuju neke od početnih znakova i simptoma akutne neuhranjenosti, ali su imali određene zablude. Većina je mislila da je stanje Asraam (što je značilo da je veštica uzrok tog stanja) i tražila pomoć od Asraam lekara uz korišćenje biljnih lekova. Ovo samo pokazuje koliko je važno edukovati staratelje o akutnoj neuhranjenosti da bi se sprečile dalje komplikacije kod njihove dece.

Ključne reči: upućenost; neuhranjenost; teška akutna neuhranjenost.

INTRODUCTION

Acute malnutrition is a nutritional deficiency that occurs as a result of insufficient consumption of energy or protein. In 1959, Jelliffe introduced the term “protein calorie malnutrition”, which has been replaced by “acute malnutrition”. The double burden of malnutrition consists of both undernutrition, overweight and obesity, as well as diet-related non-communicable diseases. Undernutrition manifests in four broad forms: wasting, stunting, underweight, and micronutrient deficiencies. Acute malnutrition has been defined in various ways and has been referred to by various names with partially overlapping definitions, including protein-energy malnutrition, wasting, kwashiorkor, and marasmus. Based on its etiology, malnutrition is either illness-related (one or more diseases or injuries directly resulting in nutrient imbalance) or caused by environmental/behavioral factors associated with decreased nutrient intake and/or delivery (1). Acute malnutrition results from sudden reductions in food intake or diet quality and is often combined with pathological causes. In this research, we use acute malnutrition and wasting interchangeably. Factors that are responsible for acute malnutrition may include household food insecurity, poverty, poor nutrition of pregnant women, intrauterine growth restriction, low birth weight, poor breastfeeding, inadequate complementary feeding, frequent infectious illnesses, poor quality of water, hygiene and many more.

Beginning from the 1970s, numerous authors have reported malnutrition rates in hospital patients to be approximately 35%, with 30 to 55% of patients entering acute hospitals being at risk of malnutrition. Studies have also reported on factors which contribute to malnutrition. Over the last 30 years, advances in medical, surgical, nursing and nutrition support have been made; however, numerous publications continue to report the high prevalence and lack of awareness of malnutrition (2). At least 52 million children are estimated to suffer from moderate (MAM) and severe acute malnutrition (SAM), and ½-1 million die every year (3). Acute malnutrition is responsible for almost one third of all deaths in children <5 years of age and causes intellectual or cognitive impairment among those who survive (4). The estimated number of underweight children (weight-for-age Z score < -2) globally is 101 million or 16%. The prevalence of acute and severe malnutrition among children under 5 is above the World Health Assembly target of reducing and maintaining prevalence at under 5% by 2025. The number of children with stunting is declining in all regions except Africa. More than half of all children affected by wasting live in Southern Asia and Asia as a whole is home to more than three-quarters of all children suffering from severe wasting. In terms of the targets, at country level, the greatest progress is being made towards the stunting

target, with nearly two-thirds of countries seeing at least some progress. After decades of undernutrition, Africa is now seeing a surge in overnutrition (5). Despite the surge in overnutrition and the double burden, undernutrition remains an important public health problem in many African countries and requires a multidisciplinary approach to address it (6). Like many countries in sub-Saharan Africa (SSA), Ghana has a high burden of malnutrition among children aged 0–59 months with stunting, underweight and wasting all being highly prevalent (19%, 11%, and 5%, respectively in 2014) (7), with highest rates in the northern part of Ghana (8). Again, in Africa, mortality is associated with the severity of malnutrition with severe wasting having a mortality rate of 73–187 per every 1000 children in a year. Ghana’s case is not so different from the worldwide and African situation. Here in Ghana, malnutrition is said to contribute to about half of all deaths of children younger than five years with some 12,000 of them dying every year of underweight-related ailments (9). However, according to the last Multiple Indicator Cluster Survey (MICS4), 13 percent of children in Ghana are moderately or severely underweight, 23 percent are stunted (too short for their age), and 6 percent are wasting (too thin for their height) (10).

Management strategies for acute malnutrition depend on the type of malnutrition, identification of its cause, and its severity (4). In primary moderate acute malnutrition, management at home is recommended, including counseling of parents, with emphasis on continuing breastfeeding and appropriate complementary feeding (nutrition-specific interventions). Ideally, these children should receive 25 kcal/kg per day of energy in excess of what their healthy peers receive, and their diets should contain animal-source foods rich in essential fatty acids and micronutrients including vitamin A, iron and zinc (11). Children with severe acute malnutrition without any complications can be managed in the community with ready-to-use therapeutic food (peanut paste, milk powder, vegetable oil and a mineral and vitamin mix as per WHO recommendations). Children who have been treated for complications and have appetite can also be treated in the hospital with ready-to-use therapeutic food. Severe acute malnutrition complications (i.e., severe diarrhea, hypoglycemia, hypothermia, pneumonia, urinary tract infection, sepsis, etc.) require hospitalization until children are ready to continue management at home (4).

