MANAGEMENT OF ACUTE MALNUTRITION IN CHILDREN 6-59 MONTHS IN MARIDI COUNTY REPUBLIC OF SOUTH SUDAN

**BY**

**BENJAMIN AWURA SUFU**

**D003/2019**

A RESERACH PROPOSAL TO THE AFRICAN INSTITUTE FOR PROJECT MAMAGEMENT STUDY NIROBI KENYA IN PARTIAL FULFILMENT OF THE REQUIEMENT FOR THE AWARD OF DIPLOMA IN HUMAN NUTRITION

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My beloved parents; Wilson Bilawa, and Sufu Wilson for without them, I would have not been in existence.

My beloved friends Mr. Philip Ngaria and Seth Kpaka for encouraging me to take the course

May the almighty God bless all of you abundantly!

……………………….

Benjamin Awura Sufu Wilson

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#### DECLARATION

I have read and fully understood the instruction concerning plagiarism. I hereby state that this work is my own work, original and it has been in any way submitted by another person before at African institute for Project Management Studies and beyond. Throughout the work I have acknowledged all the sources used in the compilation.

Signature of the researcher..............................Date.............................

Name of the researcher: Benjamin Awura Sssufu

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#### DEDICATION

I dedicate, this work to my beloved loved wife Mama Nalongo Ruth Nadi Awura, children, Chuloro Sunday Wilson and Agoawi Haiman Wilson, Sister Forzia Wilson and some for their dedication, support and encouragement, to my friends and the Institute management for their constant concern and suport during the entire study period

**Abstract:**

Globally acute malnutrition triggers more than 50% of childhood mortality among children under-five years, which shows that 3.5 million children die of malnutrition each year. After the introduction of ready to use therapeutic food (RUTF), the management of acute malnutrition was limited to hospitals of its outcome led to low coverage rates with high mortality rate, as many malnourished cases were identified at later stage often presented with medical complication. However, current availability of RUTF has helped the malnourished children to be treated at community level. Further more because RUTF is dehydrated and sealed, it has advantage of lesser risk of bacterial contamination, with this prolonging its storage life at room temperature. Recent data indicated that community management of acute malnutrition (CMAM) is as cost of effective as other high impact public health criteria such as oral rehydration therapy for acute diarrheal disease, vitamin A supplementation and antibiotic treatment for acute respiratory infections. Malnutrition, especially under-nutrition, continues to be one of the biggest public health problems in the Republic of South Sudan. Nearly a third (31%) of the children under five years of age are severely malnourished and 28% are under weight .the prevalence of acute malnutrition is equally high in some region of South Sudan like Greater Upper Nile, Northern Bahr-el Ghazal, Warrap States and Eastern part of Equatorial region, (Global Acute Malnutrition GAM) at 23% and Sever Acute Malnutrition (SAM) at 10%; with health facilities reporting it among the ten health conditions seen at outpatient department. The rise in GAM rat is due to food insecurity from poor production capacity of families, poor health and nutrition practice and habit, insecurity and natural disaster. The Ministry of Health is aware of the multi-sectoral nature of the problem of malnutrition and is ready get involve with other partner ministries of government and development partners towards handling the problem. The national Health Policy 2016-2025 and the Health Sector Strategic Plan 2016-2019 (draft) have articulated the resolve of the government and the Ministry of Health in tackling malnutrition as a major issue at community and health facility level, with these spirit government has put in place guide line for the community management of acute malnutrition across the country to equip health workers and nutrition assistants through trainings in providing the quality service to vulnerable communities and at health facilities,

The purpose of this study, is to enable citizen of this nation be aware of dangers of malnutrition among our communities if not managed properly.

Finding about 100% of mothers of aged 6-59 months who are interviewed in Maridi state South Sudan one of the counties in forma ten state in Western Equatorial region, heard about management of acute malnutrition at facility and community level through excess information from health workers and the National (NGO) **Save the African Child** in an implementation Agent of nutrition programs in the state.

Conclusion, management of acute malnutrition among children is a good motive but needs it to be initiated in every health facility for easy accessibility.

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Chapter 1

Introduction

Malnutrition is one of the major health problems globally with its various forma especially under nutrition (wasting, stunting, and underweight), overweight, obesity, inadequate vitamins or minerals resulting diet-related noncommunicable disease, of which 52 million children under 5 years of age are wasted and 17 million are severely wasted, while 45% of death among children under five are linked to under nutrition. These normally occur in low and middle income countries.

1. **BACKGROUND**

Maternal and child malnutrition is a significant public health problem in Republic of South Sudan among children aged 6-59 months, 31% are stunted, 28% are underweight and almost 23% are acute malnourished of which 13% are moderately acute malnourished and 10% surfers severe acute malnutrition.

In 2010 nationwide nutrition surveillance system, NGO-implemented location SMART surveys and government –UN collaborative food security and nutrition monitoring system (FSNMS) are currently the best source of information. Globally acute malnutrition (GAM) rate vary seasonally across states; with peaks of 30% in some location. Overall, South Sudan’s nutrition situation is worrisome with GAM rate persistently above the emergency for instant Greater Upper Nile, Northern Bahr-el Ghazal and warrap states.

In 2018 July, through with the support of government of Maridi state to allow one of the National Organization Save the African Child SAC conducted SMART survey of which severe acute malnutrition SAM case giving 0.4% and 5.1% for moderate acute malnutrition approx, the total of 5.5% GAM rate in Maridi is below WHO emergency threshold level.

Cognizant of the above, the Ministry of Health (MOH) through the department of nutrition develops the comprehensive guideline for the management of acute malnutrition in line with the basic package of health and nutrition service (BPHNS, 2011). These guidelines were developed in collaboration with partners, through a consultative process involving international technical expert.

**1.1 PROBLEM STATEMENT**

Malnutrition refers to a pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients. Malnutrition continue to be a major public health problem in developing countries, and it’s the most important risk factor for the burden of diseases causing about 300,000 deaths per year directly and indirectly responsible for more than half of all deaths in children.

