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Factors Affecting Malnutrition Treatment Outcomes and Health Workers' Contributions: An Experience in Two Local Government Areas in a Northern State of Nigeria

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Abstract: The prevalence of malnutrition in Fika and Nangere LGAs of Yobe state despite continuous Infant and Young Child Feeding (IYCF) services, Outpatient Therapeutic programs (OTPs), and Stabilization Care (SC) services for a minimum of 4 years. With the overwhelming burden of Malnutrition despite the ongoing Nutrition interventions and government efforts with the support of international aid, it was important to conduct a study to evaluate the impact of this treatment and determine the trends in the progression of the crisis and factors that influence its outcomes. A qualitative collection was done on a purposive sample of caregivers in both Nangere and Fika LGAs, Nutrition community volunteers, Health workers, and focal LGA and state coordinators in both LGAs were administered open-ended questions for Key informant interviews. The audio recordings for the key informants' interviews were transcribed and thematic analysis was conducted on the transcripts obtained from the in-depth interviews. The results reveal that there are various factors including where caregivers get nutrition information, stock out of RUTF and routine drugs, positive attitude of Health workers, and distance to the Nutrition Center has influenced the outcome of CMAM in both states. It is recommended that MAM and SAM therapeutic programs be better monitored, supplies of RUTF and drugs be prepositioned and accounted for to avoid stock out and mismanagement, outreach services be considered, and conduct systematic caregivers' exit interviews periodically to receive feedback and continuously improve the Nutrition therapy program outcomes in Fika and Nangere despite the protracted crisis in Yobe state, Nigeria.

Keywords: Malnutrition, SAM, MAM, Health Workers' Contribution

1. Introduction

The latest estimates of child malnutrition produced by the United Nations agencies show that globally 6.9% or 47.0 million children under 5 years of age suffered from wasting in 2019, including 14.3 million with severe wasting. A child who is moderately or severely wasted has an increased risk of death. Wasting is responsible for approximately one-half to 1 million deaths of children under 5 worldwide each year [1, 2]. Nigeria has the second highest burden of stunted children

in the world, with a national prevalence rate of 32 percent of children under five. An estimated 2 million children in Nigeria suffer from severe acute malnutrition (SAM), but only two out of every 10 children affected is currently reached with treatment [3]. The number of disability-adjusted life years (DALYs) attributable to undernutrition is reported to be high and as with mortality concentrated in South Asia and Sub-Saharan Africa. [4].

Nigeria has made no progress towards achieving the target for stunting, with 36.8% of children under 5 years of age affected, which is higher than the average for the African region (29.1%). Nigeria has made some progress towards achieving the target for wasting but 6.8% of children under 5 years of age are still affected, which is higher than the average for the African region (6.4%) [5]. Severe acute malnutrition (SAM) if untreated timely becomes complicated and has a case fatality rate of 20–40% [6].

The high cost of care and treatment of preventable childhood diseases through improvements in child nutrition have not been quantified [7].

Efforts to drastically improve the growth trajectories of young children in northern Nigeria are being made by government agencies at the Federal, State, and Local Government levels, working and partnering with Local and International non-governmental Organizations [8, 20, 21]. According to the WHO guidelines for the treatment of acute malnutrition [9, 16-19], children admitted for inpatient management of complicated severe acute malnutrition should be discharged into Community Management of Acute Malnutrition (CMAM) programs for continued monitoring and therapeutic support to the recovery. However, CMAM coverage is still often sub-optimal [10]. Even where these programs are in place, they require patients to be taken back to a facility, which is difficult for many families given the distance and cost implications, and their additional domestic and income-earning responsibilities [11, 12].

This study was focused on assessing the factors that affect treatment outcomes and the contribution of health workers in SAM and MAM treatment programs in Nangere and Fika LGA, Yobe state.

2. Methods

2.1. Study Setting

This study was conducted in 2 Local Government Areas namely Fika and Nangere of Yobe state, Nigeria.

2.2. Data Collection Methods

This study employed a qualitative data collection method with the use of semi-structured Focused Group Discussion (FGD) and Key Informant Interview (KII) guides and administered to a purposefully selected and homogenous group of 8-10 persons for FGDs.

2.3. Study Participant

The study populations were the primary caregivers of children Under five with either Severe Acute Malnutrition (SAM) or Moderate Acute Malnutrition (MAM), and is or have ever assessed the nutrition therapy program, Nutrition Community Volunteers, Health Workers and Nutrition program coordinators in both LGAs of Yobe state, Nigeria.

2.4. Sampling Frame

The sampling frames for the study are the primary caregivers of Children Under 5 with SAM or MAM, Health workers providing nutrition services, Nutrition community volunteers, and Nutrition coordinators in Fika and Nangere LGA of Yobe state, Nigeria. The selection of participants was purposive depending on their involvement in Under 5 children's nutrition, and involvement in the nutrition therapy program at the state, LGA, and community levels.

