International Journal of Medical Science and Applied Biosciences
ISSN: 2536-7331 (Print): 2536-734x (Online)
Volume 3, Number 3, September 2018
http://www.casirmediapublishing.com

AN APPRAISAL OF COMMUNITY MANAGEMENT OF ACUTE MALNUTRITION (CMAM) PROGRAMME AMONG MALNOURISHED CHILDREN AT A GENERAL HOSPITAL IN NORTH-WEST NIGERIA

Hamza Ruqayya[1], Idris Abdulrashid[1*], Salisu Abubakar[1], Garba Saratu Abdullahi[1], Abdullahi Aisha Suleiman[1], Mohammed Mustapha[2]
[1]Department of Nursing Science, Bayero University Kano, Nigeria
[2]Hospital Service Management Board, Katsina State, Nigeria
Corresponding Author: **Idris Abdulrashid**

ABSTRACT
Severe acute malnutrition has been a major cause of childhood mortality, especially among children under the age of five, with an estimated figure of about 20 million children worldwide. The study determined the outcome of CMAM programme, the role of healthcare workers in the CMAM programme, and challenges of the programme. Utilizing a mixed method research design for the study which included all health care workers involved directly or indirectly in the CMAM programme and malnourished children that were admitted between the years 2012-2014 for the CMAM programme in Baure general hospital, Katsina state; A purposive sampling technique was used to recruit the sample size of 37 health workers and also reviewed previous data of admitted malnourished children. After obtaining an informed consent for the study, a structured questionnaire and a checklist for WHO-Sphere minimum standard were used as tools for collecting data. Data was analyzed using the Statistical Package for Social Science (SPSS) version 20. Findings of the study revealed that, the default rate was <5% while the death rate was <3%; 83.8% of the respondents agreed that in-patient/out-patient therapeutic management is the role of healthcare workers, while 97.3% agreed that shortage of manpower was the most challenging issue in the programme. Based on the findings, it was recommended that Government and Non-governmental organisations should sustain the programme and also ensure adequate pre-service training on CMAM programme for healthcare workers; health institutions and health related programmes in the universities should include WHO CMAM-Model into their curriculum and take the lead in developing training courses, materials and teaching aids.

Key words: ***Outcome, community management, acute malnutrition, malnourished children.***

INTRODUCTION
Severe acute malnutrition has been a major cause of childhood mortality especially among children under five years of age; treatment has however been restricted to facility-based approaches thereby limiting its coverage and impact. Research evidences suggests that a large number of children with severe acute malnutrition can be treated in their communities without being admitted to a health facility or a therapeutic feeding centre [1].

Globally, it is estimated that about 20 million children who are severely acutely malnourished and majority live in south Asia and in sub-Saharan Africa. Severe acute malnutrition is defined by a very low weight for height (below -3 z scores of the median WHO growth standards), by visible severe wasting, by the presence of nutritional oedema, an arm circumference (MUAC) less than 115 mm or any other medical complication in children aged 6–59 months [2].

According to Nigerian Demographic Health Survey [3], Nigeria has been ranked the most populous country in Africa and a middle income country, with the highest number of stunted children in the continent and ranks third globally with more than 10 million stunted children. It is one of the six countries that account for half of all child deaths worldwide, with 1 million children under five dying every year out of which malnutrition contributes to over one-third (35%) of that deaths. Some parts of Northern Nigeria were marked with the highest cases of severe acute malnutrition, notably in states like: Jigawa, Zamfara, Yobe, Katsina and Kebbi states. Factors that contribute to malnutrition mostly are: poverty-leading to insufficient nutritious food and not having a reliable supply of food throughout the year, gender inequality, poor infant and young child feeding practices, limited access to healthcare, safe drinking water and adequate sanitation [2]. It has been reported that in many poor countries, majority of children with severe acute malnutrition were never taken to a health facility. Therefore, an approach with a strong community component usually provides them with the appropriate care. Evidence showed that about 80 per cent of children with severe acute malnutrition who were identified through active case finding, or through sensitizing and mobilizing communities to access decentralized services themselves, can be treated at home by feeding the children with a ready-to-use therapeutic food (RUTF) until they have gained adequate weight [4].

