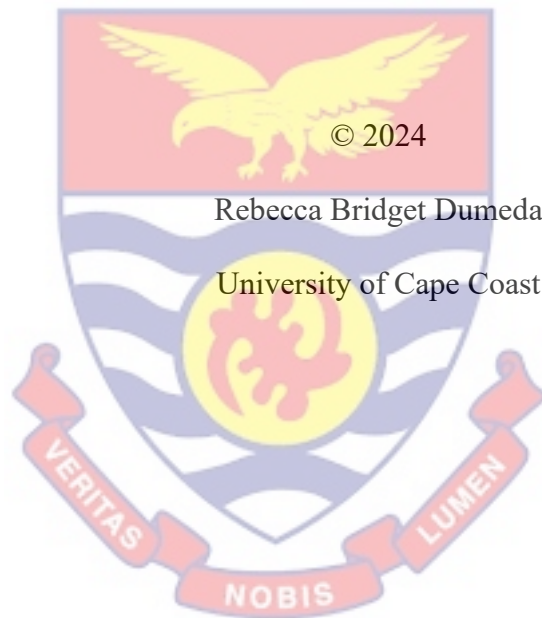


UNIVERSITY OF CAPE COAST

AWARENESS AND MANAGEMENT OF UNDERNUTRITION AMONG  
CHILDREN UNDER FIVE YEARS



2024



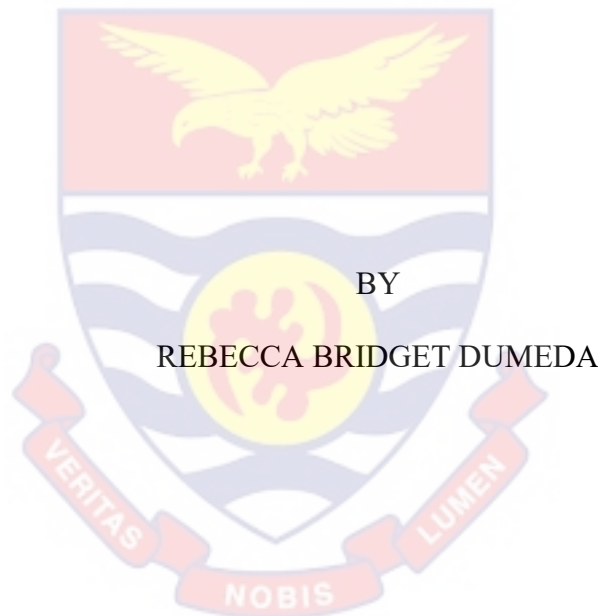
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Rebecca Bridget Dumeda

University of Cape Coast

UNIVERSITY OF CAPE COAST

AWARENESS AND MANAGEMENT OF UNDERNUTRITION AMONG  
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This thesis submitted to the Department of Vocational and Technical Education of the Faculty of Science and Technology Education, College of Education Studies, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Philosophy degree in Home Economics.

APRIL 2024

## DECLARATION

### Candidate's Declaration

I hereby declare that this thesis is the result of my original research and that no part of it has been presented for another degree in this University or elsewhere.

Candidate's Signature  .....

Date 08/07/2025...

Name: Rebecca Bridget Dumeda

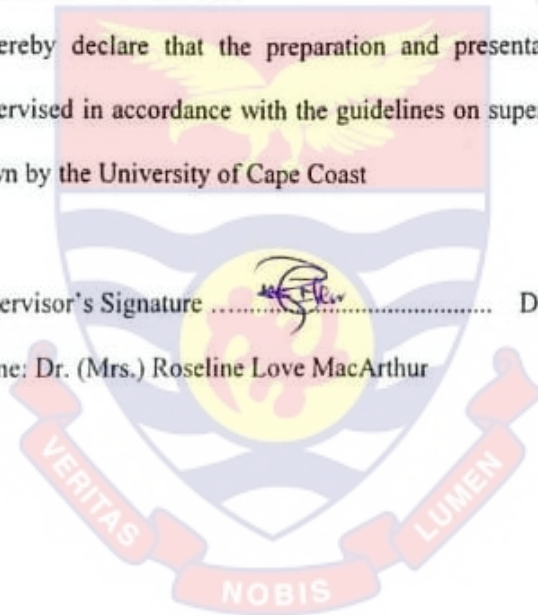
### Supervisors' Declaration

I hereby declare that the preparation and presentation of the thesis was supervised in accordance with the guidelines on supervision of the thesis laid down by the University of Cape Coast

Supervisor's Signature  .....

Date 08/07/2025

Name: Dr. (Mrs.) Roseline Love MacArthur



## ABSTRACT

Undernutrition persists as a major threat to both physical development and health of millions of children below age five in developing countries. There are possible determinants associated with the prevalence of undernutrition among children under five years. The purpose of the study was to examine the awareness and management of undernutrition among children under five years in Nkanfoa in the Cape Coast Metropolis. Three specific research questions were developed to guide the study. The qualitative research design was adopted for the study. The purposive sampling technique was used to select eighteen caregivers. Data was collected from interviewees using semi-structured interview guide. The data was manually categorised to generate similarities and differences in opinions, which were used to form themes for discussions. The findings showed that a greater number (ninety percent) of the interviewees were able to mention determinants of undernutrition, but were unable to identify the three categories of undernutrition. Responses from caregivers suggested that their occupation and large family sizes, as well as feeding practices, are factors that negatively impact the nutritional status of their children. Additionally, the interviewees agreed that cases of undernutrition had the potential to be addressed by medical, spiritual and traditional means. Based on the findings, it was recommended that the Nutrition Officers and Community Health Nurses in the community need to encourage educational campaigns that focus on teaching community members how to use food available, what the foods contain and how to combine these foods to achieve nutritionally adequate meals to prevent undernutrition.

## KEY WORDS

Prevalence

Stunting

Undernutrition

Under five years

Underweight

Wasting



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## DEDICATION

To my family



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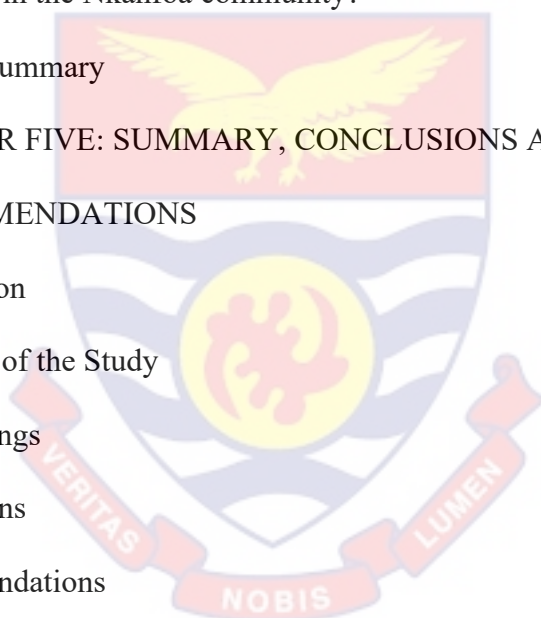
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**LIST OF ACRONYMS**

MOH	Ministry of Health
WHO	World Health Organization
SDG	Sustainable Development Goal
SAM	Severe Acute Malnutrition
MAM	Moderate Acute Malnutrition
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
ICF	International Classification of Functioning
MDG	Millennium Development Goal
CIAF	Composite Index of Anthropometric Failure
ECIAF	Extended Composite Index of Anthropometric Failure
BMI	Body Mass Index
GSS	Ghana Statistical Service
GMICS	Ghana Multiple Indicator Cluster Survey
MDDS	Minimum Dietary Diversity Score
GHS	Ghana Health Service
NIDS	National Income Dynamics Study
WAZ	Weight –for –age z -score
HAZ	Height-for-age z-score
WHZ	Weight-for-height z-score
GDP	Ghana Domestic Product

## CHAPTER ONE

### INTRODUCTION

#### Background to the Study

One of the most important potential community resources is the children in it; hence, their survival and well-being are essential prerequisites for sustainable community development. The early years of life of a child are crucial; when well nurtured, nourished, and cared for, children are more likely to survive, grow healthily, have fewer illnesses, and fully develop cognition, language, emotional and social skills (Mensah, 2015). Healthy child development sets the foundation for the resulting adult, who is more likely to become creative and productive in society (United Nations International Children's Emergency Fund, 1998). Nutrition has increasingly been recognised as a pillar of social and economic development. In light of this, the reduction of infant and young child undernutrition is essential to the achievement of the Sustainable Development Goals (SDGs), particularly those related to the eradication of extreme poverty and hunger (SDG 1) and child survival (SDG 4) (World Bank, UNICEF, 2014).

The World Health Organization (2016) reported that undernutrition results from inadequate intake or assimilation of nutrients that are required to promote growth and prevent chronic or acute disease and is often characterised by stunting, wasting, underweight, and micronutrient deficiency. Undernutrition indicates a lack of the necessary energy, proteins, and other micronutrients (Tickell & Denno, 2016). Undernutrition persists as a major threat to both the physical development and health of millions of children below five years of age in developing countries (Pelletier, Frongillo, Schrvéder, &

Habicht, 1995; WHO, 2015). According to UNICEF (2009), failure to grow is easily observed through forms of undernutrition. The forms include being short for one's age (stunting), dangerously thin for one's height (wasting), and having a weight for one's age below two standard deviations (underweight) as an outcome of insufficient food intake, inadequate care, and infectious diseases. Undernutrition is the leading cause of death in children below the age of five in developing countries, including those in sub-Saharan Africa, Asia, and Latin America (Abera, Dejene, & Laelago, 2017). Undernutrition develops in children whose consumption of protein and energy is insufficient to satisfy their body's nutritional needs. Undernutrition may also occur in children who are unable to absorb vital nutrients or convert them to energy essential for healthy tissue formation and organ function (Awatef, Elkady, Hussein, & Abdrbou, 2011). Available research indicates that factors such as family size, parental educational level and occupation, infant and young feeding practices, age, and gender of the child grossly affect childhood nutrition (Maia et al., 2008; Van de Poel et al., 2007). The contribution of social science researchers to reducing the burden of child undernutrition globally hinges on determining its incidence and causes. Causes of undernutrition in children are generally categorised into three major factors; immediate, underlying, and basic. The immediate factors include inadequate food intake and diseases, while the underlying factors comprise food security at the household level, public health problems, and social care of the environment. The basic factors, among others, are the political, economic, socio-cultural, and physical environment (Alam, 2012). Undernutrition among children is a critical problem because its effects are long-lasting and go beyond childhood. It has short- and long-term consequences (Abuya et al., 2012). For

instance, undernourished children, compared to non-undernourished children, are physically, emotionally, and intellectually less productive and suffer more from chronic illnesses and disabilities (Jesmin et al., 2011). Besides, worldwide efforts are being made to reduce undernutrition prevalence by 2030 and achieve the internationally agreed target of getting less than five percent of the world's children malnourished (Utami et al., 2018).

Moreover, to make a sustainable impact, interventions need to address direct causes and the context of undernutrition. In any nutritional intervention, the beliefs and behaviours of caregivers are an important consideration (Abubakar et al., 2011). It is imperative to understand the caregiver's comprehension of the illness (Kamara & Kimberly, 2013). This study, therefore, seeks to examine awareness and management of undernutrition at Nkanfoa in the Cape Coast Metropolis.

### **Statement of the Problem**

Undernutrition is a significant public health problem. Factors such as poverty, lack of access to nutritious food, poor sanitation and hygiene, and limited knowledge about proper nutrition continue to be the major contributors to undernutrition in Ghana (Aryeetey et al., 2022).

World Health Organization (2018) reported that 149 million children under five were stunted, 45 million were wasted, and 38.9 million were underweight globally. Furthermore, Asia and Africa were the most heavily impacted by wasting (UNICEF, 2018). However, a closer look at the distribution of stunting in the African region reveals that Eastern Africa (32.6 percent) has a higher incidence of stunting than Western Africa (30.9 percent), Central Africa (36.8 percent), Northern Africa (21.4 percent), and Southern

Africa (23.3 percent). While Western Africa has a higher rate of wasting than the rest of Africa, Southern Africa (3.2 percent), Central Africa (6.2 percent), Northern Africa (6.6 percent), and Eastern Africa (5.2 percent) have lower rates (UNICEF, 2021).

The Ghana Statistical Service, Ghana Health Service, and International Classification of Functioning, Disability, and Health classified undernutrition based on three anthropometric indices of nutritional status (height-for-age, weight-for-height, and weight-for-age), revealing that 19 percent of children were stunted, 5 percent were wasted, and 11 percent were underweight (GSS, GHS, & ICF, 2015).

GSS, GHS and ICF International (2015) reported a rise in undernutrition in Ghana. According to the report, 7 percent of children under five are wasted (have low weight for height), 18 percent are stunted (have low height for age), and 13 percent are underweight (have low weight for age). In terms of regional variations, with stunting prevalence, the top three regions are the Northern region (33 percent), Upper West (22.2 percent) and Central Region (22 percent). In terms of wasting, Upper East Region is the highest (9.4 percent), followed by Central (7.7 percent) and Volta Region (3 percent). Again, with the number of underweight children, Northern Region is the highest (20 percent), followed by Central Region (13.9 percent) and Brong Ahafo Region (6 percent) (Dey et al., 2020). This evidence suggests that childhood undernutrition remains a serious public health challenge in Ghana. Undernutrition contributes to more than 50 percent of the child mortality rate in developing nations (Berhanu et al., 2018). Additionally, the COVID-19 pandemic has had a major impact on economies and food systems around the world, which has further exacerbated

the problem of undernutrition in Ghana and other countries. Comparing the undernutrition statistics in Ghana to other developing countries (UNICEF & WHO, 2020), they are still not up to the benchmark of the World Health Organization (WHO) classification of low undernutrition prevalence.

Several studies have been done on undernutrition among children under five in Africa. Some of these include the prevalence of undernutrition and associated factors in children aged 6–59 months (Abera, Dejene, & Laelago, 2017; Akombi et al., 2017; Endris, Asefa, & Dube, 2017; Gilbert & Mak 2014; Van de Poel et al., 2008). Some studies have also been carried out in Ghana such as the impact of belief systems on the management of child malnutrition: The case of Talensis of Northern Ghana ( Boatbil, Guure & Ayoung, 2014); correlates of stunting among children in Ghana (Darteh, Acquah & Kumi-Kyereme, 2014), why are children wasting (Darteh, Acquah, & Darteh, 2017); undernutrition in a peri-urban fishing community (Bandoh, Manu & Kenu,2018) and socio-cultural factors influencing malnutrition among children under-five years (Arhin, 2019). Similarly, there is still a knowledge gap in the awareness and management of undernutrition among children under five years old. Thus, this study is an attempt to contribute empirical evidence to fill this gap. Nkanfoa, is a suburb of Cape Coast in the Central Region, which is one of the undernutrition-endemic regions in Ghana (Bandoh, Manu, & Kenu, 2018). Further, reports from the Cape Coast Metropolitan Health Directorate from April to May 2023 indicate that the Nkanfoa community has a prevalence of undernutrition cases. Wasting (5.2 percent), stunting (7.51 percent), and underweight were 40 representing (23.13 percent). The total number of children who were at risk

of becoming malnourished were (25.43 percent). It is in view of the above that the study seeks to examine awareness and management of undernutrition among children under five years in Nkanfoa in the Cape Coast Metropolis.

### **Purpose of the Study**

The purpose of the study was to examine awareness and management of undernutrition among children under five years at Nkanfoa in the Cape Coast Metropolis.

### **Research Questions**

For the study to achieve its goals and objectives, its primary focus was on finding the responses to the questions that are outlined below:

1. How do caregivers perceive and understand undernutrition in children under five years in the Nkanfoa community?
2. What are the lived experiences of caregivers regarding the risk factors contributing to undernutrition in children under five years in the Nkanfoa community?
3. How do caregivers and community members manage and prevent undernutrition in children under five years in the Nkanfoa community?

### **Significance of the Study**

An investigation to examine the awareness and management of undernutrition among children under the age of five may shed light on the pressing need for a more in-depth understanding of the risk factors that are associated with undernutrition and its management in order to achieve the Sustainable Development Goals (SDGs), which is the reduction of undernutrition among infants and young children.

The findings of the study will unravel the level of community awareness about undernutrition and the associated risk factors. This includes social factors (family size, household income, and sanitation), cultural beliefs (family belief systems, food taboos, and treatment of undernutrition), and feeding practices (types of food given to children, frequency of breastfeeding, and knowledge of appropriate food for children), which are detrimental to the nutritional status of the children.

Again, the study would inform the World Health Organisation, Ghana Health Services, and the Ministry of Health on contextual planning and management of undernutrition by reinforcing the intervention policy. This policy includes strategies for improving exclusive breastfeeding, which results from lactating mothers eating a balanced meal, which affects the quality of milk, complementary feeding, and deworming for children under five years in particular. This initiative, which began in 2005, is aimed at preventing avoidable deaths due to ill-health resulting from infection and, more importantly, undernutrition among children younger than five years.