2.5. Ethical Considerations

Approval to conduct the study was obtained from the research and ethics committee at the state ministry of health, Damaturu, Yobe state. Participants were made to give their consent or otherwise to the study. Only participants who consented were involved in this study and their anonymity, privacy, and confidentiality was respected.

2.6. Data Analysis

The audio recordings of the key informants' interviews were transcribed. Thematic analysis was conducted on the transcripts obtained from the in-depth interviews. Transcripts were read and re-read independently by the researcher and her research assistant to familiarise themselves with the data. Open and axial coding was done by each of them to identify and draw together the commonalities in the data. The codes and categories were discussed and debated among the experienced researchers until consensus on the dominant themes was agreed upon.

3. Results

Focused Group Discussions (FGDs): a total of 23 Focused Group Discussions were conducted in groups of 8-10 individuals. 21 were held for mothers/primary caregivers of children Under5 who are or have ever been admitted to the nutrition therapy program focusing on each health facility catchment and two (2) in each LGA for Community Nutrition Volunteers.

Key Informant Interviews (KIIs): in all, 5 KIIs were conducted with health workers (one from each LGA) in Fika and Nangere LGAs including three (3) Key Informant interviews (KIIs) 2 LGA Nutrition Coordinators and 1 State Nutrition focal person.

The role and contribution of Community Nutrition Volunteers (CNVs) and Health workers in supporting SAM and MAM Under 5 children in the CMAM program from the perspective of the caregivers.

Caregivers of Children Under 5 feel supported by CNVs because most of them support weighing their children,

MUAC measurement, lead the IYCF messaging and counseling, support with the documentation on their ration cards, giving them other information and guidance on request, conducting home visits, making referrals from the community and ask them why they are not coming to the facility when defaulted. In the words of a caregiver *" at the health facility is where we get the correct information about how to take care of our children who are malnourished and to prevent other children from malnutrition from what we have locally, make sure we and our children are clean and we advise our friends and other mothers about it when we return to the community"*

In addition, they feel encouraged by the Health workers and CNVs to attend the care groups as established in Nangere LGA and mother – to mother support groups as established in Fika LGA and depending on which is close to their neighborhood and community. At the care groups and Mother – to – Mother support groups are where they learn a lot more about hygiene, the benefits of healthy child feeding practices, and the nutrition of their young children including cooking demonstrations from locally available foods while creating awareness on hygiene and the availability of nutrition services.

Caregivers mentioned also that health workers give their malnourished Ready to Use Therapeutic Food (RUTF) and routine drugs with instruction and practical demonstration on the administration at the facility weekly or as asked to return to the health facility for follow-up. Depending on the treatment of the malnourished child, health workers also refer the malnourished to the SC or continue the treatment at the OTP. According to a primary caregiver, *"the health workers for nutrition services are not so many, there are many people at the clinic for CMAM, however, the presence of the Community nutrition volunteers helps them to attend to every one of us even though it may take time when you are not very early to the clinic"*

The role of State and Local Government Area focal Nutrition coordinators in MAM and SAM treatment in Yobe State, Nigeria.

According to health workers, focal LGA, and State nutrition focal persons, have the role of advocating with traditional, and religious leaders and community stakeholders, facilitating staff training and capacity building, effective distribution and monitoring of RUTFs, and routine drug distribution. This was reiterated by the LGA focal person who said *"we at the LGA level have a coordination role and working with the state nutrition department to ensure the nutrition therapy program in the health facilities go on smoothly, facilitating and monitoring the distribution of supplies and drugs, monitoring health workers and CNVs, reporting nutrition data for the LGA, supporting partners who have nutrition intervention and ensure community engagement with stakeholders"*

Factors that affect the nutrition therapy program in Fika and Nangere LGA, Yobe state.

Caregivers mentioned their concerns and factors that affect the optimal uptake of the nutrition therapy program in the mentioned LGAs. Challenges that reoccurred from all that was mentioned and seemed to be burning from the discussions are categorized into external and internal factors as summarized in the table below.

Table 1. *Internal and External factors that affect SAM and MAM treatment in Fika and Nangere LGA from the caregivers' perspective.*

S/N	Internal Factors	External Factors
1	Prolonged waiting at the health facility	Distance of health facility from home/location of dwelling
2	Insufficient RUTF	Transportation problems, lack of transportation fare to the health facility when there is a means
3	Lack/insufficient of routine drugs for SAM treatment	

In the words of a caregiver, *"even when we manage to get to the health facility despite the distance, we can hardly fulfill other domestic responsibilities the same day because we wait long at the health facility before everyone is reached and we are attended to because the health workers sometimes seem few"* because women from far distance travel in groups for security reason, waiting for everyone and the long travel back is a major challenge and has an impact on other domestic obligations they have.

Another caregiver said, *"I have to continue coming and sometimes I get discouraged because the health workers have no supplies and drugs to us for the treatment of SAM"*. This account may be a contribution to the higher-than-average Length of Stay experienced by Children being treated for SAM and MAM.