The community-based approach to malnutrition involves early detection of severe acute malnutrition in the community and provision of treatment for those without medical complications with ready-to-use therapeutic foods (RUTF) or other nutrient-dense foods at home. If properly combined with a facility-based approach for those malnourished children with medical complications and implemented on a large scale, community-based management of severe acute malnutrition (CMAM) could prevent and reduce the deaths of hundreds of thousands of children [5]. The Federal Ministry of Health (FMOH) in Nigeria with the support of other partners has been implementing community-based management of acute malnutrition (CMAM) program with the aim of treating affected children and hence preventing/reducing the mortality rate caused by malnutrition. CMAM implementation in Nigeria was first piloted in 2009 in 3 LGAs of Gombe state and 5 LGAs of Kebbi state respectively. By 2010, the CMAM program was expanded to other states namely: Sokoto, Zamfara, Katsina, Kano, Jigawa, Bauchi, Adamawa, Yobe and Borno with a total of 378 CMAM sites [6].

METHODOLOGY

Research design and setting

A mixed method research design was used for the study which comprise of a descriptive cross-sectional survey and a retrospective design.The study was conducted at Baure general hospital Katsina state. Baure is a local government area in Katsina state, sharing a border with the Republic of Niger and Jigawa state. It has an area of 707 km2 and a population of 197,425 as of 2006 census. Baure general hospital is one of the 22 general hospitals in Katsina state. It was categorized as a rural general hospital; it has a maternity unit, male and female medical wards, ANC unit, paediatric unit and CMAM-SC unit with an OTP centre running weekly. It also runs laboratory and pharmaceutical services. The hospital has roughly 70 bed capacity, with the paediatric unit and CMAM-SC units having 20 and 10-beds capacities respectively. As at the time of this study, the hospital is enriched with 22 nurses, 3 medical officers and 7 community health extension workers, it also has both pharmacy and laboratory personnel. It is the only CMAM centre with stabilization centre/in-patient therapeutic programme in the local government.

Target population

All the healthcare workers involved directly or indirectly in the CMAM programme and the records of all the malnourished children (6-59months) that were admitted between years 2012-2014 for the CMAM programme at Baure general hospital,I Katsina state.

Sample size and sampling technique

A Purposive sampling technique was utilized in sampling the available 37 healthcare workers for the study; CMAM data files of 6-59months old between years 2012-2014 were sampled using a checklist based on the WHO-Sphere Minimum Standard.

Tools for data collection

Two tools were used to obtain data for the research work; a structured self-administered questionnaire which was adapted from previous reviewed related studies to collect data from the healthcare workers and an adapted WHO-sphere minimum standard checklist which was used to obtain data from the files of malnourished children (6-59months) between years 2012-2014.

Tool I: The structured questionnaire which consisted of 3 sections: section A, was used to obtain the socio-demographic characteristics of the respondents, section B, was used to obtain data on the role and services of the health care workers in the CMAM programme and section C, was used to gather information on Challenges associated with the programme.

Tool II: The adapted WHO-sphere minimum standard checklist was used to obtain the numbers of admissions, numbers of cured/transferred, numbers of defaulter and numbers of death.

Validity and Reliability

The face and content validity of the research instruments (questionnaires and checklist) were assessed and analysed by the research supervisor and 3 other staff of the department while a test-retest of the tools was used to determine its reliability.

Ethical consideration

An introductory letter was obtained from Department of Nursing Science, Bayero University Kano and was submitted to state ministry of health katsina state. Consent was obtained and detailed explanation of the study was given to all participants, assuring them of anonymity and confidentiality of the information they provided.

Data analysis

The collected data was organized, analysed and tabulated; the data was analysed using SPSS software (version 20) and the results were presented using frequency tables, percentages and figure.

RESULTS

As illustrated below, Table (1) and Figure (1) showed the distribution of the studied healthcare workers indicating their socio-demographic characteristics.
The majority of the respondents were 25years and above (92.9%), married (67.6%) and have an educational qualification of RN + Post basic (27%). Majority of the respondents had a working experience between 1-5 years (43.2%). More than half of the respondents were males (86.5%). Tables 2 and 3 below showed the distribution of respondents according to the role and services of healthcare workers in the CMAM programme. More than half of the respondents of the respondents received training on CMAM programme (78.4%). Similarly, (70.3%) of the respondents participated in the CMAM programme in the study hospital. Majority of the respondents (40.5%) have participated in the CMAM programme for more than a year, more than three quarter of the respondents (83.8%) of the respondents thought that the role of the healthcare workers in the CMAM programme are both in-patient and out-patient programmes. Table 3 showed that More than three quarter of the respondents (89.2%) renders daily bilateral pitting oedema, (91.8%) carries out anthropometric checks, (91.8%) of the respondents render daily nutritional assessment and monitoring, (86.5%) render food preparation and storage, and (91.8%) of the respondents administer RUTF and/or supplementary feeding. In the same vein, (91.8%) of the respondents render

medical services in the programme, (81%) of the respondents prepares take home ration in the programme, and (78.4%) of the respondents render rehabilitation.