Malnutrition remain one of the important public health intervention and cost effective strategy to reduce child mortality, morbidity related to inadequate intake of food nutrient in South Sudan and worldwide, although with good agricultural practice in Maridi state still existence of communicable diseases and poor sources of water that can inhibit the absorption of the nutrient leading to malnutrition in the county.

Children malnutrition reported by UNICE estimated 1.4 million people who are internal displaced more than half of whom were children, are at risk of under nutrition due to diseases prevalence in the country, lack of safe water and poor environmental hygiene.

**1.2** **RESEARCH OBJECTIVE**

* To know causes of malnutrition and increase awareness among the communities within the state and nation wide about prevalence of malnutrition.
* To build the capacity of the MOH (health and nutrition staff at facilities) partners staff and other professional in treatment and prevention of acute malnutrition.
* To find out the challenges faced by communities in accessing nutrition services provided by implementing partners.
* To enable communities to know the immediate effect of malnutrition if left untreated.

**1.3 RESEARCH QUESTION**

* What is malnutrition?
* What are the immediate effect of malnutrition in the community without any nutrition intervention
* What are the challenges faced by the communities in getting nutrition services?
* What are the causes of malnutrition in Maridi County?

**1.4 RESEARCH HYPOTHESIS**

*Table.1.0 Shows research objective matched with hypothesis*.

|  |  |
| --- | --- |
| Objective of the study | Hypothesis of the study |
| To know causes of malnutrition and increase awareness among the communities within the state and nation wide about prevalence of malnutrition. | Knowing causes of malnutrition and awareness of the communities’ dose not enable them to notice prevalence of malnutrition, within state and nationwide. |
| To build the capacity of the MOH (health and nutrition staff at facilities) partners staff and other professional in treatment and prevention of acute malnutrition. | Capacity building of health and nutrition staffs has nothing to do with treatment and prevention of acute malnutrition. |
| To find out the challenges faced by communities in accessing nutrition services provided by implementing partners. | Communities have no challenges in accessing nutrition services. |
| To enable communities to know the immediate effect of malnutrition if left untreated. | Malnutrition has no immediate effect on the communities. |

**1.5 JUSTIFICATION OF THE STUDY**

The finding is important in providing evidence on the management of acute malnutrition not only at the facilities but also at community level, and also to help the ministry of health in filling gaps where communities has challenges in accessing nutrition services and be put in future plan.

The state ministry of health (SMOH) of Maridi, other scholar and country wide are in pole position to benefit from the row date from community for developmental planning, and communities are at lose if they are not reached with the study.

**1.6 RATIONALE**

Research is important because it exposes researcher’s knowledge to the public and collecting people’s idea through information provided and adding to existing one, and expands once knowledge. Some reason behind high school dropout could be;

* **Poverty**, some parent are from poor background finically cannot support their children to high school, especially if the tuition fee is high.
* **Forced marriage,** some communities do decide for their sons and daughters to get married due to the cultural influence.
* **Unwanted pregnant,** this is normal among high school girls who are after men innocently end up pregnant of which school rules which can’t allow such victims to continue with the study, hence dropout.
* **Peer group,** not all friends are in position of supporting education progress of which others end up getting into criminal acts, hence dropout cases.

**1.7** **SCOPE AND LIMITATION**

The study was conducted in Maridi county Maridi state, and is located in the western part of South Sudan formal known as western equatorial region before creation of 32 states in Republic of South Sudan and bordered with Democratic Republic of Congo (DRC) from the South West, Ibba County from West, Amadi state from East, and Yei state from North East.

Maridi County alone has 27 health facilities operational and 13 of it are running nutrition program of Outpatient Therapeutic Program (OTP) and Targeted Supplementary Feeding Program (TSFP) including Maridi state hospital for Inpatient Therapeutic Program and Stabilization Center (ITP/SC). The thirteen health facilities are been run by nurses, midwives, community health workers, nutrition assistants and community nutrition volunteers, (151) in total 71 are nutrition workers, the facilities were operating from 8:30am to 5:00Pm, Therefore, in all the thirteen facilities others were far from the main town of Maridi with bad roads and insecurity alongside the road.

***1.8TABLE****.****1.1*** *SHOWING THIRTEEN FACILITY NAMES AND THE TOTAL POPULATION STAYING IN THAT AREA*

|  |  |  |
| --- | --- | --- |
| **Facility names** | **Total population** | |
| **Maridi hospital** | **18,835** | |
| **Donbosco PHCC** | **6,338** | |
| **Bethsaida PHCC** | **6,332** | |
| **Olo PHCC** | **3,331** | |
| **Ngamunde PHCC** | **3,160** | |
| **moku PHCU** | **5,702** | |
| **Mambilindi PHCU** | **5,715** | |
| **Longbua PHCU** | | **3,456** |
| **Kwanga PHCU** | | **2,637** |
| **Nagbaka PHCU** | | **4,970** |
| **Rastigi PHCU** | | **5,721** |
| **Modubai PHCU** | | **5,717** |
| **Afa PHCU** | | **2,158** |

## CHAPTER TWO: LITERATURE REVIEW

1. INTRODUCTION.

Malnutrition is a nutritional condition that occurs due to inadequate intake of nutrient needed by the body for its normal function, which present with underweight, wasting and stunt or excess consumption of food nutrient which are store as fats, resulting into obesity and overweight.

Globally, acute malnutrition triggers more than 50% of childhood mortality in children under five years old, which implies that about 3.5million children die of malnutrition every year.

Therefore, management of acute malnutrition is the global strategy plan to handle existents and prevalence of the condition with its different forms among children aged 6-59 months as to be discussed as follow.

## 2.0 Supplementary feeding program (SFP) for the management of moderate acute malnutrition.

## 2.1 Overview

The supplementary feeding program (SFP) aims to treat cases with moderate acute malnutrition (MAM) and to prevent server acute malnutrition (SAM) and (MAM), thereby reducing the mortality and morbidity among vulnerable groups.SFP also provides care to cases discharged from outpatient therapeutic programme (OTP), and stabilization centers (SC)/in-patient therapeutic programme (ITP). SFP is divided into two types of nutrition interventions

* **Targeted supplementary feeding programme (TSFP):** aims to treat MAM cases without medical complications through the provision of outpatient treatment, consisting of high energy and nutrient dense supplementary food rations, routine medications, and a prevention package.
* **Blanket supplementary feeding programme (BSFP):** aims primarily to prevent deterioration in the nutritional status and to reduce the prevalence of acute malnutrition among vulnerable groups through the provision of energy and nutrient dense supplementary food rations, micronutrient supplements, and a prevention package to all members of the at-risk groups.

