SCHOOL OF PUBLIC HEALTH,

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

KNOWLEDGE, ATTITUDE AND FEEDING PRACTICES OF CAREGIVERS' OF MALNOURISHED CHILDREN ADMITTED TO SAVELUGU HOSPITAL IN THE SAVELUGU/NANTON MUNICIPALITY.

BY

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THIS THESIS IS SUBMITTED TO THE TO UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PUBLIC HEALTH DEGREE,

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DECLARATION

I, Arimiyaw Zeidu hereby declare that, this piece of work is the results of my own efforts and idea, in the School of Public Health, University of Ghana under the supervision of Dr. Franklin N. Glozah. No previous submission for a degree has been done here or elsewhere, besides the works of others which served as source of information has been duly acknowledge by making reference to the authors.

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DATE ……

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(SUPERVISOR)

SIGNATURE……

DATE ……

DEDICATION

This piece of work is dedicated to the Almighty Allah in whose power and will that I am able to put together this piece.

It is also dedicated to my lovely Dad and Mum for their immense support throughout my academic journey.

The final dedication goes all caregivers' of malnourished children who volunteered information to make this study a success.

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These arduous academic achievements couldn't have been possible without support, wisdom and patience of my principal supervisor Dr. Franklin N. Glozah. Doc, I must say I am highly appreciative, may Allah be with you always

And to all the other lecturers in the school of public health, I say a big thank you for the knowledge imparted in me

My appreciation goes to Management and staff of Savelugu hospital, a special mention of Dr.A.S Abankwah (Medical superintendent), staff at OPD, Paediatric ward and all the clinicians for your support.

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To Madam Halidu Adamu, may the almighty Allah guide your steps?

And to all friends I say God bless us all.

ABSTRACT

Background: Malnutrition has plagued populations of developing countries for decades leading to severe increased risk in morbidity and mortality. Malnutrition has been observed to affect many vulnerable people in communities especially women and children. Individuals in any age group could be malnourished at different times but children under five are more likely to be malnourished because of their nutrient requirements for their developmental processes. The aim of this study is to examine the association between caregivers' nutritional knowledge, attitude and feeding practices of malnourished children.

Methods: A cross-sectional research design with quantitative approach was used to examine the knowledge, feeding practice and heath seeking behavior of 178 caregivers of malnourished children attending the Savelugu Hospital. A simple random sampling technique was used to obtain caregivers for the study. Demographic characteristics, as well as children's anthropometric measures were taken and descriptive analysis done to determine the knowledge, attitude and feeding practices of caregivers.

Results: Seventy-three percentage of the caregivers knew that it was appropriate to give colostrum to a new born baby. Also, the majority of 79.2% caregivers indicated the right time to introduce complementary feeding (after six months). Breast milk was known by 65.7% of the caregivers as the best food for children under six months. Caregivers' occupation was found to be the only factor significantly associated with their nutritional knowledge (p-0.028). Almost all the caregivers (92.1%) seek prompt treatment for their children when ill and health facility was used by 56.2% as the first point of contact. However, no association was found with health seeking behavior and the nutritional knowledge of caregivers. Exclusive breastfeeding practiced by only 53.3% of the caregivers. The study also revealed that majority of the caregivers had low knowledge on malnutrition or its signs and symptoms. Among the major signs and sympton that caregivers were able identified were body wasting

and weight loss. Knowledge on home-based management of malnutrition were also very low among the caregivers, majority of caregivers were found to have little or no knowledge on home-based management of malnutrition. Health workers were also found to be the major sources of information for the caregivers. It was however found that, caregivers little nutritional knowledge impacted positively on their home-based management of malnutrition.

Conclusion: Effective management of Severe Acute Malnutrition is of utmost importance to save thousands of lives of the vulnerable children. Knowledge, attitude, feeding practices and home-based management of caregivers who were mostly mothers and other family members were assessed. These caregivers are at the centre in managing malnourished children thus needs serious education.

Their occupation had a positive impact on the nutritional knowledge level. In addition, majority of them had low level of knowledge on child's nutrition, this however does not adversely affect caregivers feeding practices.

Health facilities were also the first point of contact for caregivers when seeking, but traditional healers were also utilized by significant number of caregivers.

Most caregivers had no knowledge on what malnutrition is or its signs and symptoms let alone home-based management of malnourished children, But their nutritional knowledge however had impacted positively on home-based management of malnutrition.

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ABBREVIATIONS

CHPS- Community Health Planning and Services

CMAM- Community-based Management of Acute Malnutrition

CTC- Community-based Therapeutic Care

ECOWAS- Economic Community Organization of West African States

EPI- Expanded Program on Immunization

GHS- Ghana Health Services

KVIP- Kumasi Ventilated I Private

MDGs- Millennium Development Goals

MOH- Ministry of Health

OTPs- Outpatient Therapeutic Programs

RCH- Reproductive and Child Health Center

RUTF- Ready-to-used Therapeutic Food

SAM- Severe Acute Malnutrition

SCs- Stabilization Centers

SFPs- Supplementary Feeding Programs

SDGs- Sustainable Development Goals

UN- United Nationa

WHO- World Health Organisation

WFH- Weight-For-Health

CHAPTER ONE

INTRODUCTION

1.1 Background

The term malnutrition can generally be referred to as either under-nutrition or over nutrition (Blössner, Onis, & Organization, 2005). Under nutrition encompasses underweight, stunting, wasting and all forms of micronutrient deficiencies (Amsalu, 2008). Severe and Acute malnutrition are measures of <-3SD and <-2SD respectively from the normal. It takes many form in children; the occurrence of pitting oedema as a result of inadequate diet called "oedematous malnutrition" or a MUAC less than 110mm in children under five (Collins *et al.*, 2006).

Malnutrition has plagued populations of developing countries for decades leading to severe increased risk in morbidity and mortality. Malnutrition has been observed to affect more vulnerable in communities especially women and children (WHO, 2009) Roles of gender which are socially created behaviors, activities and features considered accurate for both sex in most communities define women at the lower end of the ladder to access material welfare and status. The problem of gender disparity is also rooted in rules, customs, laws and societal standards thereby making women vulnerable to malnutrition. Since young women are the direct nutritional providers for children, during pre-natal and post-natal periods, there is a ripple effect of malnutrition in children as well (WHO, 2009).

Individuals in any age group could be malnourished at different times but children under five are more likely to be malnourished because of their nutrient requirements for their developmental processes (Blössner *et al.*, 2005).

Nutrition has gradually gained recognition as a foundation for social and economic growth. Drop in infant and youngsters malnutrition is critical for achieving Millennium Development

Goals (MDGs) especially those connected to alleviating of thrilling poverty and starvation (MDG 1) and child survival (MDG 4) (WHO-UNICEF-WB Joint, 2012).

In the continued efforts to eradicate hunger and malnutrition in the world developed another concept of Sustainable Development Goals (SDGs). It aimed at putting an end to hunger, attain food security, enhance nutrition and promote sustainable agriculture. The SDG2 targeted at safeguarding access to nutrition and adequate food all year round by 2030. The SDG2 as well aimed at ending all manner of malnutrition by 2030, including attaining globally approved marks on growth retardation and wasting in children less than five years by 2025. It addresses the dietary needs of teenage girls, pregnant and lactating mothers (UN SDG2, 2016).

Poverty has been the major reason for malnutrition. However, the level and distribution of protein-calorie malnourishment and micronutrients insufficiencies within the populace depends on several factors, which includes political and economic condition; the degree of training and hygiene; the season and climatic situations; food supply, cultural and religious food custom; the habit of breastfeeding; incidence of infectious diseases; the presence and success of nutritional programs; and the accessibility and quality of health services.

Children need adequate nutrition for their physical and mental growth. Inadequate nutrition in early childhood results in consequences such as morbidity, mortality and impaired mental and motor development. These effects may in future be linked to impairment in intellectual capacity, work ability and reproductive outcome.

In developing countries, poor perinatal conditions are rsponsible for 23% of death among children under 5years old mostly attributable to low birth weight. In 2016, a globally projected figure of 155million children under five years of age were underdeveloped due to long-lasting malnutrition. Universally, the rate of stunting fell from 33 per cent in 2000 to 23

per cent in 2016. South Asian and sub-Saharan Africa are responsible for three quarters of all stunted children that year (UN Progress of GOAL2 Report, 2017)

In 2016, an estimated 52 million children below 5 years of age globally were affected by wasting (Low weight for their height, and this usually resulted from acute and significant food shortage or diseases). Global wasting rate in 2016 was 7.7 per cent, with the highest rate of 15.4 per cent in Southern Asia. At the other end of the spectrum, overweight affected 41 million children below 5years of age worldwide (6 per cent) in 2016 (UN, Progress of goal 2 in 2017 Report).

According to Jean Ziegler (the UN special rapporteur on the Right to Food from 2000 to March 2008), deaths due to undernourishment accounted for 58 per cent of the total mortalities in 2006. One in twelve people worldwide is malnourished and according to the 'Save the Children' (2012) report, one in four of the world's children are chronically undernourished. In 2006, more than 36 million died of starvation or diseases due to insufficiencies micronutrients".

According to the WHO (2007) undernourishment is by far the major contributor to child mortality, present in half of all cases. Six million children die of hunger every year. Low_birth weight and intrauterine growth retardation, largely from malnutrition, cause 2.2 million child mortality yearly.

Regionally, Africa has always been known for both incidence and prevalence of acute severe malnutrition and its consequences. According to the joint report by WHO, UNICEF, most of the 20 million estimated cases of under nutrition in the world, are found in South Asia and Sub-Saharan Africa.

Considering UN Progress of GOAL2 Report (2017), attempts to combat hunger is in significantly process since the year 2000. Ending hunger, food insecurity and malnutrition for all, however, will require a committed efforts, especially in Asia and Africa. Huge investments in agriculture, including government spending and aid, are required to increase capacity for agricultural productivity.

The problem of malnutrition can be resolved by using preventive, management and curative interventions. However the efficiency of such interventions will depend on accurate and correct identification of the factors causing malnutrition in Ghana so that workable interventions can be designed to address the onset of malnutrition.

1.2 Problem Statement

Severe acute malnutrition (SAM) poses danger to children below five years globally. It is responsible for one million child mortality yearly and closely 20 million children below five are burdened with severe acute malnutrition globally. One child dies from problems related to malnutrition in every 12 seconds WHO, (2007). What makes the issue of severe malnutrition more worrying is that, apart from the fact that mortality rates in undernourished children had 5–20 times increased risk of death compared to well-nourished children, it threatens and jeopardizes the future survival and health of the whole world at large. Severe acute malnutrition can directly be responsible for child's death, or act as an indirect cause by vividly increasing the fatality rate of cases such as common childhood illnesses like diarrhea and pneumonia. On the other hand, prevalence of acute malnutrition is still on the ascendancy in Ghana despite the numerous efforts and programs rolled out to improve nutritional status of children by the Ministry of Health (MOH) and Ghana Health Services (GHS). These efforts have included Exclusive breastfeeding, Growth monitoring, Supplementary feeding, Nutrition Educational Programs, Expanded Program on Immunization (EPI) and Family

Planning aimed at curbing the existence of PEM which WHO has called "The silent emergency" (Ghana Health Service, 1998). Existing statistics by the Ghana Health Service (GHS) shows that 12,000 children in Ghana die yearly of under-weight related illnesses resulting from malnutrition.