For the management of secondary acute malnutrition, it is crucial to identify the underlying disease by history taking, examination and laboratory investigations. Exclusive breastfeeding for the first six months along with iron supplementation is adequate for preterm and low-birth-weight infants. They are at risk of necrotizing enterocolitis if aggressive enteral feeding is delivered. In mild inflammatory bowel disease or disease in remission,

the intake of a normal diet can be suggested. Commercial, specially prepared liquid formulas are helpful for some patients with inflammatory bowel disease (12).

Maternal nutritional awareness might reduce the risk of malnutrition in children. Addressing malnutrition requires enhanced knowledge on good nutrition and care practices for parents, caregivers, and healthcare providers, focusing on both prevention and treatment of cases. Most of the literature on causes of malnutrition depicts that household poor socio-economic/wealth status is the main unseen cause behind child malnutrition (13). It is acknowledged that mothers' education (formal and on nutrition) is an important factor even after controlling wealth or socioeconomic variables. Previous literature highlighted that mothers' education is highly associated with child development (14). It is argued that child care especially feeding, food serving in-home, medical needs against illness mostly depend on mothers, and therefore, educated mothers can raise their children more healthily by providing a balanced diet for them (15). Poor nutritional awareness and education of mothers have been identified as one of the major causes of child malnutrition in many studies. There is a consensus that low nutritional awareness in mothers and household socioeconomic deprivation are the main risk factors of child malnutrition. To find the answer, whether mothers' poor nutritional and health awareness in the socioeconomically deprived segment of society is contributing to children's nutritional status or not is the main concern of the research.

Educational activities regarding nutrition described were targeted at both mothers and their families. Nutritional education has countless advantages for entire communities. It may strengthen individuals to have influence in ensuring nutrition education, household nutrition security and care (16). Providing education for mothers about complementary feeding has positive effects on the child's growth (17). Social norms and traditions affect early breastfeeding initiation, complementary feeding and mother and child health. Many families are guided by old traditions in relation to health and ill health and did not contact health care when needed (18).

The practice of appropriate healthcare seeking behavior has a great potential to reduce the occurrence of severe and life-threatening childhood illnesses. Recognizing the importance of healthcare seeking, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) highlighted activities to improve family and community health practices (including disease recognition and care seeking) as one of the three central components of the Integrated Management of Childhood Illness (IMCI) strategy (19). However, many factors influence healthcare seeking behaviour, including perceptions and misconceptions of the cause of illness, socio-cultural perspectives, distance, cost, and quality of available care (20).

Asram has been defined elsewhere as a super-diverse illness, which is treated in communities, and perceived as 'not for the hospital'. Some studies have also described Asram as a spiritual disease that can be passed on from a pregnant woman to an unborn child (21). Although Asram does not seem to have a biomedical equivalent, previous studies have described it as potentially severe. Malnutrition is one of the diseases being considered as Asram in Ghana and parents seek traditional treatment instead of medical one.

In Obuasi, Ghana there are a lot of kids that come to the clinic (Holystic Nutrition Organization) with malnutrition and they are managed through regular assessments and therapeutic feeding. This paper, therefore seeks to assess the awareness of Guardians on acute malnutrition .

SUBJECTS AND METHODS

Study Design

This qualitative research employed grounded theory study design. The grounded theory study design was used because the researcher wanted to establish certain facts based on the qualitative data provided. This study design best suited the study's objectives.

Study Setting

A nutrition rehabilitation center in Ghana known as the SMALCHILD (Save the Malnourished Child) clinic was used as the study setting for this study. This clinic was created by a non-governmental organization called Holystic Nutrition Organization, which is mainly involved in the prevention and treatment of acute malnutrition. Holystic Nutrition Organization has its headquarters in Obuasi in the Ashanti region of Ghana. The SMalChild clinic in Obuasi being its main treatment center, provided the participants needed for this research. Holystic Nutrition Organization is a key stakeholder in Ghana's Community-based management of acute malnutrition (CMAM) programme.

Study Population

Guardians of children who have been diagnosed of acute malnutrition within the study settings were used as the study population. Guardians were not limited to a particular demographic (like being a mother) and may even involve non-relatives. Guardians who met the inclusion criteria were eligible to be included in the study.