Table 4 below illustrated the distribution of the respondents according to challenges of the programme. A higher percentage of the respondents revealed that (97.3%) agreed that shortage of manpower is the most challenging issues in their facility, (91.8%) agreed that workload/understaffing is one of the challenging issues, (73.0%) of the respondents agreed that lack of incentives/payment is one of the most challenging issue of the programme, (56.7%) believed Inadequate facilities was among the challenges, (78.4%) of the respondents agreed that inadequate drugs and therapeutic feedings is one of the most challenging issues in the CMAM programme, (67.5%) of the respondents agreed that lack and/or inadequate training is a challenging issues of the programme. In contrast, (64.9%) of the respondents disagreed that, lack of co-operation from patients/relatives is one of the challenging issues of the programme, while only 35.1% agreed. (56.7%) of the respondents agreed that, insensitivity of government, donor agencies and/or facility managers contributed to the challenges of the CMAM programme. Table 5 showed the performance indicators of the CMAM programme between2012-2014. In 2014, there was highest no of total admissions of (642) malnourished children out of which (25) defaulted, (12) died and (598) children were cured/ discharged. Majority defaulted in the year 2012 (4.49%) out of the (420) admitted malnourished children.

Table (1): Percentage distribution of studied Healthcare workers according to socio demographic characteristics

Socio-demographic characteristics	Studied healthcare workers (n=37)	
Age in years	**Frequency (n)**	**Percentage (%)**
22-25	5	7.1
25 and above	32	92.9
Mean ±SD	**35.14±9.64**	
Marital status		
Married	25	67.6
Single	12	32.4
Educational qualification		
RN	7	18.9
RM	1	2.7
RN/RM	1	2.7
RN+POST BASIC	10	27.0
BNSc	3	8.1
MEDICAL OFFICER	1	2.7
CHEW	7	18.9
Others	7	18.9
Working experience		
Less than 1 year	1	2.7
1-5years	16	43.2
5-10years	7	18.9

10-20years	5	13.5
20years and above	8	21.6

FIGURE 1.0: GENDER OF THE RESPONDENTS

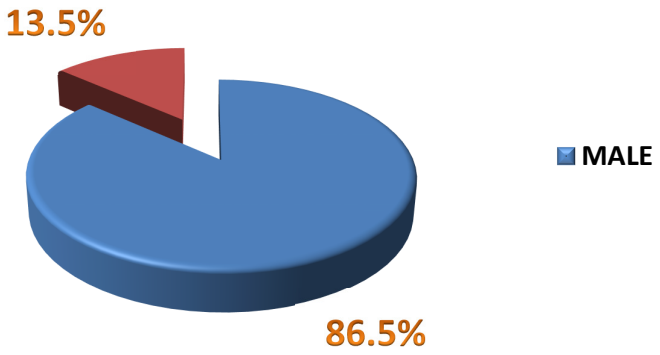

Table (2): Percentage distribution of the studied healthcare workers on the role of healthcare workers in the CMAM programme

Role of healthcare workers in the CMAM programme	Studied healthcare workers (n=37)	
Training on CMAM programme	**N**	**%**
Yes	29	78.4
No	8	21.6
Participation in the CMAM programme		
Yes		
No	26	70.3
	11	29.7
Duration of participation		
Weeks	8	21.6
Months	5	13.5
Greater than a year	15	40.5
Others	9	24.3
Respondents' thought on role of healthcare workers in the CMAM programme		
In-patient therapeutic programme only	2	5.4
Out-patient therapeutic programme only	2	5.4
In-patient/out-patient therapeutic programmes	31	83.8
Do not know	2	5.4

Table 3: Percentage distribution of the studied Healthcare workers on the types of services rendered in the CMAM programme