It is as well indicates that under nutrition is responsible for about half of all child deaths beyond early infancy whilst one out of every thirteen children in Ghana die before their fifth birthday mostly as a result of under-nutrition, Amoaful, (2012). A Deputy Chief Nutritionist at the GHS, during a sensitization workshop on Nutrition Advocacy Communication under the theme "Build the Future, invest in nutrition now"

It is estimated that between 2005 and 2015, malnutrition will account for hundred (100) thousand child deaths if no action is taken (Ghana Demographic Health Survey). At the Municipal or local level, specifically the Savelugu/Nanton municipality, the prevalence of malnutrition is still unacceptably high, as it was (228 in 2011, 216 in 2012 and 244 in 2013) of admissions. In Savelugu hospital, malnutrition ranked fourth in the Top Ten causes of mortality in 2013 with 7deaths, it placed fifth in 2014 with 11 deaths and eighth in 2015 with 9 deaths. Admission of malnourished cases in the hospital in 2015 was 54 and between January to October 2016 was 82 admissions.

Interesting enough, the greater burden of child mortality associated with malnutrition remains mostly adamant in the international health programs, even though few countries have defined strategic plans geared at addressing it explicitly. Management of severe acute malnutrition was however a facility-based approach, and this significantly limited its coverage and effects. Current evidence also suggests that, greater numbers of children with severe acute malnutrition can be treated in their communities without being admitted to a health facility or a therapeutic feeding centre, culminating in WHO, UNICEF and other major stakeholders directly involved in malnutrition activities, thus endorsing the Community-based

Management of Acute Malnutrition (CMAM) approach to widen the coverage and impact to reduce mortality associated with malnutrition.

1.3 Research Questions

1. What is the association between caregiver's nutritional knowledge and feeding index of the malnourished child?
2. What is the relationship between caregiver's knowledge in nutrition and health seeking attitude?
3. What is caregivers' level of knowledge regarding the signs and symptoms of malnutrition?
4. What is the association between the caregivers' nutritional knowledge and the home-based management of malnutrition?

1.3.1 Main Objective

The main objective is to examine the association between caregivers' nutritional knowledge, attitudes and feeding practices of malnourished children.

1.3.2 Specific Objectives

1. To examine the relationship between caregivers' nutritional knowledge and health seeking attitude
2. To assess associations between caregivers 'nutritional knowledge and feeding practices.
3. To determine caregivers' level of knowledge regarding the signs and symptoms of malnutrition.
4. To assess the associations between the caregiver's nutritional knowledge and the home-based management of malnutrition.

1.4 Hypothesis

1. There will be a positive association between nutritional knowledge and feeding practices of caregivers of malnourished children.
2. Good knowledge of caregivers on malnutrition would impact positively on their health seeking attitude.
3. Knowledge of caregivers on signs and symptoms of malnutrition is expected to have positive influence on how prompt they seek medical attention.
4. High level of caregivers' nutritional knowledge is expected to impact greatly on home-based management of malnutrition.

1.5 Justification

Incidence of malnutrition is inevitable when the right nutrition and health practices are not observed. And this condition can eventually graduate into Severe Acute Malnutrition (SAM) especially when all the factors such as scarce intake of micronutrients and improper hygiene are in place (Lenters *et al.*, 2013). Most nutrition interventions focused on the children and their caregivers and how to get them stabilized. However, caregivers of SAM children with less knowledge on the importance of exclusive breastfeeding, appropriate and timely complementary feeding practices or even the general process of managing a SAM child are highly likely to experience relapse even after they have been stabilized through intervention programs. It is therefore the aim of this study to examine the nutritional knowledge, attitude and feeding practices of caregivers with malnourished children, and how it affects the prognosis and relapse of their malnourished children.

1.6 Conceptual Framework

These framework outlines the knowledge, attitude and feeding practices of caregivers of malnourished children, and how it brings about malnutrition in children. These framework illustrates associations between variables such as, nutritional knowledge of the caregiver, attitudes and feeding practices of the caregivers' and its impact on malnutrition.

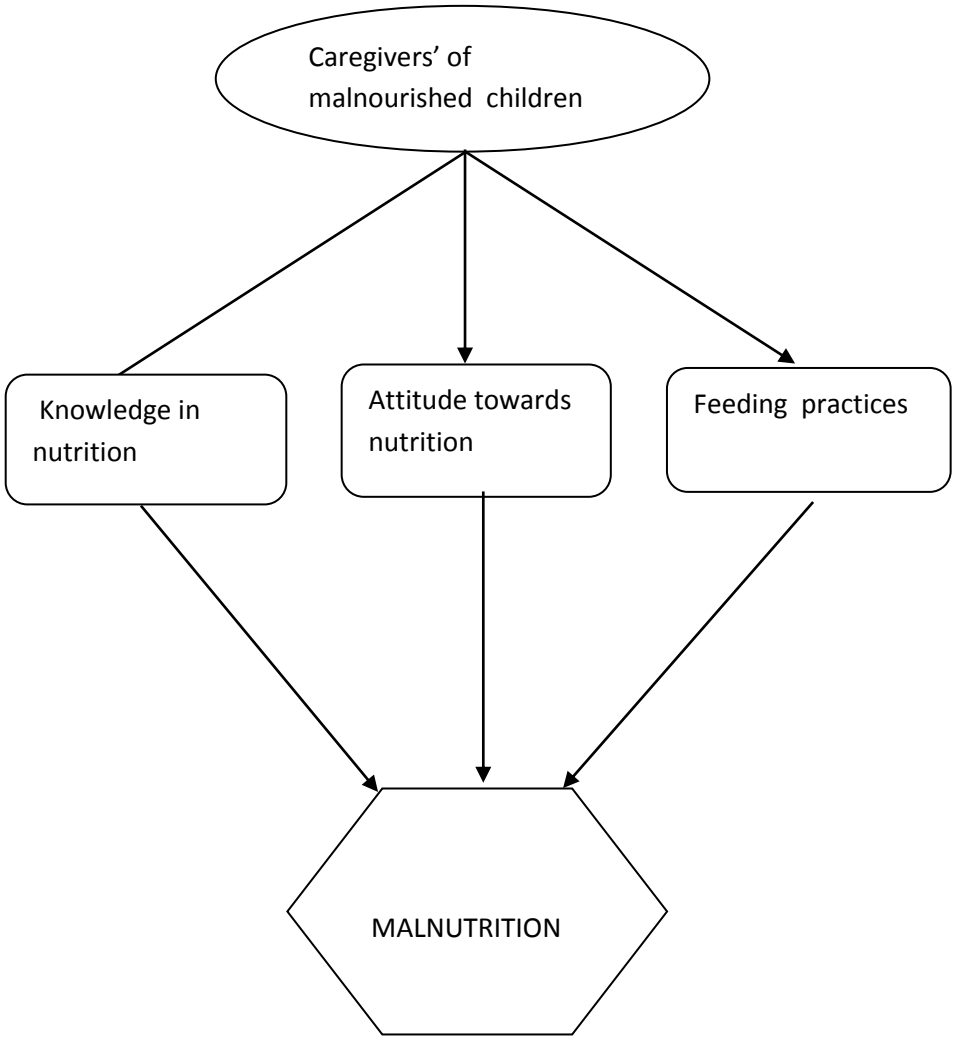

Figure 1.1 Conceptual frameworks (Researcher's construction, 2017)

CHAPTTER TWO

LITERATURE REVIEW

2.1 Overview

Globally, there are 51 million children who suffer from wasting (marasmus), and one in four children who survived from malnutrition in early childhood are stunted (UNS/SCN, 2015). All these children will suffer poor health and learn more slowly at school. Their lives and abilities are inextricably connected to progress towards goals to end extreme poverty and preventable child deaths. A truly transformative post-2015 development agenda will leave for future generations a well-nourished world in which nobody goes to bed hungry and all children are able to survive and thrive and live life to their full potential (UNS/SCN, 2015)

Severe malnutrition being the major killer of children below five years of age, had its treatments based in facilities, and this extensively limits its coverage and effects. Current proof however suggests that greater number of undernourished children can be treated in their communities without being admitted to a health facility or a therapeutic feeding Centre (WHO/UNICEF Joint Statement on Malnutrition, 2007).

The community-based Management of Acute Malnutrition (CMAM) approach comprises prompt detection of malnutrition in the community and to provide treatment for those without medical complications with Ready-to-Use Therapeutic Foods (RUTF) or other nutritional rich foods at home. If adequately combined with a facility-based approach for those undernourished children with medical complications and implemented on a large scale, community-based management of severe acute malnutrition could avert deaths of hundreds of thousands of children (WHO/UNICEF Joint Statement on Malnutrition, 2007).

Using existing studies of case fatality rates in several countries, WHO has concluded mortality rates of children are mostly due to severe acute malnutrition. The mortality rates

listed in the table below shows that malnourished children are 5–20 times higher risk of death compared to adequately nourished children. Severe malnutrition can directly be associated with child's death, or act indirectly by increasing the case fatality rate of some common childhood illnesses such as diarrhea and pneumonia. An estimated number of one million children dies yearly from severe acute malnutrition (WHO and UNICEF Joint Statement on Malnutrition, 2007).

The huge burden of child mortality resulted from severe acute malnutrition is still not seen in the international health programs. Even though countries with increased incidence, have specific policies intended to comprehensively address it. With the introduction of community-based management to the existing facility-based approach, will enhance the process of addressing all this important cause of child mortality (WHO 2007).

Table 1.1; Mortality of children with severe malnutrition observed in longitudinal study

Country	Mortality rates
Democratic Republic of Congo	21%
Bangladesh	20%
Senegal	20%
Uganda	12%
Yemen	10%

Source: (WHO 2007)

Community-Based Therapeutic Care (CTC) gave birth to CMAM, which is a community-based approach for managing acute malnutrition in emergency locations which encompasses home visits, Supplementary Feeding Programs (SFPs), Outpatients Therapeutic Programs (OTPs) Stabilization Centres (SCs). Other aspects of CMAM comprised of ambulatory care or home-based care for severe acute malnutrition. The term CTC is used in some countries or

for emergency interventions. Most implemented interventions seen and evidenced to date is from CTC (FANTA 2 CMAM training guide, 2008)

In many deprived countries, a good number of malnourished children are not being sent to health facilities. In such cases, a strong community-based approach can provide them with appropriate care. There is indication that about 80 percent of children with severe acute malnutrition were discovered through active case finding, or through awareness creation and mobilization to access services brought to their door step. (WHO,UNICEF Joint statement on Malnutrition, 2007).

Feeding children with Ready-to-Use Therapeutic Food (RUTF) until they gain acceptable weight is the treatment. It may be possible in some settings to construct an appropriate therapeutic diet using locally available nutritional-rich foods with added micronutrient additives. However, this approach needs a very careful monitoring.

2.1.1 Nutritional knowledge of caregivers' and nutritional status of child

The main care providers in the family are mothers and the quality of that care provided mostly depends on the caregivers' nutritional knowledge. Knowledge in nutrition simply understands the different types of food and appropriate food choices and combinations that nourish the body and influence health (Insel, 2003). Nutrition knowledge can be acquired through schools, community health centres, families and friends and this affects food choices, preparations and food distribution among members of a household. Nutritional knowledge is a strong artillery for women against malnutrition, since increase in knowledge (educational level) will not only lead to improvements in incomes earn by women but will also improve household food security levels and the quality of care that women provides for themselves and other members of the household especially children (Glewwe, 1999).