Furthermore, the study can help health professionals educate mothers on how to manage or prevent undernutrition. Again, it can also provide a framework for health workers through which specific indicators could be used to assess the risk of undernutrition for a child, thereby implementing the appropriate measures to curtail it. Finally, the study can be of immense benefit to academics in the sense that it will serve as reference material for others who are also interested in studying undernutrition among children.

## **Delimitation**

This study was conducted in the Nkanfoa community within the Cape Coast Metropolis, as the Central Region was one of the areas in Ghana most affected by undernutrition (Bandoh, Manu, & Kenu, 2018). While undernutrition had multiple dimensions, this study specifically focused on community awareness of stunting, wasting, and underweight; the factors that contributed to undernutrition in children under five years old; and strategies for managing its prevalence in the community.

## **Limitations**

The main limitation of this study lies in the tradition adopted for this study. The qualitative tradition allowed a few individual cases to be handpicked for in-depth interviews, and this makes it difficult for the findings of this study to be generalized. Another major limitation of the study had to do with the fact that interviews with caregivers were conducted in their native language (Fante). The data was transcribed directly into the English language. The process of translating may result in some unintentional distortion of the views of interviewees.

## **Definition of terms**

For this study, the following terms are used, as defined below:

**Malnutrition** refers to deficiencies or excesses in nutrients, an imbalance of essential nutrients, or impaired nutrient utilisation.

**Undernutrition** is characterised by an insufficient intake of energy and nutrients to meet an individual's needs and maintain good health. Undernutrition includes stunting, wasting, and being underweight.

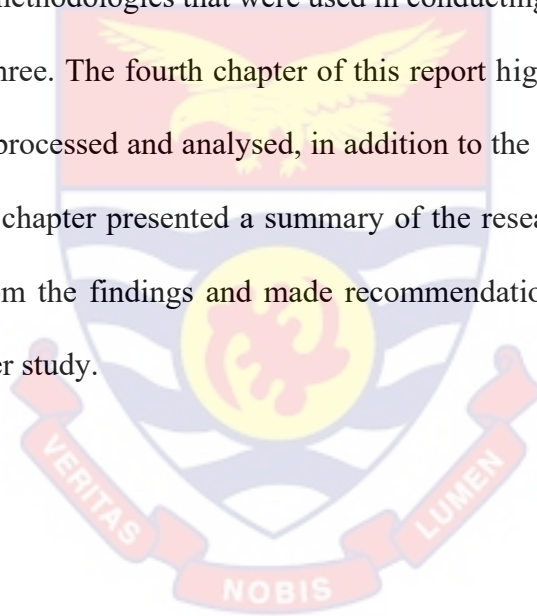
**Stunting** is defined as low height for age.

**Wasting** is defined as low weight for height.

**Underweight** is defined as low weight for age.

### **Organisation of the Study**

The study was structured into five chapters. The introductory chapter dealt with the background of the study, statement of the problem, purpose of the study, research question, significance, delimitation, and limitation of the study, and concluded with the organisation of the study. Conceptual issues, a model, and empirical studies on the subject were included in Chapter two. The research methodologies that were used in conducting the study are presented in Chapter three. The fourth chapter of this report highlighted how the collected data was processed and analysed, in addition to the interpretation of the result. The final chapter presented a summary of the research conclusions that were drawn from the findings and made recommendations for appropriate redress and further study.



## CHAPTER TWO

### LITERATURE REVIEW

#### Introduction

This chapter examines the literature that is pertinent to the subject. The review examines the concepts of malnutrition and undernutrition, the extent of undernutrition, and the factors and outcomes associated with undernutrition. In addition, this study includes a comprehensive analysis of the factors that contribute to undernutrition and the strategies used by communities to address undernutrition.

#### Conceptual Review

##### Malnutrition

Malnutrition, as defined by the World Health Organization and UNICEF (2020), encompasses deficiencies, excesses, or imbalances in an individual's consumption of energy and/or nutrients. Malnutrition encompasses two main categories of conditions: undernutrition, which comprises stunting (below-average height for age), wasting (below-average weight for height), being underweight (below-average weight for age), and micronutrient deficit or insufficiency (a shortage of essential vitamins and minerals). The other issue is for those who are excessively overweight, suffering from obesity, and experiencing non-communicable diseases that are linked to their food, such as heart disease, stroke, diabetes, and cancer.

Anato (2022) defines malnutrition as a condition that arises when an individual's diet is deficient in one or more essential nutrients. This pertains to foods that either lack essential nutrients or contain excessive amounts of nutrients, leading to health problems. Protein, carbohydrate, fat, vitamins, and

minerals are among the various nutrients implicated. There are two types of malnutrition: severe acute malnutrition (SAM) and moderate acute malnutrition (MAM). Severe Acute Malnutrition (SAM) is a term used to describe the condition of children who are highly malnourished (Anato, 2022).

Malnutrition is a primary factor leading to mortality in children below the age of five. In 2018, a large number of children under the age of 5 were impacted by stunting (149 million), wasting (49 million), and overweight (40 million) globally. Asia and Africa still carry the highest proportion of the global burden of early childhood malnutrition (UNICEF & WHO, 2020).

Ghana has made substantial progress in eliminating childhood malnutrition in comparison to other African countries (Kuwornu et al., 2020). The 2015 final report on Ghana's progress towards the Millennium Development Goals (MDGs) reveals that between 1993 and 2014, the country effectively reduced by half the percentage of underweight and wasted children, as outlined in the MDGs. However, Ghana fell short of achieving the target for stunting, with a rate of 19 percent instead of the desired 7 percent in 2014. Despite the advancements made at the national level, there have been notable disparities within the country. The occurrence of stunting among children under the age of five is particularly concerning in rural and socioeconomically disadvantaged regions (de Groot et al., 2017). The conventional indicators of malnutrition, such as wasting, underweight, overweight, and stunting, each capture different biological processes. However, none of these indicators are intended to provide a comprehensive assessment of malnutrition in a specific population because they often overlap with each other (Ziba, Kalimira, & Kalumikiza, 2018). Nandy and Svedberg (2012) developed the composite index

of anthropometric failure (CIAF), which was later expanded by Kuiti & Bose (2018) to include overnutrition. This expanded version is referred to as the extended composite index of anthropometric failure (eCIAF) and allows for a comprehensive assessment of undernutrition in a population. The CIAF and eCIAF are more effective than traditional methods in guiding policy actions because they enable the differentiation between children who are facing a single anthropometric failure and those experiencing many failures. Children who have repeated anthropometric failures are at a greater risk of poor health and are more likely to die prematurely (Goswami, 2016). Therefore, it is important to prioritize interventions for these children. Despite the improvements indicated by conventional indicators of malnutrition, early childhood malnutrition remains a significant public health issue in Ghana. Monitoring the general estimation of malnutrition in the population by indices such as the CIAF and eCIAF would be highly beneficial for developing policy interventions based on empirical evidence.

According to Martínez Pérez & Pascual García (2013), malnutrition continues to be the primary factor contributing to illness. This condition has effects on cognitive development, growth, and academic performance, as stated by Goon et al. (2011). Children who receive nutritious nourishment are more inclined to live and flourish. Optimal nutrition in children is crucial for their overall development, cognitive abilities, engagement in activities, social involvement, and positive contributions. Conversely, malnutrition hinders children from reaching their maximum potential, hence affecting not only individual children but also nations and societies worldwide (UNICEF, 2021). Stunting, wasting, and underweight are the three commonly acknowledged

signs of undernutrition in children under the age of five (De Onis, Dewey, Borghi, Onyango, Blössner, Daelmans, & Branca, 2013). Stunting and wasting indicate long-term and short-term malnutrition, respectively. Underweight can indicate both acute (wasting) and chronic (stunting) undernutrition (De Onis et al., 2013). Children may concurrently endure many types of malnutrition (De Onis et al., 2013). Stunting, as defined by Turck et al. (2013), refers to a condition when a baby's height is below the expected level for their age. Wasting is a condition where a baby's weight is disproportionately low compared to its height. Underweight refers to a baby that has a weight that is significantly below the average weight for their age. Specifically, it indicates that the weight is more than two standard deviations below the median weight according to the Child Growth Standards (Turck et al., 2013). Stunting, wasting, and being underweight are conditions that are linked to undernutrition. The absence of health services, poor environment, insufficient financial resources, inadequate food consumption, infection, limited food access, and substandard care and feeding habits have a significant impact on it (Desssie et al., 2019). The presence of signs of undernutrition in children serves as a reliable predictor of the general state of nutrition and nutrition security in low- and middle-income nations. (Atsu et al., 2017). Malnutrition can be attributed to a range of factors, such as illnesses, insufficient meals, and environmental and socioeconomic factors (Habaasa, 2015). The variables considered in this study include the child's age in months (Ahmadi et al., 2018), the child's gender (Tekile et al., 2019), the child's birth size (Sultana et al., 2019), the mother's level of education (Talukder, 2017), the mother's body mass index (Tekile et al., 2019), the household wealth index (Woldeamanuel & Tesfaye, 2019), the source of

drinking water (Kassie & Workie, 2020), and the family size (Tekile et al., 2019).

In 1990, UNICEF implemented the theatrical framework to address child hunger in children under the age of five (Clark et al., 2020). The report emphasized both the fundamental and root causes of malnutrition, encompassing insufficient nutritional consumption and inadequate children's healthcare. The occurrence of malnutrition can be attributed to factors such as the accessibility and utilization of food. Additionally, there are indirect and underlying factors that encompass human, economic, home, and community resources, and are influenced by geography and economic framework (Obasohan et al., 2020; Said-Mohamed et al., 2015). However, Shrimpton (2020) pointed out a limitation of the UNICEF conceptual framework. That is, it fails to adequately acknowledge the impact of maternal health and inadequate fetal growth on the development of malnutrition. The main detrimental consequences of hunger occur during gestation and in the initial two years of existence (World Bank, 2015). Therefore, it is crucial to integrate maternal health, nutrition, and fetal growth, as these factors are interconnected with the survival and growth of the child (Shrimpton, 2020). The implementation of the Sustainable Development Goals (SDGs) has garnered international acknowledgement for the importance of child nutrition. It is not solely based on children's survival, but also their growth and overall well-being (Hone et al., 2018).

In summary, the conceptual review of malnutrition is a fundamental basis for comprehending the issue of undernutrition in children under the age of five. It is vital in directing and tackling the study objective.

## **Concepts of Undernutrition**

Undernutrition occurs when there is insufficient consumption or absorption of necessary nutrients needed for growth and to avoid chronic or acute illnesses. It is typically characterized by stunted growth, weight loss, being underweight, and lacking essential micronutrients (Min et al., 2018). Undernutrition is characterized by stunting, wasting, and being underweight, which result from insufficient food intake, inadequate care, and infectious diseases (Asfaw et al., 2021).

### **Stunting in children under the age of five years**

Stunting in a child refers to being shorter than expected for their age, with a height-for-age Z-score that is more than 2 standard deviations below the median of the reference population. Stunting is a sign of reduced linear growth and overall growth deficits in children due to long-term malnutrition (Vollmer et al., 2016). Stunting is commonly linked to low socio-economic circumstances, inadequate maternal health and nutritional status, improper feeding practices, and frequent hospitalizations throughout early childhood (May et al., 2020). Linear growth is a robust indicator of the likelihood of experiencing illness, death, and cognitive abilities in the future. Stunting is predominantly irreversible, particularly within the initial 1000 days from conception, resulting in detrimental consequences for a child's life (Adair et al., 2013). The physical and cognitive development of a child is significantly impacted by it (Mkhize & Sibanda, 2020).

### **Wasting in children under five years of age**

Child wasting is characterized by a poor weight-for-height ratio, where the weight-for-height Z-score falls more than two standard deviations below the

median of the reference population. Wasting is a method of assessing a child's nutritional condition by measuring their body mass about their height. It provides information about the child's present level of malnutrition (Clark et al., 2020). Typically, it signifies recent and significant weight loss due to insufficient food availability and infectious disorders, such as diarrhoea. Children who experience frequent and severe episodes of wasting are at a higher risk of death (Abate & Belachew, 2019). The primary contributing factors to wasting encompass limited access to suitable healthcare, inadequate food security, improper feeding methods, a nutritionally deficient and repetitive diet, and insufficient water, sanitation, and hygiene services. Episodes of severe wasting significantly impair a child's immune system, rendering them vulnerable to long-term delays in development and an elevated risk of mortality (Koetaan et al., 2018).

### **Underweight in Children Under Five Years of Age**

Childhood underweight is characterized by a low weight-for-age ratio that falls two standard deviations below the median of the reference population. This disorder is characterized by a combination of stunting and wasting. In other words, an underweight child may experience stunting, wasting, or both simultaneously (Desyibelew et al., 2020). Children under the age of five are at the highest risk of undernutrition in poor nations because they do not receive enough nutrients, are not given enough care, and do not have equal access to food within their households (Yalew et al., 2014). Malnutrition has a profound impact on the child, the family, and the socio-economic progress of the nation. A malnourished child has a higher probability of falling ill and succumbing to death. In addition, being underweight can result in inhibited physical growth,

compromised cognitive and behavioral development, subpar academic achievement, reduced job capability, and diminished income.

Malnutrition hampers economic progress and contributes to increased poverty rates. Undernutrition hinders a society from reaching its maximum potential due to decreased production, cognitive abilities, and higher healthcare expenses (Nicholl, 2019). Three evaluation techniques are employed to assess undernutrition. Anthropometric measurement, commonly utilized for assessing physical characteristics, includes parameters such as height, weight, arm circumference, and skin fold thickness. The study involves examining the biological components of blood and urine, specifically looking for indicators of iron deficiency and the need for vitamin A supplementation. Additionally, there is a clinical assessment of physical indications that may indicate nutrient deficiencies (Nicholl, 2019).

Anthropometric measurement is a prevalent and straightforward tool used to evaluate health and nutrition status among the three assessment methods. The remaining two methods are less feasible due to the logistical challenges and the high costs and time requirements associated with data collection and analysis. Biochemical and clinical signs are particularly valuable in cases of severe malnutrition. Anthropometric measurements are the most commonly used method in household surveys because they are cost-effective and sensitive in detecting even mild types of undernutrition.

Three prevalent metrics include weight-for-age, height-for-age, and weight-for-height (often transformed into Body Mass Index, or BMI). Typically, every measurement is transformed into a z-score, which represents the number of standard deviations an individual's value deviates from the

average of a reference population. If a z-score is two standard deviations or more below the mean, it suggests serious malnutrition. On the other hand, if a z-score is three standard deviations or more below the mean, it shows severe undernutrition.

The weight for age, which is often gathered in growth promotion programs, is the predominant measure used to examine the nutritional condition of children. It quantifies the impact of both immediate and prolonged harm to one's well-being. A child is classified as underweight if their weight for age falls two standard deviations or more below the average for the reference population. Weight for height is an indicator of acute or temporary malnutrition. Wasting is a word used to describe a situation when a person's weight for their height is two standard deviations or more below the average for the reference group. It is a highly sensitive indication that is commonly used to identify the need for short-term intervention programs, such as delivering nutritional supplements during emergencies. Wasting can be quantified irrespective of a child's age, making it the most reliable indication of undernutrition in situations when accurately determining the ages of children being evaluated is challenging, such as in complicated events like famines. Height for age is a metric that assesses the extent of linear growth and indicates the lasting, accumulated impacts of insufficient nutrition and unfavorable health conditions. A child is classified as stunted if their height, about their age, is at least two standard deviations below the average height of the reference population.

### **Prevalence rate of undernutrition**

Childhood malnutrition, which encompasses conditions such as stunting, wasting, and being underweight, is a significant worldwide contributor

to illness and death in children below the age of five. Approximately one-third of deaths in children under the age of five are attributed to undernutrition when considering all causes of mortality.

According to Amare et al. (2016), it was projected that there were 149 million children under the age of five who experienced stunted growth, 45 million who suffered from wasting, and 38.9 million who were overweight or obese worldwide. In Latin America and the Caribbean, there are 6 million individuals who suffer from stunted growth, 4 million who are underweight, and 1 million who are wasted. According to Amare et al. (2016), there are 500,000 cases of stunted growth, 100,000 cases of being underweight, and 100,000 cases of wasting in Oceania. In 2017, a study from the World Health Organisation (WHO) stated that globally, around 149 million children under the age of five experienced stunted growth, 45 million suffered from wasting, and 38.9 million were underweight (Bharali et al., 2017).

Although the United Nations International Children's Emergency Fund (UNICEF) and World Health Organization (WHO) have provided significant support in the pursuit of nutritional freedom, we are still a long way from eliminating malnutrition worldwide (UNICEF and WHO, 2020). Based on the UNICEF-WHO-World Bank Group Joint Malnutrition Estimate (2023), the prevalence of stunting has been decreasing since 2000. In total, 149.2 million children under the age of five, which is more than one in five, were affected by stunting. Additionally, 45.4 million children suffer from wasting. In 2020, the United Nations Children's Fund (UNICEF) found that undernutrition was the cause of about 50% of deaths in children under the age of five globally. Additionally, 22% of children under five were stunted, 12.6% were

underweight, and 6.7% were wasting. During the same year, almost 149.2 million children under the age of five were impacted by stunting. Asia accounted for 30.7% of the total number of children that were stunted. Malnutrition has been a significant factor in the demise of 45.4 million children below the age of five. The majority of wasted children, over two-thirds, are located in Asia, while Africa is responsible for more than a quarter of them (UNICEF, 2021). Upon further examination of the stunting distribution in the African region, it becomes evident that Eastern Africa (32.6%) has a greater prevalence of stunting compared to Western Africa (30.9%), Central Africa (36.8%), Northern Africa (21.4%), and Southern Africa (23.3%). Western Africa exhibits a higher prevalence of wasting compared to other regions in Africa, with rates of 3.2% in Southern Africa, 6.2% in Central Africa, 6.6% in Northern Africa, and 5.2% in Eastern Africa (UNICEF, 2021).