## 2.2 ADMISSION CRITERIA FOR TSFP

Admission criteria for TSFP is based on precise anthropometric cut-offs for moderate acute malnutrition, clinical absence of bilateral pitting edema, and any medical complications or general danger signs

Example of anthropometric cut-off measurement of Mid Upper Arm Circumference (MUAC) is less than 12.5cm in under five years children and less than 23.0cm in PLW using MUAC tap as seen in the table 3

*2.2.0 TABLE.1.2 Admission criteria for children with MAM and pregnant lactating women (PLW) with acute malnutrition in TSFP*

|  |  |
| --- | --- |
| CHILDREN 6-59 MONTHS | CRITERIA |
| Children 6-59 months | * MUAC: > 11.5C - < 12.5CM   **OR**   * Weight for Height/length(WFH/L)   >-3 - <-2 Z-score  **AND**   * Good appetite * Clinically well alert   **ALSO**   * Children discharged cured from OTP * Children discharged cured * from SC/ITP in context where there is no nearby operational OTP |

## 2.2.0 Supplementary foods and ration sizes

## 2.2.1 Overview

Supplementary food are food eaten to add value on home diet, it should be energy dense, high in protein, and rich in micronutrients, culturally appropriate, easily digestible and palatable.

For every child that falls in admission criteria are given ready to Use supplementary food (RUSF) and for pregnant and lactating women (PLW) are given corn soya blend (CSB++) of which all are to come back for follow up visit after 14 days, following admission in the program to know the progress of the treatment through MUAC tap, weighing for weight monitoring and height board for height and length measurement. There after follow up visit screening then the beneficiaries will be given ration as shown below in the table.

2.3.2 TABLE.1.3 *Showing total RUSF ration to be eaten per day and per 2weeks*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Generic name | Product | Target group | Ration/day | Ration/2week | Packaging |
| Lipid based nutrient supplement (LNS) | RUSF | Children 6-59 months | Daily ration: 1 sachet energy-500kcal protein-13g, fats-31g | 14 sachet | 92g / sachet |

The above ration continuous until child’s MUAC or Z-score improves within minimum of three months or maximum of six months in the program if meets the discharge criteria.

## 2.4.0 Exit criteria for children 6-59 months

4.1 Overview

For every child who have been admitted in the program after bi weekly follow up visit for monitoring at certain level they are to be discharge as cured from the program after meeting the exit criteria as shown in the table below.

2.4.1 Table.1.5 *showing discharge criteria and action taken*

|  |  |  |  |
| --- | --- | --- | --- |
| FORM OF EXIT | | EXIT CRITERIA | ACTION TO TAKE |
| Cured | Children aged 6-59 months | For child admitted by MUAC,  MUAC >12.5cm for 2 consecutive visit  OR  For child admitted by WFH/L:  WFH/L >-2 z-score for 2 consecutive visit. | Record outcome in register book as “cured” ensure linkage to the appropriate primary health care service and other community incentive. |
| Defaulter |  | Child was absent for 2 consecutive visit. | Record outcome as defaulter request home visit. |
| Non-respondent |  | Child did not meet discharge after 3 months in TSFP | Record out come as non respondent refer for medical checkup |
| Died |  | Child died while registered in TSFP | Record outcome “died” |

3.0 Outpatient therapeutic program for management of acute malnutrition without medical condition in children 6-59 months.

## 3.1 Overview

The outpatient therapeutic program (OTP) aims at providing home based treatment and rehabilitation for children 6-59 months with severe acute malnutrition (SAM) without medical complication of which global acute malnutrition (GAM) for SAM cases in Maridi was 0.4% below emergency threshold, but there is prevalence SAM reported in OTP from 13 facilities running nutritional services.

## 3.2 admission criteria for OTP

## 3.2.1 Overview

Management of severe acute malnutrition are first assessed by use of anthropometric measurement, that is MUAC tap, weight for height Z-score as shown in the box below.

3.2.2 BOX A: *OTP admission criteria for children 6-59 months with SAM*

* Bilateral pitting edema + and ++

**OR**

* MUAC <11.5cm

**OR**

* Weight for height <-3 z-score

**AND**

* Good appetite(passed appetite test for RUTF)

**ALSO**

* Discharged from SC/ITP to continue treatment for SAM.
* Children transferred from the TSFP if the condition deteriorates to SAM and without medical complication.

For every child admitted in OTP comes back after 1week for follow up visit to monitor the progress of the child during treatment period until meets discharge criteria.

## 3.3 Ready to use therapeutic food (RUTF)

### 3.3.1 Overview

RUTF is a food and medicine for treating severe acute malnutrition in children 6-59 months who are admitted in the OTP, which is given per body weight as shown below:

### 3.3.2 Table.1.6 Showing RUTF ration

|  |  |  |
| --- | --- | --- |
| WEIGHT (kg) | SACHETS/DAY | SACHETS/WEEK |
| 3.0-3.9 | 1.5 | 11 |
| 4.0-49 | 2.0 | 14 |
| 5.0-6.9 | 2.5 | 18 |
| 7.0-8.4 | 3.0 | 21 |
| 8.5-94 | 3.5 | 25 |
| 9.5-10.4 | 4.0 | 28 |
| 10.5-11.9 | 4.5 | 32 |
| >12.0 | 5.0 | 35 |

The above table shows weight rang of the children and how many sachets of 92g RUTF to be consumed per day and week.