Most studies that have used nutrition education as an intervention to improve complementary feeding have measured maternal knowledge and feeding practices. Gludan *et al*. (2004) investigated the effect of nutritional education which is culturally accepted on feeding practices of infants and growth in rural Sichuan (a province in China). The researchers reported that after one year, mothers in the intervention group showed significantly higher nutritional knowledge for response to which type of food will help your child to grow well and better reported infant feeding practices for rate of current breastfeeding than their control counterparts. Mothers in Peru who received education intervention fed their children with nutrient dense thick foods as lunch as compared to their control counterparts at six months (Penny *et al.,* 2005). This study demonstrated that, mothers of malnourished children with adequate nutritional knowledge gained through nutrition education received nutritionally adequate meals and were less stunted at 18 months than children of mothers who have not received nutrition education. The relationship between caregivers' nutritional knowledge, education and child malnourishment has been widely documented by several researchers and findings from these studies have been inconsistent. While some authors (Appoh & Krekling, 2005; Ruel *et al*., 1992; Glewwe, 1999; Webb & Block, 2003) have reported positive associations that are mother's nutritional knowledge being significant to the nutritional status of the child. Others (Waihenya *et al*., 1996; Grant & Stone, 1986) have reported no connection between care givers' knowledge on nutrition and nutritional status of children. Ruel *et al*. (1992) discovered that formal education of mothers was not dependently linked with child's nutritional status.

Weight-for-age Z-score among mothers in the lower socio-economic class in Lesotho. In addition, Reed *et al*. (1996) in Benin found a positive relationship between education of mothers and nutritional status of children among mothers with adequate resources.

Webb and Lapping (2002) who explored the question 'are the determining factor of malnutrition the same as those of food security?' argue that even though poverty is noted as a major contributor to causing malnutrition, the association between poverty and malnutrition in their estimation is oversimplified. Over the decades, poverty reduction strategies have been progressive but such economic achievements have not been interpreted into nutritional benefits and development against malnutrition.

Webb and Lapping (2002) examined the relationship between mothers knowledge on nutrition, education and child's nutritional outcomes in six developing countries, they reported that mother's knowledge on nutrition and maternal education are independently related with the nutritional outcome of the child.

Results from positive deviant studies have also demonstrated that poverty does not necessarily contribute to malnutrition in children. Positive deviance refers to the ability of some mothers to raise well-nourished children by undertaking good and healthy practices in areas where poverty and malnutrition are outrageously high. These studies indicated that in the presence of poverty and high incidence of malnutrition, some mothers effectively raise healthy children (Berggren & Wray, 2002; Mackintosh *et al*., 2002). The implications of these results by Webb & Lapping, 2002, Berggren & Wray, 2002 and Mackintosh *et al*., 2002, suggested that it is the knowledge, attitudes and the practices of care by mothers and the how little resources are used rather than economic status that distinguished positive deviate mothers from others.

An investigation conducted by Wallace et al. (2014) indicated the benefit of educating rural women on community-based nutrition programmes in Cambodia. Although women in this area consume vitamin A and iron rich foods daily, the nutritional requirement is not necessarily enough. Nutritious foods are not being patronized by women because is expensive, whiles less nutritious foods are in fact inexpensive and accessible. The study

indicated that women who acquired knowledge in nutrition through the community-based nutritional programme could make an informed choice of nutritious foods which in turn impacted positively on their children

2.1.2 Factors influencing caregiver's nutritional knowledge - Age

In the study conducted by Nekesa (2012), the age of respondents ranged from 15 to 82 years, 66 percent of them were in their fertility age group (15-50years) while the other 34 percent aged (>51years). Age of the respondents had weak negative association with the score for knowledge. This result indicated that, with advancement in age, nutritional knowledge score of respondents' decreases. The older respondents with little or no education on nutrition were grandmothers as indicated by the FGDs. However, with the education program on community-based nutrition together with numerous years' experience as primary caregivers would have help elevate nutritional knowledge among older respondents. This is why there is possible weak association between knowledge and age in the study.

2.1.3 Level of Education

A Pearson chi square test found no significant relationship between level of knowledge in nutrition and the respondent's educational level. Fifty-eight per cent of respondents with knowledge level being low had education while forty--two per cent of the respondents had no education.

2.1.4 Attitudes of caregiver

According to Nekesa (2012). Pearson chi square test indicates an essential relationship between demeanor towards adequate nutritious diet and the degree of education of the respondents. The findings indicated that the higher the levels of education of respondents, the positive attitudes towards adequate nutritious diet. The result is in contrast with the study

conducted in USA that indicated no association between previous knowledge in nutrition and the caregiver's attitudes toward nutrition (NahikianNelms, 1997).

2.1.5 Nutritional/Feeding practices and Level of Education

A Pearson chi square test uncovered an important relationship between level of training of respondents and the nature of household meal.

Fifty-three per cent (53%) of the respondents with inadequate family meals had achieved some basic training; forty four per cent (44%) had no training while only three per cent (3%) had post-basic training. The findings showed that nature of family meals was tied to the level of training of the caregiver. Advanced level of training impacted on the nutritional knowledge levels as it prepares respondents with appropriate facts to make appropriate decision on diet. In any case, nutritional knowledge alone was insufficient when the correct diet was not accessible (M.Nekesa, 2012). The results of his article as indicated by him are like the results in Kenya and China which displayed a significant relationship between level of educational and nutritional practices (Ayieko, 2010). Family foods itself is not enough and needs additional earnings, and this was difficult for primary caregivers without significant or no training as uncovered by FGDs.

2.1.6 Level of Education

Minimal training brought down the chances of salaried jobs that provided additional earnings to keep up adequate diet in addition to self-production.

2.1.7 Marital Status

A Pearson chi square test found essential relationship between nature of household meal diet and the conjugal status of respondents. The larger number (67%) of respondents who prepared adequate family diet was hitched whiles the rest of respondents have either lost a

partner or not hitched. The number of respondents who did not prepare adequate family diet were widows' whiles the remaining majority were.

2.1.8 Associations between Nutritional Knowledge, Attitudes and Practices

Nahikian- Nelms (1997), conducted an investigation in Illinois, USA to assess level of nutritional information and demeanor of caregivers in child-care programmes and to monitor practices of caregivers as they engage the children during meal. A non-experimental study design was used with 113 caregivers in 24 accredited child-care programmes were cross-examined. Independent variables such as nutritional knowledge of caregivers', nutritional attitudes, period of teaching, earlier training on nutrition, and level of education were associated with dependent variable (caregivers' behaviour). Using the moment correlation Pearson Product, the mixture of variance from all independent variables were analysed using general linear regression model. There was a desirable link between nutritional knowledge of caregivers' and their behaviours during meal. This may demonstrate that those caregivers who scored high on their nutritional knowledge were most likely to have an elevated behaviour scores. Time of teaching experience and caregiver behavior were also positively associated. This might be because an accomplished educator must be ready to factor nutrition into various aspects of the module, which reasonably would include meal and snack times. A measurable connection between level of training and knowledge on nutrition, recommends that those individuals whose levels of training is higher should also scored higher on the instrument that measures nutritional knowledge. There seemed to be no connection between past nutrition training and the attitudes of caregiver toward nutrition. Past nutritional training and level of training was not also linked to the conduct caregiver. This might reflect the type of nutrition training that is given to early childhood 17 instructors. The discoveries indicated that although caregivers have convictions to stimulate positively on children's eating habit,

they demonstrated inadequate knowledge on nutrition and showed behaviors during meal that disagreed with their convictions and master proposals. Significant relationships were discovered between nutritional knowledge, attitudes and behaviours of caregivers during meal.

2.1.9 Home-Based Management of Malnutrition

Undernutrition is responsible for greater number of all childhood mortalities globally; it is mostly due to poor feeding practices, starvation or available healthcare and good sanitation. In Ghana, 13% of children below 5years are reasonably or extremely undernourished, according to the study (UNICEF at a glance: Ghana, 2013).

Clement Adams, (Nutritionist, UNICEF Ghana), states prior to the inception of CMAM, a good number of malnourished children in the Northern part of the country had little or no access to treatment. The only five nutrition rehabilitation centres serving the entire region are spread across the region's 20 districts, and the health facilities are not even accessible to families (UNICEF at a glance: Ghana, 2013). Individuals who seek the distance medical care often falls out, since it was too inconvenient for families to have women away from home, because the families depended on them for their upkeep.

Despite the fact that children with medical complications such as hypothermia, hypoglycemia or severe dehydration are still sent to health facilities for inpatient care, CMAM has conveyed treatment for malnourished children right to the door step clients and caregivers. (UNICEF at a glance: Ghana 2013). In Ghana, approximately 9% of children below 5 years suffer emaciation. The government of Ghana in collaboration with development partners has taken bold steps towards ending child malnutrition. An example of such advances is the acceptance and feeding it to the community-based management of severe acute malnutrition (CMAM). The approach permits caregivers to manage their children with moderate malnutrition at

home with nutrient-dense therapeutic diets. Over a year of work in emergency situation by non-governmental organization in Ethiopia, Malawi, and South Sudan has produce reasonable evidence to support the claim that the approach is an effective nutrition intervention strategy during emergencies. As a result many governments including the government of Ghana have chosen the approach and standardize it into their routine health services (The Lancet Global Health Blog, 2013).

In Gbullung coomunity, CMAM has also helped changed attitudes and healthcare seeking behaviour. To ensure malnutrition is understood as a medical problem rather than a spiritual issue, UNICEF supported health workers to sensitize traditional healers on what brings about malnutrition and the new community-based treatment programme. The traditional healers were urged to carry on with their spiritual healing, but advised the spiritual healers to refer the parents to the CMAM clinics. (UNICEF at a glance: Ghana, 2013).

The emphasis is also on increasing the knowledge of parents to prevent malnutrition through appropriate infant and young children feeding practices. Communication channels such as radio discussions, community theatres and door-to-door visits were adopted by health workers and volunteers as part of UNICEF's awareness crusade to enhance good feeding practices.

Activities included enhancing exclusive breastfeeding, introduction of complementary feed at 6 months of birth, frequency of feed needed in a day and the kind of feed best for the age. Mr. Adams explains.

Support for traditional healers in the long run proves to be the best asset in combating menace of malnutrition across the region. Mothers who are sent by the traditional healers are happy and willing to take the RUTF/Plumpy nut, Mr. Adams says. And as people begin to see

improvements in the children at the clinic, the word spreads. (UNICEF at a glance: Ghana, 2013).

A framework developed by United Nation Children's Fund (UNICEF) showing the immediate underlying and basic causes of undernutrition, its signs and symptoms and how they influence others.

This framework designed to be used at national, district and local levels to assess and analyze to gain a better insight on causes of under nutrition. This can help prevent malnutrition and reduce child deaths and disability associated with the condition.

2.2 Acute Malnutrition

The presence of bilateral pitting oedema with MUAC < 11.5cm or WFH z-score < -2 (low WFH) (WHO standards)

Or WFH as a percentage of the median < 80% (NCHS references).