Undernutrition is a major factor in almost 50% of child deaths in underdeveloped countries (Berhanu et al., 2018). Undernutrition can weaken a child's immune system, hinder growth, impede brain development by delaying motor and cognitive development, and increase the risk of several disorders in the future (Herrador et al., 2014; Martins et al., 2011). Undernutrition is more widespread in low and middle-income countries, especially in southern Asia and sub-Saharan Africa (Harttgen et al., 2017).

The Ghana Multiple Indicator Cluster Survey (GMICS) from 2006 to 2018 found that 7% of children under five suffer from acute malnutrition or wasting (low weight for height), 18% are stunted (low height for age), and 13% are underweight (low weight for age) (Dzomeku et al., 2021). As per the World Health Organisation, approximately 37% of children below the age of five in

Ghana suffer from stunting, which is characterised by being shorter than expected for their age, as a result of persistent malnutrition. In addition, around 18 percent of children have a body weight below the normal range, and 11 percent have a body weight that is too low in proportion to their height. The prevalence of these rates is greater in rural areas and among households with lower socioeconomic status. Undernutrition is a prevalent issue in Ghana, impacting a substantial number of individuals in the country. Factors such as poverty, inadequate access to nourishing food, substandard sanitation and hygiene, and low awareness about appropriate nutrition persist as significant causes of undernutrition in Ghana. Moreover, the COVID-19 pandemic has significantly affected the global economy and food systems, potentially worsening the issue of undernutrition in Ghana and other nations (WHO, 2020). These findings indicate that childhood malnutrition continues to be a significant public health issue in Ghana. In Ghana, the rates of undernutrition are not evenly spread, with children in the three northern regions (Northern, Upper East, and Upper West) having lower weight-related Z scores and a higher prevalence of acute malnutrition compared to those in the southern zone (Ashanti, Western, Eastern, Central, Volta, Brong-Ahafo, and Greater Accra regions) (Amugsi et al., 2013). Based on the analysis conducted by GSS, GHS, and ICF in 2015, the Northern Region exhibits a greater prevalence of undernutrition compared to the Central Region, Brong Ahafo Region, and Volta Region.

Miah et al. (2016) conducted a study in Ghana to analyse the risk factors for undernutrition in children under five years old, aligning with the views of the authors cited earlier. A total of 7,550 children were enrolled in the survey.

Among them, 22.7% were found to be stunted, 13.4% were underweight, and 6.2% were wasted. In a study conducted by Aheto et al. (2017), it was discovered that out of the 2,083 children analysed, 588 (28%), 276 (13%), and 176 (8%) were moderately stunted, moderately underweight, and moderately wasted, respectively, in Ghana. These classifications were based on the criteria established by the World Health Organization (De Onis & Blössner, 2013). A study by Bando et al. (2018) on the issue of "lack of abundance", which refers to undernutrition in a peri-urban fishing community located in coastal Ghana. The results indicate a significant occurrence of malnutrition among children under the age of five in the Ekumfi Narkwa fishing community in the Central Region of Ghana, despite the plentiful supply of fish and its inclusion in their diet. Approximately 80 percent (198 out of 250) of the youngsters were documented to have ingested fish products on more than three occasions within the previous week, whereas 85 percent (214 out of 250) consumed staple foods more than three times in the prior week. A total of 26.4 percent of the youngsters were found to be undernourished, which accounts for more than one-quarter of the population. The occurrence of stunting, wasting, and underweight was 17.6 percent (44 out of 250), 4.4 percent (11 out of 250), and 12 percent (30 out of 250), respectively. An association was seen between the age of the caretakers and the likelihood of a child being underweight. Additionally, the age group of the caregivers was found to be connected with undernutrition.

Boah et al. (2019) confirmed the occurrence of undernutrition by conducting a study on the epidemiology of undernutrition and its factors in children under five years old in Ghana. The occurrence of underweight, wasting, and stunting was 10.4 percent, 5.3 percent, and 18.4 percent,

respectively. The child's age was linked to underweight, wasting, and stunting, whereas the child's sex was linked to wasting and stunting. Maternal body mass index categories of normal, overweight, or obese, together with high women's autonomy and a middle-class wealth index, were found to be linked to a reduced likelihood of undernutrition. The characteristics linked to an increased likelihood of child undernutrition were: low birth weight (<2.5 kg), a minimum dietary diversity score (MDDS), a higher birth order number (4th) of the kid, elementary education level of the spouse or partner, and residing in the northern area of Ghana. The prevalence of undernutrition among children under five in Ghana remains high. Therefore, it is necessary to utilise suitable and advanced statistical techniques to determine the factors that contribute to undernutrition. This information will help shape policies and public health nutrition interventions aimed at reducing the prevalence of undernutrition in the country.

### **Causes of undernutrition**

Undernutrition in children under the age of five is caused by a multifaceted interplay of factors, including the presence, reach, and effective use of food and healthcare services (Drammeh et al., 2019). Nutrition-specific issues encompass insufficient food consumption, substandard caregiving and parenting, incorrect dietary habits, and infectious co-occurring illnesses. Factors like sensitivity to nutrition encompass food insecurity and insufficient economic resources at the individual, household, and community levels. Inadequate access to education, healthcare services, infrastructure, and a substandard hygienic environment are additional factors that hurt the nutritional status of children under age five (Drammeh et al., 2019; Clark et al., 2020).

Age, gender, geographical area, level of maternal education, family income, household size, food security, and healthcare access are key determinants at the household level that are significantly associated with child undernutrition (Modjadji & Madiba, 2019; Kosaka & Umezaki, 2017). Food security is commonly believed to be the main factor contributing to undernutrition (Smith & Haddad, 2015). Shrimpton (2020) defines household food security as the sufficient and satisfactory availability of food at the household level, encompassing both the amount and the quality of food. Essential resources for guaranteeing household food security encompass funds for buying food and non-monetary transfers (Smith & Haddad, 2015). Research indicates that food is not the sole primary factor contributing to undernutrition (Green et al., 2016). A significant number of children living in food-insecure environments, particularly those in impoverished households, suffer from malnutrition due to inadequate consumption of energy and essential nutrients, exacerbated by the presence of infectious diseases, particularly diarrhoea. Insufficient understanding of motherhood, improper caregiving methods, and limited availability of healthcare, clean water, and sanitation (Nisbett et al., 2017). Undernutrition at the home level is mostly caused by poverty, a dysfunctional family structure, and a lack of understanding regarding children's health and wellness. The National Income Dynamics Study-Coronavirus Rapid Mobile Survey (NIDS-CRAM) has provided compelling evidence of significant and swift rises in household and food insecurity during the coronavirus disease-19 pandemic (Ingle et al., 2021). Insufficient knowledge about the nutritional value of food, cultural and communal beliefs about food, and improper feeding practices are all contributing factors to malnutrition in children under the age of

five (Kalu & Etim, 2018). Early childhood caregiving plays a crucial role in determining the future nutritional condition of children. Research indicates that children born to teenage mothers and younger household heads are at a higher risk of experiencing undernourishment (Drammeh et al., 2019). Households play a crucial role in shaping the socioeconomic disparities in the health and overall well-being of children. They have a significant impact on the possibilities available to each kid and also influence their exposure to risks and resources throughout their lives (Kandala et al., 2011; Adekanmbi et al., 2013). A study conducted by Aheto et al. (2017) found that there is a large amount of variance in childhood nutrition at the household level in Ghana. This means that the nutritional outcomes of children differ between homes, even after taking into account the characteristics of the child and the household. The study revealed that unobserved variables at the household level accounted for 32 percent, 23 percent and 20 percent of the variations in the nutritional outcomes of children in terms of their WAZ, HAZ, and WHZ scores, respectively. These factors could pertain to society, the environment, or both simultaneously. For example, the factors may be associated with the household's location and could suggest geographical disparities in factors linked to child malnutrition.

The indices of childhood undernutrition at the household level are influenced by factors such as place of residence, home amenities, income, and ethnicity (Tette et al., 2015; Ntenda & Chuang, 2018). The residential location serves as a proxy indicator for assessing the nutritional status of children about environmental hazards, access to healthcare and wellness services, and community and cultural norms (Mulawetal 2020). A majority of African villages exhibit substandard housing conditions and limited access to essential

amenities such as water, sanitation, power, and healthcare infrastructure. This situation significantly heightens the vulnerability of children under the age of five to malnourishment (Makanjana & Naicker, 2021). Politics, ideology, pandemics, economics, and climate are significant external factors that impact the availability, accessibility, and usage of food (Momberg et al., 2021). The child's nutritional status is greatly influenced by factors such as community wealth, community education level, the prevalence of communicable diseases (human immunodeficiency virus (HIV) and tuberculosis (TB)), and the proximity of the community to healthcare facilities (Kalu & Etim, 2018).

The primary determinants of undernutrition in children under age five are diet and disease. Household food insecurity, insufficient maternal and childcare practices, an unhealthy household environment, and inadequate health services are the main factors that determine whether a kid has sufficient dietary intake or is at risk of infections (Huda et al., 2018). Income and poverty, significant contributors to child undernutrition, exacerbate these variables. The increasing occurrence of parasitic and bacterial illnesses in developing nations has significantly contributed to undernutrition, which in turn amplifies the length and intensity of infections (Ijarotimi, 2013). Children are vulnerable to becoming trapped in the cycle of undernutrition and illness (Thimmapuram et al., 2019). These underprivileged children are prone to experiencing academic underachievement, lower productivity in adulthood, lower income, and inadequate parental care for their children, leading to a cycle of poverty that spans across generations. According to the World Bank (2014), it is projected that low-income countries such as Ghana might potentially lose between 2 and 3% of their yearly gross domestic product (GDP) due to child undernutrition.

Poverty in Ghana significantly contributes to food insecurity, since households with lower socioeconomic status are more prone to experiencing inadequate food quality and quantity (Balana et al., 2019). Agriculture plays a significant role in the Ghanaian economy, however, there has been a decrease in production from 7 percent in 2009 to 2.6 percent in 2012. This loss has had a severe influence on food production and availability (Ghins, 2019). Furthermore, the distribution of rainfall in the country is uneven, with the three northern regions experiencing rainfall in a single peak, and the rest of the country having rainfall in two distinct peaks. This disparity has a detrimental impact on food security in the northern regions, leading to an increase in undernutrition among children (Ndamani & Watanabe, 2015).

The process of urbanization, along with the rise in population growth rates, has resulted in a significant increase in the urban population of Ghana. Specifically, the urban population has grown from 44% in 2000 to 50% in 2010. The process of rapid urbanization has led to the emergence of slums, substandard housing, and insufficient access to clean water (Miah et al., 2016). This has had adverse effects on the overall welfare of the Ghanaian populace. Furthermore, a significant proportion of rural families in Ghana lack access to safe drinking water, with only 31% having potable water. In contrast, the bulk of metropolitan regions have a far higher percentage of the population, around 91 percent, with access to clean drinking water. Approximately 23 percent of households in rural communities lack access to any toilet facilities, whereas 38.5 percent of children in these regions are deemed susceptible to diarrhoea and other diseases (Miah et al., 2016).

The Ghanaian government has implemented measures to tackle child undernutrition. It has ratified numerous international declarations aimed at enhancing child health and development. The nutrition intervention policies and programs have evolved, starting with food demonstrations and nutrition education from 1957 to 1966. This was followed by attitude and behavior change communication in nutrition from 1966 to 1974, weaning foods and supplementary feeding programs from 1974 to 1987, and addressing micronutrient deficiencies from 1987 to 1990. From 1990 to 2000, there was a focus on promoting exclusive breastfeeding. From 2000 to 2008, community-based growth monitoring and promotion were implemented. Currently, the main program is Scaling Up Nutrition (SUN-2010). Nevertheless, because the majority of these programs rely on funding from external sources, consecutive governments have failed to prioritize the allocation of adequate human and financial resources for the efficient coordination, monitoring, and evaluation of these programs. This lack of commitment has hurt their long-term sustainability (Adom et al., 2019).

Previous research has identified several factors that contribute to undernutrition. These include being male, having parents with a lower level of education, belonging to families with poor socioeconomic status, having a father with a specific occupation type, living in a large family, having more than two siblings, not being exclusively breastfed, experiencing episodes of diarrhoea, having a mother who never visited an antenatal clinic, being fed butter as a pre-lacteal feed, not practising family planning, and using an unprotected water source for drinking. These predictors of undernutrition have

been identified in studies conducted by Enbeyle et al. (2022), Tamiru et al. (2015), Asfaw et al. (2015), Brhane & Regassa (2014), and Kavosi et al. (2014).

Inadequate maternal understanding and incorrect feeding habits can lead to undernutrition in situations of food insecurity or poor household infrastructure. This is because they restrict access to nutritional meals and increase the likelihood of infection and sickness. Providing knowledge and tools to mothers is crucial for enabling them to make well-informed decisions regarding the feeding of their children and to encourage the adoption of healthy habits related to health and nutrition.

### **Consequences of undernutrition**

Undernutrition has both immediate and long-lasting effects. Child undernutrition can result in stunted physical growth, impaired cognitive abilities, poor academic performance, diminished job capacity in adulthood, increased risk of chronic illness and disability, and a negative impact on national economic growth (Berhanu et al., 2018). Furthermore, there is a heightened susceptibility to cardiovascular disease, diabetes mellitus, cancer, and mental health disorders during adulthood (Gamecha et al., 2017).

### **The social consequences of undernutrition**

The most severe consequences of undernutrition occur during the period of pregnancy and early childhood, specifically from conception to two years of age, which is commonly referred to as the first 1000 days. Malnourished children possess compromised immune systems, rendering them more vulnerable to infections and diseases. Chronic inadequate consumption of nutrients and frequent illnesses can lead to malnutrition, which has mostly irreversible consequences on the development of motor skills and cognitive

abilities. Severe scarcity of food, prevalent childhood illnesses such as diarrhoea and pneumonia, or a combination of these can result in wasting, a condition that can rapidly cause mortality if not addressed (Peng & Berry, 2018).

The nutritional status of neonates and babies is intricately connected to the maternal health and nutritional state before, during, and after pregnancy. Approximately 50 percent of all births take place in the uterus, according to the World Health Organization (WHO, 2013). Typically, women and girls who are malnourished and in their reproductive years are more likely to have babies who are lower in terms of weight and height. This perpetuates the cycle of undernutrition in future generations.

The impact of undernutrition on education is significant. Multiple studies indicate that child undernutrition has the potential to impact brain development and hinder motor skills. UNICEF reports that early-life malnourishment is associated with a decrease of 0.7 grades in schooling, a delay of 7 months in entering school, and a drop of 22 to 45 percent in lifetime earnings (Watkins, 2016). Malnourished children experience impaired growth and development, leading to lower levels of education in adulthood. Consequently, undernutrition persists as a long-lasting and multi-generational issue.

Although effective interventions to address undernutrition are widely recognized, their impact on the nutritional condition of individuals and communities in underdeveloped countries can only be meaningful if they are expanded and included in both development and humanitarian policies. Nutrition-specific interventions that directly affect an individual's nutritional status encompass the promotion of practices aimed at enhancing nutrition, such

as increasing rates of exclusive breastfeeding during the first six months and introducing appropriate complementary foods promptly after six months. Additionally, these interventions involve addressing micronutrient deficiencies through the provision of vitamin A supplements, as well as preventing and managing severe acute malnutrition within the community (WHO & UNICEF, 2020). Furthermore, it is crucial to implement nutrition-sensitive interventions to effectively tackle the root causes of undernutrition, which are deeply ingrained in the circumstances of households and communities. This encompasses a wide range of objectives, including raising food security, improving the position of women, ensuring access to water, sanitation, and health services, promoting better education, improving childcare practices, and strengthening social protection.

### **Economic consequences of undernutrition**

Malnutrition also hinders economic development and sustains poverty (Cetthakrikul, 2018). The occurrence of death and illness related to malnutrition results in a direct decrease in the overall human resources and efficiency for the economy. On a microeconomic scale, research shows that a 1 percent decrease in adult height due to childhood malnourishment leads to a 1.4 percent decrease in the person's productivity (WHO, 2015). Early childhood undernutrition leads to poor cognitive function and reduced school attainment, resulting in additional costs for the country's economy. The presence of an education gap and the resulting lower skill level of the workforce significantly hinder the progress of countries impacted by malnutrition. Early childhood undernutrition also heightens an individual's susceptibility to non-communicable diseases in later life, such as diabetes and heart disease, hence substantially augmenting

healthcare expenses in health systems with limited resources (Brumana et al., 2017).