## 3.4 Discharge of outpatient therapeutic program

After every follow up visit at least a child have to recover from SAM then s/he discharged from OTP to TSFP if TSFP is operation in that area if not the child be discharged to community, this only can happen the child has improved as interns of MUAC or Z-score like presented in the box below:

### 3.4.1 Table.1.7 Showing discharge criteria for SAM

|  |  |  |
| --- | --- | --- |
| FORMS OF EXIT | EXIT CRITERIA | ACTION TO TAKE |
| Cured | For a child admitted by MUAC  MUAC > 11.5cm for at least 2 consecutive visits.  For child admitted by WFH/L  WFH/L >-3z-score for 2 consecutive visits  AND   * No bilateral pitting edema for 2 consecutive visits   AND   * Child is clinical well alert | * Record outcome in the register as “cured” * Give final ration (1week) * Fill a referral slip and refer to TSFP * Link child to other primary health care service and other intiatives |
| defaulter | Child was missed two times | Record as “defaulter” as outcome |
| died | Died in the program | Record as ‘’died” as outcome |

## 4.0 Inpatient therapeutic program and stabilization center (ITP/SC) management of severe acute malnutrition

## 4.1 Overview

Malnutrition especially severe acute malnutrition in prevalence among children aged 6-59 months have been reported from Maridi hospital that out of 100% children admitted monthly at least 5% are severely malnourished with medical complications that can only be managed at SC/ITP and 0.02% are presented with edema +++, reported by pediatric clinical officer Draparku Jimmy July this year, but are managed well only with the presence of milk formula F75 as starter and F100.

4.2 Table.1.8 *volume of F-75 per feed (approx 130ml/kg/day*)

|  |  |  |  |
| --- | --- | --- | --- |
| Child’s weight (KG) | 2- hourly ml/feed | 3-hourly ml/feed | 4-hourly ml/feed |
| 2.0 | 20 | 30 | 45 |
| 2.2 | 25 | 35 | 50 |
| 2.4 | 25 | 40 | 55 |
| 2.6 | 30 | 45 | 55 |
| 2.8 | 30 | 45 | 60 |
| 3.0 | 35 | 50 | 65 |
| 3.2 | 35 | 55 | 70 |
| 3.4 | 40 | 55 | 75 |
| 3.6 | 40 | 60 | 80 |
| 3.8 | 45 | 60 | 85 |
| 4.0 | 45 | 65 | 90 |
| 4.2 | 50 | 70 | 90 |
| 4.4 | 50 | 70 | 100 |
| 4.6 | 55 | 75 | 105 |
| 4.8 | 55 | 80 | 110 |
| 5.0 | 55 | 80 | 115 |
| 5.2 | 60 | 85 | 120 |
| 5.4 | 60 | 90 | 125 |
| 5.6 | 65 | 90 | 130 |
| 5.8 | 65 | 95 | 130 |
| 6.0 | 70 | 100 | 135 |
| 6.2 | 70 | 100 | 140 |
| 6.4 | 75 | 105 | 145 |
| 6.8 | 75 | 110 | 150 |
| 7.0 | 75 | 115 | 155 |
| 7.2 | 80 | 120 | 160 |
| 7.4 | 80 | 120 | 160 |
| 7.6 | 85 | 125 | 165 |
| 7.8 | 85 | 130 | 170 |
| 8.0 | 90 | 130 | 175 |
| 8.2 | 90 | 135 | 180 |
| 8.4 | 90 | 140 | 185 |
| 8.6 | 95 | 140 | 190 |
| 8.8 | 95 | 145 | 195 |
| 9.0 | 100 | 145 | 200 |
| 9.2 | 100 | 150 | 200 |
| 9.4 | 105 | 155 | 205 |
| 9.6 | 105 | 155 | 210 |
| 9.8 | 110 | 160 | 215 |
| 10.0 | 110 | 160 | 220 |

The above table explains how F-75 be administered as started treatment and then followed by F-100 continued dose remain the same like this of the F-75 until the child improves on appetite for RUTF then be discharged to the next OTP in until also improves by MUAC >11.5cm after 2 consecutive visit enough to allow him or her to the next TSFP of which finally be discharged to the community.

Malnutrition remains one of the most common causes of morbidity and mortality among children under five throughout worldwide, over 10 million children under the aged 6- 59 months die every year from preventable and treatable illnesses despite effective health interventions. At least half of these deaths are caused by malnutrition.

# CHAPTER 3 METHODOLOGY

# 3.0 Introduction.

This chapter covers the details and description of methods that will be used in the course of this research.

## 3.1 Philosophical paradigm

In management of acute malnutrition involves its component of which plays key role as shown in the figure below.

Figure.1 *Shows four component of community management of acute malnutrition (CMAM)*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | Community mobilization |      |  |  | | --- | --- | | Outpatient therapeutic  Program (OTP) | | | Supplementary Feeding program(SFP) | | Inpatient therapeutic program (ITP) | | |

**Community mobilization** is an initial plan on how to collect information through community nutrition volunteers trained in active case finding at different level of malnutrition and referrals to the nearest health facility.

**Supplementary feeding program (SFP),** this is additional food nutrient to the home diet in treatment and prevention of acute moderate malnutrition by use of RUSF from targeted supplementary feeding program (TSFP) at health facilities running nutrition program.

**Outpatient therapeutic program (OTP),** this program caters for the management of acute severe acute malnutrition in children 6-59 months by use RUTF as medicine for the case and its effective because of its nutritional status and easy to keep and use.

**Inpatient therapeutic program (ITP)**, this is the only where malnourished child with medical complication be managed from the ward, by use of F-75 and F-100 can be oral if the child is alert or by nasal gastric tube (NGT) if the child is in coma.

## 3.2.0 Study design

A community based cross-sectional survey involving both quantitative and qualitative study was conducted to assess management of acute malnutrition and among children aged 6- 59 months.

### 3.2.1 Study Site

The study was conducted in Maridi County hospital Maridi state one of the new 32 state of South Sudan in forma 10 counties of Western Equatorial state, with different department and wards that is to say outpatient department (OPD) physiotherapy department, emergency ward, medical ward, surgical ward, pediatric ward, and stabilization center within the pediatric ward, maternity ward maternal child health (MCH) department, dental department, outpatient therapeutic program and targeted supplementary feeding program (OTP/TSFP).

### 3.2.2 Research approach

The approach was through requisition letter to Maridi hospital admin and other facility in charges for approval, of which both quantitative qualitative approaches were used.