2.3 Moderate Acute Malnutrition (MAM)

MUAC < 11.5 cm and (cutoff is being debated), or WFH z-score < -2 and ≥ -3 (WHO standards), or WFH as a percentage of the median < 80% and ≥ 70% (NCHS references)

2.4 Severe Acute Malnutrition (SAM)

Presence of bilateral pitting oedema +/++/+++, MUAC < 11.5 cm (cut-off being debated), or WFH z-score < -3 (WHO standards), or WFH as a percentage of the median < 70% (NCHS references)

A child with SAM has an increased risk of mortality from clinical manifestations of SAM

Marasmus (severe wasting)

Kwashiorkor (bilateral pitting oedema or swelling of nutritional origin)

Marasmic- kwashiorkor (both bilateral pitting oedema and severe wasting

(FANTA 2 Training Guide On CMAM, 2008)

CHAPTER THREE

METHODS

3.1 Study Area

The Savelugu/Nanton Municipality was taken from the West Dagomba in 1988. The landmass is approximately 1760 kilometre square, it shares its parametres with Sagnarigu district to the South, Karaga District to the east, West Mamprusi to the north, and the Kumbungu District to the west.

The municipality has a population of 63,963 (Statistical Department,2010). It is mainly rural and have about 218 communities with a population density of 58.7 kilometer square. The area is dominated by young, and people under 15 years of age constituting as high as 49% of residents (UNICEF, 2000). Dagomba are the predominant ethnic group with a few other tribes from other parts of the country.

Socio-cultural and religious norms highly uphold in the communities, authorities vest in the hands of Traditional rulers, religious leaders and family heads (mostly male). Patrilineal system of inheritance is practiced thus making women rely more on men for resources. Female population in the municipality represents 51%, but are however deprived in terms of access to education, health, and other social amenities as compare to their male counterparts even though they face equal level of poverty. The male comprises 49% of the population. However, only 3.1% of household heads are women. The average house hold size is 8.7 with the lowest being one.

3.1.1 Geography

The major rivers Volta and Nasia run through the municipality, with many streams flowing into them. These streams mostly dry up during dry season posing a challenge of water

shortage to the inhabitants since that the sources of water supply for the community. The municipality is a low lying area with savannah grassland vegetation. The climatic weather condition is divided into rainy season and dry season. The rainy season predictably start between May to October, and the dry season from December to March when the north western harmattan winds are most prominent.

3.1.2 Economic Activities

Peasant farming is the major economic activity in the municipality, which is mostly carryout during rainy season. There is however a number of miscellaneous economic activities such as petty trading usually by women.

The concept of the large-scale mango plantation in the municipality is fast gaining grounds, and is expected to boost economic activity and provide employment for the teaming unemployed youth in the municipality. The municipality is also among beneficiary districts for the Millennium Challenge Account (MCA) which provides funding for agricultural activities and other Small and Medium Enterprises (SMEs). The Savelugu, Nanton and Diare communities have satellite markets which usually come off once every week.

As a result of the high poverty levels in the municipality, it has earned the unenviable position as the first in the region regarding the ‘’Kayayo’’ menace in the society.

With communication and transport; the thriving mobile telephony in the country enabled almost all the communities to be connected to the mobile networks. Almost all the communities are accessible to transport because of the presence of trunk road that link Accra–Paga. Many communities in the municipality are accessible to transportation since they are linked to the trunk road through feeder roads.

3.1.3 Education

lliteracy rate is unacceptably high in the municipality regardless the of educational infrastructures. Gross enrolment is 46% but is 56 for boys and 35% for girls. Dropout rate is 7.7% for boys and 12.1% for girls.

3.1.4 Health Infrastructure

The municipality has a total of nineteen (19) health facilities with the breakdown as follows; There are three (8) operational CHPS zones, one at Dipale, at the north of the municipality which serves seven communities, then Guntingli which serves four (4) communities, Pigu also serves eight (8) communities, then Fazihini, Nyolugu, Nantonkurugu, Nambagla and Kundanali were operationalized in 2011 also serving between 6 to 10 communities respectively.

The area has three Health centres positioned in Nanton, Pong Tamale and Diare . Four clinics also in Moglaa, Janjori-Kukuo, Tampion and Zoggu. One Reproductive and Child Health Centre (RCH) in Savelugu town. The area also have private clinics located in Savelugu namely; Bruham clinic, Nasara clinic and Maternity Home and Modern Surgical Centre.

Then we have the Savelugu Municipal hospital which serve as a referral centre for the rest of the facilities.

3.1.5 Social Amenities

Few communities are connected to the national grid and enjoys electricity. Fifty per cent of the population has access to portable water, but only the municipal capital is supplied with potable pipe-borne water from a small-town water system connected from Dalung. Diare and Nanton and other surrounding communities have mechanized borehole water systems. This notwithstanding majority of communities continue to use water from dams due to

insufficiency or no alternate source of water supply. There are 224 functional boreholes, 212 hand-dug wells and 45 dams that serve as sources of water for the people in the municipality.

Sanitation system in the municipality has also improved tremendously with more than 1,690 household KVIP latrines, 115 water closets and 28 rubbish dumps.

3.2 Study design

A cross sectional research design was used to examine the knowledge, attitude and feeding practice of caregivers of malnourished children admitted to Savelugu Hospital. Cross sectional design was used because is a descriptive study, that can be used to describe certain features of population like caregivers of malnourished children at a given period of time

It can also be used to describe odds and ratios

3.3 Study variables

The dependent variable was the knowledge level on nutrition. The independent variable were; attitudes, practices, age, sex, ethnicity, educational status, occupation and geographical location

3.4 Study population

This study was focused on caregivers of malnourished children admitted to the Hospital at the time of the study.

3.5 Inclusion and exclusion criteria

All caregivers with malnourished children admitted to the hospital were studied, whilst caregivers' with malnourished children with underlying disease condition appeared to have caused the malnutrition was excluded

3.6 Sample size determination and sampling procedure

The formula below by Magnani, 1997 was used to calculate the sample size. The sample size was calculated using a prevalence of 12% malnourished cases among children under 5years in Savelugu/Nanton Municipality

$N = Z^2 \times P\ (100\text{-}P)/\ D^2$

Where:

N = the minimum required sample size

Z = the critical value for the 95% confidence level (1.96).

P = Estimated prevalence of malnourished cases in Savelugu/Nanton Municipality (12 %) (SMHD Annual Report, 2016).

D = the margin of error or level of precision (5%).

In addition to 10% non-respondents.

N= 178

An estimated sample size of 178 caregivers of malnourished children will be use for the study.

A simple random sampling technique was employed to select the respondents. It was done by folding pieces papers containing 'yes' and 'no' according to the available number of caregivers. The caregivers were made to pick, whoever picked 'yes' was included in the study and those picked 'no' was excluded.

3.7 Data collection tools

The data collection tools were structured questionnaires put up together by the researcher and administered with the help of research assistant. A structured questionnaires are interview guide, it involves putting pieces of questions together that addressed or answered the research

questions by collecting data on socio-demographic characteristics of the caregiver, nutritional knowledge, feeding practices, health seeking behaviors of caregivers and home-based management of malnutrition. With the aid of the questionnaire, questions were asked in the language the caregivers' own language and then translate the response into the questionnaire. However, caregivers' who were literates were given the questionnaire with guidance to do an independent work.

3.7.1 Caregivers' socio-demographic characteristics

A structured questionnaire was used to obtain data on the caregivers' and socio-demographic characteristics. These socio-demographic data included caregivers' age, marital status, level of education, occupation, religion, and ethnicity, place of residence, child's age and sex. In addition, information about the number of people in each household, household possessions and the income status of the household was also obtained.

3.7.2 Caregiver's nutritional knowledge

A structured questionnaire was used to take data on caregivers' knowledge on malnutrition Caregiver's were asked questions about breastfeeding, colostrum, complementary feeding, nutritional sources and benefits of certain foods or macronutrients. Knowledge of caregivers were also assessed on signs and symptoms of malnutrition. A nutritional knowledge scale (low, medium and high) was use to grade the caregivers based on their responses to the questions. Caregivers responded to a maximum of ten questions on nutritional knowledge, and depending on the number of correct responses, a caregiver was either be graded as having low, medium or high nutritional knowledge.

3.7.3 Feeding practices of caregivers

A 24 hourly and seven days dietary data was collected, the questionnaire asked the types of food child in given 24hrs, how many times the child is fed, the frequency at which the child was fed, what was given between those meals. This dietary data collected on the types of food consumed within 24 hours were used to estimate the minimum dietary diversity (WHO) score of the children, whilst data on the frequency the children were fed were used to estimate the minimum meal frequency (WHO) of children.

Information on whether the child was currently breastfeeding, how soon was the child put to breast after delivery, when was the complementary feed started if the child is on complementary feed and when was the child weaned if the child was no more breastfeeding

3.8 Measurements Of Mid- Upper Arm Circumference (MUAC)

MUAC of less than 11.5cm reflects the child's nutritional status (wasting). It was measure on the upper arm preferably left. A specialized measuring tape was used to find the midpoint between the end of the shoulder (acromion) and the tip of the elbow (olecranon) when the arm was flex to 90 degrees, the midpoint was then marked and arm was allowed to hang freely with the palm towards the thigh. The measuring tape was placed snugly around the arm at the midpoint marked. This thus was done for confirmation

3.9 Measurements Of Height/Length

Child's height was measured using stadiometer with back board, a fixed base board and a movable head board. Removing all clothing on the child such as shoes, socks and hair ornaments/braids

The child's head was positioned so that the child is looking straight ahead.

A thumb and forefinger are place over the child's chin to help keep the head in an upright position.

With the other hand, pull down the head board to rest firmly on top of the head.

The height was then measured and recorded immediately.

3.10 Weighing The Child

Every child was weighed on the first contact and daily whilst on admission as long as the study can last on the child, preferably about the same time. Daily weighing indicates the progress of the child's condition.

To weigh a child, a scale with the following features were used,

- Electronic (digital reading)
- Solidly built and durable
- That measures up to 150kg
- Measures to a precision of 0.1kg
- Allows tared weighing.

Tared weighing means the scale can be re-set to zero (tared) with the person just weighed still on the scale.

Ensuring that shoes/sandals and any heavy clothing on the mother and the child are removed,

The scale was turn, ensuring that it is set to zero.

The mother was allowed to stand on the scale.

The weight of the mother is tarred whiles she was still on the scale

The child was then given to the mother to place on her shoulder

Then the weight of the child alone appears on the scale.

This was recommended when the child cannot or refusing to stand on the scale.

However, if the child can stand, then the child was made to stand on the scale with the help of the mother after haven removed the shoes/sandals.

The weight is checked and immediately recorded.

3.11 Pretest

The questionnaire was pretested among the same cohort of caregivers in central hospital.

3.12 Data collection procedure

A total of 178 questionnaires were administered in the process of collecting data on caregivers with malnourished children admitted to the hospital. Procedures were thoroughly explained to the caregivers in their local dialect, and interview done under a serene and uninterrupted environment to ensure confidentiality. Personal identification such as name and address in the questionnaire were optional to ensure anonymity. The period of data collection started from June to September, 2018

3.13 Data analysis

Data was analysed using STATA version 15.

Spearman correlation and logistics regression was used to analyse the associations and relationships as in the following objectives.

1. To assess association between caregivers of malnourished children nutritional knowledge and feeding practices.

2. To examine the relationship between caregivers knowledge and health seeking attitude.
3. To determine caregivers' level of knowledge regarding the signs and symptoms of malnutrition.
4. To assess the association between the caregiver's nutritional knowledge and the home-based management of malnutrition.

3.14 Quality control measure

Research assistant was given a one-week intensive training on how to administer the research questionnaire and on how to identify malnourished cases by simple and basic assessments and review of client records. He was also to trained on how to adequately administer the questionnaire and conduct the interview on a serene and uninterrupted environment to ensuring confidentiality. Interviews were conducted in the local languages of caregivers' and the questionnaires thoroughly vetted after each interviewee to ensure that all responses are valid and errors corrected if any.

