DETERMINANT OF NUTRITION STATUS AMONG CHILDREN AGED 6-59 MONTHS SEEKING CARE AT SAVE THE CHILDREN HEALTH CENTER IN KISMAYU, SOMALIA

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DECLARATION AND APPROVAL

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This thesis is wholly original with no submissions for a master's or degree at any other university or for any other honor.

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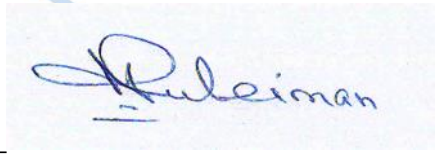
Signature: ____  Date: __ 11.9.2024

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DEDICATION

This thesis is dedicated to the Almighty, my parents, and those individuals who have helped and encouraged me along this significant life journey.

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List Of Abbreviations And Acronyms

CFR	Case Fatality Rate
DFID	Department for International Development
1FPRI	International Food Policy Research Institute
FAO	Food Agricultural Organization
GAM	Global Acute Malnutrition
GOK	Government of Kenya
KNBS	Kenya National Bureau of Statistics
MAM	Moderate Acute Malnutrition
MOH	Ministry of Health
SAM	Severe Acute Malnutrition
SSA	Sub-Saharan Africa
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

ABSTRACT

One of the duties listed in the United Nations Sustainable Development Goal (SDG) 2.2 is the eradication of all forms of malnutrition. Somalia was one of the three worst-ranked countries out of 188 countries using the 37 indicators of health included in the SDGs. This is directly causing the government and other partners in development to try to prioritize the healthcare industry. Although malnutrition is a preventable disease, it is a contributor to the high number of illnesses among children admitted to hospitals. Examining the factors influencing the status of nutrition of 6-59-month-old Somalian children was the aim of this study, which was conducted with particular reference to the Save the Children Health Centers in Kismayo, Lower Juba. The age range was chosen to take into consideration the fact that extra feedings begin at six months of age, which is a critical period when children are most susceptible to malnutrition. The main goals of the investigation were to determine the clinical factors influencing the nutrition status of Somali babies aged 6-59 months, to evaluate the sociodemographic influence on the nutrition status of these children, and to evaluate the socioeconomic factors impacting the nutrition status of these children aged 6 months to 59 months. A mixed methodology was used in the investigation. The research investigation was conducted at the Save the Children-run Kismayo health centers in Somalia. Purposive, methodical, and simple random sampling techniques were used to choose subjects for this investigation. The size of the sample was determined using the Fischers formula, and 292 was selected as the value. Structured questionnaires were used to collect primary data. The goals of the investigation were taken into consideration when creating the questionnaires. Data analysis was conducted using the statistical tools Version 27. The correlation between the independent and dependent variables was examined using bivariate analysis. In bivariate analysis, the Chi-square independence test was used. Binary logistic regression was utilized to build a logistic regression model. P-values of 0.05 or less will also be considered statistically significant. Tables were used to display the data. Qualitative data was analyzed using the thematic analysis method. According to this study, over half of the participants (60.6%) had a normal nutritional status, while over a quarter (39.5%) suffered from malnutrition. The likelihood of having a normal nutrition status was enhanced by exclusive breastfeeding, having a child born weighing more than 2.5 kg, earning more than the poverty line, and living in a home with 1-3 family members. Lack of seeking ANC services, the absence of a safe water source, being male, and children aged 6-17 months reduced the odds of having a normal nutrition status. The Ministry of Health plus relevant stakeholders should integrate various mechanisms meant to prevent malnutrition and promote good nutrition status among children aged 6-59 months.

CHAPTER ONE: INTRODUCTION

1.0 Preamble

This section contains the following: study scope and purpose, limitations, investigation delimitations, research question, research objective, research background, investigation question, research assumption, justification, and operational definition of terms.

1.1 The Study Background

Despite being preventable, malnutrition is the leading cause of illness among children acknowledged to the hospital's children's ward. The term "malnutrition," which encompasses both undernutrition and overnutrition, refers to an imbalanced, inadequate, or excessive intake of nutrients that has a measurable negative impact on the composition, function, and clinical outcomes of the body. However, the term does not have a widely accepted definition (Abdifitah, 2021).

People who are malnourished suffer from a variety of symptoms, such as micronutrient deficiencies, and chronic and acute malnutrition due to not getting sufficient quantities of the right kinds of food in their diets to meet their basic nutritional needs (Mohammed, 2021). Many developing countries are becoming concerned about over-nutrition, but under-nutrition remains a major issue (Martin-Canavate, 2020). Under-nutrition will be the study focus and the term "malnutrition" will be used as a synonym. According to FAO, (2019) malnutrition appears to be decreasing worldwide, but nearly a billion people still suffer from it, which means that in a group of nine individuals, one is malnourished. Checchi(2022) opines that 8 percent or 3 percent of children were moderately or severely wasted in 2019 globally, respectively, the stunted were 161 million, with Sub-Saharan Africa (SSA) accounting share of approximately 36 percent.

Malnutrition is still a significant issue in SSA and Asian countries. Over 90% of the global malnutrition cases are found in countries that are developing, according to a 2012 report by UNICEF, WHO, and the WB (WHO. 2019). A report by UNICEF (2021) states that, while 22 of the 34 nations with a high malnutrition burden are located in Africa, 42 percent of Sub-Saharan children reported stunted growth. To put it another way, malnutrition can be both an effect and a cause of underdevelopment. In Kenya malnutrition is still a common problem (Fujita, Tran & Brindle, 2022). According to the most current survey on Health and demographics, more than a quarter of Korean children (below five years)are either having stunted growth or underweight. In comparison to earlier 2020 polls, this indicates a marginal drop in support. The counties of Bomet, West Pokot, Mandera, and Kilifi in Kenya all have stunting rates that are over 35%, even though there appears to be a decrease in malnutrition prevalence. Both Kiambu and Nyeri had prevalence rates that were lower than 16 percent, making the two counties with the lowest rates overall (Abdifitah, 2021).About 60 percent of the Kenyan population lives in informal (slum)settlements according to the study's findings (Gomez & Ramos,2019). As a result of rapid urbanization evidence has shown, that social inequity and stratification have become widespread, exposing the residents to greater social challenges and increasing their degradation and vulnerability. There are large numbers of people who live in Kibera, Embakasi, and Dagorreti informal settlements who go to Mbagathi Hospital. These areas are plagued by high unemployment, poor sanitation, and a lack of health care (Korir, Rizov& Ruto, 2022). Malnutrition is more common in households with a high number of diseases and food insecurity, as reported by King et al. (2022). Malnutrition in children manifests as stunting, wasting, or underweight. If a child's height for age is less than the detrimental three standard deviations, they are deemed severely

stunted; if it is significantly less than -2 standard deviations, they are deemed to have moderate stunting (UNICEF, 2021).

Acute malnutrition can be diagnosed by a patient's weight-for-height ratio. Children, who account for 7.4% of global mortality, are at greater disease and death risk as a result of wasting. It is common for children to become emaciated when they lose weight due to a combination of infection and poor nutrition (WHO, 2019). High infection rates, poor services or access to affordable and timely medical care, insufficient care and feeding practices, and poor household food safety are all contributing factors in weight loss (Gomez & Ramos,2019).

As an indicator of malnutrition, underweight is used to measure two dimensions of a child's growth (Jansky, 2023). Under-five-year-olds are particularly vulnerable to malnutrition, according to a conceptual model. Dietary inadequacy and disease are regarded as the immediate risk factors for health complications. The vicious circle of food insecurity, poverty, sanitary conditions, and lack of healthcare access that results in malnutrition is exacerbated by all of these social and economic disadvantages (Fujita, Tran & Brindle, 2022). Religious beliefs, socioeconomic systems, and cultural and political barriers are some of the root causes that restrict communities' and households' access to wholesome food (Jamshidi et al., 2022).

1.2 Problem Statement

The Global Acute Malnutrition (GAM) prevalence has remained for the past consecutive seasons (10–14.9 percent) and 11,8% post-2020/2021, based on the results of the 2021 assessments(King et al., 2022). Malnutrition will continue to be a problem for mothers and

their children in 2030 at 10.2% because of the localized flooding, desert locusts, COVID-19 pandemic, and civil conflicts that have created threats/vulnerabilities. Aside from food insecurity, malnutrition risk factors included a lack of adequate primary healthcare, immunization, and vitamin A supplementation in addition to unsafe drinking water (UNICEF, 2021).

It is expected that Somalia's acute food security will remain high until July 2024 because of the low rainfall, localized floods, an increasing infestation of locusts in southern and central Somalia, as well as the economic contraction due to the COVID-19 pandemic in neighboring countries (UNICEF, 2021). This could lead to a decline in production outputs and a rise in socioeconomic vulnerabilities. Acute malnutrition is more likely to occur in mothers whose children are between the ages of six and fifty-nine months during these climaxes. Somalia's nutrition concept places an important emphasis on the growth and physical growth of children between the ages of 6 and 59 months, but very few children visit health facilities, especially after receiving a vaccination at 9 months (MOH, 2020). These scenarios is expected to keep Somalia and Kismayo at a high of approximately 54% of deaths due to acute malnutrition. In Somalia, fewer than 35% of children over the age of 9 months are monitored for growth, compared to 25% in Kismayo and 15% in Lower Juba (MOH, 2020).

Regarding growth monitoring in children 12-59 months, there is little info about the aspects that contribute to malnutrition, and this study aims to fill that gap with reference to Save the Children Health Centres in Lower Juba. From the literature reviewed, the majority of the studies on factors influencing malnutrition of children were carried out outside Somalia under a stable political environment and mostly singled out breastfeeding as the source of nutrition.

Nonetheless, a similar study to the proposed one sampled children generally for instance those below 5 years. On this background, there was a gap in offering a complementary study to the unique Somalia political environment and the age brackets 6-59 months old. Thus, the investigation's goal was to assess the variables affecting the status of nutrition of children receiving care at the Save the Children Health Center in Kismayu, Somalia, who were between the ages of 6 and 59 months.

1.3 Study Purpose

The research study purposed to assess determinants of nutrition status among children aged 6-59-month-old in Somalia with specific reference to Save the Children Health Centers in Kismayo, Lower Juba in Somalia. Previous studies have shown that the Kismayu population is the highest rapidly growing in Somalia due to internal displacements and refugee returns. it is on this basis that the city was selected for the study.

1.4 Study Objectives

1.4.1 Broad Objective

To assess determinants of nutrition status among children aged 6-59 months seeking care at Save the Children Health Center in Kismayu, Somalia.

1.4.2 Specific Objectives

1. To determine the nutrition status among children aged 6-59 months seeking care at Save the Children Health Center in Kismayu, Somalia.
2. To determine social demographic factors associated with nutrition status among children aged 6-59 months seeking care at Save the Children Health Center in Kismayu, Somalia.

3. To determine Socioeconomic factors associated with nutrition status among children aged 6-59 months seeking care at Save the Children Health Center in Kismayu, Somalia.
4. To determine clinical factors associated with nutrition status among children aged 6-59 months seeking care at Save the Children Health Center in Kismayu, Somalia.

1.5 Research Questions

1. What is the nutrition status among children aged 6-59 months seeking care at Save the Children Health Center in Kismayu, Somalia?
2. What are the social demographic factors associated with nutrition status among children aged 6-59 months seeking care at Save the Children Health Center in Kismayu, Somalia?
3. What are the Socioeconomic factors associated with nutrition status among children aged 6-59 months seeking care at Save the Children Health Center in Kismayu, Somalia?
4. What are the clinical factors associated with nutrition status among children aged 6-59 months seeking care at Save the Children Health Center in Kismayu, Somalia?

1.6 The Study Justification

Children are the future of humanity, and human development and sustainable development goals will not be met if the factors that put them at risk for malnutrition are not accurately identified and addressed (Kauchali, 2022). Given this knowledge, it is necessary to undertake such a study to fully define the determinants of status of nutrition of Somalia children of 6–59 months ages. The choice of Save the Children health centers for the study was influenced

by the fact that the organization has been active in Somalia since 1951, making it an international and national leader in development and humanitarian programming in nutrition, health, education, child governance rights and protection (UNICEF, 2021). Most of the other organizations offer mobile clinics which would have posed a challenge in data collection.