## 3.2.3 Research Method

Questioners were used to assess the knowledge of health worker nutrition on how to manage acute malnutrition in regards to the community management of acute malnutrition (CMAM) guideline according to South Sudan.

## 3.2.4 Data needs types and sources.

**T**hesource of the data was both primary and secondary data, from three operational facilities running nutrition programs selected randomly in Maridi County and by use of text books and website respectively.

## 3.2.5 Population, Sampling procedure and data collection

In this research the study population was all mothers of children aged 6-59 months who attended outpatient therapeutic program and targeted supplementary feeding program, and daily screening at outpatient department for active case finding in various health facilities.

Convenience sampling method was used to determine the respondents among the mothers of children 6-59 months with malnutrition from 13 operational health facilities in Maridi County, so willing mothers who were selected all of them participated in the study till numbers of 50 mothers interviewed. Sample size calculation the formula by Fisher et al (1998) was used to determine the sample size

Sample size ═ z²pq

d²

Z= Z score value at normal distribution assumed to be 1.96

P= prevalence 0f attribute under study in a population that is number of people with knowledge on immunization. If prevalence of attribute is not known we assume it to be 0.5 (50%)

Q= is number of reasons without the attributes under study given by 1-p=q

D2= is degree of prevision sometimes at 5% or 1% = 0.05 or 0.01

S = 1.962 x 0.5 (1-0.5)

0.052

= 1.96 x 1.96 x 0.05 x 0.05

0.05 x 0.05

= 384 (s)

Add 10% non-respondent

10

100 x 384

= 38

384 + 38

= 422.

## 3.2.6 Data analysis

Data analysis was done manually by use of tables, frequency distribution, bar graphs and pie-chart

## 3.2.7 Data presentation

The data will be presented in bar graph to show the finding of the study.

## 3.2.8 Validity and Reliability

Management of acute malnutrition were assessed through use of a questioners based on criteria defined by CMAM guidelines so as to ensure validity of data collected. Reliability of data collected was censured by the researchers being nutritionist familiar in management of acute moderate malnutrition and severe acute malnutrition (MAM/ SAM).

Use of historical data in the form of the outpatient therapeutic program and targeted supplementary (OTP/TSFP records in the register book posed a threat to the internal validity (or accuracy) of the study since information in the folders are always completely or accurately recorded.

## 3.2.9 Ethics

Relevant permission and approval letter was sought by the name of African Institute for Project Management Studies (AIPMS) and Maridi county authorities before the study, so participants (mothers) were briefed by the Facility in charges about the study in order to gain their information consent to participate

## Chapter four: Presentation of Findings, Analysis and Interpretation.

This chapter presents the findings of the study and results of the analysis of the data collected from the questionnaires. These findings are presented as descriptive summaries using simple percentage frequency distribution tables as well as graphs and pie-charts.

The findings are reported according to the objectives of the research questions. The questionnaires were filled by 52 respondents from three health facilities running nutrition program in Maridi County namely Maridi hospital, Bethsaida PHCC and Donbosco PHC

**DEMOGRAPHIC DATA**

Table 2.1 shows the sex of children being responded to by their parents.

|  |  |  |
| --- | --- | --- |
| Sex | Frequency | Percentage |
| Females | 23 | 44% |
| Males | 29 | 56% |
| Total | 52 | 100% |

Source: Primary data

From the above data, table 2.1 shows the respondents who have participated in filling the questionnaires for their children. It shows that majority of the respondents had male children; they were 29 in number and representing the percentage of 56% in the area of study. However there were 23 respondents who had female children and representing the percentage of 44%.

**Number of respondent=52**

**Figure 2.1 shows respondents by sex.**

The figure 2.2 shows a pie-chart indicating the number of children being responded to by their parents inform of percentage, it shows that majority of children were male children representing 56% and the female follows with a percentage of 44%.

The table 2.2 shows the age distribution of children being responded to by their parents.

|  |  |  |
| --- | --- | --- |
| Age/Months | Frequency | Percentage |
| 0-6 | 6 | 11% |
| 6-12 | 14 | 27% |
| 1-5 | 32 | 62% |
| Total | 52 | 100% |

Source: primary data.

From the table 2.2 above shows that 6 out of 52(11%) of the respondents were having children between the age of (0-6) months, 14 out of 52(27%) of the respondents were having children between the age of (6-12) months and lastly 32 out of 52(62%) of the respondents were having the largest number of children in the age group of (1-5) years. It shows that the most affected age group were those who are in the age group of (1-5) years and the least affected ones were those in the age group of (0-6) months.

**Number of respondents = 52**

**Figure 2.2 shows the age distribution of the children being responded to by their parents.**

Here the majority of the children being responded to by their parents were from the age of 1-5years they were 32 in number representing 62% in percentage followed by those at the age of 6-12months with 27% and lastly those ones at the age of 0-6 months with 11% in total.

**Table 2.3 shows the immunization status of the children**.

|  |  |  |
| --- | --- | --- |
| Immunization status | frequency | Percentage |
| Fully immunized | 26 | 50% |
| Undergoing immunization | 20 | 38% |
| Partially immunized | 06 | 12% |
| Not immunized | 00 | 0% |
| Total | 52 | 100% |

**Source: primary data.**

From the table above, the immunization status of the children shows that majority of the children were fully immunized by 50%, 20 children were still undergoing immunization representing 38% and 6 children were partially immunized which represented 12%, however there were no children who were not immunized. Therefore the above table shows that the children who were still undergoing immunization and those who were partially immunized had a greater chance of being malnourished because their immunity were not yet fully protected.

**Number of respondents = 52**

**Figure 2.3 shows the immunization status of the children.**

Based on the above graph, it shows the immunization status of the children that were used in the research. Children who were fully immunized were 26 representing 50% in total and there those who are still undergoing immunization they were 20 in number and had 38%, only 6 children were partially immunized and they represent 12%, there no children who were not immunized.

**Table 2.4 shows the religion of the respondents.**

|  |  |  |
| --- | --- | --- |
| Religion | Frequency | Percentage |
| Catholic | 22 | 42% |
| Protestants | 20 | 39% |
| Muslims | 07 | 14% |
| SDA | 03 | 5% |
| Total | 52 | 100% |

**Source: primary data.**

From the table 4.4 shows the representation of the respondents based on their religion that the researcher has used to get views on religion, it was founded that 42% of the respondents were Catholics followed by Protestants by 39%, Muslim by 14% and finally the seventh day Adventists by only 5%. This shows that majority of the respondents were Catholics and the minority of the respondents were Adventists.