Research assistant was a diploma holder and was paid an allowance of GHC500.00 to compensate him for the time lost. Respondents may as well be compensated for their time depending on prevailing economic situation of the researcher at the time of data collection.

3.15 Ethical considerations

Ethical clearance was sought from Ghana Health Service Ethics Review Committee (GHSERC) with Ref number; GHS-ERC117/12/17 prior to data collection process. The purpose of the study and all processes involve was thoroughly explained to the caregivers. They were only studied after they have given their consent and thumb print or sign a consent form.

3.16 Informed consent

Consent of caregivers was sought prior to the interview after the purpose of the study was explained to them. Caregivers who gave their consent to be studied were made to sign or thumb print an informed consent form, whereas those who were not be give their consent were excluded from the study.

3.17 Anonymity

Anonymity of respondents were ensured by making the personal identification component of the questionnaire optional to the respondents in order not to be able to differentiate one questionnaire from the other. Interview shall also be conducted on a serene and uninterrupted environment for purpose of anonymity. Respondents were constantly be assured of anonymity.

3.18 Confidentiality

Confidentiality were ensured by conducting the interview on serene, quiet and uninterrupted atmosphere. Personal identifications of respondents such as name or address were an option, participants were thus be assured that their names and that of their children did not appear in any of our documents. Respondents were also assured that any information they give were not divulge to any other person.

3.19 Compensation to participants

Participants were given a cake of soap or biscuits as a compensation for the time spent, they were as well made to understand how appreciative I am for helping me carry out this study.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the results and interpretations of the findings from the study. The results are presented according to the study objectives in tables and graphs showing percentages, frequencies and associations.

4.2 Demographic Characteristics of respondents

The average age of respondents who are mainly caregivers was 30.24 with age range of 18 to 55 years old. Majority of the respondents were found between the age group of 23-27 and 28-32 years (60.7%) followed by those with the age group of 33-37 years. Those below the age of 23 years and those above the age of 37 years were 25.3%. Caregivers who were females formed the majority (97.2%) compared to those who were males (2.8%). It was also found that 37.1% of the caregivers had no formal education and 48.4% had up to primary and JHS education. Higher education, that is, those who had secondary and tertiary education were just 14.6%. Those who were married, those single and divorced formed 90.4%, 2.8% and 2.8% respectively. Again, from Table 4.1, those who were into farming and trading form the majority (28.1% and 43.8% respectively). Other occupations such as teaching and housewives were 2.8% and 15.2% respectively. Number of wives of husbands of caregivers who were female and number of wives of male caregivers were also assessed in (Table 4.1)

Almost all of the caregivers (91.0%) were the biological mothers of the children and the rest being either aunties, grandmothers or others (9%) (Table 4.1).

Table 4.1: Demographic characteristics of caregivers

Variables	Frequency N	Percentage (%)
Age group		
18-22	21	11.8
23-27	38	21.4
28-32	70	39.3
33-37	25	14.0
38-42	14	7.9
43-55	10	5.6
Education level		
Primary	61	34.3
J H S	25	14.1
S H S	18	10.1
Tertiary	8	4.5
None	66	37.1
Marital status		
Married	161	90.4
Single	5	2.8
Divorced	5	2.8
Widow	7	3.9
Religion		
Christian	38	21.5
Muslim	135	76.6
Traditionalist	2	1.1
None	2	1.1
Occupation		
Farming	50	28.1
Teaching	5	2.8
Trading	78	43.8
House wife	27	15.2
Others	14	7.9
None	4	2.2
No. Of Wives		
0	15	8.4
1	80	44.9
2+	83	46.6
Relationship		
Mother	162	91.0
Aunty	7	3.9
Grandmother	3	1.7
Others	6	3.4

4.2.1 Household characteristics

Household feature or characteristics such as the size of the household, number of children, household income among others are provided in detail in table 4.2.

Household size for most of the respondents was five or more members (86%) and only 14.0% had members less than five. Again, the number of children borne by a mother were between 1 to 4 children (80.3%). Those who had children more than 5 were only 19.7%. Farming and Trading are the major source of income for the households (59.5% and 36.5% respectively).

Table 4.2: Description of household characteristics

Variables	Frequency	Percentage (%)
Household size		
1-5	25	14.0
5+	153	86.0
No. of children (Parity)		
1-4	143	80.3
5+	35	19.7
Total No. children in a household		
1-4	59	33.2
5 and above	119	66.9
Source of Household income		
Salary	4	2.3
Farming	106	59.5
Trading	65	36.5
Others	3	1.7

4.2.2 Children characteristics

The proportion of children who were males and those who were females were almost the same with 48.9% and 51.1% respectively. According to their age group those who were between 12-23 months were the majority (57.3%) followed by those between the age of 24-60 months (28.7%) with only 14.0% below the age of 12 months. The majority had a weight of 5.1kg-10kg (64.0%) and a height of 86 cm also being the majority.

Table 4.3: Characteristics of children

Variables	Frequency	Percentage (%)
Age group of children		
0-11 months	25	14.0
12-23 month	102	57.3
24-60 months	51	28.7
Sex of child		
Male	87	48.9
Female	91	51.1
Weight of child(kg)		
Less 5kg	35	19.7
5.1kg-10kg	114	64.0
10.1kg-15kg	25	14.0
15.1-20kg	3	1.7
20.1kg and above	1	0.6
Height of child(cm)		
13-21	34	21.7
22-30	86	54.8
31-39	34	21.7
40-50	3	1.9
MUAC(cm)		
5.5-7.4	35	19.7
7.5-9.4	95	53.4
9.5-11.5	47	27.0

4.3.0 Caregivers' nutritional knowledge.

This section provides detailed information on the analysis of data relating to caregivers nutritional knowledge and the feeding practices.

From Table 4.4, almost all the respondents (93.3%) have no idea of the time breast feeding should be initiated after childbirth. Only 6.3% and 0.6% indicated that it should be initiated within 30 minutes and 1 hour respectively. Also, 73% of the respondents stated that colostrum should be given to the new born baby and the major reason given was that it promotes growth (37.6%) and it help to build the immune system (32.0%).

Table 4.4: Nutritional knowledge among caregivers

Variables	Frequency	Percentage
Time breastfeeding be initiated after childbirth		
1hour	1	0.6
Within 30mins	11	6.2
Don't know	166	93.3
Colostrum be given to a new born baby		
No	48	27.0
Yes	130	73.0
Reasons for given colostrum		
Building immune System	57	32.0
Nutritious	10	5.6
Promotes growth	67	37.6
Water	1	0.6
Bad milk	36	20.2
Don't know	7	3.9
Age to introduce complementary feeding		
After 6 months	141	79.2
Before 6 months	29	16.3
Don't know	8	4.5
Food best for infants under 6 months		
Breast milk	117	65.7
Others	61	34.3
Benefits of breast milk		
Immunity for child	80	44.9
Promote growth	86	48.3
Don't know	12	6.7
Who should get the greatest portion of food		
Father	36	20.2
Mother	16	9.0
Older children	25	14.0
Young children	90	50.6
Don't know	11	6.2
Fruits be given to children in between meals		
Yes	105	59.0
No	34	19.1
Don't know	39	21.9

4.3.1 Association between socio-demographic and caregivers' nutritional knowledge

Table 4.5 show the results of bivariate analysis of association between caregivers' socio-demographic factors and their nutritional knowledge using chi-square test. A significant association was observed among some of the variables whiles others were not. For instance, at an assumed significant level of p-value<0.05, occupational status of caregivers was found to be statistically significant at p-value=0.028. Other factors such as educational level, age group, marital status among others were not significant.

Table 4.5: Bivariate analysis of association between socio-demographic and caregivers' nutritional knowledge

Variable	Total	Caregivers' knowledge		P-value
Age group				0.065
18-22	21	11(52.38)	10(47.62)	
23-27	38	31(81.58)	7(18.42)	
28-32	69	41(58.57)	28(41.43)	
3327	25	16(64.00)	9(36.00)	
38-42	14	12(85.71)	2(14.29)	
43-50	9	5(55.56)	4(44.44)	
Sex				0.78
Male	5	3(60.0)	2(40.0)	
Female	173	114(65.9)	59(34.1)	
Educational level				0.762
None	25	43(65.15)	23(34.85)	
Primary	66	40(66.67)	20(33.33)	
JHS	60	18(72.00)	7(28.00)	
SHS	18	11(61.11)	7(38.89)	
Tertiary	8	5(62.50)	3(37.50)	
Occupation				0.028*
Farming	50	33(66.00)	17(34.00)	
Teaching	5	2(40.00)	3(60.00)	
Trading	78	49(62.82)	29(37.18)	
House wife	27	25(92.59)	2(7.41)	
Others	14	6(42.86)	8()57.14	
None	4	2(50.00)	2(50.00)	

Variable	Total	Caregivers' knowledge		P-value
		Yes	No	
Marital status				0.778
Single	5	4	1	
Married	161	104 (80.00)	57 (20.00)	
Divorced	5	4 (80.00)	1 (20.00)	
Widow	7	5 (71.43)	2 (28.57)	
Relationship				0.136
Mother	162	103 (63.58)	59 (36.42)	
Aunty	7	7 (100.00)	0 (0.00)	
Grandmother	3	3 (100.00)	0 (0.00)	
Others	6	4 (66.67)	2 (33.33)	
Household size				0.844
1-5		16 (64.00)	9 (36.00)	
5+		101 (66.01)	51 (33.99)	
Parity				0.425
1-4	143	96 (67.13)	47 (32.87)	
5+	35	21 (60.00)	(40.00)	
No. children in a household				0.457
1-4	59	41 (69.49)	18 (30.51)	
5 and above	119	76 (63.87)	43 (36.13)	

*: measured association is significant; p-value<0.05; %: row percentage; test of significance: fisher's exact test.

4.4 Health seeking behavior among caregivers toward child's nutritional care

Here, caregiver's health seeking behavior for children were analyzed to identify how caregivers care for their children. An association using logistic regression was also performed to determine the relationship between caregiver's knowledge and their health seeking behavior.

Table 4.6 gives details on the health seeking behavior of caregiver of malnourished children, majority of the respondents indicated that they respond promptly to go for treatment when the child is ill (92.1%) and 2.4% also admitted that they don't often seek care. Health facility was the first point of call for treatment (56.2%) followed by traditional healer (36.0%) and

chemical seller or religious leader (4.5% and 3.4% respectively). The major reason for not going to a health for treatment was due to accessibility issues (97.4%)

Table 4.6: Health seeking behavior among caregivers

Variable	Frequency	Percentage
Child has been sick for the past one month		
No	89	50.0
Yes	89	50.0
Promptness of seeking treatments for the child		
Promptly	164	92.1
When child is weak	10	5.6
I don't often seek care	4	2.3
First point of call		
Chemical seller	8	4.5
Health Facility	100	56.2
Religious leader	6	3.4
Traditional Healer	64	36.0
Reason of not going to health facility		
Accessibility	76	97.4
Hospital waste time	1	1.3
Less costly	1	1.3
Availability of health facility in the area		
No	77	43.3
Yes	101	56.7
Distance to the health facility from home		
Less than 5km	106	98.2
More than 5 km	2	1.9
Home intervention before seeking treatments		
Herbal medication		
Sponging	60	33.7
Paracetamol	27	15.2
Others	31	17.4
Nothing	3	1.7
	57	32.0

Table 4.7 shows the multivariate logistic regression of caregivers' health seeking behavior and their nutritional knowledge. It presents both the crude odds ratio and the adjusted odds ratio. The result shows no significant association between the various health seeking behavior and the nutritional knowledge of caregivers. For instance, with reference to those who do not promptly seek care, those who promptly seek care had 7 times higher odds of have good or adequate nutritional knowledge (AOR: 7.0; CI: 0.50-96.40; p-value=0.232). Also, those who use health facility as their first point of treatment were 1.75 times more likely to have an adequate nutritional knowledge compared to those who used other means (AOR:1.75; CI: 0.57-5.37).