Data collection techniques and tools

Permission was sought from the administrator of the nutrition rehabilitation center using an official letter.

Holystic Nutrition Organization had sought informed consent from participants which included use of their data for research and advocacy purposes. Once permission was given, participants were interviewed at a convenient place. The interviews were sound recorded and later transcribed. Participants were informed that answering of questionnaires was voluntary and that they were not obliged in any way to take part in the study. Informed consent was sought before the interview began for each participant. They were assured that anonymity is a top priority in the study being conducted and that questions answered cannot be traced back to them. Data collection took about one week.

Inclusion and exclusion criteria

Guardians of children diagnosed with acute malnutrition, who meet the following criteria were eligible to be included in the sample for the study:

- Guardian of child who has been diagnosed with acute malnutrition within the past 12 months
- Primary caretaker of child
- Guardian who was present at the time the child started having symptoms of acute malnutrition

Those who did not meet the following criteria were excluded from the sample for the study:

- Guardian of a child who has been diagnosed with acute malnutrition over the past 12 months
- Guardians who were not available when the child developed symptoms of acute malnutrition

Sample size and data analysis method

Sample size of this study was 15. There were 15 guardians as participants. Data collected was analyzed with Microsoft Excel. Themes and patterns were drawn from the answers to the open-ended questions. Demographic and clinical data of each participant were also presented in a table.

RESULTS

The assessment of guardians' awareness on acute malnutrition brought out a lot of insights on how mothers initially perceived the disease and why some of them sought other treatments before finally learning about the clinical management of the condition. In this current study, guardians shared their ideas on malnutrition and their previous knowledge of it before seeking clinical services. Four themes were generated: Signs and symptoms of acute malnutrition reported by participants as manifested by their children, Misconceptions that participants had about acute malnutrition, Initial response by participants to treat acute malnutrition and how

participants found out about clinical management of acute malnutrition. Discussion of themes are preceded by sociodemographic data of the participants. This chapter is therefore presented in five sections:

- Demographic and clinical characteristics
- Signs and symptoms of acute malnutrition reported by participants as manifested by their child
- Misconceptions that participants had about acute malnutrition
- Initial response by participants to treat acute malnutrition
- How participants found out about clinical management of acute malnutrition

Demographic and clinical characteristics

Demographic data included age, sex, birth weight, weight (on admission), and Mid-Upper Arm Circumference (MUAC) of participants' children. Oedema was also assessed as absent (0) or present (+, ++, +++ - the number of + indicates the severity). 15 participants (14 mothers and a grandmother for P9) were involved in the interviews. The ages of participants' children ranged from 6 months to 21 months. Thirteen (13) out of the 15 children had severe acute malnutrition (MUAC < 11.5cm, or presence of oedema) and the remaining two children had moderate acute malnutrition. A summary of these demographic characteristics data is provided in Table 1 in the tables section of this manuscript. Signs and symptoms of acute malnutrition reported by participants as manifested in their children.

Participants mentioned the signs and symptoms of acute malnutrition that were manifested by their children. Four sub-themes emerged from the information that participants gave. A summary of the themes and sub-themes can be found in table 2 in the "Tables" section of this manuscript. These sub-themes are mentioned below:

Weight loss and stunted growth

This sub-theme refers to statements made by participants which indicate that they recognized that their children were growing lean or that there was no significant change in their children's stature. Some participants held the notion that their children could not grow well as compared to other children of their age range. For example, one participant shared her view about her child.

"He was getting sick, lean and had stunted growth"-P3, 15 months

This participant did not really know about malnutrition, but was able to figure out that there must be something wrong with the child because of the lack of evidence of growth for a period of time. This sign of acute

Table 1. Demographic characteristics of participants' children.

Participant	Gender of child (m/f)	Age of participant's child (months)	Birth weight of child (kg)	Weight of participant's child(kg)	MUAC of participant's child (cm)	Oedema (0/ +/ ++/ +++)
P1	F	14	2.8	6.100	11.0	0
P2	F	7	3.1	4.630	10.5	0
P3	M	16	2.5	6.650	11.3	0
P4	F	15	2.2	6.500	11.4	0
P5	M	9	2.4	5.125	10.9	0
P6	F	21	3.6	7.300	11.8	0
P7	F	6	2.7	4.270	9.4	0
P8	F	6	2.1	3.200	8.0	0
P9	M	14	3.0	5.88	10.0	0
P10	M	12	2.7	6.800	11.4	0
P11	M	10	3.0	6.400	11.5	0
P12	M	12	3.4	10.700	16.0	++
P13	F	7	3.2	5.010	10.9	0
P14	M	10	2.4	6.810	11.7	+
P15	M	8	2.2	4.700	10.7	0

F-female, M-male, MUAC - mid-upper arm circumference

Table 2. Themes and sub-themes.