Further, Malnutrition rates at health centers run by Save the Children in Kismayo, Lower Juba in Somalia have become alarming and are trending in a worsening direction, which demands immediate action to be taken to address the issue. According to the most current study on the state of world nutrition, the elimination of malnutrition is one of the most important components in driving forward the goal for sustainable development (Kauchali, 2022). It is absolutely necessary to break the malnutrition and poverty vicious cycle, to get factors knowledge that are associated with a poor nutritional condition. In addition, children, particularly those under the age of one year, are unable to develop to the fullest extent possible, which has a wide range of unfavorable implications for their productive capacity, socioeconomic, and human development of a nation (UNICEF, 2021).

1.7 Study Scope

The investigation concentrated on children who visited the Save the Children Health Center in Kismayu, Somalia, between the ages of 6 and 59 months. The drive of the investigation was to evaluate the factors influencing the nutritional status of children ages 6-59 months who were referred to the Save the Children Health Center in Kismayu, Somalia. 267 children aged 6-59 months who were receiving care at the Save the Children Health Center in Kismayu, Somalia, were included in the investigation's target population (geographic scope). The data collection process for the present investigation was estimated to take one month to complete, and the completion of the research as a whole was estimated to take one year (time

scope). The study's thematic scope was children aged 6-59 months, with a focus on social-demographic, economic, and clinical factors related to nutrition status.

1.8 Study limitations

1. Since the study was steered at a single health center, it may not represent children who do not seek care or those attending other healthcare facilities, leading to potential selection bias.
2. Gathering accurate data in a conflict-prone region like Kismayu was difficult due to security concerns, logistical issues, and limited access to certain areas.
3. The study might have been limited by the number of children available for data collection, impacting the ability to generalize findings to a larger population.
4. Findings from a specific health center in Kismayu may not be generalizable to other regions of Somalia, which may have different socioeconomic, environmental, and cultural conditions.

1.9 The Study Delimitations

1. The study was delimited to children aged 6-59 months. Children outside this age range were excluded to focus specifically on a critical developmental stage where nutrition plays a vital role in growth and health.
2. The research was restricted to children attending Save the Children's Health Center in Kismayu. This delimitation ensured that data collection was practical and feasible but didn't capture data from other regions or facilities.

3. The study included only children who were already seeking care at the health center. This focus excluded children who were not brought to healthcare facilities, potentially those in more remote or underserved areas.
4. The study concentrated on particular measures of well-being, like weight-for-height, height-for-age, or weight-for-age. Due to time or resource limitations, other indicators—such as biochemical evaluations of micronutrient levels—were excluded.

1.10 The Study Assumptions

1. The study assumed that caregivers and parents provided accurate and truthful info concerning the child's dietary habits, health history, and socioeconomic status during data collection.
2. The participants (children aged 6-59 months who sought care at the health center) were assumed to be representative of the general population of children in Kismayu within the same age group, enabling the generalization of findings to similar contexts.
3. The study assumed that caregivers understood the questions being asked during interviews or surveys, which affects the quality of the data collected on determinants like household practices and socioeconomic conditions.
4. It is assumed that caregivers and parents were willing to partake in the investigation and provide relevant info without substantial resistance or withdrawal from the study.
5. The study assumed that ethical guidelines were followed, ensuring that participants' consent was obtained, and their privacy and well-being protected, which facilitated trust and accurate data collection.

1.11 Operational definition of terms

Complementary feeding	refers to introducing solid foods and beverages to a baby's diet that aren't breast milk or baby formula. It usually starts at six months of age, though the precise date may change based on the infant's stage of development and cultural customs.
Exclusive breastfeeding	is the practice of providing a baby with solely breast milk and no other food or liquids, including water, formula, or other substances, except for drops, syrups, vitamins, minerals, salts for oral rehydration, and pills as required. For the first six months of life, the baby is only given breast milk and no other food or liquids, not even water, unless a doctor directs them to do so.
MAM	Children with moderate wasting or stunting are considered to have moderate acute malnutrition (MAM). This type of inadequate nutrition lies in the middle of not being malnourished and severe acute malnutrition (SAM). The weight-for-height (or length) or height-for-age Z-score of children with MAM is usually two to three standard deviations below the corresponding reference population's median.
SAM	It is a serious and life-threatening form of malnutrition characterized by severe weight loss, nutritional deficiencies, and muscle wasting, often accompanied by nutritional edema
Stunting	describes stunted growth and development brought on by malnourishment, recurrent infections, and insufficient psychosocial stimulation. It frequently causes low height for age.
Undernutrition	WHO defines undernutrition as a condition in which there is insufficient food intake, inadequate absorption of nutrients, or poor biological utilization of nutrients consumed, leading to measurable adverse effects on health and well-being.
Underweight	Underweight is defined by the WHO as an occurrence in which a person weighs less than what is deemed healthy or suitable for their height, age, and sex.
Wasting	According to the World Health Organization, wasting is a type of acute malnutrition marked by a significant and quick loss of weight or inability to gain weight, resulting in a low weight-for-height ratio.

CHAPTER TWO: LITERATURE REVIEW

2.0 Preamble

This section contains a review of the literature on the causes of nutritional deficiency a summary of the review, a list of existing research gaps, and the theoretical and conceptual framework that the study altered.

2.1 Empirical Literature Review On Malnutrition

2.1.1 Global Situation of Malnutrition

Lack of nutrition is a possibility for everyone on the planet at some point in their lives. This public health emergency affects everyone, but the most susceptible groups are the elderly, sick people with compromised immune systems, young children, teenagers, and women who are pregnant or nursing (Hasan et al., 2022). Malnutrition can be classified as either inadequate nutrition (wasting, underweight, stunting, and malnutrition related to minerals and vitamins) or overnutrition (obesity, overweight, and non-communicable diseases associated with diet). Fighting hunger contributes to the vicious upward spiral of illness and poverty by increasing healthcare costs, decreasing productivity, and slowing economic growth (Chadare et al., 2022).

The first thousand days of life are the best time to address inadequate nutrition because this is the window of chance to improve how well a child grows and develops. The United Nations Decade of Action on Nutrition, which runs from 2016 to 2025, offers a unique chance to address the various types of malnutrition. This seeks to accomplish the pertinent SDGs, including promoting healthier habits, enhancing nutrition, promoting wellbeing, and eradicating hunger. According to an investigation conducted by Wang et al. (2022), inadequate nutrition is a major global public health issue that impacts both adults and children. In addition to being detrimental to public health, it also hinders monetary growth, productivity, and the fight against global poverty. According to estimates, 32% of the world's

illness burden could be reduced if hunger were eradicated. The various forms of inadequate nutrition that children in countries that are developing experience have not been effectively addressed. When the body's needs and its use of nutrients are out of balance, inadequate nutrition results (WHO, 2020). Insufficient nutrition and overnutrition are the two main types of malnutrition, though there are other manifestations as well. The symptoms of inadequate nutrition include low height or stunting for age (persistent malnutrition), low weight or wasting for height (acute malnutrition), excess or lack of minerals and vitamins, and underweight or underweight for age (Chadare et al., 2022). Obesity, overweight, and diet-related noncommunicable illnesses (NCDs) like stroke, coronary artery disease, Type 2 diabetes, and some types of cancer are signs of overnutrition.

Because it impacts everyone, irrespective of geography, economic standing, sex, or gender, discussed households, communities, or nations, malnutrition is currently an important global problem. Although anyone can be affected by malnutrition, those with compromised immune systems, children, adolescents, mothers, and those living in poverty are the most susceptible groups (Hasan et al., 2022).

Preventive measures against inadequate nutrition in children are essential because the first signs and symptoms appear during the first two years of life, according to Sotiraki et al. (2022). When it comes to mental advancement and development, children between the ages of 6 and 24 months are thought to be at risk for protein-energy malnutrition (PEM). This age range is therefore referred to as the "window period," during which it is essential to prevent and/or treat any symptoms of acute and/or prolonged malnutrition that may appear. Insufficient nourishment in mothers and children is responsible for 3.5 million deaths annually (Wang et al., 2022). Additionally, children under the age of five have a thirty-five percent greater illness load than adults. In 2008, underweight led to 8.8 million deaths

worldwide among children under five. 93 percent of these fatalities took place in Asia and Africa. Malnutrition kills almost every child in the world before they turn five, making it the leading cause fatalities for children under five in Sub-Saharan Africa (SSA) (WHO, 2020).

2.1.2:African Situation of Malnutrition.

There has been some progress made in Africa toward meeting the global nutritional goals (Kauchali et al., 2022). However, the COVID-19 epidemic, droughts, extreme and severe weather, violence, and economic difficulties are all contributing to an alarming rise in hunger and malnutrition in Africa in 2021 (Djoumessi, 2022). A total of twenty nations are on track to exclusively feed breastfed infants aged 0 to 5; six are on track to eradicate stunting in this age group; and twenty-eight nations are on track to accomplish the international target for obesity/overweight in children under the age of five. Nevertheless, according to the WHO 2020 study, not a single nation in the area is on track to fulfill the targets for anemia in reproductive-aged women (aged 15 to 49 years), diabetes in men and women, low birth weight, obesity in men and women, and both types of obesity. 26 nations in the region lack the data necessary to fully evaluate their progress toward these global goals. Approximately 40.2% of reproductive-aged women are affected by anemia, as shown by a recent study on hunger and food security in Africa conducted by Mohajan (2022). In the African region, approximately 13.7% of newborns are underweight when they are born. It is anticipated that 43.6% of infants (0–5 months) will be solely breastfed by their mothers, which is less than the 44.0% global average. Despite performing relatively well when compared to other regions, inadequate nutrition among children under the age of five is a problem in Africa.

Another study that found a similar result came to the conclusion that the mean prevalence of overweight people was 5.3%, which was less than the worldwide mean of 5.7%. The study

was conducted by Owusu, et al., (2022). The stunting prevalence rate is 30.7%, which is higher than the average prevalence seen across the world, which is 22.0%. In contrast, the overall incidence of wasting in Africa is 6.0%, which is significantly lower than the global average of 6.7%. 2021 Currently, 33.8 million people in East Africa experience severe shortages of food, and 7 million people are at risk of starvation. According to a 2020 World Health Organization report, approximately 12.8 million children in the area suffered from severe deficiencies in nutrition. This covers the nations of Sudan, Kenya, Somalia, Ethiopia, and Uganda. The most common type of inadequate nutrition in Africa is protein-energy deficiency, which affects about 100 million people, most of whom are kids under five (30 to 50 million) (Djoumessi, 2022).

2.1.3: Malnutrition in East African Community.

The disastrous effects of climate change are currently being felt in East Africa, where the region is enduring many emergencies at the same time, such as drought and floods, which have caused widespread population displacement and acute starvation. Communities in eastern Kenya, southern Somalia, and certain regions of Ethiopia are groaning from the effects of consecutive droughts. However, after three years of excessive and unpredictable rainfall, several regions of South Sudan remain submerged in water (UNICEF 2021).

According to study findings by Bhutta, (2022) on malnutrition in East Africa, newborns of 0-5 months, the proportion of breastfed exclusively infants is predicted to be 60.7%, which is much higher than the worldwide mean of 44.0%. Even though it does pretty well in comparison to other African regions, East Africa nevertheless has a problem with children inadequate nutrition of those aged 6-59 months old. The prevalence of overweight individuals is 4.0 percent on average, which is the second lowest rate when compared to other African

regions for whom there is sufficient data. The stunting prevalence rate is 32.6%, which is much greater than the mean prevalence of 22.0% found throughout the world. In addition, the wasting prevalence in the Eastern Africa subregion is 5.2%, which is lower than the average incidence of 6.7% seen worldwide (Phulkerd et al., 2022). Compared to an already elevated baseline, the number of children acknowledged to health centers due to severe malnutrition has increased dramatically since 2021, rising by 16% in the first half of 2023. The most serious and potentially lethal type of inadequate nutrition is severe acute malnutrition (SAM).