Table 4.7: Multivariate logistic regression output of caregiver's nutritional knowledge and health seeking behavior

	Unadjusted			Adjusted		
	OR	**95% CI**	**P value**	**AOR**	**95% CI**	**p-value**
Child been sick			0.270			0.296
<No (Ref)	1					
>Yes	0.70	0.38-1.31		0.38	0.11-1.27	
Seek treatment			0.142			0.142
Not promptly (Ref)	1					
Promptly	2.51	0.73-8.70		7.0	0.50-96.40	
First point of call			0.299			0.232
Others (Ref)	1					
Health Facility	1.06	0.74-2.59		1.75	0.57-5.37	
Availability of health facility			0.845			0.492
No (Ref)	1					
Yes	1.39	0.57-1.98		0.44	0.04-4.56	
Where to seek treatment			0.789			0.34
Others (Ref)	1					
Health facility	1.11	0.51-2.40		1.41	0.69-2.89	

CI: confidence interval; p-value<0.05; OR: crude odds ratio; AOR: adjusted odds ratio; Ref: Reference group

4.5 Feeding practices among caregivers of malnourished children

Feeding practices of caregivers were studied. Under this section, detailed results are provided with descriptive statistics and also multivariate logistic regression showing the association between caregivers' nutritional knowledge and feeding practices.

From Table 4.8, it can be found that majority of the babies were not breastfeeding (58.4%) and 46.6% practiced exclusive breastfeeding with 33.2% also practiced bottle feeding. Complementary feeding or food, for the majority of the caregivers started after 6 months of birth (79.8%). Food taboos were found to be practiced by only 14.6% of the caregivers.

Table 4.8: Feeding practices by caregivers of malnurished children

Variable	Frequency	Percentage
Currently breastfeeding		
No	104	58.4
Yes	74	41.6
Number of times of breastfeed the child in a day		
1-5 times	23	14.3
6 - 9times	27	16.8
>10times	47	29.2
None	64	39.8
Practiced exclusive breastfeeding		
No	95	53.4
Yes	83	46.6
Age of stopping breastfeeding		
Before 6months	5	2.8
After 6months	12	6.7
After 12months	9	5.1
After 18months	32	18.0
After 24months	120	67.4
	12	6.7
Practice bottle feeding		
No	119	66.9
Yes	59	33.2
Age of starting complementary foods		
Before 6months	35	19.7
After 6months	142	79.8
Don't know	1	0.6
First food given at complementary stage		
Cerelac	32	
Koko	128	18.0
Tom brown	10	71.9
Others	8	5.6
		4.5
Child is fed on home cooked meals		
No	21	11.8
Yes	157	88.2
There is food taboos or beliefs		
No	152	85.4
Yes	26	14.6

Table 4.9 shows the multivariate logistic regression of caregivers' health seeking behavior and their nutritional knowledge. It presents both the crude odds ratio and the adjusted odds ratio. The result shows no significant association between the various health seeking behavior and the nutritional knowledge of caregivers. For instance, with reference to those who do not promptly seek care, those who promptly seek care had 7 times higher odds of good or adequate nutritional knowledge (AOR: 7.0; CI: 0.50-96.40; p-value=0.232). Also, those who use health facility as their first point of treatment were 1.75 times more likely to have an adequate nutritional knowledge compared to those who used other means (AOR:1.75; CI: 0.57-5.37).

Table 4.9: Multivariate logistic regression of caregivers' feeding practices and nutritional knowledge

	Unadjusted			Adjusted		
	OR	**95% CI**	**P value**	**OR**	**95% CI**	**p-value**
Breastfeeding currently			0.087			0.414
<No (Ref)	1					
>Yes	1.75	0.92-3.35		1.31	0.67-2.56	
No. of time child breastfed			0.161			0.145
Less 10 times (Ref)	1					
10 and above times	1.57	0.84-2.94		1.68	0.85-3.39	
Exclusive breastfeed			0.040			0.104
No (Ref)	1					
Yes	1.97	1.02-3.78		0.56	0.28-1.126	
Practice bottle feeding			0.010			0.075
No (Ref)	1					
Yes	0.42	0.22-0.85		2.10	0.97-4.75	
Age at Complementary feeding			0.028			0.34
Less than six month (Ref)	1					
After six months	2.30	1.09-4.84		1.41	0.69-2.89	
Home cooked meal			0.068			0.568
No (Ref)	1					
Yes	2.35	1.93-5.90		0.75	0.28-1.98	
Food taboo			0.395			0.906
No (Ref)	1					
Yes	1.49	0.59-3.78		1.05	0.43-2.56	

CI: confidence interval; p-value<0.05; OR: crude odds ratio; AOR: adjusted odds ratio; Ref: Reference group.

4.6 Caregivers' knowledge regarding the signs and symptoms of malnutrition.

The knowledge of caregivers regarding signs and symptoms was also studied and it was found that majority of the caregivers (59%) did not know about malnutrition whilst 41% were aware of child malnutrition.

From figure 4.1, majority of the respondents (44%) indicated weight loss as the clear sign of a malnurished child. Other signs of malnutrition indicated include wasting (18%), hair loss (5%) and others (15%).

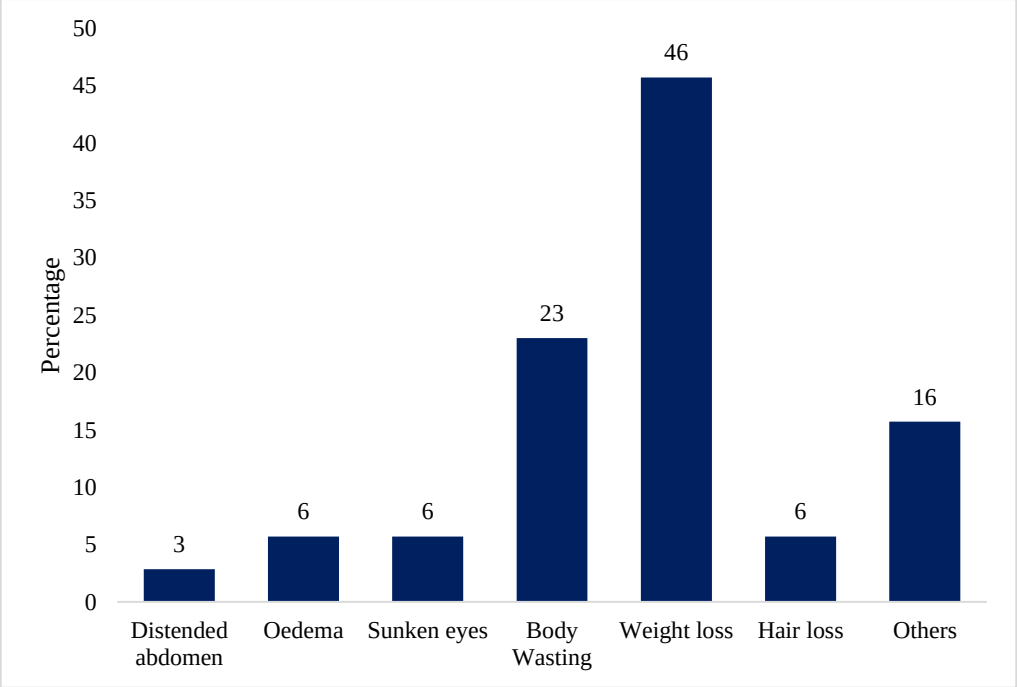

Figure 4.1: Signs of malnutrition of children

From the figure 4.2 Majority (44%) of caregivers do not know the causes of malnutrition, where as 38% of caregivers attributing malnutrition be caused by inadequate diet, 12% says it is caused by poverty and 2% responded it is caused diseases.

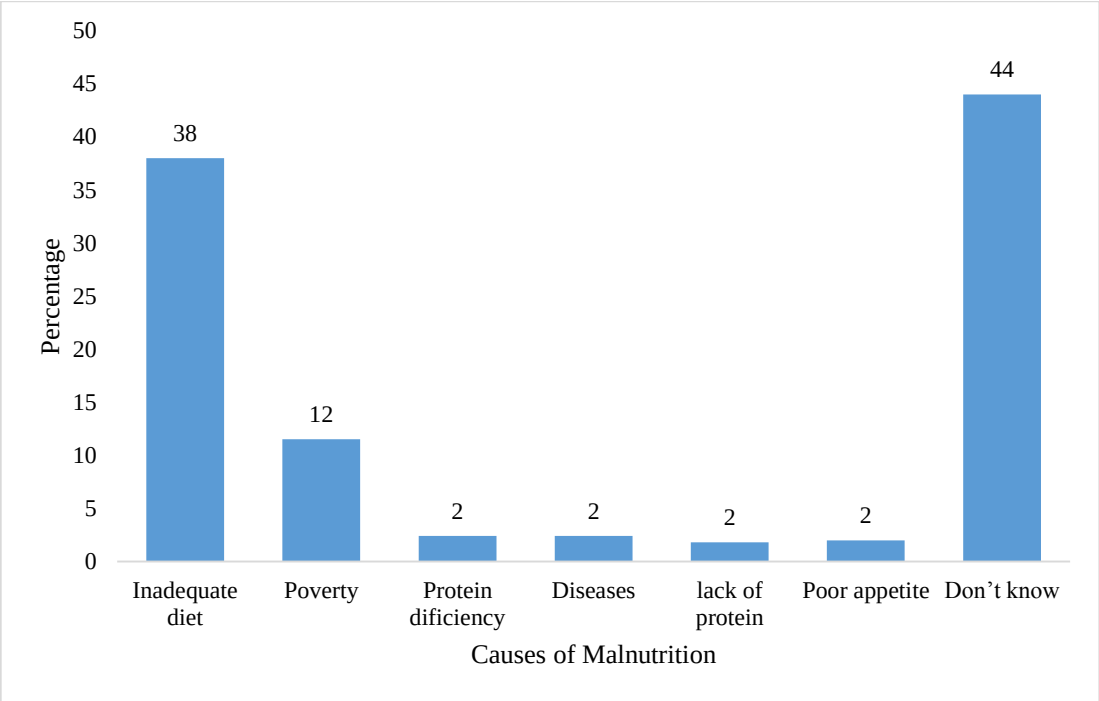

Figure 4.2 : Causes of malnutrtion known by respondents

4.7 Home-based management of malnutrition among caregivers

Caregivers are taught of interventions that can be applied in the house in order to manage malnutrition among children. Caregivers were studied in order to determine the type of home-based management of malnutrition methods they use.

From Table 4.10, various home-based management of malnutrition has been provided. Malnourished children are mainly fed with household meals (35.2%) and special meal (34.7%). Interestingly, majority of the caregivers (80.9%) had not heard about the CMAM program. Those who heard it from radio were (67.6%) and those from health workers were (32.4%).