On the other hand, health workers and Community Nutrition volunteers who were interviewed mentioned some challenges and factors they feel affect the SAM and MAM program as summarized in the table below.

Table 2. *Internal and External factors that affect SAM and MAM treatment in Fika and Nangere LGA from the Health workers' Community Nutrition Volunteers' perspective.*

S/N	Internal Factors	External Factors
1	Caregivers' poor hygiene	Difficulty in integrating health issues with traditional and religious leaders
2	Frequent RUTF stock out	
3	Lack/insufficient of routine drugs for SAM treatment	
4	Challenging transport logistics for CNVs	
5	Lack of adequate training for community volunteers	
6	Lack of adequate supervision for community volunteers	

From the perspective of the caregivers and health workers, the stock of drugs, Nutrition supplies like RUTF were common challenges that are major to enhancing the quality of care in the Nutrition therapy program for improved outcomes.

4. Discussions

The purpose of this study is to assess the factors affecting MAM and SAM treatment outcomes and health workers' contributions in Fika and Nangere LGAs, Yobe state. From the response from caregivers and health workers, the roles of health workers and Community Nutrition volunteers seem to be known and well understood by both parties which aligns with Njeru RW. Et al. in a study on Strengthening the role of community health workers in supporting the recovery of ill, undernourished children post hospital discharge: qualitative insights from key stakeholders in Bangladesh and Kenya [10] that Community health workers have a role to follow up Malnourished children Under 5 who are being treated or have been discharged from the program even though the effectiveness of the role was not ascertained. Similarly, SPRINGS on How Community Health Workers Contribute to Better Nutrition: Haiti [13], agrees that Community health workers play a critical role in providing clients with a range of services such as medical care, information, counseling, and referral.

The role of LGA and State nutrition focal persons in Fika and Nangere LGA is explained by Farooq Ahmed Et al. in a study of key challenges to optimal therapeutic coverage and maternal utilization of CMAM program in Rural Southern Pakistan through an exploratory study [14] that supervision and monitoring of stock, in addition to training of staff is a critical role at the district level to ensure optimization of CMAM.

The similar factors affecting SAM and MAM treatment highlighted by caregivers and health workers similarly do affect CMAM outcomes agreeing with a similar study by Santhia Ireen Et al. on the Challenges and opportunities of integration of community-based Management of Acute Malnutrition into the government health system in Bangladesh: a qualitative study [15] that uninterrupted supply of medicines and therapeutic diet are not available which has made the integration challenges, Farooq et al's similar study [14] conducted in Pakistan mentioned that difficulties in traveling to and staying at the program, weak monitoring and corruption of program, poor human resource utilization and lack of training are significant barriers in optimal therapeutic coverage.

Factors mentioned by the health workers and community nutrition volunteers are similar to Spring's study in Haiti [13] highlighting that although the Community health workers have a critical role to play in the CMAM program and they are expected to carry out a wide range of interventions with limited time, resources, and remuneration. They need appropriate academic curricula, training programs, and support systems – including systems for monitoring, supporting, and mentoring which are current gaps in the system.

5. Conclusion

The results from the qualitative study explain primary data from similar studies on the many challenges and factors that affect the SAM and MAM treatment outcomes and the role of health workers.

Therefore it is a pointer to the fact that there is a need to take careful consideration in the rollout and scale-up of the CMAM program at the State and LGA level. Insufficient supplies and drugs seem to be very common and yet have a strong impact on the therapy and the quality of care. Challenges on insufficient supplies range from logistical to gaps in effective monitoring and stock management which in many cases are overlooked. While the expectation from health workers and Community Nutrition Volunteers are high, they need to be equipped with proper training, and transport stipends [13], and if were not implemented health facilities can be closer so they do not miss support to caregivers. For caregivers, outreach services can be considered to where caregivers can have unhindered access and limited disruption to their domestic activities [11, 12, 15, 22-26].

While the specific factors that affect SAM and MAM treatment per location can have additional peculiarities, there are common determinants as seen from other studies on why there is a need for LGA, State, and others in the office of coordination and decision-making to make deliberate efforts on improving the outcome of SAM and MAM treatment outcomes. There is a need for the government and other implementers of the nutrition therapy program to continuously assess the intervention from the program users' (caregivers) and providers' (health workers and CNVs) eyes and adapt to improve the quality of care so as to reduce the negative prevalence pattern of acute malnutrition among these vulnerable group of the population-the under-five children.

6. Limitations of the Study

This was a qualitative study where a purposive selection of caregivers was done based on their availability and proximity to the discussion locations.

7. Recommendations

From the findings of this study, it is recommended that:

1) There needs to a stronger coordination and monitoring system for the management and distribution of Nutrition therapy supplies and routine drugs.
2) Outreach Nutrition centers can be considered for caregivers and people in communities who live very far away from Health facilities.

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