### **Conceptual Framework**

UNICEF's conceptual framework served as the basis for adapting a conceptual framework that aligned with the study's objectives. Figure 1 illustrates the link between determinants and the management of undernutrition.

The conceptual framework pertains to the factors that determine and impact undernutrition. Empirical investigations have demonstrated that marital status has a dual impact on the nutritional status of children, both favorable and negative. Research has demonstrated that women in marital relationships often receive assistance and encouragement from their partners and significant others, enabling them to effectively provide their children with proper nourishment. Nevertheless, unmarried women who become mothers without husbands may face difficulties in providing proper care for their children. This situation increases the likelihood of their children experiencing malnutrition due to insufficient finances for optimal feeding.

The nutritional state of the child can be influenced by occupation and the employment position of the caretakers. Some studies suggest that employed mothers or caregivers are less likely to have malnourished children compared to unemployed women. However, when examining the different types of employment, it has been discovered that certain types of work make mothers busier, resulting in less time to properly care for their children. As a result, these mothers are more likely to experience undernutrition due to inadequate nourishment (Nordang et al., 2015).

Women with a higher degree of education are more likely to understand the nutrition education provided to them, in comparison to women with lower levels of education. Once more, women who receive education gain empowerment and are less inclined to engage in socio-cultural behaviors that pose a threat to the well-being of their children.

There is a debate on how certain cultural beliefs, including prohibiting children from consuming eggs and meat, contribute significantly to undernutrition in Indigenous groups and communities that adhere to these cultural beliefs and practices. The reason for undernutrition has been ascribed to several traditional beliefs (Pillai, Wang, & Wei, 2016). According to certain customs, there is a belief that children whose parents have offended the gods must be offered to these deities as a kind of appeasement, to restore their well-being and prevent malnourishment. In addition, there is a prevailing perception that certain children are subjected to scrutiny and, hence, they are required to attend prayer camps to recover. The various ideas mentioned have consequences for the child's nutritional status (Kavle et al., 2014).

For children to have proper nutrition, it is crucial to carefully analyze their feeding practices (Nankumbi & Muliira, 2015). The outcome depends on the specific food provided to the children, the standard of the food, the frequency of breastfeeding, and the immediate administration of colostrum to the infant after delivery. Various factors contribute to the compromise of certain aspects, which significantly impact the child's nutritional state. For instance, certain children are not solely nourished through breastfeeding. Consequently, due to the introduction of complementary foods before the sixth month, moms inadvertently introduce unclean chemicals into their child's system.

Furthermore, certain women lack sufficient time to provide their infants with the necessary amount of food, resulting in the children being deprived of the appropriate nutrition (Vitta et al., 2016). In addition, certain youngsters are deprived of colostrum, a highly nutritious substance. Some women believe and employ certain tactics that deem it unimportant to provide for their children. These factors interact to influence the nutritional status of children under the age of five as illustrated in Figure 1.

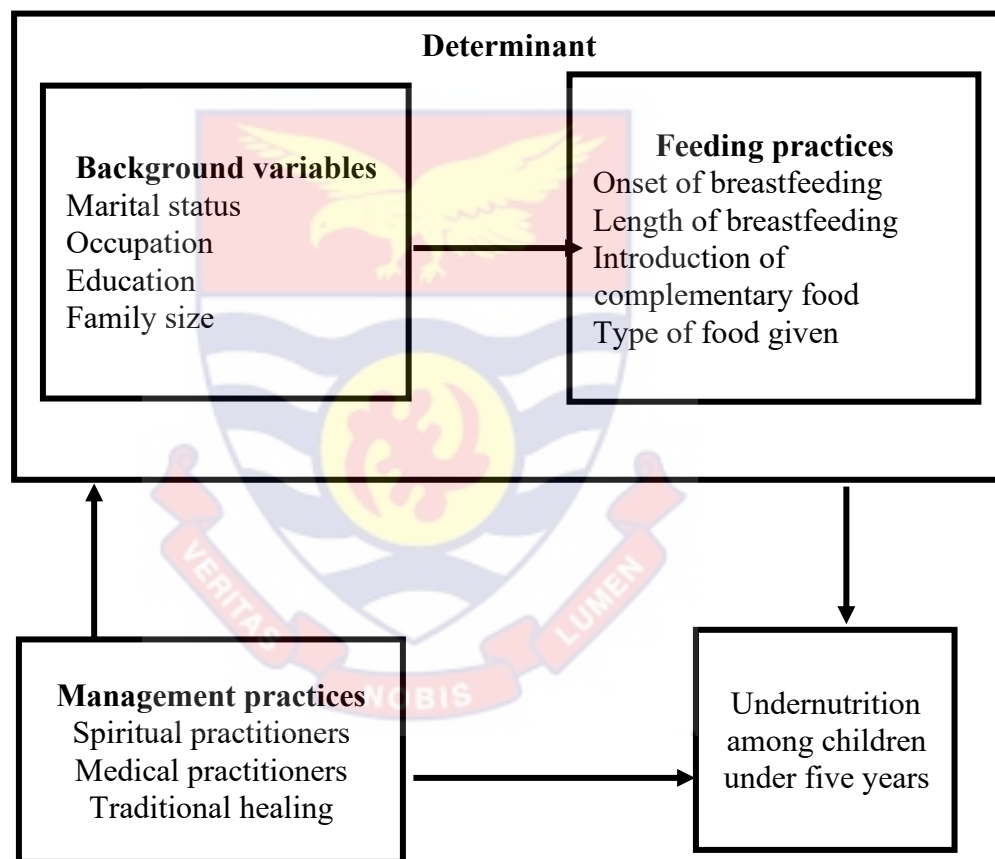


Figure 1: Conceptual Framework Adapted from UNICEF (2014)

The changes made to the conceptual framework adapted from UNICEF (2014) include the incorporation of background variables. The adapted framework integrates additional background variables such as marital status, occupation, education, and family size, which influence the nutritional status of children under five years old. These factors were not explicitly outlined in the

original UNICEF framework but were included to reflect empirical findings. The adapted framework includes detailed aspects of feeding practices, such as the onset of breastfeeding, length of breastfeeding, the introduction of complementary food, and the type of food given. These elements provide a more comprehensive understanding of how feeding behaviors impact undernutrition. Moreover, there is an introduction to management practices. The adapted framework extends beyond the original UNICEF model by incorporating management strategies for undernutrition, including the role of spiritual practitioners, medical practitioners, and traditional healers in addressing undernutrition. The adapted framework acknowledges the influence of cultural beliefs and socioeconomic factors on child nutrition, such as traditional restrictions on certain foods and the role of education in shaping feeding decisions. Specific focus on undernutrition in children under five. While the original UNICEF framework broadly addressed malnutrition, the adapted version specifically focuses on undernutrition among children under five years old, aligning it more closely with the study's objectives. These modifications provide a localized and context-specific adaptation of the UNICEF framework, making it more applicable to the study on undernutrition in the Nkanfoa community. Let me know if you need further clarification or a summary.

## **Empirical Review**

### **Determinants of undernutrition**

Research indicates that demographic factors, including maternal-related factors such as the age, education, occupation, and marital status of mothers, as well as dietary habits, child feeding practices, the number of dependents,

household economic status, and access to clean water and sanitation, play a significant role in causing undernutrition.

### **Marital status**

Research has demonstrated that the marital status of parents can have both beneficial and detrimental effects on the nutritional well-being of children under the age of five. Amugsi et al. (2020) showed that marital status has a crucial role in determining a child's nutritional health. Maternal union was found to be a protective factor against undernutrition. In a study conducted by Habaasa (2015), it was discovered that a significant proportion of children who experienced stunted growth had moms who were either married or cohabiting. Furthermore, Mboho and Bassey (2013) discovered a correlation between marital status and undernutrition. Unmarried women had a higher number of underweight children.

In contrast, a study conducted by Mtoi and Nyaruhucha (2019) in Tanzania found that married mothers are more prone to having undernourished children compared to unmarried mothers. This may be attributed to the financial burden of supporting a family, which can sometimes result in a lack of resources to provide nutritious supplements for children under the age of five.

### **Mother's educational level**

Researchers contend that the literacy level of parents, namely women, significantly influences the nutritional status of children aged five and below (Khan & Raza, 2014; Garcia et al., 2013). The educational attainment of mothers has been discovered to exert both beneficial and detrimental effects on the nutritional well-being of children. Pal & Bose (2020) discovered a substantial correlation between a mother's educational level and the occurrence

of stunting in children under the age of five. This research has indicated that a majority of women with limited education provide their children with food that lacks sufficient nutritional value. In their study, Khattak et al. (2017) discovered a substantial correlation between greater levels of education in both fathers and mothers and the normal nutritional health of children.

In a study conducted by Siddiqi et al. (2011), it was discovered that there is an inverse relationship between the amount of education of mothers and the percentage of under-five children. Sommerfelt et al. (2014) demonstrated a negative correlation between the educational level of mothers and undernutrition in children under age five. Mengistu et al (2013) established a notable correlation between the level of education of mothers and the nutritional status of their children. Furthermore, Olukem (2013) reported comparable results. The researchers discovered a notable correlation between the level of education of mothers and the nutritional well-being of their children.

Highly educated women demonstrate enhanced proficiency in utilizing healthcare facilities, effectively engaging with healthcare professionals, adhering to treatment protocols, and maintaining hygienic living conditions. Education enhances women's capacity to generate income, but this also raises the value of their time, thus reducing their engagement in crucial caregiving activities, such as breastfeeding. It is important to mention that a mother's level of education is linked to better management of limited household resources, increased utilization of available healthcare services, improved health behaviors, reduced fertility rates, and a focus on child-centered care. As a result, these factors lead to a decrease in malnutrition among children under the age of five (Nigusu et al., 2019). In a study conducted by Acharya et al. (2013), it was

shown that 42 percent of children whose mothers had a high level of education were malnourished, while 58 percent of children with illiterate mothers had malnutrition. According to John and John (2018), there is a connection between the amount of schooling and the occurrence of stunting, wasting, and underweight. More precisely, the levels of stunting decreased as the educational status of mothers increased.

Abuya, Ciera, and Kimani-Murage (2012) showed that the level of education attained by mothers plays a crucial role in determining the nutritional status of their children. Mothers with a minimum of secondary education serve as a safeguard against undernutrition. These data suggest a significant correlation between the literacy level of parents and the nutritional well-being of their children. This is because parents with low levels of education are more prone to engaging in harmful behaviors, adopting incorrect healthcare methods, or residing in substandard living situations (Khan et al., 2019). Consistent with previous studies, Abuya et al. (2012) discovered that parents who have received formal education possess the ability to recognize signs of disease in their children and promptly seek medical intervention. Formal education enables parents to comprehend medical instructions and implement the treatment as prescribed (Abuya et al., 2012). More precisely, parents with lower levels of education had a higher number of malnourished children in comparison to parents with higher levels of education. Scaglioni et al. (2018) found that parents' level of education has a substantial influence on the dietary preferences and behaviors of their children. They frequently employ diverse strategies to introduce food that can be detrimental to children under the age of five (Scaglioni et al., 2018). Imposing control or exerting pressure to make someone

take food can decrease their inclination to try new food products that are nutritious but less palatable compared to unhealthy food (Scaglioni et al., 2018). The authors contended that pediatricians should endeavor to instruct parents on the methods of introducing nutritious food to their young infants (Scaglioni et al., 2018). In a similar vein, Awuuh et al. (2014) contended that the absence of adequate nutritional education seems to hurt children's dietary habits. The nutritional literacy of parents, especially young moms, is crucial for enhancing the dietary consumption of children aged five and below. According to Yabanci et al. (2014), parents who lacked nutritional awareness concluded that healthy foods were costly or required additional effort to prepare. Consequently, individuals may opt for a conventional meal that has the potential to be detrimental to their health, or they may hastily acquire processed snack food (Yabanci et al., 2014). Researchers conducted a study to examine the relationship between mothers' improved understanding of nutrition and the growth of their children. The study found that an increase in maternal nutritional knowledge has a positive impact on the physical measurements of children under the age of five (Umar et al., 2019). Aslam and Kingdon (2012) concurred that parents' education has a significant impact on the overall welfare of their children in various aspects. A father with a higher level of education is more likely to guarantee that his children receive the necessary immunizations, while a mother who is educated and has health information will have better control over her children's height and weight (Mengesha & Ayele, 2015). These studies have examined the correlation between parents' understanding of nutrition and child malnutrition, however, they did not identify the specific level or severity of malnutrition.

### **Mother's age**

Several studies have indicated that the age of the mother is a contributing factor to undernutrition in children under the age of five. A study conducted in Bangladesh revealed that children born to mothers who were under 20 years old were more prone to experiencing stunted growth, wasting, and being underweight, in comparison to children born to mothers who were 20 years old or older at the time of delivery (Siddiqi et al., 2011). Ghimire et al. (2020) additionally discovered that the majority of underweight infants are born to moms who are in their early years of motherhood. Shrimpton et al. (2014) suggested that there is a correlation between giving birth at an advanced age and an increased probability of having babies with a low birth weight. However, in Turkey, it is customary for grandmothers to take care of the children of younger mothers. This practice has been linked to reduced rates of undernutrition among children whose mothers are under twenty-four years old (Jawad et al., 2018). N'Guettia et al. (2021) demonstrated a correlation between undernutrition in children and the maternal factor of being young. In their study, Moreno et al. (2020) discovered that mothers who were 20 years old or younger had a higher prevalence of malnourished children compared to mothers who were older than 20 years.

### **Maternal occupation**

Studies have found that the occupation of mothers plays a role in the occurrence of undernutrition in children below the age of five (Wong et al. 2014; Haque et al. 2014). There is a correlation between the occupation of the mother and the occurrence of undernutrition in children mal the age of five. For example, a study conducted in Vietnam found that infants born to mothers who

worked as laborers or farmers had a higher incidence of stunting, underweight, and wasting compared to children whose moms worked in offices or were homemakers (Nguyen et al., 2017). Dewana et al. (2014) demonstrated that having a mother who is a farmer increases the likelihood of a child experiencing both stunting and being underweight, indicating a substantial correlation. In their study, it was discovered that children whose mothers are involved in farming have access to carbohydrate-rich foods such as cassava, potatoes, plantains, maize, beans, and groundnuts. However, they do not have access to protein-rich animal foods like meat and fish due to their high cost and limited availability in Bandja village.

According to Gilbert and MaK (2014) study, it was seen that the occupation of mothers had an impact on the nutritional well-being of their children. Children whose mothers worked in agriculture had a lower prevalence of underweight compared to children whose mothers were active in informal business. Furthermore, Sharma, Watode, and Srivastava (2017) discovered that the jobs of mothers have an impact on the nutritional status of their children. For instance, individuals involved in farming activities had a propensity to sell their own family's food to obtain money, resulting in shortages and ultimately leading to a rise in incidences of undernutrition among children under the age of five. Liu et al. (2013) discovered that maternal occupation in China has an impact on the nutritional well-being of their children. The nutritional intake and status of children whose mothers were working in administrative, scientific, or technological domains, manufacturing, or service sectors were superior to those of children whose mothers worked as farmers or self-employed laborers. In a related study, Mengistu et al. (2013) showed that children whose mothers were

skilled workers had a lower nutritional status compared to those whose mothers were in unskilled employment. In a study conducted by Das and Gulshan (2017) in Bangladesh, it was observed that mothers engaged in manual labour had a higher likelihood of having underweight children compared to those employed in the official sector. Conversely, a study carried out in Ethiopia revealed that moms who are farmers have ample access to food, resulting in their children being adequately nourished.

Additional research has also discovered that certain mothers, as a result of their profession, entrust the care of their children to their siblings at home, who occasionally overlook providing nourishment or adhering to the appropriate feeding schedule, thereby exacerbating the issue of undernutrition. Mothers often neglect to provide additional nourishment, such as protein-rich foods, due to financial constraints (Bampaire, 2019). These findings elucidate the reasons why rural farmers, who dedicate the majority of their time to their agricultural activities, entrust the care of their children under the age of five to their older siblings or domestic helpers. These younger siblings or house cleaners may lack knowledge or literacy on appropriate feeding practices for children under five, which could be a contributing factor to the malnourishment of some children in this age group.

Furthermore, a separate study conducted some years later by Haque et al. (2014) revealed that children under the age of five with non-working mothers exhibit superior nutritional status compared to those with working mothers. Non-working mothers have more time available to care for their children compared to working mothers, as argued by Haque et al. (2014). While working

mothers may contribute to food security in their households, they may not have the availability to make nutritious food choices for their children.

### **Dietary Habits**

Food choices are frequently influenced by both genetic and environmental variables, as claimed by researchers (Scaglioni et al., 2018). Given that parents exert a significant impact on their children's surroundings, they have a prime opportunity to shape their children's positive or negative dietary behaviors. According to Scaglioni et al. (2018), children's meal choices are mostly influenced by flavor, which can significantly impact their nutrition regimens. Children are more inclined to refuse vegetables that contain important nutrients and choose sweets and high-fat diets, which can harm their nutritional well-being (Scaglioni et al., 2011). Children are more likely to consume foods that they are already familiar with, which can decrease their willingness to try new foods that are necessary for a well-rounded diet (Scaglioni et al., 2011).