Theme	Sub-theme
Signs and symptoms of acute malnutrition manifested reported by participants as manifested in their children	Weight loss and stunted growth
	Loss of appetite
	Fever
	Other symptoms
Misconceptions that participants had about acute malnutrition	Asraam
	HIV/AIDS
	No idea
Initial response by participants to treat acute malnutrition	Use of Herbal preparation/ Asraam medication
	Consulting the hospital
	Use of complementary feed
	Use of Over-The-Counter drugs
How participants found out about clinical management of acute malnutrition	Referral by friend/ someone
	Hospital referral

malnutrition was the most mentioned sign amongst others; most participants had something to say about it:

“The child was growing lean.” – P1, 14 months

“...my child was growing lean...” – P13, 7 months

Participants 8 and 10 were able to identify the exact age that their children started losing weight:

“After 2 months of age she wasn't gaining any weight” – P8, 6 months

“When he was 3 months, he began reducing in weight”- P10, 12 months

Participant 9 identified a factor which may have led to her grandchild's weight loss:

“His mom had been sick ever since birth so he couldn't breastfeed. His weight decreased and was always decreasing.” – P9, 14 months

Other participants mentioned that their children were big at the time of birth but started growing lean after some time.

“The child was born big but was growing lean” - P2, 7 months

“She was a big baby at birth but her weight began to decrease” – P6, 21 months

The sign of weight loss is actually one of the classical signs of acute malnutrition and most of them were able to identify it as an abnormality which needed special attention.

Loss of appetite

Apart from weight loss and stunted growth, some participants also mentioned that their children had lost appetite. Participants explained that their children did not feel like taking in food and it was very difficult for them to feed these children. For example, participants 5 and 11 mentioned loss of appetite as one of the symptoms experienced by her child, apart from the weight loss their children suffered:

“He was born with a low weight but even as he was growing, he was still lean and he lost his appetite.” – P5, 9 months

“My child had a normal weight but it got to a point when her weight was reducing... : it started from the seventh month and his weight continued reducing till now. You had to force him to eat and that wasn't working. He is 10 months old now.” – P11, 10 months

Participant 7 may have even tempered with her child's meal. She explained that porridge was introduced in the child's diet but the child's condition got worse.

“She was born strong but she started reducing in size and I had to give her porridge after 3 months but the conditions got worse” - P7, 6 months

Mothers may be frustrated by their children's loss of appetite and may become desperate enough to introduce all kinds of interventions which may exacerbate the child's condition. Loss of appetite, like other signs may not readily be recognized as a sign of malnutrition as compared to weight loss and stunted growth. This is because of its association with other disease conditions.

Fever

Fever as explained by participants meant an elevated temperature above the normal body temperature. Fever, among other signs of acute malnutrition, was recognized by some mothers and mentioned in the interview. Participants 4 and 12 had this to say:

“She experienced fever, loss of appetite, stunted growth and alopecia” - P4, 15 months

“He also had stomach problems and fever” - P12, 12 months

Fever is not a common sign of acute malnutrition; most acutely malnourished children have suppressed immune systems and would not exhibit any signs of infection (like fever) even though they might be harboring some infections.

Other symptoms

Other symptoms mentioned included developmental delay, cough, and growth on skin. Developmental delay is a common sign of acute malnutrition especially in severe acute malnutrition. This sign may not be easy to identify unless the mother has some standards to compare it with (like comparing with elder siblings or with a developmental milestone chart).

Participant 5 identified a developmental delay in his child:

“...the child couldn't sit even though he was 7 months and was so weak”- P5, 9 months

Participant also mentioned that the child was experiencing cough, which could be as a result of an infection and not necessarily from being malnourished.

“She was coughing consistently”- P8, 5 months

Skin problems are also very prevalent among the acutely malnourished. Participant 12 mentioned that skin growth was one of the signs she recognized.