Blood vessels under the skin may leak fluid, causing swelling in the patient's feet, ankles, and abdomen. Additional symptoms include loose skin, protruding ribs, and evident body tissue waste. Only 46 percent of East African children who suffer from serious malnutrition are currently receiving medical attention for the condition. (Letamo, Keetile, and Navaneetham, 2022).

2.1.4: Malnutrition in Somalia.

The health indicators of the population in Somalia continue to rank among the lowest in all of the countries of the globe today. The population is facing a long-term nutrition crisis, with rates of malnutrition that are higher than the requirements for declaring an emergency. Several direct causes contribute to Somalia's children between 6-59 months continuously poor nutrition situation. These variables include high morbidity rates, food insecurity in households, and feeding and childcare practices that are not as effective as they could be (King et al., 2022).

According to a recent study on Somalia's child nutrition status conducted by Donkor in 2022, 16% of the nation's under-five child population experiences extreme malnutrition, and 4%

experiences severe inadequate nutrition. According to Shragai et al. (2022), this translates to roughly 241,000 children suffering from acute malnutrition and a further fifty-seven thousand children suffering from severe nutritional deficiencies. According to these numbers, one in seven children is at risk for acute malnutrition, and one in twenty-five children is at risk for severe malnutrition. The most recent investigation reveals that, in comparison to the rates that were recorded three and a half months ago, there has been a seven percent increase in the total caseloads of malnourished children. Even if the nutrition situation across the country as a whole is quite concerning, the southern parts of Somalia present an especially grave problem (Donkor, et al., 2022).

According to UNICEF 2021, the nutrition situation in Somalia is getting worse, as indicated by a national average worldwide level of acute malnutrition of 17.4% (the level that constitutes an emergency is 15%). There are over 1.2 million children aged below five who have suffered from acute malnutrition. Approximately 231,829 of these kids are either experiencing or are at risk of experiencing severe acute malnutrition (SAM), which can be fatal. If a child with severe malnutrition does not receive the proper care, they may kill themselves. Even children who are able to make it through the ordeal may be at risk for future bouts of hunger and disease, and they may also have diminished intellectual and psychomotor capabilities. Because of this, their prospects of becoming successful in later life will be diminished (Shragai et al., 2022).

There is still a high risk of inadequate nutrition among Somalian children aged six months to fifty-nine months, according to the most recent review of studies conducted by scientists. Many families in marginal mixed-farming zones are unable to meet their daily food needs as a result of the frequent droughts in these areas. A number of factors make the population

under five years old particularly susceptible to malnutrition (Checchi et al., 2022). Malnutrition is common in Kismayo, according to nutritional condition information gathered by PDI and EWS exclusively for children aged 6 to 59 months, but it does not explain why the number of cases is so high. The malnutrition of children in the area necessitates an investigation into the causes. Further research shows a correlation between socio-demographics, clinical risk factors, complementary feeding, and growth monitoring in children. At the household level, these traits can be observed. Nutritional goods and services are distributed among the members of a household.

2.2 Social Demographic Factors Associated with Nutrition Status

2.2.1 Age of the child

Children in preschool, or those whose ages range from six to fifty-nine months, are in a critical stage of their development. Sustaining the fast-paced mental, physical, and mental growth that takes place during this time requires a healthy diet. Malnutrition remains a major issue for many children in this age group, particularly in nations with low or middle incomes (Wassie et al., 2015). Infants should start getting extra food at six months old to supplement breast milk and meet their developing nutritional needs. To prevent deficiency nutrition, promote ongoing growth and development, and establish healthy eating habits, it is crucial to introduce healthy, growth-suitable supplementary foods (Lillie et al., 2019).

Adequate complementary feeding strategies are necessary to promote optimal nutrition status and reduce the risk of inadequate nutrition in young children. These practices include providing a variety of nutrient-rich foods and using responsive feeding techniques (Sridhar et al., 2023). Poor nutrition and improper, excessive, and alternative feeding practices are frequently linked at this age. A comprehensive strategy that considers actions at the

individual, family members, community, and regulatory levels is necessary to address undernutrition in children aged 6 to 59 months (Olatona et al., 2021).

This strategy should also address the underlying causes of malnutrition. Sufficient complementary feeding techniques are essential for promoting optimal nutritional status and lowering the likelihood that young children will not receive enough nourishment. Using responsive methods of feeding and offering a range of nutrient-rich foods are two examples of these practices (Sridhar et al., 2023). Malnutrition at this age is frequently associated with insufficient, excessive, or alternative feeding practices. Addressing inadequate nutrition in children aged 6 to 59 months requires a multi-sectoral approach that takes into account measures at the individual, family members, community, and regulatory levels (Olatona et al., 2021). This approach should also address the underlying causes of nutritional deficiency

2.2.2 Birth weight

Birth weight is a significant indicator of a child's risk of inadequate nutrition since it can reveal conditions that impact growth and development both during pregnancy and after delivery. Infants with low birth weight, typically defined as weighing less than 2.5 kg (5.5 pounds) at birth, are more likely to suffer from malnutrition (Kim et al., 2023). LBW babies may have had intrauterine growth restriction as a result of inadequate prenatal care, poor maternal health, or malnourishment of the mother(Machocho et al., 2023).In the early postnatal stage, they might also experience difficulties with feeding and nutrient absorption. Preterm birth, defined as a baby born prior to the full 37 weeks of pregnancy, is commonly associated with low birth weight (Mogre et al., 2016). Preterm babies' organs and systems for absorbing and utilizing nutrients have not had sufficient opportunity to mature to their maximum potential in the womb. As a result, they may be more susceptible to malnutrition, growth retardation, and developmental delays. Long-term impacts on health and wellbeing

can result from early childhood malnutrition, particularly during critical periods of growth and development (Machocho et al., 2023). Low birth weight babies who experience early-life malnutrition are more likely to experience cognitive decline, persistent diseases, and reduced efficiency in later life.

2.2.3 Marital status

The relationship between marital status and child malnutrition can vary depending on several factors, including socioeconomic status, access to resources, cultural norms, and family dynamics(Ali & Abdi, 2022). Kids of sole parents may be more vulnerable to malnutrition if the parent finds it difficult to provide enough food, medical attention, and support because of things like scarce financial resources, time restraints, or a lack of social networks. This isn't always the case, though, as many single parents manage to meet their kids' needs. Zemene et al. (2022) state children who have parents that are divorcing or have separated may encounter changes in their living situations, unstable finances, or psychological distress. These factors may affect the children's ability to obtain wholesome food and medical care (Efevbera et al., 2019). Nonetheless, the degree of this influence may differ based on the particular circumstances and the family's access to support networks. From their study, it was observed that, In stable marriages or partnerships where both parents are present and actively involved in caregiving, there may be more resources available to ensure adequate nutrition and healthcare for children, reducing the risk of malnutrition(Abera et al., 2023). Strong family support systems and shared responsibilities can contribute to better child health outcomes.

2.2.4 Mothers age

While there are many other factors that affect a child's dietary requirements, the age of the mother can also affect a child's malnutrition. A number of factors, including inadequate schooling, financial constraints, and a lack of social support, may make it more difficult for adolescent mothers—generally defined as those under the age of 20—to provide their children with the care they need, according to Cordeiro et al. (2021). Teenage moms might be more unlikely to get the prenatal care they need, which could affect the unborn child's development and well-being. Furthermore, teenage moms may still be developing and have greater nutritional needs, which puts additional strain on the child's resources. Conversely, advanced maternal age (generally interpreted as 35 years of age and above) may also be associated with malnourishment in children(Ersado et al., 2023). Pregnancy complications or chronic health conditions that affect the health of the fetus may be more common in older mothers. Furthermore, difficulties with fertility treatments or multiple pregnancies may arise for older mothers. These conditions may raise the possibility of underweight at birth or untimely delivery, both of which are linked to higher rates of infant malnutrition, according to Isabirye et al. (2020).

Women in their prime years for reproduction, usually between the ages of 20 and 35, are generally less likely to experience pregnancy-related complications than older or teenage mothers (Lukwa et al., 2020). However, the mother's nutrition during both stages of breastfeeding determines the medical condition of the nursing child as well as the fetus's growth and development (Lukwa et al., 2020). When a mother eats enough food, her child receives the nutrition they require to grow and develop as optimally as possible during their early years.

2.2.5 Birth Interval

The birth interval, which is the time between giving birth and getting pregnant again, can affect several health outcomes for both mothers and children, including inadequate nutrition (Dogui et al., 2021). A short interval between pregnancies, particularly less than twenty-four months, may be detrimental to the mother's and the child's well-being. Women who get pregnant shortly thereafter giving birth might not have had sufficient opportunity to recover from their previous pregnancy and delivery in terms of their emotional state, diet, and physical health (Habtewold et al., 2019) . This may result in maternal depletion syndrome, a condition in which women have amplified nutritional requirements and reduced nutrient stores as a result of multiple pregnancies(Owobi et al., 2022). This worsens the mother's condition and makes it harder for her to provide the baby with the attention and food that child requires. There is also evidence connecting smaller-for-gestational-age infants, low birth weight, and preterm birth to an increased risk of separated pregnancies. These elements make infants more vulnerable to starvation and its consequences (Bikila et al., 2023). An ideal birth interval, which is generally accepted to be between 24 and 59 months, may positively correlate with better health of the mother and child outcomes, including a decreased risk of maternal depletion of resources pregnancy difficulties, and adverse newborn outcomes (Saaka et al., 2021). Proper spacing between pregnancies facilitates recovery from the physical and nutritional strains of pregnancy and delivery, encourages exclusive breastfeeding for the entire recommended duration, and allows sufficient time and resources for the care of both mothers and children(Bikila et al., 2023). This can lower the risk of malnutrition by promoting better maternal health, better infant feeding techniques, and improved nutritional status for both moms and children.

2.3 Social-Economic Factors Associated with Nutrition Status

2.3.1 Education level

One important factor influencing children's malnutrition is, in particular, the education of the mother. According to Kolliesuah et al. (2023), mothers with higher educational attainment are likely to possess greater knowledge regarding nutrition, health, and hygiene. They understand the advantages of breastfeeding, the need of a healthy, varied diet, and the right way to feed babies and young children. Mothers with higher levels of education are more probable to follow feeding guidelines, which can improve their children's nourishing results (Adokiya et al., 2023). Furthermore, research indicates a strong correlation between education and simpler access to healthcare services, such as pediatric, postpartum, and prenatal care (Adokiya et al., 2023). Mothers with higher levels of education are more likely to take their kids to the doctor, which can help detect and treat health problems like inadequate nutrition early on (Mohammed et al., 2014). Regular check-ups also provide opportunities for counseling and education on nutrition and childcare techniques. Higher-educated mothers are more likely to understand how important good hygiene and sanitation habits are in preventing illness and malnourishment (Tekile et al., 2019). Good food handling, and water purification, alongside sanitation practices, are more likely to be followed by them, which reduces the risk of infections and illnesses involving diarrhea, which are associated with childhood malnutrition.

2.3.2 Occupation

A family's income level is often determined by their occupation. In order to prevent child malnutrition, households with greater financial resources typically have more effective access to wholesome food, medical care, and sanitary facilities (Yisak et al., 2015). Jobs that pay well and consistently allow parents to give their kids a varied and well-balanced diet, which lowers the risk of inadequate nutrition (Zeray et al., 2019).Certain occupations may

provide access to resources that support child nutrition, such as employer-sponsored healthcare benefits, childcare services, or subsidies for nutritious foods. For example, individuals working in formal employment sectors may have access to health insurance coverage or employer-provided nutrition programs, which can improve access to healthcare and nutritional support for their families(Kumar et al., 2019). The nature of certain occupations, such as shift work, long hours, or physically demanding work, may affect parents' ability to devote time and energy to childcare and household responsibilities(Demissie, 2013). Parents in demanding occupations may have limited time for meal preparation, breastfeeding, or attending healthcare appointments for their children, which can impact child nutrition and health outcomes(Demissie, 2013). Overall, occupation plays a significant role in shaping the socioeconomic context in which families live and can influence access to resources, time availability, and exposure to environmental factors that impact child nutrition and health outcomes(Fikadu et al., 2014). Due to a lack of time to care for their young children, mothers who are much more committed to their work are more inclined to have kids who are malnourished.