In contrast, Sekiyama et al. (2012) conducted a study in rural Indonesia to investigate the use of snack food among children and found that Indonesian children consumed snack food to meet their energy needs. The authors acknowledged that many snack foods include significant levels of fat and iron, but they do not provide important micronutrients like calcium, vitamin A, and vitamin C, which are necessary for a well-rounded diet. Vitamin insufficiency in children under five years of age hampers their linear growth, according to the World Health Organization (2021). Sekiyama et al. (2012) reported that the study findings indicated a significant decrease in the z-score of height for age among Indonesian children who consumed more snack foods compared to those

who consumed fewer snack foods. The Z-score for height-for-age is an anthropometric metric established by the World Health Organization (WHO) to assess the nutritional condition of children under the age of 5 (WHO, 2021).

In addition, a study conducted by Zhou, Wang, Ye, Zeng, and Wang (2012) revealed that mothers commonly practiced exclusive nursing immediately after childbirth. However, there was a considerable decline in this practice between the ages of 5 and 6 months when it came to introducing solid, semisolid, or soft foods. Early introduction of semisolid food to infants aged 6 to 8 months has led to a significant increase in the occurrence of stunting (Zhou et al., 2012). Zhou et al. suggest that the malnutrition in this population is partly attributed to the dietary intake of children in this age group. In addition, Nnakwe and Onyemaobi (2013) propose that eating habits are frequently linked to food insecurity. Food insecurity refers to the condition where individuals have restricted access to sufficient and safe food (Nnakwe & Onyemaobi, 2013). When individuals have limited access to sufficient food, they will conform to what is accessible to them and hence create eating patterns solely to satiate their hunger. This results in a deficient consumption of essential micronutrients required for a well-rounded nutritional profile.

### **Child Feeding Practices**

Infant feeding methods significantly contribute to the occurrence of undernutrition in children below the age of five. Child-feeding habits that impact undernutrition encompass factors such as exclusive breastfeeding, introduction of complementary foods, and the method of weaning. Women inherently assume the role of primary caregivers during the early stages of a child's life. Performing essential tasks such as nursing is thus crucial for

preserving the child's optimal nutritional condition (Saunders, Smith, & Stroud, 2015).

Research has indicated that the percentage of children who are underweight and stunted is notably reduced among mothers who commence breastfeeding within six hours after giving birth. For instance, Ibrahim et al. (2017) demonstrate in their research that children who received colostrum did not experience malnutrition in contrast to children who did not receive colostrum. In a similar vein, Moshy et al. (2013) discovered that in Tanzania, infants who suffered from malnutrition were not administered colostrum immediately after being born. Furthermore, Islam et al. (2014) discovered a greater occurrence of both stunting and underweight in children under the age of five who did not get colostrum.

Furthermore, inadequate supplemental nutrition poses a concern for underweight children. Pai et al. (2018) reported that children who exhibited higher levels of underweight were observed within the cohorts that did not receive adequate complementary nutrition. For instance, the length of time a child is exclusively breastfed is a crucial factor in determining their nutritional condition. Research has shown that children whose moms nurse them exclusively for fewer than six months are more likely to have malnutrition compared to children who are exclusively breastfed for up to six months (Ahmadipour & Mirzaesmaeili, 2016). In a study conducted by Amugsi et al. (2014) in Ghana, it was discovered that children who were exclusively breastfed for six months did not experience malnutrition as opposed to those who did not receive exclusive nursing. In a comparable investigation, Amugsi et al. (2014) demonstrated that while breastfeeding rates were elevated, the introduction of

complementary foods to children below the age of 3 months was suboptimal. The nutritional characteristics of the supplementary foods were inadequate, and there was a high incidence of stunted growth among the youngsters.

Arhin (2019) found that certain mothers of infants aged 0-2 years believe that cow's milk is the optimal choice for promoting children's growth. Conversely, other mothers perceive breast milk as detrimental when they become pregnant. In a study conducted in India, Das et al. (2013) discovered majority of mothers did not adhere to proper feeding practices, leading to a significant increase in occurrences of undernutrition among children below the age of five. Sultana et al. (2015) demonstrated that women who implemented enhanced feeding habits, such as refraining from using feeding bottles and diversifying the range of complementary foods, played a role in diminishing instances of undernutrition.

Furthermore, Arhin (2019) discovered that inadequate weaning practices and limited food supplements had the most significant impact on the nutritional health of children who mostly consumed cereals. Nankumbi and Muliira (2015) discovered that children who did not receive complementary feeding before six months did not experience malnutrition. Conversely, those who received complementary feeding before six months did suffer from malnutrition. Furthermore, Sika-Bright and Ahorlu (2015) discovered that feeding methods significantly impact the nutritional health of children under the age of five. The researcher discovered that a mother's marital and work status, the feeding patterns of her friends, the level of social support she receives, and the age of her baby all had an impact on her choices on infant feeding.

Afaya et al. (2017) contended that there are beliefs and value systems, particularly about the cultural management of water for infants below six months of age. An important discovery was that mothers-in-law frequently had the primary authority in determining infant feeding habits. Senior ladies and aging co-wives within the household also had a significant impact on decisions related to food provision. In the majority of households with a mother-in-law, she exerted significant influence in determining when breastfeeding should start and when complementary and additional foods should be introduced. This pattern arose due to their elevated social standing within the household and the extended family structure.

#### **Number of Dependents and Household Economic Status**

Researchers contend that there is a strong correlation between undernutrition and poverty (Nnakwe & Onyemaobi, 2013). Individuals frequently face constraints in acquiring the necessary amount and quality of food due to financial hardships resulting from the number of dependents they have. Parents often resort to using readily available food items to alleviate their children's hunger, which are typically lacking in vital nutrients (Nnakwe & Onyemaobi, 2013). In addition, Ying et al. (2015) conducted a study in developing nations, such as Haiti, to examine the relationship between living conditions and malnutrition. The study revealed that children residing in impoverished conditions are more prone to experiencing stunted growth, being underweight, and facing restricted access to healthcare. Preventive intervention is less prevalent among children from larger and economically disadvantaged homes compared to those from wealthier families (Ying et al., 2015). The preventive measures encompass immunization, dietary counseling, growth

monitoring, and vitamin supplementation. Similarly, a study conducted in Pakistan by Nisar et al. (2016) yielded the same findings. Possible factors may include the tendency for other family members to consume the same food as the children in large families, resulting in the youngster not receiving the appropriate portion of food to fully enjoy. Other children typically distribute their meals among their peers. Khan and Raza (2014) contended that household size and income have a significant impact on the nutritional status of children. A household with a high number of children has limited resources available for distribution, leading to an elevated likelihood of stunting. Conversely, a family with a smaller number of children generally faces a lower risk of wasting food. The household's economic position has been recognized as a crucial factor in determining the nutritional status of a child. It is also a measure of the ability to obtain enough food, access healthcare, and have access to clean water and sanitation facilities, which are important factors in determining child nutrition. According to research conducted by Green et al. (2018), the financial situation of households has a substantial impact on their ability to obtain food, which is a crucial factor in ensuring food security. It also signifies the ownership and use of childcare resources in a sustainable manner. Furthermore, it enables a broader range of food choices and efficient preparations for taking care of children. According to a study conducted by Geda and Yimer (2014), there is an inverse relationship between the economic status of a household and the prevalence of child stunting. In other words, as the level of economic status increases, the level of child stunting decreases. An elevation in household income at the community level results in enhanced availability of high-quality

healthcare, upgraded water and sanitation infrastructure, and increased access to information.

### **Water and sanitation**

The provision and utilization of clean water, sanitation facilities, and proper hygiene practices can significantly improve nutritional outcomes by addressing the immediate and root causes of malnutrition. According to the World Health Organization (WHO, 2021), practising proper hand hygiene with soap, treating and safely storing drinking water, and disposing of human faeces in a sanitary manner have been proven to significantly decrease the occurrence of diarrhoea, which is a significant cause of undernutrition. The absence of proper sanitation is closely associated with stunted growth and can even lead to the absence of diarrhoea. Key food hygiene practices involve ensuring a sanitary food preparation area, keeping raw and cooked food separate, thoroughly cooking food, adhering to food safety measures such as proper time and temperature control and using covered containers, and using safe water and fresh raw ingredients to safeguard infants and young children from infections (Barry et al., 2013).

### **Community Management of Undernutrition**

Although attempts have been made to address undernutrition in other nations, Ghana has experienced minimal advancement in this area.

The Food Security Analysis Unit (FSAU) conducted a study which revealed that insufficient food and poor sanitation contribute to acute malnutrition, commonly referred to as "nafagodoro," in Somalia. The two factors combine to result in malnutrition, and the treatment involves providing the youngster with a higher quantity of food. There is no deprivation of food

during the treatment for undernutrition. Medicine is administered to address coexisting illnesses. In instances of kwashiorkor, the edematous extremities, abdomen, and visage are cauterized to eliminate the excess fluid (Kinyoki et al., 2015). The therapy for the evil eye, as indicated by the same study, includes the utilization of the following components: elephant faeces, donkey hooves, hyena skin, garlic, and Uluru plants. The chemicals undergo combustion, and the youngster is exposed to the vapour generated from the process. During this procedure, the youngster perspires and sneezes, expelling a significant amount of fluid via the nose, indicating the release of malevolent energy from the cranium. Throughout the procedure, it is widely thought that the child experiences a state of tranquility and recuperates from the malevolent influence of the evil eye (Aubel, 2012).

An investigation was carried out in Ethiopia to examine various perspectives and therapeutic approaches for undernutrition. The perception of child undernutrition was not solely attributed to insufficient food availability but was also comprehended within a broader local framework of health and illness. Parents frequently depend on healers due to their established presence in society, possession of traditional knowledge, and comparatively lower costs compared to alternative possibilities. Due to divergent perceptions and discourse about health among healthcare professionals and the community, individuals frequently refrain from seeking assistance from healthcare services. The disparities in diagnostic and treatment approaches between health professionals and healers have significant consequences for the feasibility of adopting interventions to mitigate malnourishment (Degefa et al., 2022).

In a study conducted in Pakistan by Yousafzai et al. (2014), it was found that mother's resort to different magical and religious treatments when their children are malnourished. This is because malnourishment is believed to be linked to fear and spirit possession. For some mothers, their initial response to seeking healthcare is to pray or read the Koran. In Rwanda, children often seek spiritual therapies from traditional healers instead of receiving medical care (Lu et al., 2016).

Boatbil et al. (2014) in Talensi, Northern Ghana, it was discovered that while the local community had a good understanding of child undernutrition, they did not perceive it as a significant health problem. The beliefs on the causes of child undernutrition encompassed actions such as a child displeasing a deity called the 'Tobig god' by consuming dry flour, consuming meat offered as a sacrifice to the 'Tobig god', ingesting bitter breast milk, consuming chicken despite it being forbidden, and experiencing 'Sama' (obstacles created by living beings that hinder breast milk production). The methods used to address undernutrition involved seeking advice from diviners to identify ways to appease angered deities, consuming water contaminated with bird excrement, and applying ground guinea corn malt onto the breasts of mothers. The study also revealed that a significant majority of respondents expressed a preference for utilizing conventional methods to address cases of child undernutrition.

Undernutrition is typically a manageable condition that may often be treated at home. Treatment can be administered either at home or under the supervision of a skilled health practitioner in a home setting. Children are provided with supplementary nutrients to enhance their consumption of energy and protein (Abubakar et al., 2011). In addition to community management,

various other interventions can be employed within the community. The Ghanaian government, in conjunction with development partners, has implemented practical measures to tackle child undernutrition. An example of such measures is the implementation of community-based management of acute malnutrition (Akparibo et al., 2017). The purpose of this intervention is to enhance the quality of life for hundreds of thousands of youngsters. It is crucial to offer safe food options for home use that promote rapid weight gain in severely malnourished children. Additionally, connecting community-based management of acute undernutrition with other nutrition promotion services is essential to prevent all types of undernutrition and decrease the overall number of undernourished cases.

To summarize, there are misunderstandings regarding the strategies employed to address undernutrition globally, particularly in poor nations.

### **Chapter Summary**

The literature suggests that undernutrition in children under five years is influenced by multiple factors. However, it is worth noting that the majority of studies conducted so far have been quantitative. Therefore, it is essential to conduct a qualitative study to gain a more comprehensive understanding of the causes, mechanisms, and management strategies related to undernutrition in this age group.

## CHAPTER THREE

### RESEARCH METHODS

#### Introduction

The current investigation aimed at examining the awareness and management of undernutrition in the Nkanfoa community. This chapter discussed the methodology, processes, and methods used to collect and analyse data for the study. Specifically, the chapter comprises the research design and study area. Other areas of concern include population, sample and sampling procedures, data collection instruments, data collection procedures, data processing and analysis, as well as ethical considerations and a chapter summary.

#### Research Design

The study employed a qualitative approach. The importance of qualitative research is the fact that it describes social phenomena as they occur naturally, and no attempt is made to manipulate the situation (Thanh & Thanh, 2015). Based on this, the study adopted an exploratory descriptive design to study the awareness and management of undernutrition among children under five years old at Nkanfoa in the Cape Coast Metropolis. The exploratory research was used to investigate a problem that was not clearly defined. Exploratory research was conducted to gain a better understanding of an existing problem. The advantages associated with this study design are that it helps the researcher better understand the phenomena and that it affords the researcher the ability to adapt to changes as the research progresses. It also provides the basis for other studies and helps researchers familiarise themselves with topics, test theories, form new hypotheses, and draw conclusions (Mayer,

2015). Despite the strengths of exploratory research, it has challenges associated with its use. Exploratory research involves a smaller sample; hence, the result cannot be accurately interpreted for a general population. It is time-consuming and difficult. Counterbalancing the pros and cons associated with the use of exploratory research design revealed that the pros outweighed the cons and therefore justified its use in the current study.

### **Study Area**

The Nkanfoa community is located in the Cape Coast Metropolis in the Central Region of Ghana. The Gulf of Guinea is to the south, the Komenda-Edina-Eguafo-Abrem Municipality to the west, the Abura Asebu Kwamankese District to the east, and the Twif Heman, Lower Denkyira District to the north. The Metropolis is located at longitude 10 150°W and latitude 50 060°N. The Metropolis has 84 communities and stretches over a total land area of about 122 square kilometres (Ghana Statistical Service, 2013). There are 33 health facilities in the Cape Coast Metropolis. Out of this, one teaching hospital, two hospitals, and eight health centres. There are also fifteen clinics, five Community-Based Health Planning and Services (CHPS) compounds, one maternity home, and one healing home.

The Metropolis is grouped into five (5) healthcare zones according to the distribution of health facilities for health administration purposes. These are the Reproductive and Health Centers (RCH) health care zone, the University of Cape Coast (UCC) health care zone, the Ewim health care zone, the Adisadel health care zone, and the Efutu health care zone (Cape Coast Metropolitan Health Directorate, 2018). The metropolis is divided into two sub-metropolitan districts. Cape Coast, north and south. The Nkanfoa community forms part of

the Cape Coast north zone. The 2021 population and housing census recorded a population of 10,300. The female population was 5,158, while the male population was 5,142. The majority of the community's residents work in farming and trading, which is a Christian religion. Nkanfoa has a community-based health planning and service (CHPS) compound that is under the Ewin health care zone. About one-third (35 percent) of the population aged 15 years and older is married; 55.5 percent have never married; and 15 percent are in consensual unions. The choice of the Nkanfoa for the study was informed by the fact that they are the community with the highest prevalence of cases of undernutrition in the metropolis (Cape Coast Metropolitan Health Directorate, 2023).

### **Population**

A study's target group is known as the study population. It includes all humans (or objects) who share specific qualities that are of interest to the study (Wallen & Fraenkel, 2013). The target population for this study was caregivers with children under five years who were residents of the Nkanfoa community. A caregiver in this study is someone who takes care of or lives with children under five years old. This population includes caregivers living with children younger than five years old who visit the health centre for postnatal care in the Nkanfoa community. The total number of caregivers with children under five years old who visit the health centre in a month was estimated to be 120, according to the health personnel at the Nkanfoa Community-Based Health Planning Service (CHPS) compound. However, a sample frame of 32 malnourished cases was recorded from February to April 2023 (Cape Coast Metropolitan Health Directorate, 2023).

## **Sample and Sampling Procedure**

The purposive sampling technique was used to select interviewees for the study. The purposive sampling technique was used because the study was interested in mothers with malnourished children who were under five years of age. The need to gather rich data influenced the choice of a sample size for the in-depth interview. As such, this study considered views from 18 caregivers, drawing on the principles of saturation. Guest et al (2020) consider saturation as the point at which additional data does not lead to any new emergent themes. It helps researchers avoid collecting redundant data, making research more efficient and manageable and also prevents unnecessary data collection, saving time, effort, and costs. Given this, 18 interviewees were considered for this study.