“She had some growth on his skin” – P12, 12 months

Misconceptions that participants had about acute malnutrition

Participants shared some misconceptions of acute malnutrition they had about their children's condition when they were malnourished. They also shared some insights on what they thought or what others in the community thought. Three sub-themes emerged from the information that participants gave. A summary of the themes and sub-themes can be found in table 2 in the "Tables" section of this manuscript. These sub-themes are mentioned below:

“Asraam”

According to the guardians that were interviewed, Asraam is referred to as a physical deterioration of a child's body that is caused by an evil person who is against the child's development. This myth may cause guardians to take measures which would make the health condition of their children worse in the long run. More than 50% of the participants had the misconception that their children's condition was Asraam. Most of these people mentioned that they were influenced by society. Several participants had this to say:

“...people claimed it was Asraam...”- P1, 14 months

“...people said it's Asraam”- P2, 7 months

“...they said it was Asraam...”- P5, 9 months

“...they said it was Asraam.”- P7, 6 months

“They said it's Asraam...”- P9, 14 months

“I thought it was Asraam. I was told it was Asraam...”- P10, 12 months

Others also diagnosed the condition by themselves to be Asraam.

“I thought it was Asraam” - P4, 15 months

“We thought it was Asraam...” – P8, 6 months

“I thought it was Asraam” – P14, 10 months

Asraam is a common misconception that guardians have about acute malnutrition and this misconception is mostly held by those living in rural communities.

HIV/AIDS

Participant 3, unlike most participants, did not subscribe to the misconceptions held by her community. She had a misconception of her own and had this to say:

“People claimed it was Asraam but I didn’t believe it. ...I thought it was HIV/AIDS” -P3, 16 months

Due to emaciation associated with Acute malnutrition, it is no surprise that some mothers may associate the condition with HIV/AIDS, especially if there is an unexplained cause to the emaciation.

No Idea

Participant 15 did not know what was happening to her child. She had no misconceptions, either by herself or from the community. She had this to say:

“Nobody ever said anything concerning his condition” - P15, 8 months

Guardians’ perception about the signs of acute malnutrition is important as it determines how they respond to the disease. The next section talks about how guardians responded initially to the signs and symptoms of acute malnutrition presented.

Initial response by participants to treat acute malnutrition

Under this section, participants shared how they tried to provide a solution or treatment when their children presented with the signs of malnutrition. Four sub-themes emerged from the information that participants gave. A summary of the themes and sub-themes can be found in table 2 in the "Tables" section of this manuscript. These sub-themes are mentioned below:

Use of Herbal preparation/ “Asraam” medication

Most participants used herbal medication / Asraam medication to treat their child even though there was no improvement in the end. For example, some participants explained that even after the treatment with Asraam medication, there was still no improvement.

“...so I took the child to the Asraam herbalist and they gave me some herbal medications for the child’s usage for 7 times a day. After series of Asraam treatment, child was still lean...” - P1, 14 months

“I treated the child with Asraam medications but the child’s condition was getting worse so I then decided to send the child to the hospital” - P2, 7 months

“I used Asraam medicine but the child’s temperature kept on spiking” – P4, 15 months

“I used Asraam medicine but the child’s temperature kept on spiking” – P6, 21 months

“...we gave herbal medications. We administered it orally, and also used it to bath the kid. The medication didn't work.” – P8, 6 months

“...he was treated with herbal medications but it wasn’t working. The medications were administered orally, some

were administered through the anal route and was also used as a pomade.” – P9, 14 months

“I started the herbal medication treatment even though it didn’t work.” – P10, 12 months

“I used the herbal medicines. The condition remained the same. There were no changes.” – P14, 10 months

All participants who used herbal medications did not see any change in child’s condition. Participant 7 who had initially attended the hospital, later used herbal preparations had this to say:

“I later sent the child to the herbalist and started herbal treatments and they said it was Asraam. I administered the medication orally, anally, and I used it to bath the child as well. Treatment took about 2 months. There were no changes in child's condition.” – P7, 6 months

Since most participants misconceived the condition to be Asraam, they used preparations which were meant to cure Asraam. This intervention did not work for all of them and for some this may even lead to dire consequences in future. Other participants initially consulted the hospital instead. The comments of these participants are discussed in the next section.

Consulting the hospital

Some participants sent their children to the hospital when they saw the signs of malnutrition. Participant 5 had this to say:

“I took him to the hospital and was asked to add groundnut paste and porridge” - P5, 9 months

Participants 7 and 15 noted that the hospital interventions were not effective for treating their children’s malnutrition. Whilst participant 7 later switched to herbal medication, participant 15 continued giving the hospital medications:

“I took her to the hospital. The clinicians gave me paracetamol for the child but nothing changed.” – P7, 6 months

“I just kept taking my child to the hospital and they sometimes gave medications which did not work but I still continued - P15, 8 months”

Perhaps, their children’s conditions were not properly diagnosed and thus, specific interventions could not be implemented.