Types of services rendered in the CMAM programme	Studied healthcare workers (n=37)					
	Always		Sometimes		Never	
	n	%	N	%	n	%
Daily bilateral pitting oedema	20	54.1	13	35.1	4	10.8
Anthropometric checks	18	48.6	16	43.2	3	8.2
Daily nutritional assessment and monitoring	21	56.8	13	35.1	3	8.2
Food preparation and storage	12	32.4	20	54.1	5	13.5
Administering RUTF/supplementary feeding	20	54.1	14	37.7	3	8.2
Medical treatment	21	56.8	13	35.1	3	8.2
Preparation of take home rations	12	32.4	18	48.6	7	19.0
Rehabilitation	10	27.0	19	51.4	8	21.6

Table (3): Percentage distribution of the studied Healthcare workers on the challenging issues of the CMAM programme

Challenging issues of the CMAM programme in the facility	Studied healthcare workers (n=37)			
	Agree		Disagree	
	n	%	n	%
Shortage of manpower	36	97.3	1	2.7
Workload/under staff	34	91.8	3	8.2
Lack of incentives/payments	27	73.0	10	27.0
Inadequate facilities	21	56.7	16	43.3
Inadequate drugs and therapeutic feeding	29	78.4	8	21.6
Lack/inadequate training	25	67.5	12	32.5
Lack of cooperation from patient/relatives	13	35.1	24	64.9
Insensitivity of government/donor agency	21	56.7	16	43.3

Table 5: Checklist for malnourished children between years 2012-2014

Record of malnourished children	2012	2013	2014
Total no of admission (N)	423	351	**642**
Total no of discharged/cured (N)	420	341	**598**
Total no of defaulter (N)	19	12	**25**
Total no of death (N)	11	7	**12**
Cure/discharged rate (%)	92.91	**94.43**	93.81
Defaulter rate (%)	**4.49**	3.52	4.18
Death rate (%)	**2.60**	2.05	2.01

DISCUSSION

The findings of this study (table 1) revealed that, majority of the respondents fell within the age group of 25years and above the mean with mean 35.14±9.64; this

observation is in line with the findings of a similar study conducted by Valid International (2013) [7] in Sudan (Darfur). Furthermore, according to figure (1), majority of the respondents were males, this corresponds with a similar study conducted by ACF, (2011) [8] in Yobe State whom found out that 91% of the respondents were males. According to the findings of this study (table 2), it was found out that slightly more than two-third of the respondents in this study had received training on the CMAM programme; this may be due to the fact that, majority of the respondents are Nurses whom are trained to provide holistic care to patients and it is in support of the WHO (2007) [9] recommendations which emphasized that "nurses are to participate in the CMAM programme". Majority of the respondents believed that, in-patient/out-patient therapeutic programmes are the role of healthcare workers in the CMAM programme; this is because almost all of the respondents have key knowledge on the CMAM programme and this corresponds with the WHO (2007)[9] management of severe malnutrition: manual for physician and senior health workers which states that "facilities healthcare workers (doctors, nurses and other auxiliary staff) are to take part in in-patient care and out-patient management of malnourished children.".

According to the findings of this study (table 3), it was revealed that, majority of the respondents carried out daily nutritional assessment and monitoring, medical treatment, administration of RUTF and/or supplementary feeding, daily bilateral pitting oedema, food preparation and storage, preparation of take home ration and rehabilitation services in the in-patient/out-patient therapeutic programmes of the CMAM. This finding agrees with the findings of a similar study conducted in rural Bihar India (2008) [10] which found out that "Children with SAM are identified through the measurement of their upper arm circumference using a simple plastic tape by community health workers, government nurses and CMAM programme staff".

Majority of the respondents (table 4) believed that CMAM programme has some challenges which could be because of additional burden of work added to the already overstretch health care workers in the hospital. This was in line with the study conducted by ACF (2011) [8] in Yobe state whereby "almost all of the respondents believed that the programme has one challenges or another" Furthermore, almost all of the respondents in this study believed and agreed that shortage of manpower and workload/understaffing were the most challenging issues of the CMAM programme. This may probably be due to the demands and workloads of the programme, coupled with the shortage of manpower in the secondary level healthcare facilities. Meanwhile, this finding corresponds with a similar report given by Navarro (2008) [11] on international integration of CMAM. Almost two-third of the respondents agreed that: lack of

incentives/payment contributes to the challenges of the CMAM programme and slightly more than half of the respondents agreed that inadequate facilities and inadequate drugs and therapeutic feedings respectively, are among the challenges of the CMAM programme; the findings are in line with the findings of ORIE Research summary (2016) [12].