**Number of respondents = 52**

**Figure 2.4 shows the religion of the respondents.**

The above pie-chart shows the percentage of the respondents according to their religion where 42% were Catholics, 39% were Protestants 14% were Muslims and only 5% were Seventh-Day Adventist.

**The table 2.5 shows the educational level of the respondents.**

|  |  |  |
| --- | --- | --- |
| Educational level | Frequency | Percentages |
| None | 15 | 29% |
| Primary | 22 | 42% |
| Secondary | 11 | 21% |
| Institution/university | 4 | 8% |
| Total | 52 | 100% |

**Source: Primary data**.

Table 2.5 above shows the respondents’ representation based on their educational background to get the diverse views of the respondents. 29% of the respondents did not go to school, the largest number of the respondents stopped in primary level and they represent 42%, 21% of them remained in secondary level and only 8% of the respondents reached in institutional/university level. It has shown that most of the respondents stopped in primary level followed by those who have not gone to school and the least were those who reached up to institution/university. In frequency, 15 of them did not go to school, 22 stopped in primary level, 11 stopped in secondary level and only 4 who managed to reached up to the institutional level.

**Number of respondents = 52**

**Figure 2.5 shows the Educational level of the respondents.**

The above graph shows the educational level of the respondents where majority of them stopped in primary level, followed by those who didn’t go to school and those who remained in secondary and there few who stopped at institution level.

**The table 2.6 shows how the parents understand s these forms of malnutrition in their homes.**

|  |  |  |
| --- | --- | --- |
| **Identification** | **Frequency** | **Percentage** |
| **Underweight** | **18** | **35%** |
| **Wasting** | **22** | **42%** |
| **Stunting** | **12** | **23%** |
| **Others** | **00** | **00%** |
| **Total** | **52** | **100%** |

**Source: Primary data.**

The table 2.6 shows how the parentsunderstand s these forms of malnutrition according to their own understanding, it shows that out of 100%, only 35% of the parents understand underweight but 42% of them understands wasting and also 23% of the parents understood all three forms this stunting. Based on the frequency, 18 of the respondents understands underweight correctly, 22 of them understood wasting and 12 of them under stood all three forms (stunting).

#### The table 2.7 shows where the parent takes their children for the management of acute malnutrition.

|  |  |  |
| --- | --- | --- |
| Activity | Frequency | Percentage |
| Take to herbalist | 9 | 17% |
| Take to drug shop/clinic | 20 | 39% |
| Take to the health centre | 23 | 44% |
| Total | 52 | 100% |

**Source: Primary data.**

From the above table 2.7, it shows where the parents take their children in case of them seen their children becoming malnourished at home. Most of the parents take their children to the health centers with a percentage of 44% and drug shop/clinic of 39% and respectively. However, only 17% of them go to the herbalist. Here based on the frequency, 9 of the respondents still take their children to the herbalist if they have seen their children getting malnourished, 20 of them goes to the drug shop/clinic and 23 of them just goes directly to the health centre.

#### Then table 2.8 shows weather the parents heard about management of acute malnutrition or not.

|  |  |  |
| --- | --- | --- |
| Respondents category | Frequency | Percentage |
| Have heard about it | 35 | 67% |
| Have not heard about it | 17 | 35% |
| Total | 52 | 100% |

**Source: Primary data.**

The table 2.8 is showing weather the parents heard any information aboutmanagement of acutemalnutrition. It was found that 67% of the parents heard information concerning management of acute malnutrition especially in children 6-59months and 35% of them have not yet heard any information based on frequency, 35of them heard about and 17 have not .heard about it

**Number of respondents = 52**

#### Figure 2.8 shows weather the parents heard any information about ORS/Zinc.

The above pie-chart assess the level of knowledge of the respondents weather they have heard about management of acute malnutrition or not but it indicates that 67% of them have heard about it and only 33% of them do not heard about it.

#### The table 2.9 shows where the parents got their information from about management of acute malnutrition.

|  |  |  |
| --- | --- | --- |
| Source of the information | Frequency | Percentage |
| Friends | 6 | 12% |
| Health Centre | 20 | 39% |
| Radios/TV | 10 | 20% |
| Church/Schools | 15 | 29% |
| Total | 52 | 100% |

**Source: Primary data.**

From the above table 2.9 Shows where the parents heard this information from about management of acute malnutrition. 20 of the parents heard this information from the health centre representing 39% in total followed by 15 who heard it from church/schools having 29% in total, 10 of them heard this information from the radios/TV representing 20% from the total and 6 of the parents heard the information from friends, they were the least group with only 12% in total.

**Figure: 2.***Showing numbers of children screen, admission, and discharges in OTP/TSFP at Maridi hospital for the months of January to July*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Total screening | | Edema | Red MUAC | Yellow MUAC | Total discharges | Green MUAC |
| M | 2754 | 3 | 255 | 379 | 194 | 1923 |
| F | 3685 | 8 | 342 | 516 | 288 | 2531 |

**Source: Primary data.**

**Figure: 3.***Showing numbers of children screen, admission, and discharges in OTP/TSFP at Bethsaida PHCC for the months of January to July*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Total screening | | Edema | Red MUAC | Yellow MUAC | Total discharges | Green MUAC |
| M | 1929 | 2 | 196 | 285 | 189 | 1257 |
| F | 2358 | 3 | 253 | 415 | 245 | 1442 |

**Source: Primary data.**

**Figure: 4.***Showing numbers of children screen, admission, and discharges in OTP/TSFP at Donbosco PHCC for the months of January to July*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Total screening | | Edema | Red MUAC | Yellow MUAC | Total discharges | Green MUAC |
| M | 2013 | 1 | 178 | 298 | 201 | 1335 |
| F | 2563 | 2 | 219 | 451 | 318 | 1573 |

**Source: Primary data.**

The above figures obtained during the quarterly supportive supervision of the three health facilities running nutrition program in Maridi County showing information of total children aged 6-59 months screened, admission and discharges found in their records.