Use of complementary food

Participant 11 somehow figured out that the problem needed a nutritional intervention and so she tried to intensify her complementary feeding practices. She had this to say: “I gave him lactogen and Cerelac but it all didn’t work”- P11, 10 months

She may have found the root of her child's problem but her intervention needed more information and direction.

Use of the over-the-counter medications - OTC

Participant 12 had hoped that over-the-counter drugs would do the trick but later realized that her effort was futile:

"I got some over the counter medications but it didn't work." – P12, 12 months

All participants realized that their interventions were not really solving their children's health condition. At some point, they found Holystic Nutrition Organization which is a Non-Governmental Organization known for the treatment and prevention of acute malnutrition in Obuasi. They, however, found out about this malnutrition treatment center through different means.

How participants found out about clinical management of acute malnutrition

This section explains how participants finally learnt about a centre known for the clinical management of acute malnutrition (Holystic Nutrition Organization). Some of the participants had to find out about the clinical management from other people while others got to know about it after referral from the hospital. Therefore, two themes were deduced from the interviews concerning this section and they are explained in the paragraphs that follow. A summary of the themes and sub-themes can be found in table 2 in the "Tables" section of this manuscript.

Referral by friend/someone

Some participants were referred by friends or neighbors around. These friends and neighbours were mothers or relatives of mothers of previously malnourished children who had been successfully treated at the malnutrition treatment center. Almost 50% of participants were referred by friends/ some people other than healthcare providers. The statements made by participants who were referred by someone are stated below:

"Someone introduced me to this malnutrition treatment center and said that you (Holystic Nutrition Organization) could help my child" - P6, 21months

"Someone introduced me this malnutrition treatment center" – P4, 15 months

"I spoke with someone about it and I was given directions to this place (Holystic Nutrition Organization)" – P7, 6 months

"Someone mentioned that I should come here (Holystic Nutrition Organization)" – P9, 14 months

"I was advised by someone to come and see you (Holystic Nutrition Organization)." – P11, 10 months

"I heard about the fact that my child could be helped by you and I came here (Holystic Nutrition Organization)." – P13, 7 months

Participant 1 stated specifically that the referral was done by a friend: "A friend encouraged me to come to come to this malnutrition treatment center because her child had suffered a similar condition and was now better" - P1, 14 months

Hospital referral

Other participants who later sought help from the hospital were referred by some healthcare providers who knew about the malnutrition treatment center. "I treated the child with Asraam medications but the child's condition was getting worse so I then decided to send the child to the hospital and was eventually referred to this place"-P2, 7months.

"I gave the child herbal medications and also took the child to the hospital because I thought it was HIV/AIDS. From there, they referred me here (Holystic Nutrition Organization)." - P3, 16 months

"I took him to the hospital and was asked to add groundnut paste and porridge. But I was referred here (Holystic Nutrition Organization) to continue treatment." – P5, 9 months

"I just kept taking my child to the hospital and they sometimes gave medications which did not work but I still continued. Later, the hospital referred me to this place (Holystic Nutrition Organization)." – P15, 8 months

This shows that hospital referral play a key role in helping curb malnutrition especially in hospitals that don't deliver specialized care for the malnourished. It is however important to note that most of these referrals occurred after the participants had sought help from herbalists. Herbal preparations initially used may have detrimental effects on the health of the children. More needs to be done to create awareness and prevent complications.

DISCUSSION

The results of this study will be discussed in this chapter. Fifteen participants were interviewed in this study. Few of the children of the participants shown signs of edema while the rest did not. These participants had children under the ages of five and their perceptions of malnutrition would be analyzed under the various sub-themes.

Signs and symptoms of acute malnutrition manifested reported by participants

Inadequate energy intake leads to various physiologic adaptations, including growth restriction, loss of fat, muscle, and visceral mass, reduced basal metabolic rate, and reduced total energy expenditure (4). The biochemical changes in acute malnutrition involve metabolic, hormonal, and glucoregulatory mechanisms. The main hormones affected are the thyroid hormones, insulin, and the growth hormone (GH). Malnutrition can affect a growing child's brain development and their ability to learn and perform in school. Severely undernourished children can experience additional challenges, such as bone deformity, neurological problems, vision loss and weakened immune systems.

Organ systems are variably impaired in acute malnutrition. Cellular immunity is affected because of atrophy of the thymus, lymph nodes, and tonsils. There are reduced cluster of differentiation (CD) 4 with normal CD8-T lymphocytes, loss of delayed hypersensitivity, impaired phagocytosis, and reduced secretory immunoglobulin A. Consequently, the susceptibility to invasive infections (urinary, gastrointestinal infections, septicemia, etc.) is increased (22). The cerebral cortex is thinned and brain growth slowed. Delays in global function, motor function, and memory have been associated with malnutrition. The effects on the developing brain may be irreversible after the age of 3–4 years.