2.3.3 Family size

Parental resources, providing care practices, socioeconomic factors, and access to medical care are some of the ways a household size can affect child malnutrition. According to Oldeamanuel and Tesfaye (2019), there may be a relationship between family size and socioeconomic status, with larger families being more likely to face poverty or unstable finances. Malnutrition risk is associated with lower socioeconomic status because of restricted access to nourishing foods, healthcare, and other resources needed for optimal growth and development of kids (Mengistu & Alemu, 2013). The connection between small

family size and malnutrition in kids is more complex, despite the apparent association between smaller family sizes and a lower risk of child inadequate nutrition because there are fewer concurrent demands on resources and attention from parents (Redi et al., 2017). In some cases, smaller families may have higher socioeconomic status and greater access to resources, including nutritious food and healthcare. However, this isn't always the case. Small families can also face economic challenges, especially if they have fewer wage earners or if the parents have lower educational attainment(Redi et al., 2017).

2.3.4 Income level

Malnutrition in children is largely determined by income since it has a direct impact on the availability of resources like clean water, food, healthcare, and sanitation that are essential for healthy growth and development. Households with higher incomes typically have a higher level of purchasing power, which allows them to purchase a greater range of nutrient-rich foods, such as fruits and vegetables, lean meats, and dairy products (Gelu et al., 2018). Lower-income households, on the other hand, might have financial difficulties that prevent them from buying nutrient-dense foods, which forces them to rely on less expensive, calorie-dense but nutrient-poor options that can exacerbate malnutrition (Gebre et al., 2019). Additionally, income affects one's ability to access resources for hygiene, clean water, and sanitation—all of which are critical in preventing malnutrition, particularly from infections and diseases that are spread through water (Brhane & Regassa, 2014). The wealthiest households are more likely to have accessibility to clean drinking water and improved sanitation services, which reduces the risk of infections that can cause diarrheal illnesses and malnutrition (Khan et al., 2016).

2.3.5 Source of Water

Child malnutrition may be impacted by the water source's substantial influence on WASH (water quality, sanitation, and hygiene) practices. Families' and communities' water source has a direct impact on their cleanliness and hygiene practices (Khan et al., 2016). Access to clean water is essential for drinking, cooking, and maintaining personal hygiene. This helps prevent the spread of infectious illnesses like diarrhea, which can worsen malnutrition, particularly in young children who have immune systems that are still developing (Pravana et al., 2017). Since water is necessary for food hygiene, cooking, and rehydrating dried foods, the availability of nutrient-rich foods may be restricted if there is a lack of safe water for the preparation and consumption of food (Fekadu et al., 2015). Families that rely on contaminated water sources may eat less fresh produce because they are hesitant to consume produce that has been cleaned in dubious water, which may lead to a diet deficient in important nutrients (Pravana et al., 2017). Increasing access to hygienic facilities and clean water is necessary to improve overall health results and reduce child malnutrition (Asfaw et al., 2015). Investments in WASH infrastructure, sanitation education programs, and outreach to communities can help decrease the risk of waterborne illnesses and malnutrition by ensuring that kids have access to clean water for consumption, consumption, and hygiene (Menalu et al., 2021).

2.4 Clinical Factors Associated with Nutrition Status

2.4.1 Immunization Status

Malnutrition can affect a vaccine's effectiveness, and immunization status and malnutrition are related. Children who are not vaccinated or who have not received enough vaccinations are more likely to get diseases like polio, measles, and pertussis that can be prevented by vaccination(Sory et al., 2019). Severe illness and complications, such as diarrhea, respiratory

infections, and malnourishment, can be brought on by these diseases. Malnutrition can result from infections' direct effects on nutrient intake, absorption, and utilization, especially in kids with less access to medical care and dietary supplements(Christian et al., 2013). Immunizations or completion of vaccination schedules may be delayed for malnourished children because of illness, hospitalization, or other health problems. Immunization delays can weaken community herd immunity and extend the window of vulnerability to diseases that can be prevented by vaccination(Keino et al., 2014). Insufficient vaccination rates can have more severe effects on the health of mothers and children, including decreased rates of breast milk production, higher rates of illness and death among women, and increased rates of newborn and infant mortality (F Wagaye, 2016). In vulnerable populations, a cycle of poor nutrition and health conditions can be exacerbated by interruptions in vaccination services. Nutritional status has a strong correlation with the health of mothers and their children.

2.4.2 Frequency Illness

Child malnutrition can be significantly impacted by the prevalence of illness, particularly in susceptible groups like newborns and young children. Children's appetite and food intake can be affected by illnesses, especially acute infections like respiratory infections, illnesses related to diarrhea, and febrile illnesses (Itaka & Omole, 2020). Children can choose not to eat or drink when they are ill, which results in insufficient nutrient intake. Prolonged or recurrent illness can result in chronic undernutrition, as the child's body may not receive the necessary nutrients for growth and development(Faruque et al., 2008). Children's physical development, cognitive development, and general well-being can all be negatively impacted by chronic or frequent illness during crucial stages of growth and development (Fentaw et al., 2013). Frequently occurring disturbances in hunger, dietary consumption, and metabolic processes can impede regular growth patterns, resulting in stunted expansion, postponed

developmental milestones, and lasting effects on well-being and maturation (Manyike et al., 2014). A multifaceted strategy emphasizing early detection, prevention, and treatment of both sickness and malnutrition is needed to address the relationship between the occurrence of illness and malnutrition in children (Fentaw et al., 2013).

2.4.3 ANC Attendance

Healthcare professionals can inform expectant mothers about the value of proper nutrition during pregnancy and lactation during ANC visits. It is more likely that women who attend ANC sessions will get nutrition education and counseling on subjects like breastfeeding techniques, micronutrient supplementation, and a balanced diet(Manyike et al., 2014). Mothers must receive enough nutrition during pregnancy and lactation in order to guarantee optimal development and growth of the baby and to produce breast milk that is rich in vital nutrients for the newborn, which may assist to prevent inadequate nutrition in infancy (Modjadji & Madiba, 2019). Higher rates of breastfeeding exclusively practices and initiation of breastfeeding during the early postnatal period are linked to ANC attendance (Modjadji & Madiba, 2019). Women who attend ANC sessions receive information and support about the benefits of breastfeeding, suitable nursing practices, and strategies for overcoming breastfeeding challenges (Shifraw et al., 2015). During the first 6 months of life, breastfeeding exclusively gives babies the best nourishment and immune system protection possible, lowering their risk of ailments, nutritional deficiency and other negative health outcomes.

2.4.4 Exclusive breastfeeding

When done properly, exclusive lactation has been linked to several health advantages for babies, including protection from malnutrition. Breast milk contains all of the vital nutrients,

minerals, and vitamins needed for a baby's optimal growth and development during its initial six months of life. It is specifically made to meet the nutritional needs of newborns.(2015) Issaka et al. Breast milk contains the perfect balance of small-molecule nutrients (like vitamins and minerals) and macronutrients (like protein, fat, and carbohydrates) that are easily absorbed and bioavailable. Infants may not get enough of the vital nutrients required for their healthy growth and development if exclusive breastfeeding—which involves giving them only breast milk and no other liquids or foods for the first six months of their lives—is not practiced or maintained in accordance with advised guidelines (Verkerke et al., 2016). According to Akombi et al. (2017), this may result in malnutrition, especially if additional nourishment or milk from nursing substitutes are introduced improperly or too soon. Prominent health organizations like UNICEF and the World Health Organization (WHO) have stated that breastfeeding exclusively for the first six months of an infant's life is the best feeding strategy (Chowdhury et al., 2020). By promoting breastfeeding exclusively, lawmakers and medical professionals can help families adopt and maintain good feeding practices that prevent malnutrition and improve the nutritional well-being of newborns.

2.4.5 Delayed Developmental Milestone

A child between the ages development and growth must be supported by adequate nutrition. According to Christian et al. (2013), malnutrition, especially undernutrition, can hinder neurological development and postpone the achievement of developmental milestones like sitting, crawling, walking, and speaking. Developmental milestones may be delayed as a result of nutrient deficiencies, particularly those pertaining to vital vitamins and minerals that can impact the development of the brain and cognitive function (Mgongo et al., 2017). Infants who don't meet feeding and swallowing developmental milestones on time may struggle to nurse, make the switch to solid food, or feed themselves (Chirande et al., 2015). These

feeding difficulties can lead to inadequate nutrient intake, poor appetite regulation, and feeding aversions, contributing to malnutrition(Luzingu et al., 2022). Delayed developmental milestones may be associated with underlying medical conditions or genetic disorders that affect growth, metabolism, or nutrient absorption(Boah et al., 2019). Children with complex medical needs may require specialized nutritional interventions, dietary modifications, or feeding therapy to address malnutrition and uphold optimal growth and development.

2.5 Summary of the Literature and Research Gap Identification

Worldwide, rates of inadequate nutrition remain excessively high. At the current rate of development, even modest gains in a few nutrition metrics will not be sufficient to reach the global nutrition targets by 2025. A World Bank report projected that thirty-seven million children worldwide would be overweight or obese in 2022, 45 million would be wasted (too slim for their height), and an additional 149 million kids under five would be stunted (too small for their age).

Malnutrition accounts for roughly fifty percent of the deaths of children under five. These mostly occur in nations with low and moderate incomes. Poor nutrition has a significant and long-lasting impact on people and families, as well as on communities and nations, in terms of growth, social and economic issues, and health. According to Black et al. (2013), the degree of malnourishment and development varies among nations.

Based on the latest available data, only eight countries are "on course" to meet four of the eight global nutritional targets under observation; no country is "on course" to satisfy all eight. Malnutrition can manifest itself in many ways in a nation, particularly in those affected by terrorism, civil unrest, or other forms of vulnerability. To address both the causes and consequences of fragility and to direct the development of reasonable responses, greater and more accurate statistics are required (WHO, 2019).

Pediatric malnutrition is the world's leading cause of fatalities and illnesses for children under five, especially in East African nations. The prevalence of persistent hunger in East African children under one year old ranged from 21.9% in Kenya to 53% in Burundi, with an incidence pooled analysis of 33.3% (95% CI: 32.9%, 35.6%). Even though studies on malnutrition in childhood have been conducted in several East African nations, a review of the literature found little proof that these investigations' pooled analyses had also been conducted in Somalia. Therefore, the goal of this investigation is to evaluate the aspects associated with the status of nutrition of children aged 6 to 59 months who attend Save the Children health centers in Kismayu, Somalia.

2.6 Theoretical Framework

This was guided by the health belief model and the Self-Determination Theory (SDT). However, this study adopted the health belief model.

2.6.1 The Health Belief Model

The health belief model served as the basis for this investigation. The Health Belief Model (HBM) is a theoretical framework used to understand wellness-related decisions and behaviors. This theory holds that people's behavior regarding their health is influenced by what they think of their susceptibility to health risks, the gravity of those risks, the benefits of acting to mitigate those risks, and the barriers to doing so (Becker, 1974). When it comes to nutritional deficiency the factors influencing people's attitudes and behaviors regarding nutrition and dietary practices can be made clearer using the Health Belief Model. The Health Belief Model: A Framework for Understanding Malnutrition.

Perceived Susceptibility to Malnutrition: According to the HBM, individuals' perceptions of their susceptibility to a health threat influence their likelihood of engaging in preventive behaviors. In the context of malnutrition, individuals may perceive themselves or their children to be susceptible to malnutrition if they lack access to nutritious food, experience food insecurity, or have limited knowledge of proper nutrition practices. Perceived susceptibility to malnutrition may prompt individuals to take action to improve their dietary habits and nutritional intake.