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## Chapter five: Discussions

## 

**5.0 Overview**

Several findings were obtained from the data collected from the respondents. These were interpreted in relation to the statement of the problem, specific findings of the researcher in the literature review. The purpose of this study to enable communities know the immediate effect of malnutrition if left untreated and also to build the capacity of the MOH (health and nutrition staff at facilities) partners staff and other professional in treatment and prevention of acute malnutrition.

**5.1 Demographic data.**

The study shows that majority of the children which their parents responded to them were male which were represented by 56% and the female children were 44%, and this shows that most of the children being responded were male compared to female and this indicates that the female children were the most affected group in the study.

According to the age distribution of the children in the study, it shows that majority of the children were between the age group of 1-5 years representing 62% in the total target group, this could be due to lack of regular meal with nutrient enough to support their nutritional demand hence that can expose them to any contaminants forma of malnutrition which can cause morbidity. The second most affected group were those in the age group of 6-12 months representing 27%.

Based on the immunization status of the children, the majority of them were fully immunized represented by 50% and 38% of them are still undergoing immunization but 12% were partially immunized. Therefore this might indicates that those were still undergoing immunization and those who were no fully immunized don’t have enough immune resistance against manifestation of communicable diseases exposing them to malnutrition compared to those who were fully immunized.

From the findings, the majority of the respondents were Catholics represented by 42% in Donbosco PHCC area and Protestants immediately follows by 39%, the lowest were the Seventh Day Adventists which were represented by only 5%. Therefore the Catholics and the Protestants were the greatest group in number.

Cognizant of the above, the ministry of health (MOH) through the department of nutrition, developed the comprehensive and standardized guideline for the management of acute malnutrition in line with the basic package of health and nutrition service (BPHNS, 2011). These guideline were developed in collaboration with partners, through a consultative process involving international and national technical experts, and that is why sources of information obtain from health worker tend to be 39% followed by school/churches 29% because they are were well verse with the guideline about the management of acute malnutrition in south Sudan

#### 5.2 Limitation of the study

Through this study there was some of the hardship experience during the process.

* Internet irregularity, other information need to be searched by internet to obtain details of the source even submission of the assignment, but unfortunately due to bad weather do interferes with the signal, hence great challenge.
* Difficulties in approval of the study site since there is no official letter from the institute regarding the study.
* No online supervisor to guide me in this study.
* Distant to the study site was costly.
* Time for the study was too short.

Though all above have been challenges but the study have been done.

#### 5.3 Recommendation

Management of acute malnutrition is a broad topic which need humble time to cover it properly, so for the next researcher s/he needs to cover the following:

* Preventive packages in management of acute malnutrition.
* Routine medication in management of acute malnutrition.
* Underline causes on malnutrition in children 6-59 months
* Management of malnutrition both in children, pregnant women and lactating (PLW).
* And management of malnutrition among HIV/AID and TB- DOTS clients.
* Ministry of health (MOH) should ensure that every health facility need to be integrated with nutrition service.
* Health workers/nutrition assistants have be consistent in giving health and nutrition education to create awareness in the communities

#### 5.4 Conclusions

Based on the findings, the study has shown the primary data from the site which is raw information about the management of acute malnutrition and the outcome of the cases after treatment. With that in mine malnutrition can be treated and it’s preventable, since most of the parent heard information about the prevalence of malnutrition and how it affects children if left untreated.

State ministry of health (SMoH) and implementing partners of nutrition should collaborate to create conducive environment nutrition projects to run within and Country wide.

#### 5.5 References

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Appendix

Questionnaire on the management of acute malnutrition in children 6-59 months in Maridi County Maridi state Republic of South Sudan

My name is **Benjamin Awura Sufu**, a student of African Institute for Project Management Studies Nairobi Kenya, undertaking a six months Diploma in Human Nutrition. I am requesting you to participate in the above mentioned topic by ticking in your responds in the boxes provided and by filling in the space provided in this questionnaire.

This research is basically being conducted for academic purpose, although the information generated will help various stake holders in planning for proper management of acute malnutrition among the children 6-59 months.

Participation in this study is free and voluntary in a way that you either choose to take part or not. The information you provide will be kept confidential to serve the purpose of this research.

Filling the questionnaire take your own time answering this serve as evidence that you have willingly accepted to participate in the study. However before you continue first sign in the space provided.

Sign………………………………………………………..

Telephone number…………………………………………

# Section A comprise demographic data and of multiple choice questions.

Tick the correct answers or answer in the box provided.

1. The age of your child...

1. 0-6months
2. 6-12months
3. Below 5 years

2. The sex of your child?

1. Male
2. female

3. What is your Religion?

1. Catholic
2. Protestant
3. Muslim
4. SDA
5. Others (specify)…………………………………………………………………………

5. Immunization status of the child?

1. Fully immunized
2. Still undergoing immunization and is up-to-date
3. Partially immunized not up to date
4. Not immunized.

6. Who is currently staying with the child?

1. Parents
2. Grand parents
3. Other care takers

7. Level of education of the care taker?

1. None
2. Primary level
3. Secondary level
4. Institution/university.

8. What is malnutrition in simple term?

1. Carbohydrate
2. Bad feeding
3. Over eating
4. Oil
5. All of the above

9. The following are types of malnutrition except?

1. Marasmus
2. Tal person
3. Kwashiorkor.
4. Marasmickwashiorkor.

10. In children 6-59 months an admission criterion for moderate acute malnutrition when MUAC tap measurement is?

1. >13.5cm.
2. <11.5cm.
3. <12.5cm.
4. <23.0cm

11. Defaulter is when beneficiary failed to come for the follow up visit for?

1. One visit
2. four consecutive visit
3. Two consecutive visit
4. None of the above

12. Malnutrition is a condition that can be treated and preventable.

1. Yes
2. No

13. How do you know that your child is malnourished?

1. Very fat.
2. Crying too much.
3. Thin body with old man's face
4. Low weight for height

14. What do you do when your child has malnutrition?

1. Take to clinic.
2. Take to herbalist
3. Stay home.
4. Take to Hospital

15 In children with severe acute malnutrition when the MUAC measurement is?

1. >11.5cm
2. <13.5cm.
3. <11.5cm
4. >12.5cm.