Concerning participants' thoughts when they first saw the signs and symptoms of acute malnutrition, sub-themes inferred included weight loss and stunted growth, loss of appetite, fever and other symptoms. These signs and symptoms that participants saw in their children as compared to literature is actually in line. This is because most often, children affected with acute malnutrition experience stunted growth, weight loss, stunted growth, muscle wasting and dry hair and skin. Other symptoms observed by participants like cough, fever and abdominal problems are as a result of the infections due to low immunity caused by the acute malnutrition.

Misconceptions that participants had about acute malnutrition

Mothers' perception and cultural beliefs are important, yet understudied, determinants of the nutritional status of children and/or adolescents. Myths and misconceptions about food and nutrition abound across the world. We all grew up with them, such as grandmothers' tales about cures for the common cold. The mothers identified concepts, causes and community experience of underweight and overweight children and adolescents, but some gaps and misconceptions still exist among them, one

of which is the perception that underweight is caused by witches and wizards (23). Misconceptions relating to the role of the supernatural forces pose a challenge to efforts aimed at encouraging mothers to take actions to prevent or control malnutrition since they are associated with the belief that addressing the cause is out of their reach. Asram is a childhood illness complex that is perceived to have been acquired spiritually and/or inherited. This childhood illness was said to be treatable by Asram healers who had sub-specialties in treatment approaches that were determined by the Asram type reported. Mothers/caregivers trusted Asram healers and preferred to call on them first. This was found to be the main reason for delays in seeking healthcare for children under-5 who showed symptoms of Asram. Asram is a childhood illness complex that is believed to be better managed outside the health facility setting. This study complements existing knowledge and creates opportunities for further research and the introduction of more effective interventions in the effort to improve child survival in rural communities (24). Although Asram does not seem to have a biomedical equivalent, previous studies have described it as potentially severe (21).

Asram was categorized depending on the signs the sick child presented with. Asram boredwo (boredwo is translated as roasted plantain) is the type of Asram in which the child is emaciated and has a relatively bigger head than the body with dried-up skin. This Asram is said to be acquired during pregnancy. It was revealed that if a pregnant woman eats either roasted plantain or fried plantain during pregnancy, she often contracts this form of Asram in pregnancy, thereby giving birth earlier than expected, and consequently having a baby who is unable to grow well, looking as dried up as roasted plantain. It was reported that a pregnant woman could potentially expose her child to Asram if she dressed up attractively with jewelry and exposed certain parts of her body such as her thighs, stomach, arms, and backside. Dressing in a manner perceived to be indecent while pregnant is severely abhorred in the area, so respondents also saw this as a punishment for women who did not comply with such cultural rules. Asram boredwo was concluded to be a punishment for a stubborn pregnant woman. Asram boredwo is also believed to be caused spiritually by Asram healers. They are not allowed to come into contact with babies because babies easily have the symptoms of Asram boredwo as soon as they are seen by a healer. Babies are therefore hidden from these healers.

It was also revealed by an Asram healer who had been treating children for over 30 years that Asram boredwo was the most common type and easily killed children before their first birthday. 'Ntoos' translates in English as 'tomatoes'. As the name implies, Asram ntoos is described as multiple blisters on a baby's skin, looking like roasted

tomatoes-like movement near the fontanel of a baby. This, they described as a severe form of Asram mpaemu.

Ayamtuo is translated in English as diarrhoea. Some people revealed that with Asram ayamtuo, children had bloated stomachs within the first weeks after birth and usually have watery stools. It was revealed that they often have green veins on their bloated stomachs, causing them to cry incessantly, especially at night. Such children were described as 'cry babies' which resulted in them losing weight, especially in their first six months. All these were misconceptions that mothers had on acute malnutrition.

Participants had several concerns which led to the emergence of sub-themes like Asraam and HIV/AIDS. According to most participants, they went to an Asraam doctor to get herbal medications for the treatment of their children which made the condition of those children even worse. Others thought it was HIV/AIDS and took their children to the hospital for appropriate treatment. Guardians need to be educated on Acute malnutrition because from the data recorded more than 50% treated their children with Asraam Medication.