Perceived Severity of Malnutrition: The perceived seriousness of nutritional deficiency along with its effects on the body and society, can affect people's desire to take action. If people believe that malnutrition has major health consequences, like stunted growth, cognitive impairment, or a greater vulnerability to illnesses, they may be more inclined to adopt better eating habits and seek out nutrition-related services and information. Highlighting the potential long-term consequences of malnutrition may enhance individuals' perceived severity of the condition and motivate them to take preventive measures.

Perceived Benefits of Nutritional Practices: According to the Health Belief Model, people are more probable to adopt health-promoting practices if they think the advantages of doing so outweigh the disadvantages or obstacles. In the context of malnutrition, individuals may be more motivated to adopt nutritious dietary practices if they perceive the benefits of such practices, such as improved overall health, enhanced physical and cognitive development, and reduced risk of chronic diseases. Providing information about the positive outcomes associated with healthy eating habits may reinforce individuals' beliefs in the benefits of nutrition and encourage behavior change.

Perceived Barriers to Healthy Eating: Perceived barriers, such as cost, accessibility, cultural preferences, and time constraints, can hinder individuals' ability to adopt and maintain healthy eating habits. When it comes to inadequate nutrition, people may encounter obstacles like restricted availability of reasonably priced, nutrient-dense foods, ignorance of nutritious food options, or cultural norms that favor some foods over others. Promoting behavior change and lowering the incidence of malnutrition require recognizing and removing perceived obstacles to eating healthily.

Cues to Action: According to the HBM, cues to action, such as health education campaigns, media messages, social support, and personal experiences, can prompt individuals to take action to address a health threat. Cues to action in the context of malnutrition could include health promotion campaigns encouraging healthy eating habits, community-based interventions such as breast-feeding support services, and education about nutrition programs. These cues can raise awareness about the importance of nutrition, provide practical guidance on dietary habits, and encourage individuals to seek out resources and support to improve their nutritional status.

By applying the principles of the Health Belief Model to malnutrition, healthcare providers, policymakers, and public health practitioners can develop targeted interventions and strategies to promote healthy eating behaviors, address perceived barriers to nutrition, and empower individuals and communities to take proactive steps to prevent and mitigate the effects of malnutrition.

2.6.2. The Self-Determination Theory

A psychological framework called the Self-Determination Theory (SDT) is concerned with human behavior and intrinsic motivation (Patrick & Williams, 2012). Three fundamental

psychological needs are identified by this theory: proximity, or the need to feel important and connected to others in social situations; competence, or the need to feel capable and successful in one's pursuits; and autonomy, or the need to feel in control of one's choices and actions (Patrick & Williams, 2012). The Self-Determination Theory, when applied to child malnutrition, can shed light on the motivational elements that shape parental behaviors regarding feeding schedules and child nutrition. Self-determination theory's potential connections to Child Malnutrition:

Autonomy in Feeding Practices: People are more inclined to act in ways consistent with their perceptions of volition and autonomy, according to SDT. When it comes to feeding their children, parents who have the power to make independent decisions about their diets might be more inclined to use healthy feeding techniques and serve nutrient-dense foods. Giving parents the freedom to decide for themselves about feeding practices, food choices, and mealtime schedules can increase their desire to put their kids' nutritional needs first and stop malnutrition.

Competence in Nutritional Care: SDT places a strong emphasis on the role that competence plays in encouraging behavior and motivation. Parents have a greater likelihood to be inspired to follow healthy feeding practices and look for nutrition-related guidance and encouragement if they believe they can give their kids enough nutrition. Enhancing parents' knowledge and skills in child nutrition, growth monitoring, breastfeeding support, and meal planning can increase their confidence and competence in providing nutritious foods and preventing malnutrition in their children.

Relatedness and Social Support: SDT underscores the significance of social connections and support in fostering motivation and well-being. Parents who feel connected to supportive

social networks, such as family members, peers, healthcare providers, and community resources, may be more motivated to prioritize their children's nutritional needs and seek assistance when needed. Building supportive relationships and networks can provide parents with encouragement, guidance, and practical assistance in addressing challenges related to feeding practices and child malnutrition.

Intrinsic Motivation for Health Promotion: SDT emphasizes the role of intrinsic motivation, or internal drives and values, in guiding behavior. Health-promoting behaviors, such as wholesome eating habits and preventative medical care, have a higher probability to be adopted by parents who are genuinely driven to advance their kids' health and wellbeing. Fostering intrinsic motivation for child health promotion involves helping parents connect their values and goals with behaviors that support optimal nutrition and growth in their children.

Psychological Needs Satisfaction: According to SDT, achieving one's basic psychological needs of connections, skills, and independence leads to positive outcomes and overall well-being. Over time, parents who believe that their efforts to prevent malnutrition and provide wholesome foods are meeting their child's emotional requirements are more inclined to remain motivated and to continue with healthy feeding practices. Encouraging parents to be autonomous, competent, and related when it comes to feeding their children and providing nutrition can boost their motivation and help their health.

By integrating principles of the Self-Determination Theory into interventions and programs aimed at addressing child malnutrition, policymakers, healthcare providers, and community stakeholders can empower parents, enhance motivation, and create supportive environments that promote optimal nutrition and growth in children.

2.7 The Conceptual Framework

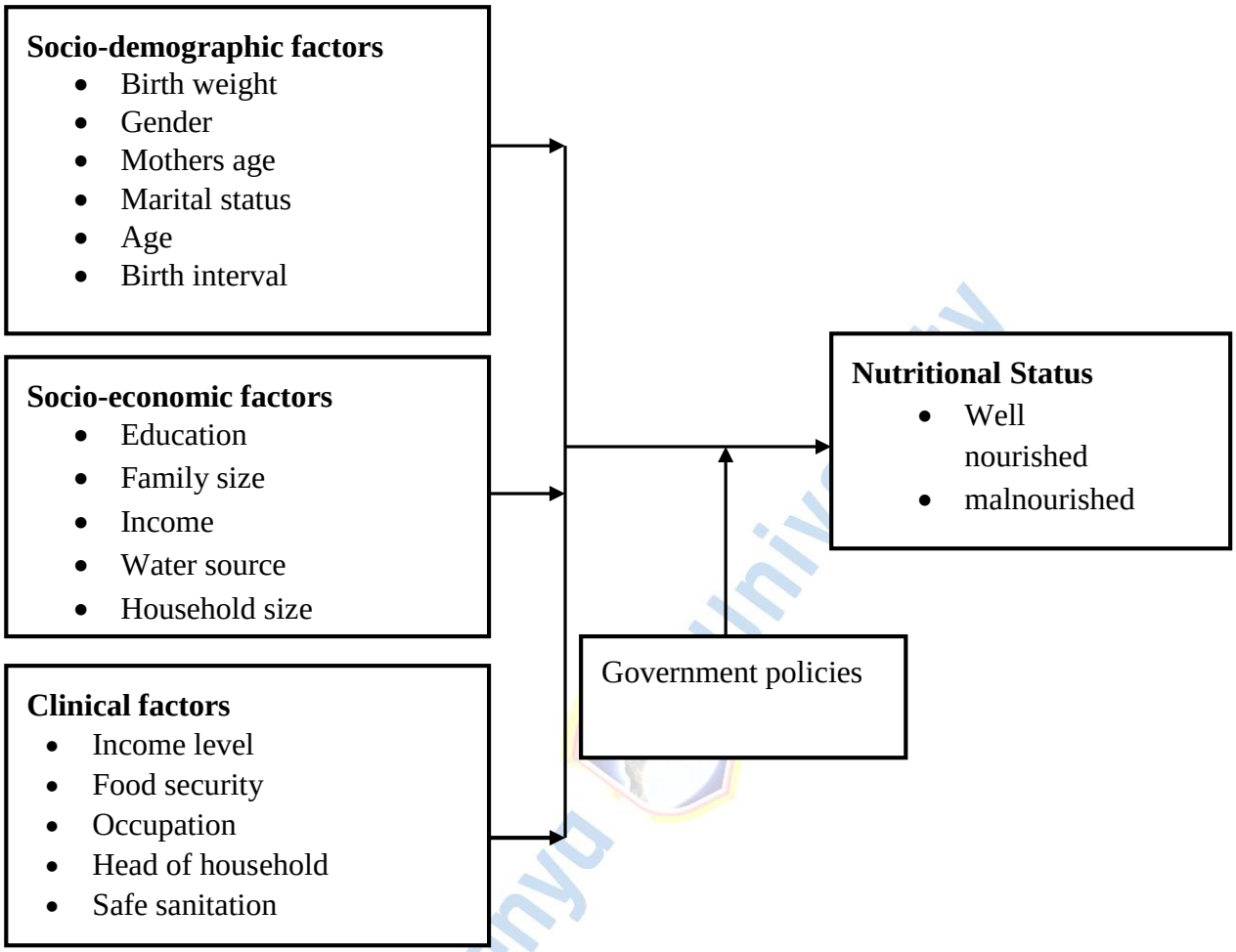

Figure 1: Conceptual framework adapted from a literature search

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Preamble

This section includes information on the investigation's design, study area, eligibility and exclusion requirements, variables being studied, target population, gathering data tools, sampling strategy, determination of the size of the sample, research validity and reliability, data analysis plan, and ethical considerations.

3.1 Research Design

An analytical cross-sectional research design was employed in the current investigation. The investigators selected the study design because it allowed them to ascertain the specific factors associated with the status of nutrition of children between the ages of 6 and 59 months who were seeking care at the Save the Children Health Center in Kismayu, Somalia. To complete the essential triangulation, the present investigation used qualitative as well as quantitative data-gathering methods.

3.2 Study Area

South of Lower Juba Province in Somalia, the commercial hub of Jubaland's self-governing region, lies the port city of Kismayo, which served as the subject of the investigation site. The city is located near the Jubba River mouth emptying into the Indian Ocean, 528 kilometers (328 miles) southwest of Mogadishu. In 2021, Kismayo had a population of approximately 89,333, according to the UNDP. Much of what is now southern Somalia and eastern Ethiopia was once under the control of an empire known as the Ajuran Empire, which stretched from Hobyonorth to south Qelafo and south-central Africa. Kismayo was ruled by the SultanateGeledi during its early modern, and later by the Boqow dynasty, in the late 1800s. Following Osman Ahmed's death in 1910, the Italian Somaliland absorbed the

kingdom. Kismayo was renamed the Kismayo District after the country gained independence in 1960. From the early 1990s until the civil war ended, the city had numerous battle scenes. Militants who were Islamists seized control of the majority of the city in late 2006. Insurgents from Al-Shabaab were driven from the city in September of that year by the AMISOM and Somali National Army forces. In 2013, the Interim Juba Administration was recognized and established Kismayo district officially (Pedia, 2021).

3.3 Study Variables

3.4.1 Dependent Variable

The dependent variable of the investigation was nutritional status among children aged six months to fifty-nine months who sought care at the Save the Children Health Center in Kismayu, Somalia. In this study, the participants' nourishing status was classified as either normal or malnourished.

3.4.2 Independent Variables

The study's independent variable included social demographics, which included(the age of the child, birth weight, status of marriage, mother's age, and birth interval), social economic factors included; type of occupation, education level, size of the family, income, and source of water and finally clinical factors which included; delayed developmental milestone, exclusive breastfeeding, antenatal care attendance, illness frequency, and immunization status.

3.5 Target Population

The population of interest of the study was all children between the ages of six and fifty-nine months.

3.6. Criteria for Inclusion and Exclusion

3.6.1 Criteria for Inclusion

1. All children aged between 6-59 months were deemed eligible for this study.
2. Mothers and caregivers who agreed to take part in the research investigation.

3.6.2 Exclusion Criteria

1. Children below the age of 6 months and above 5 five years were excluded from this study.
2. Critically ill children were also eliminated from this study.

3.7 Technique for Sampling and Determination of the Sample Size

3.7.1 Technique for Sampling

Save the Children Health Centers in Kismayu, Somalia has five health facilities namely;

Kismayo General Hospital, Kismayo Medical Centre, Galbeed health center, Howlaha marakiibta and Midmino Health Facility.Kismayo General Hospital will be purposively selected in this study since it serves a diverse large group of the population. The health facility has 503 children aged 6-59 months seeking care every month.