16. Children who pass appetite test were not admitted in OTP/TSFP?

1. Yes.
2. No.

17. Children with bilateral pitting edema + + + are managed in?

1. Outpatient therapeutic program
2. Inpatient therapeutic program
3. Targeted supplementary feeding program
4. All of the above

18. Where did you get the information about management of acute malnutrition from?

1. Friends,
2. Radio/T.V
3. church/schools
4. All above

19. Have you heard that severe acute malnutrition can be treated?

1. Yes.
2. No.

20. If yes from where?

1. Friends,
2. Radio/T.V
3. church/schools

**Section ( B)**

This section of the question requires True or False tick in the box provided

21. Malnutrition with medical condition is managed from outpatient therapeutic program.

* 1. True
  2. False

22. Therapeutic milk formula F-75 is used in inpatient for management of malnourished children with good appetite test?

1. True
2. False

23. Underweight, Wasting, Stunting are all forms of malnutrition?

1. True
2. False

24 Encouraging exclusive breast feeding prevent malnutrition?

1. True
2. False

25. Malnutrition cannot be treated?

1. True.
2. False

# Section (C) Definition comprise of abbreviations, write in full the following in space provided.

26. TSFP: …………………………………………………………………………………………

………………………………………………………………………………………………………………………………………………….

27. OTP: …………………………………………………………………………………………

………………………………………………………………………………...............................

28. ITP: …………………………………………………………………………………………

…………………………………………………………………………………………………

29. MAM: ………………………………………………………………………………………

…………………………………………………………………………………………………

# 

30. SAM: …………………………………………………………………………………..

……………………………………………………………………………………………...

31. RUSF: …………………………………………………………………………………

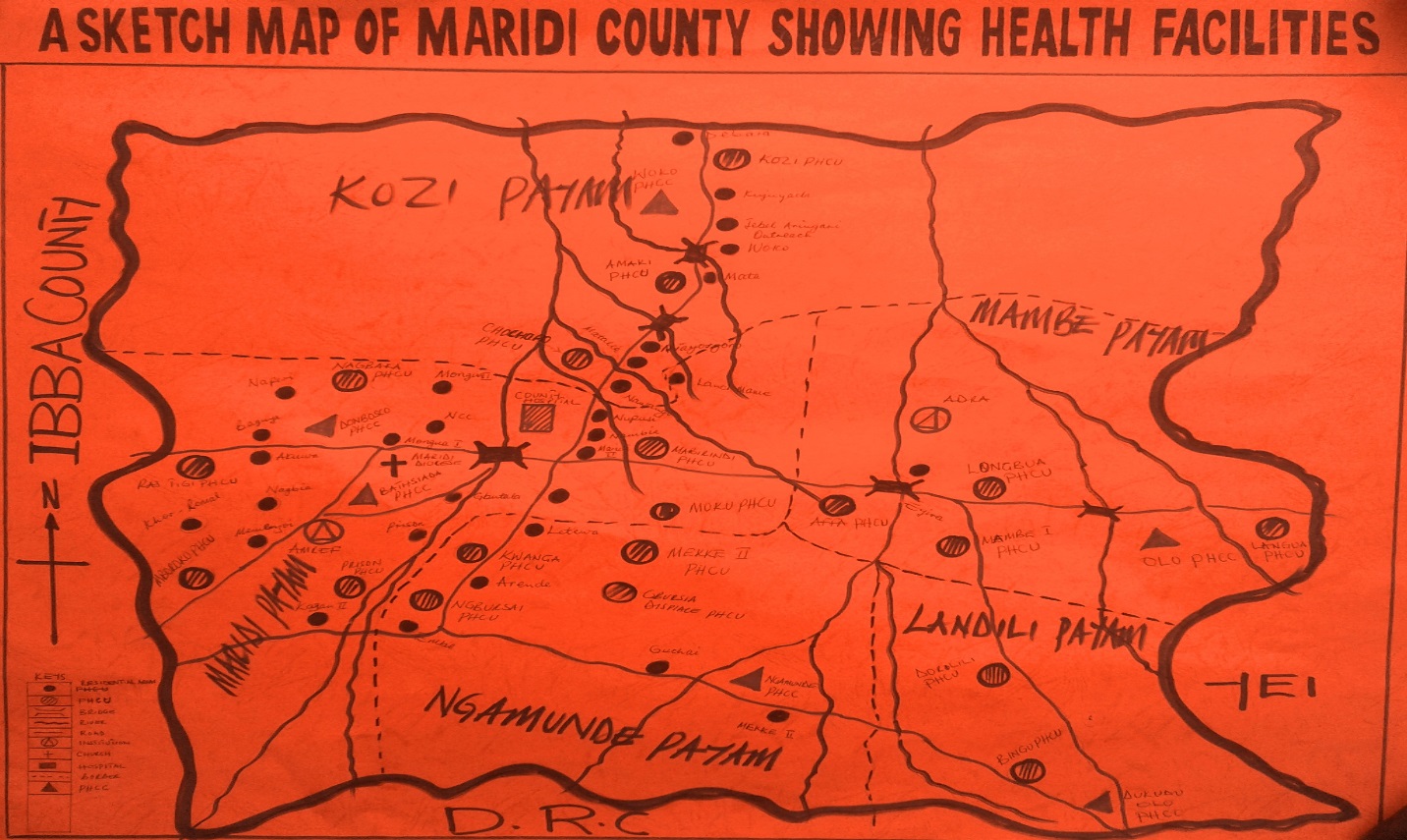
…...................................................................................

32. RUTF: ………………………………………………………………………………….

………………………………………………………………………………………………

33. What do understand by the following terms?

1. Underweight: ………………………………………………………………………………………………………………………………………………………………………………………………
2. Wasting: ………………………………………………………………………………………………………………………………………………………………………………………………
3. Stunting: ………………………………………………………………………………………………………………………………………………………………………………………………



**THANKS FOR YOUR CO-OPERATION**

**GOD BLESSES YOU.**