## **Data Collection Instruments**

The main instrument used to collect data was an in-depth semi-structured interview guide. The choice of this instrument was based on the type of study and the population studied. Amu (2019) opines that interview may yield more accurate information and a greater depth of responses, particularly when respondents have low education, low socio-economic backgrounds, or both. The interview questions were all semi-structured and open-ended. The goal of using open-ended questions was to have the interviewees report on their own experiences on the topic under study.

The interview guide was in four sections. Section A covered the socio-demographic background of mothers, such as their age, occupation, income level, educational background, marital status, and number of children. Section B focused on the prevalence of undernutrition in the community among children

under five years old. Section C looked at the determinants of undernutrition among children less than five years old, and the final section, Section D, dealt with the strategies put in place to manage the undernutrition cases among children under five.

### **Pre-testing of the data collection instrument**

The interview guide was pre-tested among mothers with malnourished children at Elmina Health Centre, in a town located in the Komenda-Edina-Eguafo-Abrem Municipality. The town and the facility were used for the pretesting because they exhibit similar characteristics compared to the study area. The pre-testing was done to ensure the comprehensiveness of the in-depth interview guide and to ensure that it seeks to measure what it intends to measure. Before the instrument was used for the study, comments, suggestions, and unanswered test questions were taken into account to help improve it.

### **Data Collection Procedure**

A letter of introduction acquired from the Vocational and Technical Education (VOTEC) department and ethical clearance from the Institutional Review Board (IRB-UCC) assisted me in obtaining permission from the heads of the Cape Coast Metropolitan Health Directorate. A cover letter attached to the interview guide was sent to the administrator of the Nkanfoa Community-Based Health Planning Service (CHPS) compound before the data collection. The cover letter briefly described the objectives of the study and assured interviewees of their anonymity and voluntary participation. Data on children who were malnourished were obtained from caregivers at the Nkanfoa Community-Based Health Planning Service (CHPS) compound, and the caregivers were contacted through phone calls.

Before the interview, interviewees were given a consent form to sign. The purpose and aim of the study were explained to each interviewee before the commencement of the interview. Appointments were made with the 18 caregivers, and the interviews took place at the Nkanfoa health center. The researchers adopted various tactics to ensure honesty in the information the participants gave. This was ensured by first establishing rapport with the interviewees and assuring them of the anonymity of their questions to facilitate responses. and the development of early familiarity with them (Shenton, 2004).

Two field assistants helped in the data collection exercise. The field assistants have been engaged in fieldwork and have gained considerable experience in research work. A training day was organised to familiarise them with the instrument. The issues with the instrument were discussed thematically and thoroughly. The content of the instrument was translated from English to the local language (Fante). The data collection started on June 20th, 2023, and ended on July 15th, 2023. On average, each interview lasted one hour and twelve (12) minutes. Permission was also sought from the interviewees to tape record the interview. Handwritten notes were used during each interview, and this assisted in elaborating upon the themes or issues of special interest.

### **Data Analysis**

The qualitative data was collected on each research question and transcribed into English using thematic analysis. Braun and Clarke (2021) state that whereas thematic analysis is widely used in psychology, it is rarely acknowledged beyond that. The advantages of using thematic analysis are that it can be used in different circumstances and is flexible (Michalos, 2014). It can also provide meaning when summarising and organising findings from large

data sets (Nowell et al. 2017). First, the recorded interviews were transcribed. The transcripts were studied and, subsequently, organised based on the similarity of the instruments. Secondly, general themes that emerged were developed. After that, sub-themes were created and assigned codes. Both similar and different views and experiences on the subject were identified under sub-themes to aid comparison. Finally, quotations from the respondents were used to support the views they raised on the various issues.

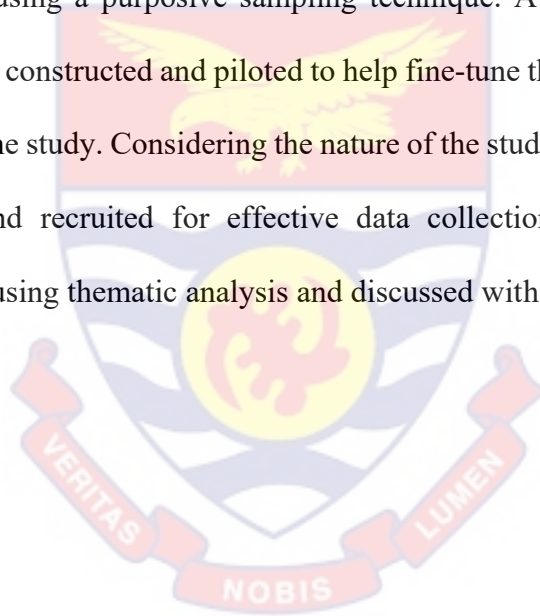
### **Ethical Consideration**

The University of Cape Coast Institutional Review Board (UCC-IRB) gave clearance to commence data collection after ensuring that all protocols adequately addressed possible ethical issues. A letter of introduction was also obtained from the Department of Vocational and Technical Education to the Cape Coast Metropolitan Health Directorate, requesting permission for Nkanfoa health facilities to conduct the research. Interviewees were informed of the study's aim before the commencement of the data collection. They were given assurances of confidentiality that the information provided would be used purely for academic purposes. They were further made aware that their name would not be associated with the responses they gave to protect their anonymity. It was disclosed to the interviewees that participation in the investigation is voluntary, and therefore they should feel free to withdraw from the study if they find the need to do so. Their informed consent was also sought before they were asked to partake in the interviews. Hence, the administration of consent forms was done in June 2023. The consent form was read in the local language for participants who cannot read to understand and provide feedback. Participants who declined to participate after they had been briefed on the purpose of the

study will be excluded from the study. Additionally, other codes of ethics regarding the accuracy of research design, data collection, and processing, as well as the acknowledgement of sources of information, were duly followed.

### **Chapter Summary**

The study utilised an exploratory research design to gain a better understanding of the awareness and management of undernutrition of caregivers with children under five years. The study area was the Nkanfoa community in the Cape Coast Metropolis. A sample size of eighteen interviewees was obtained using a purposive sampling technique. A semi-structured interview guide was constructed and piloted to help fine-tune the instrument before it was used for the study. Considering the nature of the study, two field assistants were trained and recruited for effective data collection. The data were finally analysed using thematic analysis and discussed with appropriate references.



## CHAPTER FOUR

### RESULTS AND DISCUSSION

#### Introduction

This chapter summarises the findings of the study on the awareness and management of undernutrition among children under the age of five at Nkanfoa, in the Cape Coast Metropolis. It gives an overview of the interviewee's background information, including age, level of education, monthly income, religion, marital status, occupation, number of children, and the current age of the children. The chapter also discusses caregivers' awareness, causes or determinants, and management of undernutrition among children under five years.

#### Background Information on Interviewees

The study focused on caregivers having children under five years with undernutrition cases inclusively, eighteen interviewees were involved in the study. The backgrounds of these interviewees are presented below.

#### Interviewee One

She is 20 years old and has a primary educational background. She is a Christian by religion and a single mother. She is the mother of two and earns less than GhC 50.00 from helping in a chop bar. She has a 13 months old girl who weighs 7.2kg and measures 74.2cm. She falls into the wasting category of undernutrition.

#### Interviewee Two

She is 31 years old and has no formal education. She is married with five children. She is a Muslim and a pretty trader, and she estimated her monthly income to be between GhC100 and GhC300.00. She has 12 months old boy

with a weight of 8.5kg and a height of 77.5cm. He falls into the underweight category of undernutrition.

### **Interviewee Three**

She is 24 years old and has no formal education. She is a single mother with two children. She is a Christian and a seamstress, and she estimated her monthly income to be between GhC 200.00 and GhC 400.00. She has six months old girl who weighs 6.7kg and measures 71.5cm. She falls into the wasting category of undernutrition.

### **Interviewee Four**

She is 31 years old, with a junior high school educational background. She is a married woman with three children. She is a Christian and has no job at hand, but she gets a monthly feeding fee of GhC 200.00 from her husband. She has 13 months old boy with a weight of 9.6kg and height of 70.0cm. He falls into the stunting category of undernutrition.

### **Interviewee Five**

She is 35 years old and has no formal education. She is a married woman with six children. She is a Christian and a food vendor. She estimated her monthly income to be between GhC 300.00 and GhC 500.00. She has 24 months old boy who weighs 9.8kg and measures 78.0cm. He falls into the stunting category of undernutrition.

### **Interviewee Six**

She is 27 years old and has no formal education. She is a married woman with four children. She is a Christian and has no job at hand, but she gets a monthly feeding fee of GhC 300.00 from her husband. She has 18 months old

girl with weight of 10.2kg and a height of 74.0cm. She falls into the stunting category of undernutrition.

#### **Interviewee Seven**

She is 39 years old and has a primary educational background. She is a married woman with four children. She is a Christian and a fishmonger. She estimated her monthly income to be between Gh¢ 300.00 and Gh¢ 500.00. She has 6 months old boy with a weight of 6.9kg and a height of 69.2cm. He falls into the underweight category of undernutrition.

#### **Interviewee Eight**

She is 35 years old, with a primary high school educational background. She is a single mother with five children. She is a Christian and has no job. She has 36 months old girl who weighs 8.5kg and measures 70.0cm. She falls into the stunting category of undernutrition.

#### **Interviewee Nine**

She is 29 years old, with a junior high school educational background. She is a married woman with three children. She is a Christian and bar attendant with an estimated income of Gh¢ 200.00. She has 25 months old boy with a weight of 8.6kg and height of 78.6cm. He falls into the wasting category of undernutrition.

#### **Interviewee Ten**

She is 17 years old, with a primary high school educational background. She is a single mother with one child. She is a Christian and has no job. She has 4 months old girl who weighs 5.0kg and measures 55.0cm. She falls into the underweight category of undernutrition.

**Interviewee Eleven**

She is 39 years old, with no formal educational background. She is a married woman with seven children. She is a Christian and a petty trader with an estimated amount of GhC 500.00 as her monthly income. She has 12 months old boy with a weight of 8.0kg and a height of 55.2cm. He falls into the underweight category of undernutrition.

**Interviewee Twelve**

She is 24 years old, with a junior high school educational background. She is a single mother with one child. She is a Christian and a soap seller, and she estimated her daily income as GhC 10.00. She has 17 months old girl who weighs 6.6kg and measures 67.0cm. She falls into the stunting category of undernutrition.

**Interviewee Thirteen**

She is 28 years old, with a junior high school educational background. She is a married woman with three children. She is a Christian and food vendor and estimated a monthly income of GhC 500.00. She has 13 months old girl with a weight of 7.2kg and a height of 74.2cm. She falls into the wasting category of undernutrition.

**Interviewee Fourteen**

She is 33 years old, with a junior high school educational background. She is a married woman with five children. She is a Christian and a trader, and her estimated monthly income is GhC 400.00. She has 12 months old girl who weighs 6.5kg and a height of 65.0cm. She falls into the underweight category of undernutrition.

**Interviewee Fifteen**

She is 25 years old and has no formal education. She is a single mother with three children. She is a Christian and has no job. She has 15 months old girl with a weight of 7.7kg and a height of 73.0cm. She falls into the stunting category of undernutrition.

**Interviewee Sixteen**

She is 32 years old, with a primary high school educational background. She is a single mother with five children. She is a Muslim and a food vendor. She estimated her monthly income of GhC 500.00. She has 9 months old boy who weighs 7.8kg and measures 72.3cm. She falls into the underweight category of undernutrition.

**Interviewee Seventeen**

She is 18 years old and has a primary educational background. She is a Christian by religion and a single mother. She is the mother of one and gets less than Gh100.00 from family members and friends. She has a 17 months old girl with a weight of 6.6kg and a height of 67.0cm. She falls into the underweight category of undernutrition.

**Interviewee Eighteen**

She is 22 years old and has a junior educational background. She is a Muslim and married with two children. She estimated her monthly income of GhC 200.00 from helping in a chop bar. She has 25 months old boy who weighs 8.5kg and measures 78.6cm. She falls into the wasting category of undernutrition.

The age of the interviewees ranges from seventeen to thirty-nine years. Among the interviewees, twelve had attained formal education up to the junior high school level, and six had no formal education. Fifteen of the caregivers were Christians, and three were Muslims. Seven of the interviewees were never married, and eleven of them were married. The monthly income of the interviewee ranges from less than GhC 50.00 to 500.00. In terms of occupation, twelve of the interviewees had a little job at hand, but six were unemployed. The interviewees have children ranging in age from six months to thirty-six months.

**Research Question One: How do caregivers perceive and understand undernutrition in children under five years in the Nkanfoa community?**

The first research question aimed to determine the interviewees' awareness of the prevalence of undernutrition among children under five years of age. To generate data to answer the above research question, pictures of the three forms of undernutrition were shown. The findings indicated that ninety percent of the interviewees had not seen pictures of the forms of undernutrition before or had been shown to them by the nurses, even though there have been recorded cases of undernutrition over five years in the Nkanfoa community. The majority of interviewees responded no to the question, and ten percent responded in the affirmative and referred to it as kwashiorkor. The interviewee attributed the forms of undernutrition to always eating starchy foods without any protein, poor hygiene, and the failure of caregivers to monitor the feeding habits of their children. This response was from the interviewees, who are predominantly Christians.

**Research Question Two: What are the lived experiences of caregivers regarding the risk factors contributing to undernutrition in children under five years in the Nkanfoa community?**

As a follow-up to research question one, the researcher sought to investigate the risk factors associated with undernutrition among children under the age of five. The finding indicated that low level of education, marital status, occupation, large family size, giving colostrum, frequency of breastfeeding and weaning, types of food supplied to children, and poor personal hygiene and poor sanitation are some of the identified risk factors associated with undernutrition among children under five years in the community.

**Mother's educational level**

There was generally a low level of education among the interviewees. The highest level of education was junior high school. Only five interviewees had attained the primary level of education, while six out of the eighteen had no formal education. Generally, the interviewees admitted that their low level of education could have contributed to the malnourished status of their children since they did not understand the causes of their health conditions and were not knowledgeable about how to appropriately feed them. This view is consistent with the literature that a low level of education is a contributory factor to malnourishment (Scaglioni et al., 2018; Beal et al., 2017; Khattak, 2017; John & John, 2015; Mengesha & Ayele, 2015).

These were some of the views that were shared by the respondents during the in-depth interviews.

A 31-year-old woman had this to say:

*"As an illiterate mother, I am unable to provide enough care for my child in comparison to an educated mother. Because I am illiterate, I do not understand how to properly combine foods to obtain all of the nutritional advantages in all of the foods I provide to my child."*

Another woman had this to say:

*"Because I am uneducated, I am unable to provide adequate care for my children. My younger sister, who is a nurse, can feed her children well and keep them looking nourished all the time. Therefore, I believe knowledge is critical because I am unsure of how to best care for my baby's food demands (24-year-old seamstress)."*

To confirm this, a 27-year-old mother with no educational background said this:

*"Because I am an uneducated mother, I am unable to understand what the nurses say when I submit my child for weighing. Again, because I am uneducated, when I send the child to the hospital, I sometimes forget how to combine the medications they have asked me to provide to the child. As for myself, I know that because I am uneducated, I am in this predicament with my malnourished child."*

Scientists argue that the literacy level of parents, particularly mothers, has an important impact on the nutritional status of children under five years of age (Garcia et al., 2013). These studies have pointed out that most women with low education feed their children less nutritious foods.

Beal et al. (2017) showed that illiteracy is one of the top three leading causes of undernutrition. It was found that the higher the level of mothers' education, the lower the percentage of under-five children. The above researchers revealed that there is a significant association between maternal education and the nutritional status of children.

Mothers with a higher educational background tend to be better able to use healthcare facilities to interact effectively with healthcare providers, comply with treatment recommendations, and keep their living environments clean. Education also increases women's ability to earn income, but this increases the opportunity cost of their time, which may mitigate against some important caregiving behaviours, for example, breastfeeding. More to note is that a mother's education is associated with more efficient management of limited household resources, greater utilisation of available health care services, better health-promoting behaviours, lower fertility, and child-centered caring practices. All these consequently result in a reduction in undernutrition among under-five children (Nigusu et al., 2019).