Subjects in the present investigation were selected using systematic sampling. The number of children between the ages of 6 and 59 months who sought care at this facility was divided by the sum of the sample sizes to determine the sampling interval.

Sampling interval calculation = 503/ 328

= 2

Using a table of lottery numbers, the first investigation respondent was chosen at random to establish the baseline. Every second research participant was chosen at random from the first randomly chosen participant until the sample size was reached. The present study employed purposive selection to select study participants for key informant interviews, which comprised of medical doctors, nurses, social workers, and nutritionists.

3.7.2 Determination of the Sample Size

For data that was quantitative, the population sample size was calculated using the Fischer et al. (1991) formula, as shown below.

$n=z^2pq/d^2$

n= The expected size of the sample

z= The standard normal deviation, with a range of confidence of 95%, was determined to be 1.96.

p= It depicts the proportion of the target individuals and was derived from a previous study that found that 31% of children aged 6 to 59 months in South Wollo Zone, East Amhara, Northeast Ethiopia, suffered from nutritional deficiency

q=1-p(0.5)

d= The accuracy threshold, which was set at 5% (0.05),

therefore $n=1.96^2\times0.31\times0.69/0.05^2 = 328$

3.8 Data Collection Instruments and Procedure.

An audio tape recorder was used to record audio, and semi-structured research-administered survey questionnaires were utilized to collect quantitative data. A key informant guide was employed to collect qualitative data. To gather data that is quantitative, four-part questionnaires were employed: Section A asked about the degree of malnutrition, using

anthropometric tools to evaluate the investigation's participants' nutritional status; Section B asked about social demographic aspects; and Section C asked about social economic elements. Section D contained information on clinical variables related to the nutritional status of children aged 6 to 59 months.

3.9 Research Instrument Validity and Reliability

3.9.1 Validity

The pretest's objectives were to check for conformity and omissions and make sure the investigation's questionnaires included all the infor needed to help produce the desired results. The questionnaires used in the investigation were pretested by a nutritionist.

3.9.2 Reliability

This refers to how research questionnaires yield results reliably and accurately. For the purpose of pretesting the investigation's instruments, 32 research subjects from the nearby Daryeel Hospital in Kismayu, or 10% of the sample size, were considered. An equivalency test was given to respondents who were selected at random in order to evaluate the suitability of the questions. We measured internal consistency using the Cronbach alpha coefficient. The study tools should be deemed reliable and appropriate for use in carrying out the research investigation if they have a sufficient reliability of at least 0.7, according to the literature. To test for dependability, SPSS version 26 was used. The study yielded a Cronbach alpha coefficient of 0.87, indicating that the data collection instruments used were reliable and consistent during the data collection stage.

3.10 Data Analysis Plan

Since the investigation involved an investigation in which quantity data was to be gathered and analyzed to describe the highlighted phenomena, descriptive statistics were used for the

data analysis. Microsoft Excel and SPSS Version 27 statistical tools were used for data analysis in order to help characterize the datasets and their relationships. Using the bivariate analysis, the relationship between the independent and dependent variables was investigated. The Chi-square test for independence was applied in bivariate analysis. Binary logistic regression was applied in a multivariate study involving variables that showed significance in the bivariate analysis in order to generate a logistic regression model. P-values of 0.05 or less will also be considered statistically noteworthy. Tables were used to display the data. The qualitative data was analyzed using thematic analysis.

Objective	Data type	Data analysis plan
Nutrition status	Quantitative data	• Frequencies and percentages
Social demographic factors	Quantitative data	• Frequencies and percentages • Chis-square test • Binary logistic regression
	Qualitative data	• Thematic analysis
Social economic factors	Quantitative data	• Frequencies and percentages • Chis-square test • Binary logistic regression
	Qualitative data	• Thematic analysis
Clinical factors	Quantitative data	• Frequencies and percentages • Chis-square test • Binary logistic regression
	Qualitative data	• Thematic analysis

3.11 Ethical Consideration

The MKU research and ethics committee was asked for permission to carry out the investigation by the investigator. Additionally, permission to carry out this investigation was acquired from the University's graduate program. The MKU ethical review committee approved the investigation before the collection of data began, and the National Commission for Science, Technology, and Innovation was asked for a permit. The various department heads of the selected public health officers were given this before the investigation began in

the chosen well-being hospitals. Furthermore, the Somalia Research Council's (SRC) approval was sought. The investigator thoroughly explained the purpose of the investigation to each respondent in order to guarantee that they all provided their informed consent. Subjects were informed that partaking in the research was entirely voluntary and free of charge, and that any infor gathered would be kept private and confidential and used exclusively for research. For the respondents who declined to participate or withdrew from the study, no victimization, force, or threats were used. Respect, beneficence, and justice are the three pillars of ethics that the researcher adhered to. During the study, participants' rights and dignity were respected and protected. The research was conducted in a fair, honest, and transparent manner, and the findings were presented objectively and truthfully.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Preamble

Investigation response rate, nutrition status prevalence, social demographic, social economic, and clinical factors related to the nutrition status of children aged 6–59 months are all provided in this section.

4.2 Research Response Rate

324 eligible study participants were given questionnaires as part of this research. This study's response rate was 90.1%, meaning that 292 of the study's questionnaires were deemed appropriate for data analysis.

4.3 Nutrition staus among children aged 6-59 months

The prevalence of children aged 6-59 months nutritional status is shown in Table 1 below. More than a quarter (39.5%) of study participants suffered from malnutrition, while more than half (60.6%) had a normal nutrition status. However, compared to a different study done in India (46%) (Anand & Sharma, 2023), the overall incidence of malnutrition in Ethiopia was found to be lower (26.4%) (Yimer & Wolde, 2022). These discrepancies in recorded prevalence could be explained by variations in the sampling techniques used and the locations of the studies. More than a quarter (39.1%) of the investigation's respondents were underweight, and 45.2% of the malnourished study participants had wasting. Stunting affected only 15.7% of the study subjects.

Table 1: Study Respondent's Nutritional Status

Variables	Categories	Frequencies	Valid percentage
Nutrition status	Normal nutrition status	177	60.6%
	Malnutrition	115	39.4%
Type of malnutrition	Wasting(weight for height)	52	45.2%
	Stunting(height for age)	18	15.7%
	Underweight (Weight for age)	45	39.1%

4.4 Social-Demographic Characteristics of the Study Respondents

The investigation's participants' social-demographic details are shown in Table 2 below. In terms of participant age, the majority of study respondents (37.3%) were between the ages of 18 and 29, while only a small percentage (5.1%) were between the ages of 54 and 59. Children between the ages of 54 and 59 may be less prone to illness and, as a result, exhibit less health-seeking behavior. In terms of caregivers' marital status, 62.3% of study participants were married; this finding may be explained by the strong social and cultural ties that support married couples' use of a support network. Only a few(3.1%) of the study participants were divorced. Regarding the birth weight of the study subjects, more than(34.9%) a quarter of the study subjects had a birth weight of fewer than 2.5 kgs. Low birth weight can result from insufficient nourishment for the mother during pregnancy, which can affect fetal growth and development. This can be caused by a poor mother's diet, inadequate weight gain during pregnancy, or underlying nutritional deficiencies. The recommended birth weight for more than half (65.1%) of them was more than 2.5 kg. More than a quarter (36%) of study participants were younger than 20 years old, and nearly half (44.2%) were between the ages of 20 and 30. This could be linked to their prime reproductive age. Women in their prime reproductive years are often in good overall health, which can contribute to healthier pregnancies and better outcomes for both mother and child. This includes factors such as lower rates of chronic health conditions, better nutritional status, and higher physical fitness levels. Regarding the gender distribution of the research's participants, nearly half (44.9%) were female and over half (54.1%) were male researchers. Last but not least, 37.3% of study participants had a birth interval of less than two years. This suggests that Muslim communities may have shorter birth intervals due to limited access to family planning or contraception. While nearly half (42.5%) had a period between deliveries of more

than two years, cultural and religious views on contraception may also have an impact on family planning choices.

Table 2:Social-Demographic Characteristics of the Study Respondents

Independent variables	Categories	Frequencies	Valid percentage
Age	6-17	78	26.7%
	18-29	109	37.3%
	30-41	57	19.5%
	42-53	33	11.3%
	54-59	15	5.1%
Marital status	married	182	62.3%
	single	101	34.6%
	divorced	9	3.1%
Birth weight	< 2.5 kgs	102	34.9%
	>2.5 kgs	190	65.1%
Mothers age	< 20 years	105	36%
	21-30 years	129	44.2%
	>30 years	58	19.9%
gender	male	158	54.1%
	female	134	45.9%
Birth interval	< 2years	109	37.3%
	2 years	59	20.2%
	2 years	124	42.5%

4.5 Social-Demographic Factors Associated with Nutrition Status

More than three-quarters (78.8%) of the investigation's participants who were between the ages of 42 and 53 months were well-nourished, as shown in Table 3. Youngsters in this age range can eat a greater variety of foods because they have usually mastered basic eating skills like chewing and swallowing. They can better meet their nutritional needs as a result. Additionally, 60.3% of participants in the study who were between the ages of 6 and 17 months were malnourished. There was a statistically significant correlation between the study participants' age and nourishing status ($\chi 2=21.607, df=4, p=<.001$).

As shown in Table 3, concerning the marital status of the caregiver, close to half(40.6%) of the caregivers who had children who were malnourished had children who were malnourished. Single-parent households often have lower incomes than two-parent households. Financial constraints may limit the ability of single parents to purchase an adequate quantity and variety of nutritious foods for their children, leading to malnutrition.

There was no significant statistical relationship between the marital status of the caregiver and the status of nutrition of the study respondent ($\chi^2=0.211$**,**$df=2$**,**$p^*=0.90$).

These results were at odds with the qualitative information, which revealed, according to one of the key informants:

"Two-parent households may have a wider range of skills, knowledge, and resources related to nutrition and healthy eating habits. Parents can share information and support each other in making informed choices about their children's diet, leading to better nutrition outcomes. In addition, Having a partner can provide emotional and practical support for managing household responsibilities, including childcare and meal preparation. Social support from a

spouse can help alleviate stress and reduce the likelihood of relying on convenience foods that may be less nutritious….." (KII 3,Nurse,2024).

These findings were consistent with another South African investigation (Govender et al., 2021) that found no connection between th estatus of nutrition of children aged five to 69 months and the caregiver's marital status. However, compared to married caregivers, guardians who reported being single had a higher probability of having malnourished children, according to a separate investigation conducted in Nigeria (Cook et al., 2008).

With regard to the investigation's participants' birth weight, Table 3 below shows that 66.3% of those who were born weighing more than 2.5 kg had a normal nutritional status. Pregnant women who give birth to children weighing more than 2.5 kg are more probable to have received quality prenatal care and to have been in good health. Fetal growth can be encouraged and the risk of nutritional deficiencies decreased with proper prenatal care, which includes sufficient nutrition, routine checkups, and treatment of any underlying medical conditions. The investigation's participants' nutritional status and birth weight were statistically significantly correlated ($\chi 2=7.401, df=1, p=0.007$).

As can be seen from Table 3 below, nearly three-quarters (70.7%) of the study participants who were over 30 had children with normal nutritional status. Better choices about food and prenatal care are frequently the result of older mothers' increased awareness of the significance of nutrition during pregnancy and the early years of life. Women over 30 may be more inclined to have supportive environments, stable incomes, and access to healthcare, all of which can help them and their kids eat healthier. The mother's age and status of nutritionwere found to be statistically significantly correlated ($\chi 2=11.873$, df=2, P=0.003).

Regarding the gender of the investigation's participants, Table 3 below shows that nearly three-quarters (72.4%) of the participants with normal nutritional status were female. Males

and females may differ biologically, which could affect their developmental stages and nutritional needs. In some cases, females may mature faster than males during early childhood, which can contribute to better nutritional status. Upon conducting the chi-square test for independence, a statistically noteworthy correlation was found between the gender of the study participant and their nutrition status ($\chi 2=14.375, df=1, p=<.001$).