Table 4.10: Home-based management of malnutrition among respondents

Variable	Frequency	Percentage
How the malnourished child is fed at home		
Any available food	51	29.0
Household meal	62	35.2
Special meal	61	34.7
Breast milk	2	1.1
Heard of CMAM		
No	114	80.9
Yes	34	19.1
Place of hearing about CMAM (n=34)		
Health worker	11	32.4
Radio	23	67.6
Child on CMAM program can be breastfed		
No	100	56.2
Yes	67	37.6
Don't know	11	6.2
Some food is safer than the breast milk		
No	125	70.2
Yes	50	28.1
Don't Know	3	1.7

From Figure 4.3, caregivers indicated that they had majority of the support from fathers of the children (67%) and other family members such as grandparents, siblings and aunties

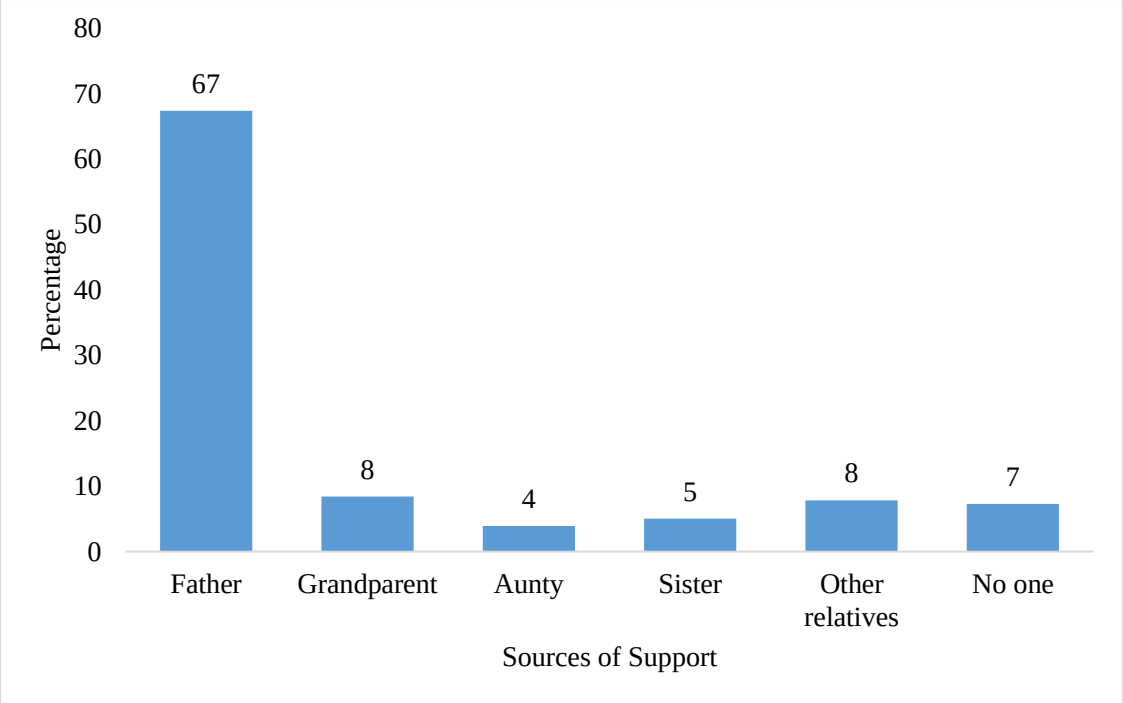

Figure 4.3: Sources of support for caregivers's of Malnourished children

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CHAPTER FIVE

DISCUSSIONS

5.1 Introduction

The study was carried out to examine nutritional knowledge of caregivers of malnourished children under five years old in the Savelugu/Nanton Municipality of the Upper East Region of Ghana. This chapter provides discussions of the findings from this study in relation to other previous studies on the subject matter.

5.2 Demographic characteristics of respondents

This study revealed 91% of the caregivers were the biological mothers of the children. This confirms with earlier study conducted by Gyampoh (2012), which also found 95% as biological mothers for children involved in the study. This is not surprising because in the Ghanaian culture women are known to be the primary caregivers for children. The age group for majority of caregivers in this study was between 23 and 32 years, and this was similar to what was found in other earlier studies on child nutrition and malnutrition carried out in some rural communities in Ghana (Aryeetey and Goh 2013; Nti and Lartey 2008). Regarding the educational level of caregivers, this study found that majority of them had no formal education. Those who had some level of formal education had up to primary level. The dominantly rural nature of communities studied is a likely reason behind the low level of formal education recorded amongst caregivers or parents. A direct similarity to other studies conducted in slightly peri-urban areas found out that majority of women had at least tertiary education (Nyansanga, 2011). This also supports other studies which reported that women in urban area had higher educational status than those found in the rural areas. Trading in most cases has been the predominant occupation reported by caregivers in various studies

conducted on child nutrition assessment (Akorede & Abiola, 2013) and this current study also found same.

Additionally, majority of the malnourished children were found by this present study to be within the age group of 12- 23 months old with majority of them being females. In other previous studies, researchers found that malnutrition is mostly found or evidence after the first year of birth of children (Mtimuni, Kabambe, & Jp, 2017; Martin, 2009). Again, females than males have been reported to be malnourished whiles other studies also found male children to be of high risk (Debuo et al., 2017; Guled et al..,2016).

5.3 Nutritional knowledge of caregivers of malnourished children

Having an adequate knowledge on nutrition is very essential especially for caregivers of children under five years. In order to fight malnutrition or to reduce its incidence, mothers and caregivers must be well knowledgeable in order to apply the appropriate nutritional care for children. This present study assessed the nutrition knowledge of caregivers of children who were malnourished. The result however, was not encouraging because most of them had inadequate knowledge on some nutrition information which are essential to mothers. It was found that almost all of the caregivers did not know of when to begin or initiate breastfeeding after childbirth. In contrast, a study conducted among caregivers in Lawra District, Upper West Region of Ghana, reported that more than half of the caregivers studied had good knowledge on child's nutrition and the growth monitoring. Also, Mudzi Wathu Community Radio in Mchinji District Msiskamost of Malawi found that majority of the participants had good knowledge of breastfeeding and could mention the initial time for breastfeeding (Msiska, Mtimuni, Kabambe, 2017).

A good or adequate knowledge was found on factors such as colostrum and the best time to introduce complementary feeding. That is, majority of the caregivers had good knowledge on

when to introduce complementary feeding. This study also found that majority of caregivers was able to state that breast milk was the best food option for their children under two years. Similarly, Msiska, Mtimuni, Kabambe (2017), reported that a large proportion of participants agreed that breastfeeding is an optimal way of feeding the infants. Likewise finding from this present study, their results also indicated that nearly all participants have heard and are aware of exclusive breastfeeding.

Knowledge level on nutrition has been found to be influence by various factors. Studies have found significant association with mothers' demographic characteristics such as educational level, sex, age, number of children and occupational status (Debuo et al., 2017; Josphine, 2016). Finding from this study showed a significant association between caregivers' occupation status and their nutritional knowledge. Similarly, Debuo et al., (2017), reported a significant associations between caregivers' knowledge on nutrition and occupation and educational status. Regarding education and knowledge level, this study found no significant association. This would partly be due to the fact that majority of the respondents had no formal education and those who had, only have up to primary education.

5.4 Health seeking behavior among caregivers of malnourished children

Health seeking behavior has been seen as the sequence of corrective actions that individuals undertake to rectify perceived ill-health. Mothers or caregivers of children who are malnourished have unique care procedure they have to follow in order to remedy the condition of their children. Unfortunately, most of these remedial procedures are not followed by the caregivers for various reasons. This present study found that majority of the caregivers seek prompt treatment for their children when sick or when they perceived an ill-health. Health facility was found to be the main place of seeking care followed by traditional methods.

The non-use of health facility has been found to be caused by factors such as accessibility, cost and attitude of health workers (Akombi, Agho, Merom, Hall, & Renzaho, 2017). This current study found that distance (access) was reported by majority of the caregivers as the reason for not using a health facility as the first point of seeking care. Other factors reported were time wasting and cost of care.

In a multivariate analysis, this study found no significant association between the health seeking behavior of caregivers and their nutritional knowledge. For instance, higher odds (COR: 2.5) was found with timeliness in seeking care and nutritional knowledge of caregivers, but no significant association was found.

5.5 Feeding practices among caregivers of malnourished children

The correctly or wrongly application of feeding regimen may improve or worsen the situation of malnourished children. Caregivers who are knowledgeable on the appropriate feeding practices are in the better position of improving the condition of their children. In this present study, various feeding practices were found among the caregivers. Exclusive breastfeeding is a recommended feeding practice to improve optimal growth in children. It was found that most of the caregivers did not practice exclusive breastfeeding during the period of breastfeeding and only (33%) also practice bottle feeding. In study in Malawi, a rather greater proportion of the mothers (96.7%) were able to state that children had exclusively breastfed for 6 months (Msiska, Mtimuni, Kabambe, 2017). Breastfeeding has been recommended for the first six months of birth for children because of the benefit it gives mothers and their children (Guled et al., 2016), however, most caregivers or mothers do not follow such recommendations from healthcare providers (Berra, 2013; Guled et al., 2016).

Furthermore, this present study also recorded that higher proportion of the caregivers began complementary feeding at exactly after the stipulated six months after the child birth. Thus,

caregivers had good feeding practice. The result differs from a descriptive qualitative study conducted by Bilal et al (2014) and Banda (2012), in rural Zambia and Ethiopia who found out that feeding practices were poor. This difference may be due to the study design used by the studies, the present study used quantitative methods while these previous studies applied qualitative methods. Again in Ethiopia, about 55.4% of mothers practiced complementary feeding starting from 6 months (Berra, 2013).

A noteworthy of the findings made by this current study was that, most of the caregivers fed the children with food prepared in the house as against those bought from outside. Home prepared foods are recommended for feeding the children because it has been found to be more hygienic and safer than that was prepared outside. Again, home prepared food would have been well cooked and may contained good nutrients than those bought outside.

Findings on nutrition studies among children have reported the existence of various nutritional taboos that prevent mothers from feeding their children with certain food. This finding was no different from what was found in this present study as a good number of caregivers reported the existence of food taboos in their households. In other studies, it also revealed that cultural beliefs and social pressure do have influence on mothers' ability to practice good feeding practice and complementary feeding in accordance with what was concluded by Otoo, Lartey & Pérez-Escamilla (2009), on barriers in practicing good feeding practice among peri-urban mothers from Manya and Yilo Krobo in Eastern Region of Ghana, 75% of the caregivers reported following food taboo when they were pregnant and after childbirth. Similar was reported in Malawi when caregivers were studied for their nutritional practice (Msiska, Mtimuni, Kabambe, 2017). Food taboos have reported to be a contributing factor to child and maternal malnutrition in some cultures.

In this present study, a multivariate logistic regression analysis found some association between the health seeking behavior and the nutritional knowledge of caregivers. A crude odds ratio reported in this present study shows higher odds for those who practiced exclusive breastfeeding and nutritional knowledge. Again, those who practice bottle feeding were also less likely to have adequate nutritional knowledge.

5.6 Caregivers' knowledge regarding the signs and symptoms of malnutrition

Knowing the signs and symptoms of a condition helps to immediately identify the present of the condition for immediately and timely intervention. Caregivers who are knowledgeable about the signs and symptoms of malnutrition are better informed to identify any changes with their children and take the approapraite action.