This study revealed that, there was satisfactory outcome of the CMAM programme in the studied facility (Table 5), there was over 90% cure/transfer rates (years 2012-2014) which was above 75% of WHO sphere minimum standard of performance indicator. Similarly, in years (2012-2014) default rates were found to be less than 5%, which were insignificantly less than 25% of WHO sphere minimum standard of performance indicator. In the same view, death rates in the years was shown to be than less 3%, which were less than 15% of WHO-sphere minimum standard of performance indicator. This may probably be due to the wider coverage and integration of the programme with other health services beneficial to the malnourished children. Meanwhile, the findings of this study is in tandem with the studies conducted by Valid International (2013) [7] in Darfur Republic of Sudan that stated: "the outcome of out-patient therapeutic programme of CMAM programme implemented in Darfur reported very high cure rates exceeding 95%, low default rates at less than 5% and death rates of less than 2%. Similarly, a study conducted by Ali, J. (2016) [13] in Southern Sudan (Akobo East) also justified the above findings stating that: "performance data suggested that the program was meeting all the SPHERE minimum standards adequately. The discharged cured rate was recorded as 89% which is >75% set by the SPHERE minimum standards. The defaulter rate is also low (3%) and within SPHERE minimum standard."

CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, it can be concluded that healthcare workers render healthcare services to the malnourished children in the CMAM programme according to the WHO standards utilizing both in-patient/out-patient therapeutic schedule. The programme recorded over 90% cure rate as compared with the 75% WHO sphere minimum standard. However, the programme is not without challenges among which includes; shortage of manpower, excess work load, lack of incentives, inadequate drugs and facilities among others. It is therefore recommended that Government should employ more qualified healthcare workers in various health facilities to make up for the already overburdened healthcare workers, who are overstretched by additional CMAM activities, the hospital management should include/improve pre-service training and on-going in-service training on CMAM programme, health institutions and health related programmes in the universities should include WHO CMAM-Model into their curriculum and take the lead in developing training courses,

materials and teaching aids, Government should ensure adequate provision of RUTF and other supplies which are essential in management of malnourished children, this is by including CMAM costs in the health budgets and ensuring effective utilization of resources by staffs and caregivers and there is need for further studies on how to sustain the programme by government and/or Non-Governmental Organisation.

REFERENCES

1. WHO. Informal consultation to review current literature on management of severe acute malnutrition in hospitals, Switzerland, February, 2012.
2. Andert C.. Nutritional anthropometric survey, Daura and Zango LGAs, Katsina State Northern Nigeria. Save the Children, UK. 2010. Available at https://hea-sahel.org/wp-content/uploads/2018/02/nutritional-survey-katsina-nigeria-november-20108684948.pdf&ved accessed on 5th Aug, 2018.
3. National Population Commission (NPC) [Nigerian] and ICF Marco. 2009. Nigerian Demographic and Health Survey 2008 report. Abuja, Nigeria: National Population Commission and ICF Marco. Available at https://www.unicef.org/nigeria/ng_publications_Nigeria_DHS accessed on 5th Aug, 2018.
4. ACF, Save the Children, Valid, MOH Nigeria Coverage of CMAM services in Nigeria and government monitoring capacity. 2013.
5. UNICEF, Valid International: global mapping review of community management of acute malnutrition, focus on severe acute malnutrition. 2011
6. Valid international: evaluation of world vision Niger Emergency Nutritional Programme, 2011.
7. Valid international. Review of community management of acute malnutrition (CMAM) Republic of Sudan, 2013
8. ACF: Community-Based Management of Acute Malnutrition Integration in Yobe State, Nigeria, 2011.
9. World Health Organisation: Management of severe malnutrition: A manual for physician and senior health workers, 2007. Available at http://www.who.int/nutrition/publications/en/manage-severe-malnutrition-engpdf, accessed on 30th April, 2018.
10. Larson M,Young M, Ramakrishnan U, Girard A, Verma P, Chaudhuri I, Srikantiah S and Martorell R. A Cross-Sectional Survey in Rural Bihar, India, indicates that Nutritional Status, Diet, and Stimulation are associated with Motor and Mental Development in Young Children. J Nutr 2017; 147(8): 1578-1585.
11. Navarro C. International workshop on integration of CMAM: *Fanta-2 project*, May, 2008
12. ORIE Research Summary. How to strengthen a community-based management of acute malnutrition in Northern Nigeria. 2015; 1(9) 1-4.