Initial response by participants to treat acute malnutrition

Asram healers are the first point of call when a child is sick and is labeled as an Asram patient. Children under-5 diagnosed with Asram, often die in the communities and these deaths are not reported to the health facilities. Others are sent to the hospital after days of delay and unsuccessful treatment by Asram healers. This finding is no different from Hill et al, who asserted that children diagnosed with local illnesses such as Asram are severely ill and that traditional beliefs are a significant barrier to appropriate care seeking in rural Ghana. Other studies in parts of Africa, have reiterated the potential threat of traditional illnesses, which are labeled as not-for-hospital, are to efforts to reduce infant and child mortality through prompt and appropriate healthcare seeking (25). Sub-Saharan Africa still has the highest child mortality rates and accounts for the greatest burden of mortality globally. The majority of these children die without ever reaching a health facility. The practice of appropriate healthcare-seeking behaviour has a great potential to reduce the occurrence of severe and life-threatening childhood illnesses. Several factors, however, influence healthcare-seeking behaviour, including perceptions of the cause of illness and socio-cultural perspectives.

Participants responded initially with various ideas and these have been grouped to sub-themes like the use of herbal preparation or Asraam Medication, Consulting the hospital, Use of complementary feed and use of over-the-counter medication. The responses given by the

participants shows that more than 50% of the participants consulted Asraam herbalist for treatment with use of herbal preparations. This is very alarming since the side effects of this treatment could be detrimental to the child's health. A few others took their children to the hospital, used complementary feed or over-the-counter medications. This shows how mothers are to be educated on acute malnutrition.

How participants found out about clinical management of acute malnutrition

In primary moderate acute malnutrition, management at home is recommended, including counseling of parents, with emphasis on continuing breastfeeding and appropriate complementary feeding (nutrition-specific interventions). Ideally, these children should receive 25 kcal/kg per day of energy in excess of what their healthy peers receive, and their diets should contain animal-source foods rich in essential fatty acids and micronutrients including vitamin A, iron and zinc (4).

The community can provide ready-to-use therapeutic food (peanut paste, milk powder, vegetable oil, and a mineral and vitamin mix as per WHO standards) for children with severe acute malnutrition who do not have any complications. Therapeutic food that is ready to use can also be used in hospitals to treat children who are ambulatory and have received treatment for problems. Hospitalization is necessary for children experiencing severe acute malnutrition consequences, such as severe diarrhea, hypoglycemia, hypothermia, pneumonia, urinary tract infection, sepsis, etc., until they are well enough to be managed at home. Scaling up nutrition-sensitive measures at the national or regional level is necessary to combat chronic malnutrition (4). These interventions should include social protection programs, safe drinking water, good sanitation, female education, and the creation of appropriate livelihoods. Growth monitoring ought to be put into practice at the community level, where parents' advice can help children grow even before malnutrition sets in by assessing the nutritional condition of newborns and early children every one to three months.

Participants responded with ideas and how they found about clinical management of acute malnutrition, which have been grouped to sub-themes referred by friend, someone or hospital referral. More than 50% of the participants were referred by someone and this shows the need to also educate and make known to guardians and people about Malnutrition centers or hospitals that help with Nutritional deficiencies.

In conclusion, from this research, we observed that participants were able to identify some of the initial signs and symptoms for Acute malnutrition which was weight

loss, loss of appetite, stunted growth and other signs of infection like fever, cough and abdominal problems. These signs are usually present in children when they are malnourished and it was excellent that the guardians were able to identify them. Also, some participants had misconceptions about acute malnutrition. Some said the condition was Asraam (which meant that a witch is a cause of that condition), and sought help from Asraam doctors with the use of herbal medications, others also assumed that acute malnutrition is as a result of HIV/AIDS. This alone shows how important it is to educate guardians on acute malnutrition to prevent further complication of their children.

Again, most guardians had different treatment methods, while ones resorted to herbal medications, others consulted doctors for the treatment plans. Some of them made use of complimentary feeding to increase their children weight and others used over-the-counter medications. Most of the methods used by the guardians were not the recommended methods for treating Acute malnutrition and could be detrimental to the health of children. Finally, guardians were able to find out the existence of facilities in charge of providing clinical management for acute malnutrition and they came to realize this through friends and hospitals. Indeed, this research has shown that community/hospital education and follow-up care are keys to improving the knowledge of guardians which goes a long way to improve their health and that of their children. Guardians and parents should be effectively educated right from antenatal visit to postnatal visit to ensure effective transition to parenthood and equip their skills and abilities to totally take care of their children. Follow-up visit by public health nurses should be encourage to keep guardians. This would put guardians on their toes to keep an eye on their kids and also alert healthcare professional when they encounter any challenges while taking care of their children. Again, health workers are to engage communities in health education to improve on their health and that of their children. Health education should include topics on nutrition, sanitation and healthy living.

NOTES

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Conflict of interest

There are no conflicts of interest.

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