Similarly, John and John (2015) stated that the prevalence of stunting, wasting, and underweight was associated with educational level. Mothers who have at least secondary education are a protective factor against undernutrition. These findings were indicative of a strong association between parental literacy and the nutritional status of children. This is because parents with poor education are more likely to have unhealthy behaviours, inappropriate health care practices, or limited living conditions (Khan et al., 2014). In line with other researchers, Abuya et al. (2012) found that parents with formal education could identify an illness in their children and seek medical treatment as early as

possible. Formal education also allows parents to read medical instructions and apply the treatment as directed (Abuya et al., 2012). Specifically, the less educated parents had more children who were malnourished compared to the educated ones. According to Scaglioni et al. (2018), parents' education has a significant impact on children's eating habits. They often use various methods to introduce food that is sometimes counterproductive for children under 5 years of age (Scaglioni et al., 2018). Control or pressure for food acceptance can reduce the willingness to try new food items that contain good nutrients but are less tasty than unhealthy food (Scaglioni et al., 2018). The authors argued that pediatricians should strive to educate parents on how to introduce healthy food to their small children (Scaglioni et al., 2018). Similarly, Yabanc et al. (2014) argued that a lack of nutritional education appeared to have a detrimental impact on children's food regimen. The nutritional knowledge of parents, particularly young mothers, is essential to improving the dietary intake of children under five years of age. Yabanc et al. (2014) stated that parents with a lack of nutritional knowledge believed that healthy foods were too expensive or took on an extra workload to prepare healthy meals. As a result, they will choose a traditional meal that could be unhealthy or run to pick up snack food (Yabanci et al., 2014). In a separate study, some researchers investigated the association between an increase in nutrition knowledge in mothers and an increase in children's growth and found that maternal nutritional knowledge positively influences anthropometric measures in children under 5 years of age (Umare et al., 2019). Parents who have some type of nutritional education (Umar Farooq et al., 2015) often use preventive health care. Aslam and

Kingdon (2012) agreed with the fact that parents' education affects the well-being of their children in many ways.

### **Marital status**

Contrary to the educational status of the interviewees, ten out of the eighteen were married and eight were unmarried. According to the study, married caregivers have unsupportive spouses that could influence their financial status, ultimately leading to the undernutrition of their children. Generally, the interviewees admitted that either being married or unmarried could have contributed to the malnourished status of their children in terms of financial and responsible spouse support. Some of the caregivers had the conviction that if a woman finds herself in a happy marriage, then the children can enjoy healthy living, but if a woman is not found in a happy marriage, then it is even better if she stays alone and tends for her children and herself.

The following quote illustrates what the caregivers said concerning their marital status and how it influences the nutritional status of their children.

A 34-year-old unmarried woman indicated:

*“If I had been married, at least my spouse would have supported me in caring for this child, and I am confident that her health would have been better. I can say that because I am alone, my child is malnourished.”*

A married woman, aged 32, said this:

*“My children do not receive the necessary care, even though I am married, because my spouse does not assist me in child care. My spouse does not care whether the children have even eaten. He will eat outside and then return home to sleep.”*

*However, if I were in a healthier marriage, at least my child would have been enjoying life and would not appear as thin as this.”*

Marital status has been shown to have both positive and negative influences on the nutritional status of under-five children. For example, Amugsi et al. (2020) showed that marital status could significantly determine a child's nutritional status. Mothers who were in union were a protective factor against undernutrition. Habaasa (2015) found that the majority of the stunted children were from mothers who were married or cohabiting. Similarly, Mboho and Bassey (2013) found that marital status was associated with undernutrition. Women who were not married had more children who were malnourished.

On the contrary, Mtoi and Nyaruhucha (2019) in Tanzania revealed that mothers who are married are more likely to have undernourished children, unlike those who are unmarried, perhaps because of the cost of maintaining families; hence, sometimes these families fail to produce nutritious supplements for the under-five children.

### **Maternal occupation**

According to the study, most of the interviewees are in informal jobs. Only three out of the eighteen interviewees had a job. Some of the women mentioned that the type of work is a major factor in their children's nutritional status. Some people also looked at it from a broader perspective. They mentioned the fact that their work makes undernutrition worse in two ways. Either they are too busy to take care of their child, or they will not get the money to do so. They stated that the sort of occupation one is engaged in could have a favourable or negative impact on their children's nutritional status.

One of the women had this to say:

*“ I am not working, so it is extremely difficult for me to take care of him. Just last week, we took him to the hospital, and they told us to return for a follow-up, but I am currently unemployed and unable to afford the trip. The father's work is also not meeting expectations, so we are barely surviving (an unemployed 35-year-old woman).”*

Another caregiver, who is a 39-year-old fishmonger, also had this to share:

*I almost gave up caring for this infant after the mother passed away. I am a fishmonger. Unless I do that, we cannot consume. This is not even my concern. Even if this infant is ill, I must sometimes shut my eyes and pray that the situation does not worsen. And more specifically, I don't have enough time to care for my child as expected.”*

A 20-year-old petty trader also said this:

*“I must parade these items around to get people to buy them. Sometimes I am forced to feed this child and myself with only 10 cedis, even though I am out with him for nearly the entire day. Therefore, if I were gainfully employed, I am confident that my infant would not be malnourished.”*

A 30-year-old food vendor also had this to share:

*“It is true that occupation and malnourishment can affect each other. As a food vendor, it should not have been a problem for me. The challenge I face, however, is that sometimes the child will be hungry, but I have more people*

*relying on me to acquire food, so I must serve them before I can feed her. Therefore, I am certain that this is another reason why she is not at her ideal weight.”*

Researchers reported that maternal occupation is a contributing factor in undernutrition among children under five years of age. For instance, Dewana et al. (2014) showed that having a farmer mother predisposed a child to both stunting and underweight, which showed a significant association. Dewana et al., (2014) found that children of farming mothers have access to food such as cassava, potatoes, plantains, maize, beans, and groundnuts, or carbohydrate food from farms, but do not have access to protein animal food such as meat and fish, since these are expensive and not always available in Bandja village. In addition, farmer mothers used to sell some of the food to afford other needs of the household rather than using it for family nutrition (Dapi, Monebenimp, & Ang, 2019). In addition, Sharma, Watode, and Srivastava (2017) also found mothers' occupations to affect their children's nutritional status. For example, those who engaged in cultivation tended to sell family food in a bid to get money, which subsequently caused shortages and consequently increased cases of under-five child undernutrition.

In a contrary view, Salah and Nnyepi, cited in Gilbert and MaK (2014), noted that maternal occupation was found to influence the nutritional status of their children. Specifically, underweight occurred to a lesser extent among children whose mothers worked in agriculture than among children whose mothers were involved in informal business. In China, Liu, Fang, and Zhao (2013) also found maternal occupation influencing the nutritional status of their children. Specifically, the nutritional intake and nutritional status of children

whose mothers worked in administrative, scientific, and technological fields, factories, or service sectors were better than those of children whose mothers were farmers or self-employed labourers. Relatedly, Mengistu et al. (2013) also showed in their study that children of mothers who were skilled workers had low nutritional status compared to those in unskilled occupations. Again, in Bangladesh, Das and Gulshan (2017) found that mothers in physical labour had their children malnourished compared with those working in the formal sector.

Other studies have also found that some mothers, due to their occupation, leave their children at home with other siblings, who sometimes neglect feeding their siblings or fail to follow the right frequency, which sometimes worsens the problem of undernutrition. It is also common for mothers to fail to provide complementary feeds, including protein foods, since most of them cannot afford them (Bampaire, 2019).

### **Size of family**

According to Prvana et al. (2017), family size can also affect the nutritional status of children under five. Some of the interviewees also indicated that the large size of the family they find themselves in is also a contributing factor to the malnourishment of their children. The interviewees were of the view that because there is a need to feed more people, sometimes the children do not get the required amount of food they are supposed to get. Others also said that because they stay in a family house, other family members' parasite on some of the foods they buy for their children.

The following quotes confirm what the caregivers said:

*“Since I now have to cook for a larger family, the milk I buy just for the baby sometimes disappears after I use some of it*

*to make her food. As a result, I stopped buying baby milk, which I now fear is having a negative effect on my son (a pretty trader mother of three, aged 24).”*

A statement by another interviewee supported the previous claim:

*“If I were to describe the challenges I face in this household, it would not be simple. Some of the children will consume the food that I cook for them while I am away, leaving them to starve. However, what can you do? My only hope is that we find a home and relocate soon so that my children can enjoy their youth. It is too much of a problem for me (a caregiver of 39 years with six children)”.*

Yet another caregiver indicated that:

*“Because we have a large home, there have been times when I cook and have to share it with all of the members, and the children are not content. Moreover, all of this has an impact on their development, especially the little infants (a 32-year-old woman with five children)”.*

The study revealed that a significant determinant of undernutrition is the presence of a large family size. This discovery provides more support for investigations conducted in other locations. Ying, Lininger, Ung, and Ying (2015) conducted a study in developing nations, specifically Haiti, to examine the relationship between living conditions and malnutrition. The findings of the study revealed a significant association between impoverished living conditions and the prevalence of stunting, underweight status, and limited access to healthcare among children. The effectiveness of preventive intervention is

found to be more constrained among children from larger and economically disadvantaged families compared to those from more affluent homes (Ying et al., 2015). A study conducted in Pakistan by Nisar et al. (2016) yielded the same findings. Several potential factors may contribute to this phenomenon. One possible explanation is that individuals from larger extended families often prepare meals in quantities that are intended to feed multiple individuals, resulting in the child not receiving an adequate portion size. Additionally, it is common for other family members to partake in the same meal, further diminishing the child's access to an appropriate amount of food.

### **Feeding children on colostrum**

Colostrum is an essential nutritional component for newborn babies because it helps them develop a stronger immune system (Ibrahim et al., 2017). However, several of the women in the study stated that they did not feed their children colostrum because they believed it was "dirty milk" and "waste" and should not be fed to infants. The following comment validates the women's reasons for not giving their infants colostrum.

A 28-year-old had this to say:

*“When I was pregnant, my grandmother advised me not to give my baby my first breast milk since it was unhealthy for the infant. She then requested that I feed the infant breast milk later. A friend also told me that the first milk that comes out yellow is filth and should not be given to a child.”*

A 33-year-old trader also shared that:

*“When I was pregnant, a friend at the market who had just given birth told me that I shouldn't give my baby the first*

*yellowish milk from my breast because it is infected. Because of this, I did not give my child the first breast milk.”*

Another caregiver had this to share:

*“As for me, the first breast milk that came out appeared yellow, so I perceived it to be unclean. Consequently, I did not administer it to my child. Later, the nurse inquired, and I responded that I had not given it to my child; they were angry with me (25-year-old mother).”*

### **Length of breastfeeding and weaning**

Ahmadipour and Mirzaesmaeili (2016) found that breastfeeding is a good way to reduce the incidence of undernutrition in developing countries without spending money. The World Health Organisation opines that a baby should be breastfed for the first six months after birth, after which they can start with weaning foods and continue until they are two years old. The interviewees shared their experiences about how often they breastfed their children and when they thought it was time to stop. Some of them said they stopped breastfeeding because of their jobs, and others said they did not do it very often.

A 31-year-old trader shared this:

*“Because of my trading, I quit breastfeeding when they reach the age of eight months. I give them to my mother and resume my business because I will be unable to breastfeed them when I return because they will have a running stomach.”*

Another caregiver, age 22, echoed a similar sentiment:

*‘I sometimes breastfeed him. She likes eating more than taking breast milk, and I am sure she would have gained*

*weight if she had taken both. I tried to breastfeed the baby, but she would not take the breast.”*

### **Types of food given to children**

The children's diets were also cited as a contributing factor to the epidemic of childhood malnourishment in the community. Several mothers shared their experiences:

A caregiver who is unemployed said this:

*“I was not getting money to buy lactogen for my baby, so the nurses said I could be giving the baby mashed kenkey with milk. However, unfortunately, sometimes I cannot afford the milk, so I just give the raw, mashed chicken like that to my baby.”*

Another single mother who is 32 years old and unemployed also said:

*“I feed my child twice a day, in the morning with lemon grass as breakfast, Late afternoon with banku, with or without fish, after one year of exclusive breastfeeding”.*

In the same vein, a 22-year-old caregiver had this to say:

*“I was asked not to give my child an egg by my mother. She said eggs are not good for children, particularly those coming from the family. They end up getting rashes when they are given eggs.”*

Infant feeding practices are a determinant of undernutrition among children under five years of age. The child-feeding practices that affect undernutrition include whether the children were exclusively breastfed, whether they were given complementary foods, and how they were weaned.

Women are naturally the primary caregivers at the beginning of a child's life. Carrying out such functions as breastfeeding is therefore very critical to maintaining the child's good nutritional status (Saunders, Smith, & Stroud, 2015).

Studies have shown that the proportion of underweight and stunted children is significantly lower among mothers who initiated breastfeeding within six hours of birth. For example, Ibrahim et al. (2017) indicate in their study that children who were given colostrum were not malnourished compared to children who were not given colostrum. Similarly, Moshy et al., (2013) found that in Tanzania, children who were malnourished were not given colostrum after birth. In addition, Islam, Mahanta, Sarma, and Hiranya (2014) also found a higher prevalence of both stunting and underweight among under-five children who were deprived of colostrum.

In addition, improper complementary feeding is a risk factor for underweight children. According to Pai et al., (2018), more underweight children were found among the groups that did not get proper complementary foods. For example, the duration of exclusive breastfeeding is an important determinant of a child's nutritional status. It is established that children of mothers who exclusively breastfeed their infants for less than six months have a higher risk of being malnourished compared to children whose duration of exclusive breastfeeding is up to six months (Ahmadipour & Mirzaesmaeili, 2016). Amugsi Mittelmark, Lartey, Matanda, and Urke (2014) conducted a study in Ghana that found that children who received exclusive breastfeeding for six months did not suffer from malnutrition compared to those who did not. In a similar study, Amugsi, Mittelmark, and Lartey (2014) revealed that

although breastfeeding rates were high, complementary feeding practices were less than ideal, with many children being introduced to complementary foods below the age of 3 months. The nutritional qualities of complementary foods were poor, and the prevalence of stunting among the children was high.

According to Arhin (2019), some mothers with babies 0 to 2 years old consider cow's milk as best for the growth of children, while some mothers consider breast milk harmful when mothers get pregnant. In India, Das, Chattopadhyay et al. (2013) also found that most mothers did not practice good feeding practices, which contributed immensely to malnutrition cases among children under five. Similarly, Sultana et al. (2015) showed that mothers who practiced improved feeding practices, such as avoiding feeding bottles and increasing various types of complementary food, contributed to a reduction in undernutrition cases.

Again, Arhin (2019) also found that poor weaning and food supplementation exerted the strongest influence on the nutritional status of the children whose diet consisted mainly of cereals. Nankumbi and Muliira (2015) also found that children who were not given complementary feeding before six months were not malnourished; however, those who were given complementary feeding before six months were malnourished. Relatedly, Sika-Bright and Ahorlu (2015) also found that feeding practices have a great influence on the nutritional status of children younger than five years. He found that a mother's marital and employment status, friends' ways of feeding their babies, social support, and the baby's age influenced mothers' infant feeding practices.

Afaya et al. (2017) argued that there are beliefs and value systems, especially concerning the cultural administration of water to children under six months. A key finding was that mothers-in-law were often the primary decision-makers regarding infant feeding practices. Elderly women and older co-wives in the household were also influential in feeding decisions. In nearly all households where the mother-in-law was present, she played a dominant role in deciding breastfeeding initiation and the timing of the introduction of food complements and supplementary foods. This pattern occurred because of their higher status within the household and the extended family system. The results on feeding practices are also in line with UNICEF's framework on malnutrition.

The findings of this current study can be compared to the Ecosystems model of malnutrition, which states that children are not isolated beings; they do not exist solely as individuals but also as members of families, peer groups, and the general social system, and for that matter, they depend on what pertains to their environment. Given that, determinant factors such as low level of education, marital status, large family size, and marital occupational status of caregivers have been found to influence the nutritional status of children under five years old in the Nkanfoa community.

**Research question three: How do caregivers and community members manage and prevent undernutrition in children under five years in the Nkanfoa community?**

The study required a careful reading of the transcripts to aid in the identification of the primary themes that emerged from the transcripts. To show the most important issues detected in the data, topics were summarised, clarified, and grouped. The identified management options for undernutrition

cases include seeking spiritual treatment, using indigenous medicines, and seeking medical treatment.

### Spiritual Treatment

Several women said that on certain occasions, those possessing the ability to perceive the spiritual realm and anticipate a child's prosperous future might endeavor to impede the attainment of the favourable outcomes that have been divinely ordained for both the child and the entire family unit. Yousafzai et al. (2016) conducted a study in Pakistan, where mothers reported utilising diverse magical and religious interventions to address malnourishment in their children. This phenomenon is attributed to the association of malnourishment with fear and spiritual possession. Individuals' initial course of action in seeking improved health involves engaging in prayer or reciting passages from the Koran. In Rwanda, it is observed that children are sometimes referred to traditional healers for spiritual interventions instead of seeking conventional medical treatment (Lu et al., 2016).

Some of the mothers shared these.

A 24-year-old seamstress had this to say:

*“When my child becomes unwell, I am told to contact a spiritualist or a prophet, and if the ailment is from the father's side, the father must be there. However, in the case of this child, the spiritualist informed me that the weight loss is the result of some spirit looking at my child, and thus I must allow them to conduct some spiritual bathing on the child for the child to be well.”*

Another 31-year-old also shared that:

*“I brought her to a prayer retreat, where the preacher stated that someone had cast 'bad eyes' on her. Almost a month elapsed during my stay. He gave me some desiccated leaves to rehydrate in water for her morning and evening baths, as well as some for her to consume after meals. Additionally, he draped something around her waist. I have followed all of their recommendations, but her condition has not significantly improved.”*

### **Medical Treatment**

In the majority of instances, undernutrition is a remediable condition that can be effectively addressed in a domestic setting. The administration of treatment can occur inside the home setting, either by self-administration or with the guidance and oversight of a skilled healthcare practitioner. Abubakar, Holding, Mwangome, and Maitland (2011) indicate that supplementary nutrients are administered to children in order to enhance their calorie and protein consumption. Several caregivers expressed their perspectives on the treatment of undernutrition through medical intervention.