About half of the investigation's participants who were malnourished had a birth interval of less than two years, as shown in Table 3 regarding birth interval. Maternal depletion syndrome, in which the mother's body has not fully recovered from the previous pregnancy and delivery, can be brought on by short birth intervals. This may lead to insufficient nutrition for the mother during subsequent pregnancies, which could have an impact on the mother's and the baby's health and nourishing status. The investigation's participant nutritional status and birth interval did not show a correlation of statistical significance ($\chi 2=.741, df=2. p=0.69$). These results ran counter to what one of the key informants observed in the qualitative data, which was:

"*Close birth spacing means that multiple children are in the household at similar stages of development, competing for the same resources such as food, attention, and healthcare. This can strain the family's resources, making it challenging to adequately meet the nutritional needs of all children*…." (KII 2,Nurse,2024)

These results were consistent with those of another Tanzanian investigation (Mwaseba et al., 2016), which discovered a relationship between children under five's nutritional status and the interval between births. Contrary to these results, a different South African study found that a birth interval greater than two years increased the likelihood of having a normal status of nutrition by 5.3 (Chakona & Shackleton, 2019).

Table 3: Social-Demographic Factors Associated with Nutrition Status

Categories	Dependent variable

Independent variables		(Nutrition status)		Statistical Significance (Chi-square test)
		Well-nourished (N=177)	Mal-nourished (N=115)	
Age	6-17	31(39.7%)	47(60.3%)	χ^2=21.607
	18-29	72(66.1%)	37(42.9%)	df=4
	30-41	37(64.9%)	20(35.1%)	P=<.001
	42-53	26(78.8%)	7(21.2%)	
	54-59	11(73.3%)	4(26.7%)	
Marital status	married	111(61)	71(39)	χ^2=0.211
	single	60(59.4)	41(40.6)	df=2
	divorced	6(66.7)	3(33.3)	p*=0.90
Birth weight	< 2.5 kgs	51(50%)	51(50%)	χ^2=7.401
	>2.5 kgs	126(66.3%)	64(33.7%)	df=1
				P=0.007
Mothers age	< 20 years	50(47.6%)	55(52.4%)	χ^2=11.873
	21-30 years	86(66.7%)	43(33.3%)	df=2
	>30 years	41(70.7%)	17(29.3%)	P=0.003
Gender	male	80(50.6%)	78(49.4%)	χ^2=14.375
	female	97(72.4%)	37(27.6%)	df=1
				P=<.001
Birth interval	< 2years	63(57.8%)	46(42.2%)	χ^2=.741
	2 years	38(64.4%)	21(35.6%)	df=2
	2 years	76(61.3%)	48(38.7%)	P=0.69

P*= Fischers exact

4.6 Binary logistic regression analysis on social demographic factors

The birth weight and nutritional status of children aged 6 to 59 months showed a statistically significant relationship (p=.002), as shown in Table 4. Additionally, babies born weighing

more than 2.5 kg had a 2.5-fold higher chance of having a normal nourishing status than babies born weighing less than 2.5 kg. Breastfeeding, which provides the best nutrition for the first few months of life, is more likely to be successful for babies weighing more than 2.5 kg. Antibodies and nutrients found in breast milk promote proper development and growth and lower the risk of infections and malnutrition.

These decisions aligned with findings from another Pakistani study (Ahmad et al., 2020) that showed a lower risk of malnourishment in children born with a normal birth weight. Nevertheless, a different South African study (Thabathi et al., 2022) found no statistical correlation between infants' birth weight and status of nutrition.

As provided in Table 4, there was no statistical correlation between mothers' age and nutrition status. which showed that mothers' age did not significantly influence their nutrition status (p=.07).

These outcomes were steady with findings from a different investigation carried out in Tanzania (Frumence et al., 2023). A different Ugandan study, however, found the likelihood of having a malnourished child increased in mothers under the age of eighteen, which ran counter to these findings. Adolescent mothers' bodies might not be fully developed enough to support an embryo's development because they are still developing as individuals. This may result in difficulties during pregnancy and childbirth, which may have an effect on the mother's and the child's nutritional status.(Maniragaba & Associates, 2023).

Table 4 shows that the age of the children aged 6-59 months and their nutritional status had an important statistical correlation (p=<.001). Furthermore, children aged 6–17 months were 4.5 times more probable to suffer from malnutrition than children aged 54–59 months.

During this stage, infants transition from exclusive BF or formula feeding to complementary foods. If complementary foods are not introduced appropriately or if they lack essential nutrients, the child may not receive adequate nutrition, leading to malnutrition.

These results were in line with the qualitative information provided by one of the key informants, who stated that:

"Malnutrition can occur due to poor feeding practices such as inadequate frequency of meals, inappropriate portion sizes, or feeding practices that do not align with the child's developmental stage. For example, delaying the introduction of complementary foods beyond six months of age can lead to nutritional deficiencies. Furthermore, Socioeconomic factors, including poverty and food insecurity, can limit families' access to safe and nutritious foods. Inadequate access to nutritious foods can result in malnutrition, as children may not receive the nutrients they need for healthy growth….." (KII2,social workers,2024)

The results of this investigation aligned with those of a Tanzanian study where children aged 6-12 months were 5.3 times more probable to have malnourishment(Mmbando et al., 2022). Nevertheless, a different study carried out in Kenya found no correlation between age and nutritional status in infants under five(Olack et al., 2011).

Table 4 shows that the gender of children aged 6-59 months and their nutritional status were statistically correlated (p=.000). Furthermore, there was a 2.7 reduction in the likelihood of having a normal nutrition status for males. Social and cultural norms regarding gender roles and responsibilities can influence feeding practices and access to resources within households. In some communities, there may be a preference for sons, leading to differential treatment in terms of nutrition and healthcare.

The results of the investigation were consistent with an investigation conducted in Ghana and Ethiopia (Boah et al., 2019; Gebreegziabher & Regassa, 2019). A different Rwandan investigation, however, found that having a male increased the probability that a child would have a normal nutrition status, which contradicted these findings (Nshimyiryo et al., 2019).

Table 4: Binary logistic regression analysis on Social Demographic Factors Associated with Nutrition Status

								95% C.I.for EXP(B)	
		B	**S.E.**	**Wald**	**df**	**Sig.**	**Exp(B)**	**Lower**	**Upper**
Step 1[a]	Age of the child			21.797	4	.000			
	6-17	1.500	.653	5.283	1	.022	4.481	1.247	16.101
	18-29	.162	.638	.064	1	.800	1.175	.336	4.107
	30-41	.229	.667	.118	1	.731	1.258	.340	4.653
	42-53	-.311	.752	.170	1	.680	.733	.168	3.201
							ref		
	Gender	1.008	.274	13.583	1	.000	2.7	.213	.624
							ref		
	Birth weight	.905	.286	10.034	1	.002	2.5	.231	.708
							ref		
	Mothers age			9.743	2	.078			
	21-30 years	.745	.376	3.925	1	.048	2.107	1.008	4.403
	>30 years	-.167	.372	.203	1	.652	.846	.408	1.752
							ref		
	Constant	**1.790**	**.895**	**4.005**	**1**	**.045**	**5.992**		

4.7 Social-economic Characteristics of the Study Respondents

Regarding the investigation's participants' water source, as shown in Table 6 below, nearly three-quarters (72%) of those who reported having a safe water source had children with

normal nutritional status. It is simpler to maintain proper sanitation and hygiene, such as washing your hands with soap, when you have access to clean water. In addition to diseases that can hinder the uptake and utilization of nutrients, like diarrheal diseases, maintaining proper hygiene also reduces the risk of infectious diseases spreading. A correlation with statistical significance was found between the water source and the nutrition status ($\chi 2=8.255, df=1, p=0.004$). Traditional Somali culture places a high value on large families. Having many children is often seen as a sign of wealth, prestige, and social status. Additionally, children are considered a blessing and a source of support in old age. These cultural beliefs and values influence family planning decisions and contribute to larger family sizes. In terms of the caregivers' educational attainment, a small percentage (5.5%) of study participants held a tertiary degree, while nearly half (42.8%) had no formal education, which may be related to Somalia's inadequate educational system. In terms of the investigation's participants' income status, over half (52.7%) of the participants made less than the federal poverty threshold. The economy of Somalia has been severely disrupted by decades of conflict and political instability.

While nearly half (47.3%) of the investigation's participants were earning above the poverty line, persistent violence, insecurity, and a lack of effective governance have hampered growth in the economy, discouraged investment, and displaced populations, resulting in widespread poverty and unemployment. Just 14.4% of the subjects reported being self-employed, compared to nearly half (47.3%) of study respondents who were unemployed. Weak governance, corruption, and lack of effective institutions undermine economic development efforts in Somalia. Inefficient and ineffective government structures, combined with pervasive corruption, create barriers to business investment, entrepreneurship, and job creation.

Table 5: Social-economic Characteristics of the Study Respondents

Variables	Categories	Frequencies	Valid percentage
Water source	safe	100	34.2
	unsafe	192	65.8
Size of the household	1-3	96	32.9
	4-6	125	42.8
	>7	71	24.3
Education level	No education	125	42.8
	Primary	71	24.3
	secondary	80	27.4
	tertiary	16	5.5
Income level	Below poverty line	154	52.7
	Above poverty line	138	47.3
Occupation	Unemployed	138	47.3
	Self_employed	42	14.4
	employed	44	15.1
	Casual labor	68	23.3

4.8 Social-economic Factors Associated with Nutrition Status

Regarding the investigation's participants' water source, as shown in Table 6 below, nearly three-quarters (72%) of those who reported having a safe water source had children with normal nutritional status. It is simpler to maintain proper sanitation and hygiene, such as washing your hands with soap, when you have access to clean water. In addition to diseases that can hinder the uptake and utilization of nutrients, like diarrheal diseases, maintaining proper hygiene also reduces the risk of infectious diseases spreading. A correlation with statistical significance was found between the water source and the nutrition status ($\chi 2=8.255, df=1, p=0.004$).

Regarding the investigation participants' size of household, as shown in Table 6 below, nearly three-quarters (72%) of those with households of one to three people had children with normal nutritional status. Fewer children share resources like food, medical care, and parental or caregiver attention in smaller households. Each child may receive a larger share of resources per capita as a result, including access to wholesome food, medical care, and educational opportunities. The size of the household and nutrition status were statistically significantly correlated ($\chi 2=12.287, df=1, p=0.002$).

As can be seen in Table 6 below, the caregivers' educational attainment Of the study participants without a formal education, over half (51.2%) had undernourished children. Greater education levels are associated with increased understanding and knowledge of nutrition-related practices among parents, including dietary diversity, breastfeeding, and complementary feeding. They might be aware of the dangers of malnutrition and how crucial it is to feed their kids foods high in nutrients for their growth and development. There was a statistically noteworthy correlation between the nutrition status and education level of caregivers ($\chi 2=12.996$, df=3, p=0.005).

Regarding the caregivers' occupation, Table 6 shows that nearly three-quarters (69.1%) of the investigation's participants worked as casual laborers and had healthy children. Compared to having no income at all, casual work can still offer some degree of financial stability even though it might not be a reliable source of income. Because of this stability, moms can afford to buy food and other necessities for their kids, which helps them maintain a healthy nutritional status. There was no statistically significant correlation between the investigation's respondent's nutrition status and the caregiver's marital status ($\chi 2=0.211, df=2, p^*=0.90$).

These findings were contrary to the qualitative data, where one of the key informants noted that:

"*Caregivers in unskilled or low-income jobs often face financial constraints that can impact their ability to provide adequate nutrition for their children. These caregivers may have irregular work hours, low wages, and limited access to benefits such as health insurance or paid leave. As a result, they may rely on more affordable but less nutritious food options, such as processed or fast food. Additionally, stress related to financial instability can further compound challenges in providing nutritious meals for children….."* (KII 5, Nutritionist,2024).

These results concurred with those of a different Pakistani study(Ahmad et al., 2020). Nevertheless, a different South African study found that among children under five, unemployment raised the risk of malnutrition by two (Thabathi et al., 2022).