This present study found that weight loss among children was what was identified by most of the caregivers as a sign of malnutrition. Others signs known by the caregivers were wasting, sunken eys and hair loss. In other previous studies among similar study group of caregivers were not able to identify the signs and symptoms of a malnoursihed child (Berra, 2013). Reports indicated that caregivers confused other health conditions with manutrition.

On the causes of malnutrition among children, this study shows that most of the caregivers did not know. However, those who showed idea or knowledge mentioned inadequate diet and poverty. In sub-Sahara countries, poor diet, a consequence of poverty have been found as a contributing factor to child malnutrition and childhood morbidity and mortality

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

This chapter provides the conclusion of the study which highlights the major findings from the study. Recommednations are also provided to the appropraite organisation for consideration.

6.1 Conclusion

Objective 1: To assess associations between caregivers' nutritional knowledge and feeding practices

Conclusions: Factors such as occupation of caregivers had a positive impact on the nutritional knowledge level. Also there is low knowledge level on some child's nutrition among majority of the caregivers. Attitudes and practices of feeding practices are the acceptable practices.

Caregiver's knowledge on child nutrition is associated with caregiver's feeding practices particularly exclusive breastfeeding, number of times of breastfeeding and age at complementary feeding

Objective 2: To examine the relationship between caregivers' nutritional knowledge and health seeking attitude

Conclusions: Health facilities were the first point of contact for caregivers when their children fall sick. Traditional healer was also utilized by significant number of the caregivers. Again, among other things, caregivers' nutritional knowledge impact positively on their health seeking behavior.

Objective 3: To determine caregivers' level of knowledge regarding the signs and symptoms of malnutrition.

Conclusion: Majority of the caregivers did not know about malnutrition or its signs and symptoms. Among the major signs and sympton that were identified by some caregivers were body wasting and weight loss.

Objective 4: To assess the associations between the caregivers nutritional knowledge and the home-based management of malnutrition.

Conclusion: Knowledge on home-based management of malnutrition were very low among the caregivers, as majority had no knowledge or were not aware of such program. Health workers were the major sources of information for the caregivers. Caregivers nutritional knowledge impact positively on their home-based management of malnutrition.

6.3 Recommendations

1. **Objective 1:** To assess associations between caregivers 'nutritional knowledge and feeding practices

- **Recommendation:** There should be continues nutritional education by the health workers to caregivers to increase their knowledge and awareness of some basic child nutritional information in order to impact positively on their feeding practices

2. **Objective 2:** To examine the relationship between caregivers' nutritional knowledge and health seeking attitude

•**Recommendation:** The Health Directorate should create awareness on effective child caring practice among parents and caregivers so as to prevent and reduce delays in care seeking and the use of any dangerous treatment that may be harmful to the children. Traditional healers should as well be recognized, their practice regulated and integrated in the management of malnourished children

•**Objective 3:** To determine caregivers' level of knowledge regarding the signs and symptoms of malnutrition.

•**Recommendation:** The local authority in collaboration with the Health Directorate should create an avenue for nutrition education for the communities at all contact points through Child Welfare Clinics and feeding Centers, and also use mass media to educate the community on essential nutrition information and sign and symptoms to help increase their knowledge.

•**Objective 4:** To assess the associations between the caregiver's nutritional knowledge and the home-based management of malnutrition.

•**Recommendation:** Awareness on home-based management of malnutrition was found to be very low, therefore the community health workers should put in place or increase their efforts of extending their services to the mothers in the communities to help increase the knowledge on CMAM. Ghana Health Service should also collaborate with other stakeholders such as UNICEF to help provide the necessary feed such as F-75, F100 or RUTF for effective community-based management of malnourished children.

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APPENDICES

Appendix 1.0

Caregivers' Consent Form

Title: Knowledge, attitude and feeding practices of caregivers' of malnourished children admitted to Savelugu Hospital in Savelugu/Nanton Municipality

Principal investigator: Arimiyaw Zeidu

Address: University of Ghana

P.O. Box LG, 25

Accra- Ghana.

General Information about Research

This is a research study. Please take your time and read through carefully and decide whether or not you will like you and your child to be part of the study. Feel free to ask any question at any time. The purpose of this study is to find out whether caregivers' nutritional knowledge influences the feeding practice and their attitude of seeking medical attention. You are invited to participate in this study because your child meets the criteria.

If you agree to participate in this study, you will be ask questions about yourself, your household and the way you feed your child within 24hours and seven days. The Length, weight and Mid-upper arm circumference of your child will be measured. You may skip any question that makes you feel uncomfortable during the interview. A total of 178 women will participate in this study.

Possible Risk and Discomfort

There is no risk involved in participating in this study. A little discomfort may be felt by the child during the measurements.

Possible Benefits

There is no direct benefit to you or your child for participating in this study. It is however hope that the information gained in this study will benefit the community by providing the best way of managing malnourished children.

Confidentiality

Information about you and your child will be kept confidential. You or your child will not be named in any of our reports and only investigators involved in this study will have access to records of subjects. The record of the study will be kept at the University of Ghana. However, Ghana Health Service Ethical Review Committee- GHSERC (a committee that reviews and approves human subject research studies may inspect and /or copy your record for quality assurance and data analysis.

Compensation

At the end of the study, you and your child will receive a token of a cake soap as compensation for your time and effort for participating.

Voluntary Participation and Right to leave the Study

You and your child's participation in this study are completely voluntary. You have the right to refuse to take part in the study or withdraw at any point in time. This will not result in any penalty or loss of benefits.

Contacts for Additional Information

You are encouraged to ask any question at any time of the study. Further questions about this study may be directed to Arimiyaw Zeidu (0244021854; Email; zaidarim@yahoo.com), Dr. Franklin Glozah (Email; fglozah@hotmail.com).

You and your child's Rights as Participants

This research has been reviewed and approved by Ghana Health Service Ethical Review Committee (GHSERC). If you have any questions about your rights as a research participant you can contact the office between the hours of 8am-5pm between Monday to Friday on (0233 302682709 or 0233 302687821. Email; info@ghsmail.org)

Volunteer Agreement

The above document describing the benefits, risks and procedures for the research titled (knowledge, attitude and feeding practices of caregivers' of malnourished children admitted to Savelugu Hospital in the Savelugu/Nanton Municipality) has been read and explained to me. I have been given an opportunity to ask any questions about the research answered to my satisfaction. I agree to participate with my child as volunteers.

_____ _____

Date Name and signature or mark of volunteer

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

_____ _____

Date Name and signature of witness

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

_____ _____

Date Name Signature of Person Who Obtained Consent

Address _____

Phone number _____

Appendix 2.0;

Questionnaire

My name is Arimiyaw Zeidu, a public health student at the University of Ghana. I am conducting this study to help identify some problems associated with malnutrition. With your consent I will like to ask you the following questions.

Main Study Questionnaire

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF CAREGIVER AND CHILD

Kindly tick/write the appropriate response where applicable

CAREGIVERS'

1. Name of Caregiver? …….
2. Sex ? Male [ ] Female [ ]
3. Age? …….. .
4. Ethnicity……
5. Religion…….
6. Level of Education ; Primary [ ] JHS[ ] SHS[ ] Tertiary[ ] Others…….
7. Occupation ……
8. Marital status; Married [ ] Single [ ] Widow [ ] Separated/Divorced [ ]
9. If Married, number of wives of the husband……
10. Caregivers relationship with malnourished child; Mother [ ] Grandmother [ ] Aunty [ ] Others specify……
11. Number of children of caregiver? ……..
12. Number of people in the household? . …….
13. Total number of children in the household……

14. Source of income for the household…….

MALNOURISHED CHILD

15. Child's Name? ……

16. Age……. Confirm from weighing card if available

17. Sex ; Male[ ] Female[ ]

18. Child's weight……

19. Height (cm)…….

20. MUAC ……..

CAREGIVERS' NUTRITIONAL KNOWLEDGE

Kindly tick/write the appropriate response where applicable

21. At what time should breastfeeding be initiated after child birth? .....

22. Should colostrum (first yellowish milk) be given to a new born baby?

Yes [ ] No [ ]

23. Whether colostrum be given or not, Why? …….

24. At what age should complementary feeding be introduced? ……

25. Which of the following is best for infants under 6 months?

Infant formula [ ] Breast milk [ ] Koko [ ] Tom brown [ ] Don't know [ ]

26. Do you know some of the benefits of breastmilk?

27. When serving food at home who do you think should get the greatest portion

Father [ ] Mother [ ] Older children [ ] Young children [ ] Don't know [ ]

28. Must fruits be given to children in between meals? Yes [ ] No [ ] Don't know [ ]

29. What are the main sources of protein? ……

30. Rickets /bow legs in children are caused by lacking what nutrients? .....

31. Which of the following is a rich source of iron/blood?

    Meat [ ] Tomatoes [ ] Carrot [ ] Rice [ ] Don't know [ ]

32. What type of food is appropriate to wean a child? .....

HEALTH SEEKING ATTITUDE OF CAREGIVERS

33. Has your child been sick for the past one month? Yes[ ] No[ ]

34. If yes in Q35, what sickness? .....

35. How prompt do you seek treatments for the child? .....

36. Where is your first point of call? Traditional healer [ ] Health facility [ ] Religious leader [ ] Others (specify)……

37. If not in health facility in Q38 why? ……..

38. Is there any available health facility in your area? Yes [ ] No [ ]

39. If yes in Q40, how close is it from your home? .....

40. What do you at home before seeking treatments? ……

FEEDING PRACTICES OF CAREGIVERS'

Kindly tick/write the appropriate response where applicable

41. Are you currently breastfeeding the child? Yes [ ] No [ ]

42. How many times do you breastfeed the child in a day?

    none [ ] 1-5 times [ ] 6 – 9 times [ ] > 10 times [ ]

43. Do you practice exclusive breastfeeding? Yes[ ] No[ ]

44. At what age do you intend to stop breastfeeding your child? …….months

45. Do you practice bottle feeding? Yes [ ] No [ ]

46. At what age did you begin giving your child complementary foods?.....months

47. What food did you give to the child at the start of complementary feeding?

    Koko [ ] Cerelac [ ] Rice water [ ] Tom brown [ ] Others (specify) …….

48. Do you feed your child with home cooked meals? Yes[ ] No[ ]

49. Do you have any food taboos or beliefs? Yes[ ] No[ ]

50. If yes in Q51, name some of them……..

IDENTIFICATION OF SIGNS AND SYMPTOMS OF MALNUTRITION

51. Do you know what Malnutrition is? Yes [ ] No[ ]

52. If yes in Q53, what do see in a child with malnutrition?

53. Which of these malnourished conditions do you know of? Marasmus [ ]

    Kwashiorkor [ ] Marasmic-kwashiorkor [ ] Others (specify)……..

54. What do you think causes malnutrition? ……

HOME-BASED MANAGEMENT OF MALNUTRITION

55. How did you feed your malnourished child at home? Household meal [ ] specially

    Prepared meal [ ] Any available food [ ]

56. Have you heard of Community-based Management of Acute Malnutrition (CMAM)?

    Yes [ ] No[ ]

57. If, yes in Q56, what can you say about CMAM? .....

58. Where did you first hear it? Radio [ ] community members [ ] Health workers [ ]

    TV [ ] Others (specify)……..

59. Can you continue to breastfeed the child on the CMAM program? Yes [ ] No[ ]

60. Is there any food safer and more beneficial to the child than the breastmilk?

    Yes [ ] No [ ]

61. If yes in Q60, what food is it? .....

62. Who supports you in caring for the child? …….

63. What form of support? .....