A 22-year-old shares that:

*“Hmm, I think someone has a 'bad eye' on her because a man informed me so. In addition, I am not sure what happened to her, and her health has been deteriorating. As a result, I am convinced that is what has occurred to my child, as she has been unwell frequently. And due to her terrible health, I've gone to the hospital a lot.”*

Another caregiver, age 29, also had this to say:

*“My child's health was not so good, prompting me to seek medical attention by sending her to the hospital. Upon evaluation, she was prescribed a supplement and administered medication as part of her treatment plan. I concealed the presence of the child as a result of financial constraints; however, the provision of sustenance is entirely facilitated by the hospital. It is evident that her condition is improving.”*

A single mother of 32 years said this:

*“I engaged in the practice of exclusive breastfeeding for one year, during which my child experienced a decline in health necessitating her admission to a medical facility. Following the completion of treatment, the nurse emphasised the importance of adhering to appropriate personal and environmental hygiene practices. This entails ensuring cleanliness in our immediate surroundings as well as maintaining the cleanliness of the cooking utensils we use. The practice of handwashing with soap and water holds significant importance for both maternal and child health.”*

She added that:

*“It is recommended that children be provided with fruits and vegetables regularly, ideally at least three times per week. Additionally, it is advisable to prepare children's meals*

*separately from those of adults. In addition, it is advisable to decrease the consumption of starchy foods.”*

### **Traditional treatment**

Child malnourishment was not solely attributed to insufficient food intake but rather encompassed a broader indigenous understanding of health and illness. Parents frequently sought the assistance of healers due to their established presence within the community, possession of traditional knowledge, and affordable rates compared with alternative possibilities. Due to divergent perspectives and discourse about health among healthcare professionals and the public, individuals frequently refrain from seeking assistance from healthcare facilities. The disparities in diagnostic and treatment approaches for malnourished children among health professionals and healers have significant consequences for the feasibility of implementing interventions aimed at reducing malnutrition rates (Degefa et al., 2022). Several mothers have provided accounts of their experiences about the utilisation of indigenous remedies for the management of undernutrition.

A caregiver of 20 years shared that:

*“My grandmother concocted a traditional remedy known as ak3se dur, which is purported to aid with weight gain. The composition comprises a blend of uncooked rice, ayilo, tontrofi, raw groundnut, atakomatakum, water, and perfume. Following the act of bathing my infant, I proceed to administer the application of a substance onto her body, to facilitate her weight restoration.”*

Yet another caregiver indicated that:

*“My friend advised me to purchase turkey berries and grind them. I can mix it with her food or give it to her to drink. She claims it will strengthen her immune system and allow her to regain weight.”*

The study revealed that spiritual practices play a role in the management of undernutrition. The study revealed that mothers attributed the malnourished condition of their children to their spiritual beliefs. This discovery is consistent with the results obtained in previous investigations. According to Boatbil, Guure, and Ayong (2014), individuals residing in the Northern Region of Ghana held the belief that child malnutrition could be attributed to transgressions against a deity known as 'Tobig god'. These transgressions included the consumption of dry flour, meat offered as a sacrifice to 'Tobig god', ingestion of 'bitter breast milk', consumption of chicken despite its prohibition, and the presence of living organisms obstructing breast milk, referred to as 'Sama'. It is believed that to effectively address the issue of malnourishment among children, it was essential to seek guidance from soothsayers to ascertain the precise cause of the child's condition. Some of the methods employed to treat undernutrition included appeasing the deities, consuming water contaminated with fowl droppings, and applying ground guinea corn malt to the breasts of nursing mothers. Given this, the study posits that drinking water contaminated with fowl droppings can pose serious health risks. Fowl droppings, for instance, can contain harmful bacteria such as coli, *Salmonella*, or *Campylobacter*, which can cause gastrointestinal infections, diarrhoea,

vomiting, and, in severe cases, more serious health complications. Consuming contaminated water can lead to significant health issues and should be avoided.

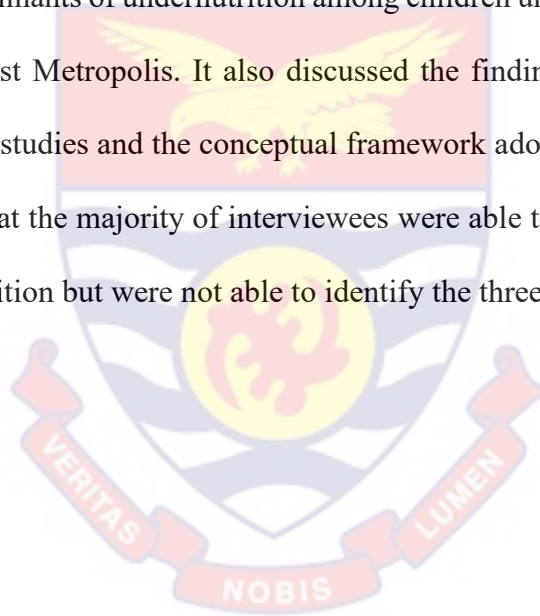
In a study conducted in Pakistan, Yousafzai et al. (2014) found that mothers employ a range of magical and religious therapies when addressing the issue of malnourishment in their children. This response is often attributed to the belief that malnourishment is linked to fear and spiritual possession. Individuals' initial approach to seeking improved health involves engaging in prayer or reciting passages from the Koran. According to Lu et al. (2016), in Rwanda, children are brought to traditional healers for spiritual interventions instead of seeking medical treatment.

A research investigation was undertaken in Ethiopia to examine diverse perspectives and treatment modalities of undernutrition. Child undernutrition was not solely attributed to insufficient food intake but rather was comprehended within a broader local framework encompassing health and illness. Parents frequently sought the assistance of healers due to their established presence within the community, possession of traditional knowledge, and comparatively lower costs in comparison to alternative possibilities. Due to divergent perceptions and discourses surrounding health among healthcare professionals and the public, individuals frequently refrain from seeking assistance from healthcare facilities. The disparities in diagnosis and treatment approaches between health professionals and traditional healers in relation to malnourished children have great consequences for the feasibility of implementing interventions aimed at mitigating undernutrition (Degefa et al., 2022).

Abubakar, Holding, Mwangome, and Maitland (2011) suggest that children are provided with supplementary nutrients in order to enhance their calorie and protein consumption. The study therefore emphasised that medical treatment, spiritual treatment, and traditional treatment are the crucial strategies adopted in managing undernutrition cases among children under five in the Nkanfoa community.

### **Chapter Summary**

This chapter presents the results of the study. Specifically, it presented the determinants of undernutrition among children under five at Nkanfoa, in the Cape Coast Metropolis. It also discussed the findings of the study about the empirical studies and the conceptual framework adopted for the study. It came to light that the majority of interviewees were able to mention determinants of undernutrition but were not able to identify the three forms of undernutrition.



## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

This chapter outlines the summary of the major findings of the study. Conclusions drawn from the major findings of the study are also presented. Related recommendations are also inferred from the conclusion made for practice and possible policy. Finally, suggestions for further research on the awareness and management of undernutrition among children under five years of age are also presented.

#### Overview of the Study

The main purpose of the study was to examine awareness and management of undernutrition among children under five years at Nkanfoa in the Cape Coast Metropolis. Using Nkanfoa, a suburb of Cape Coast in the Central Region, which is one of the undernutrition-endemic regions in Ghana (Bandoh, Manu, & Kenu, 2018). Further, reports from the Cape Coast Metropolitan Health Directorate from April to May 2023 indicate that the Nkanfoa community has a prevalence of undernutrition cases. Wasting (5.2 percent), stunting (7.51 percent), and underweight were 40 representing (23.13 percent). The total number of children who were at risk of becoming malnourished were (25.43 percent). The research questions that unpinned the study were, “How do caregivers perceive and understand undernutrition in children under five years in the Nkanfoa community?”, “What are the lived experiences of caregivers regarding the risk factors contributing to undernutrition in children under five years in the Nkanfoa community?” and “How do caregivers and community members manage and prevent

undernutrition in children under five years in the Nkanfoa community?”. To better explore the central issue in the study, the qualitative research design was employed to help understand the phenomenon. Non-probability sampling method, specifically the purpose sampling technique, was used to select eighteen (18) caregivers with undernutrition children. The main instrument used to collect data from the caregivers was a semi-structured interview guide. The field data were collected using interviews, which were recorded, translated and transcribed. The data collected were manually categorised to generate similarities and differences in opinions, which were used to form themes around which the discussion evolved. The data were organised based on the various research questions developed to guide the study.

### **Key Findings**

1. The outcomes of the study indicate that a small proportion of interviewees (ten percent) recognised the pictures shown to them as depicting children with kwashiorkor. However, they were unable to accurately identify the forms of undernutrition. The feedback received from the interviewees, who are primarily adherents of the Christian faith, indicates that ten percent of them attribute undernutrition to spiritual factors. Additionally, the study unveiled that those caregivers with limited levels of education perceived their educational deficiencies to be responsible for their children's malnourishment.
2. Additionally, caregivers admitted that marital status had an impact on the nutritional health of their children. The current study also brought to the fore that caregivers viewed both their occupations and large family sizes as negatively affecting the nutritional status of their

children. Moreover, interviewees noted that feeding practices, including the omission of colostrum, the length of breastfeeding, and the composition of complementary foods, are influential factors that impact the nutritional health of children aged five and below.

3. Another key finding of this study was that the majority of interviewees agreed that cases of undernutrition have to be addressed by medical and traditional means rather than the spiritual means.

### Conclusions

Based on the above findings, the following conclusions are drawn for the study.

1. The study's findings reveal that a greater number of interviewees were unable to identify the forms of undernutrition, indicating that caregivers lack adequate knowledge about these conditions.
2. However, caregivers demonstrated some level of knowledge on risk factors associated with undernutrition, but did not know how to implement them, which affects the nutritional status of their children.
3. The findings also indicate that caregivers have misconceptions about how food can be used to prevent undernutrition, but were of the view that both medical and traditional means may be used in managing the undernutrition cases among their children. It would be beneficial if health professionals upgrade their awareness campaign during post-natal visits. To achieve the MDGs 1 and 4, the content and approach of any program must address the need for variability,

determined by individual local needs, concerns, attitudes and beliefs.

### **Recommendations**

Following on from the key findings and conclusions of the study, the following recommendations are made;

1. The use of visual presentation of recommended foods that are required to reduce undernutrition among children should be shown to caregivers during post-natal visits.
2. Nutrition Officers in the Cape Coast Metropolis and community health nurses in the Nkanfoa community are to conduct an educational campaign that focuses on teaching caregivers and community members how to use available food and combine it in ways that will help prevent undernutrition economically and feasibly.
3. Collaborate between community health nurses with local religious and community leaders to sensitively address spiritual beliefs related to health, while designing integrated health interventions that combine medical treatment with accepted traditional approaches to nutrition and child health through culturally appropriate education.

### **Suggestion for Further Studies**

1. It is necessary to conduct more studies on the long-term consequences of undernutrition during early childhood, such as stunted growth, cognitive development, and susceptibility to diseases later in life.
2. Investigate the barriers that prevent access to treatment and management of undernutrition, including economic, cultural, and logistical obstacles.

3. Evaluate the effectiveness of existing interventions and programs aimed at preventing and managing undernutrition in children. Identify successful approaches and areas for improvement.



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**APPENDICES**

**APPENDIX A****RESEARCH INSTRUMENTS****UNIVERSITY OF CAPE COAST****DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION**

I am a student of the University of Cape Coast pursuing a master's degree in Home Economics. To fulfil the requirements for a master's degree, I am undertaking a research project titled "**Awareness and management of undernutrition among children under age five in Nkanfoa in the Cape Coast Metropolis**". I humbly request your contribution towards the completion of this research, and any information provided will be used only for academic purposes and treated with confidentiality. Thank you for your cooperation.

**INTERVIEW GUIDE**

Good morning, I am Rebecca Bridget Dumeda, a student of the University of Cape Coast. I am undertaking a study on undernutrition. The findings of the study will help to revise the health messages delivered to the communities on strategies put in place in managing undernutrition.

**SECTION A: BACKGROUND INFORMATION**

As a way of starting our conversation, I want to know certain basic things about you by seeking your responses to the following questions.

1. What is your age? .....
2. What is your educational level? .....
3. What is your income level (monthly)? ...
4. What is your religious affiliation? .....
5. What is your current marital status? .....
6. What is your occupation? .....

7. Number of Children ever born? [Probe for number of children surviving]
8. How old is/are your children? .....

**SECTION B: AWARENESS OF UNDERNUTRITION AMONG CHILDREN UNDER FIVE YEARS IN THE COMMUNITY**

At this section, I want you to indicate your awareness of undernutrition among children under five years in the community.

9. How do you call this condition? (Present the different pictures of undernutrition).
10. Is the condition common among your children, family or in this community?
11. If yes what are the signs and symptoms of undernutrition for each of the types of undernutrition?
12. Is undernutrition a result of a curse/undernutrition is a spiritual illness
13. What is the meaning and indicators of undernutrition in your community? Or a result of the inability of mothers to afford a nutritious diet

**SECTION C: DETERMINANT OF UNDERNUTRITION AMONG CHILDREN UNDER FIVE YEARS.**

14. What cause the malnourishment in the child?
  - a. Probe income related factors (basic utilities, buying capacity/income)
  - b. Probe social amenities related factors (source of drinking water, health facilities in the community/society)
  - c. Probe poor hygiene and sanitation practices makes the child malnourished

- d. Probe presence of diseases and infections like diarrhoea
- e. Probe (when you gave birth did you breastfeed immediately, did you give colostrum, did you practice exclusive breastfeeding, how do you feed your child while you are at work.
- f. Improper weaning and introduction of family foods to the child causes undernutrition.
- g. Probe (fruits and vegetables)
- h. Probe educational related issues (literacy level, knowledge on nutrition and personal hygiene)
- i. Probe living arrangements (probe single parenting)

**SECTION D: MANAGEMENT OF UNDERNUTRITION AMONG CHILDREN UNDER FIVE YEARS.**

- 15. What did you do to your malnourished child?
- 16. At what stage of the undernutrition did you seek treatment?
- 17. How are these signs and symptoms of undernutrition managed in the community? (Probe for home management, other options of management, prayers, herbs, medical treatment)
- 18. What are the social and economic challenges to the family with respect to treating undernutrition?
- 19. Can undernutrition be cure with spiritual prayers?
- 20. How do you think undernutrition can be prevented?

Thank you for your participation.

**APPENDIX B**

**INTRODUCTORY LETTER**

**UNIVERSITY OF CAPE COAST  
COLLEGE OF EDUCATION STUDIES  
FACULTY OF SCIENCE AND TECHNOLOGY EDUCATION  
DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION**

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University of Cape Coast  
Cape Coast

Our Ref: VTE/IAR/V.3/78

23<sup>rd</sup> January, 2023.

The Head  
Institutional Review Board  
UCC

Dear Sir,

**REQUEST FOR ETHICAL CLEARANCE**

We have the pleasure of introducing to you Ms. Rebecca Bridget Dumeda who is an MPhil student of this Department and working on the thesis topic "*Awareness and Management of under nutrition among Children under five years.*"

We would be most grateful if you could grant her an Ethical Clearance to enable her proceed with the work.

Thank you.

Yours faithfully,



Dr. (Mrs) Patience Danquah Monnie  
**HEAD OF DEPARTMENT**

## APPENDIX C

## ETHICAL CLEARANCE

UNIVERSITY OF CAPE COAST  
INSTITUTIONAL REVIEW BOARD SECRETARIAT

TEL: 0558093143 / 0508878309  
E-MAIL: [irb@ucc.edu.gh](mailto:irb@ucc.edu.gh)  
OUR REF: IRB/C3/Vol.1/0197  
YOUR REF:  
OMB NO: 0990-0279  
IORG #: IORG0011497

20<sup>TH</sup> JUNE 2023

Ms Rebecca Bridget Dumeda  
Department of Vocational and Technical Education  
University of Cape Coast

Dear Ms Dumeda,

**ETHICAL CLEARANCE – ID (UCCIRB/CES/2023/14)**

The University of Cape Coast Institutional Review Board (UCCIRB) has granted Provisional Approval for the implementation of your research on **Awareness and Management Undernutrition among Children Under Age Five in Nkanfoa in the Cape Coast Metropolis**. This approval is valid from **20<sup>th</sup> June 2023** to **19<sup>th</sup> June 2024**. You may apply for an extension of ethical approval if the study lasts for more than 12 months.

Please note that any modification to the project must first receive renewal clearance from the UCCIRB before its implementation. You are required to submit a periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Kofi F. Amuquandoh'.

Kofi F. Amuquandoh  
Ag. Administrator

ADMINISTRATOR  
INSTITUTIONAL REVIEW BOARD  
UNIVERSITY OF CAPE COAST