Regarding the income status of the investigation's participants, Table 6 below shows that nearly three-quarters (68.8%) of those who participated in the study made more than the

poverty line and had well-nourished children. Higher household incomes are generally linked to better access to a variety of nutrient-dense foods. A balanced diet requires a variety of foods, which wealthier families can purchase, including fruits, vegetables, lean meats, and whole grains. The income level of caregivers and their nutritional status were statistically significantly correlated ($\chi 2=7.413, df=1, p=0.006$).

Table 6: Social-economic Factors Associated with Nutrition Status

Independent variables	Categories	Dependent variable (Nutrition status)		Dependent Statistical Significance (Chi-square test)
		Well-nourished (N=177)	Mal-nourished (N=115)	
Water source	safe	72(72%)	28(28%)	χ^2=8.255
	unsafe	105(54.7%)	87(45.3%)	df=1
				P=0.004
Size of the household	1-3	69(71.9%)	27(28.1%)	χ^2=12.287
	4-6	76(60.8%)	49(39.2%)	df=1
	>7	32(45.1%)	39(54.9%)	P=0.002
Education level	No education	61(48.8%)	64(51.2%)	χ^2=12.996
	Primary	48(67.6%)	23(32.4%)	df=3
	secondary	57(71.3%)	23(28.7%)	P=0.005
	tertiary	11(68.8%)	5(31.3%)	
Income level	Above poverty line	95(68.8%)	43(31.2%)	χ^2=7.413
				df=1
	Below poverty line	82(53.2%)	72(46.8%)	P=0.006
Occupation	Unemployed	80(58%)	58(42%)	χ^2=3.172
	Self_employed	26(61.9%)	16(38.1%)	df=3
	employed	24(54.5%)	20(45.5%)	P=0.366
	Casual labor	47(69.1%)	21(30.9%)	

4.9 Binary logistic regression on social economic factors

The income level of caregivers and their nutritional status were statistically significantly correlated (p=.005), as shown in Table 7. Additionally, participants in the study who earned above the poverty line had a 2.1-fold higher chance of having a child with a normal nutritional status than caregivers who earned below the line. Access to medical services such as preventive care, which is crucial in ensuring children receive enough nutrition, is influenced by income. Higher-income families are more likely to have access to pediatricians or nutritionists who can monitor children's growth and development and offer advice on healthy eating habits, as well as to be able to afford health insurance.

These results aligned with those of a different Burkina Faso study (Picbougoum et al., 2023). However, an additional investigation carried out in Pakistan found that the participants' nutritional status was independent of their income (Ahmad et al., 2020).

Table 7 shows that there was no statistically significant correlation between the nutrition status of caregivers and their educational attainment (p=.08).

These findings were contrary to the qualitative data, where one of the key informants noted that:

"*Parents with higher levels of education are more likely to adopt positive health behaviors and practices that promote good nutrition, such as exclusive breastfeeding, appropriate complementary feeding, and hygienic food preparation and storage. They may also be more receptive to nutrition education and behavior change interventions aimed at improving child nutrition outcomes*…." (KII 7, Nutritionist, 2024).

The results of the investigation aligned with a Ghanaian study (Aboagye et al., 2022) that found no relationship between the caregivers' educational attainment and the status of nutrition of children aged 6 to 59 months. Another Ethiopian investigation did not find this to be the case (Ahmed et al., 2023).

The correlation between the water source and the status of nutrition was statistically significant (p=.017), as shown in Table 7. Furthermore, the probability of having a normal status of nutrition was doubled in the absence of a safe water source. Safe water sources lower the risk of waterborne illnesses like cholera, typhoid fever, and diarrhea, which can result in decreased appetite, vomiting, and nutrient loss. By maintaining nutrient intake and absorption, preventing waterborne illnesses contributes to maintaining normal nutritional status.

These findings corroborated those of a different Somalian study that discovered that the absence of a safe water source increased the risk of malnutrition by a factor of four (Kebede & Aynalem, 2021). A different Ethiopian study, however (Kassie & Workie, 2020), discovered no connection between nutritional status and the safety of the water source.

Table 7 shows that there is a statistically significant correlation between nutrition status and the size of the household (p=.006). In addition, compared to households with more than seven members, those with a family size of 1-3 had a three times higher chance of having a child with normal nutrition status. With fewer children to care for, parents or caregivers in smaller households may have more time and energy to dedicate to each child's nutritional needs. They can provide individualized attention, monitor dietary intake more closely, and ensure that each child receives adequate nutrition for optimal growth and development.

The outcomes of this investigation supported two additional research investigations that were carried out in Ethiopia and Uganda (Acup et al., 2023; Kibret et al., 2023). Ngowi et al. (2023) found no correlation between the size of the family and the nutritional status of children under five, which contradicted the findings of another Tanzanian study.

Table 7: Binary logistic regression analysis on Social Economic Factors Associated with Nutrition Status

							95% C.I.for EXP(B)	
		B	**S.E.**	**Wald**	**df**	**Sig.**	**Exp(B)**	**Lower**	**Upper**
Step 1[a]	Level of education			10.090	3	.08			
	No education	.522	.597	.762	1	.383	1.685	.522	5.435
	Primary	-.208	.629	.109	1	.741	.813	.237	2.787
	Secondary	-.404	.626	.417	1	.518	.667	.195	2.278
							ref		
	Family size			10.251	2	.006			
	1-3	1.102	.345	10.175	1	.001	3	.169	.654
	4-6	-.660	.319	4.276	1	.039	.517	.276	.966
							ref		
	Income level	.743	.263	7.966	1	.005	2.1	.284	.797
							ref		
	Water source	.675	.282	5.723	1	.017	2	1.130	3.416
							ref		
	Constant	**.063**	**.892**	**.005**	**1**	**.944**	**1.065**		

4.10 Descriptive Statistics on Clinical Factors

Table 8 below provides the descriptive statistics on the clinical aspects of the study subjects. Concerning attendance of antenatal care clinic services, More than half(51.4%) of the caregivers reported having sought antenatal care clinic services which could be linked to the sensitization of ANC services when pregnant, Conversely, nearly half (48.6%) of the caregivers who participated in the study stated that they had never sought ANC services. In reference to exclusive breastfeeding, The existence of health awareness campaigns on the value of solely breastfeeding may be the reason why more than half (50.3%) of the study participants' caregivers reported solely breastfeeding their children. Conversely, nearly half (49.7%) of the caregivers who participated in the study stated that they had never breastfed their children. Of the study participants, over a quarter (44.2%) had delayed developmental achievements. One of the main causes of children's delayed development is inadequate nutrition. Slum families may find it difficult to purchase or obtain wholesome foods, which can result in inadequacies in vital vitamins and minerals that are critical for brain development. Malnutrition, including both undernutrition and micronutrient deficiencies, can hinder cognitive and physical growth and delay developmental milestones. While more than half (55.8%)of the study respondents had no developmental milestones. With respect to the immunization status of the child, Close to half(49.3%) of the children had an ongoing status of immunization while more than a quarter(43.2%) of the study respondents had completed immunization. Just 7.5% of the subjects had never received an immunization. Somalia has issues with its healthcare infrastructure, such as a shortage of medical facilities, qualified medical personnel, and trustworthy vaccine supply chains. This makes accessing immunization services challenging for families, especially those living in isolated or conflict-affected areasWhen it came to the frequency of illness, nearly a quarter (32.9%) of the study

participants reported being sick frequently. In Somalia, food insecurity, poverty, and a lack of access to health care all contribute to the serious issue of malnourishment. Children who are underweight are more vulnerable to infections and experience more severe illnesses when they do. This is because their immune systems are compromised. Although over half (67.1%) of the study participants reported not being sick frequently.

Table 8: Descriptive Statistics on Clinical Factors Associated with Nutrition Status

Independent variables	Categories	Frequencies	Valid percentage
ANC attendance	yes	150	51.4
	no	142	48.6
Exclusive	yes	147	50.3
breastfeeding	no	145	49.7
Immunization	complete immunized	126	43.2
status of the child	Ongoing immunized	144	49.3
	Never immunized	22	7.5
Delayed	present	129	44.2
developmental	Absent	163	55.8
milestone			
Frequent illness	yes	96	32.9
	no	196	67.1

4.11 Clinical Factors Associated with Nutrition Status

As showed in Table 9 below, with reference to ANC attendance of the research partakers' caregivers, close to three-quarters(69.3%)of the investigation respondents' caregivers who had sought ANC services had children who were well nourished. Healthcare professionals can inform expectant mothers about the value of nourishment during pregnancy during ANC visits. For the fetus to grow and develop normally during pregnancy, the mother must consume a sufficient amount of food. Women who attend ANC visits are more probable to receive nutrition counseling, which highlights the importance of eating a balanced diet rich in essential nutrients such as vitamins, minerals, and protein. Maternal nutrition during pregnancy can positively impact the developing baby's growth and development, paving the way for improved nutritional outcomes for the postpartum child. Caretakers' nutritional status and their attendance at ANC were found to be statistically significantly correlated ($\chi2=9.818, df=1, p=0.002$).

Nearly three-quarters (69.4%) of the investigation's participants' caretakers who practiced breastfeeding exclusively had children who were well-nourished, as shown in Table 9 below regarding the practice of exclusive breast-feeding attendance. EBF gives babies all the vital nutrients they require for healthy development, promoting the best possible growth and development during infancy. Breastfeeding promotes healthy weight gain in addition to preventing stunting and malnutrition, two major factors responsible for poor nutrition status in children aged 6 to 59 months. A correlation of statistical significance ($\chi2=9.54$, df=1, p=0.002) was found between the practice of EBF and nutrition status when bivariate analysis was used.

As indicated in Table 9 below, with respect to delayed developmental milestones, more than a quarter of the study respondents who had a delayed developmental milestone were

malnourished. Children who experience delays in motor skills such as sucking, swallowing, and chewing may have difficulties with feeding. This can lead to inadequate intake of breast milk, formula, or solid foods, resulting in insufficient calorie and nutrient intake, which contributes to malnutrition. The investigation's respondent's nutritional status and delayed developmental milestones did not statistically significantly correlate, according to bivariate analysis ($\chi 2=1.96, df=2, p=0.162$).

These results conflicted with the qualitative information, as one of the primary informants observed that:

"…..*In some cases, delayed developmental milestones may be indicative of underlying medical conditions that affect nutrient absorption, metabolism, or utilization. Children with developmental delays may be at increased risk of medical conditions such as gastrointestinal disorders, metabolic disorders, or neurological disorders, which can impact nutritional status and contribute to malnutrition*……" (KII 5, Nutritionist,2024).

These outcomes were steady with comparable results from a separate investigation steered in Benin (Miassi et al., 2022). These results were contradicted by another scooping review conducted in Africa, which found that delayed developmental milestones raised the risk of malnourishment (Sawadogo et al., 2022).

Conferring to Table 9 below, which details the investigation's participants' immunization status, nearly a quarter (32.7%) of those who had never received an immunization suffered from malnutrition. Children who are not vaccinated or who have not received enough vaccinations are at a higher risk of contracting vaccine-preventable diseases such as polio, diphtheria, whooping cough, and measles. Malnutrition may result from these infections because of decreased appetite, poor nutrient absorption, elevated metabolic demands, and

direct nutrient losses from diarrhea, vomiting, and fever. The bivariate analysis revealed a statistically significant correlation between the study subjects status of nutrition and their level of vaccinations ($\chi 2=10.771, df=2, p=0.005$).

In relation to the occurrence of frequent illness, Table 9 shows that 34.4% of study participants who experienced frequent illness also had malnutrition. Diseases like fevers, diarrheal illnesses, and respiratory infections can make a child feel less hungry and cause them to eat less. When children eat less due to illness, they may not consume enough calories and nutrients to support their growth and development, contributing to malnutrition. When the bivariate analysis was performed, there was not a statistically noteworthy correlation between the frequency of illness and nutrition status ($\chi 2=1.503, df=1, p=0.22$).

These outcomes were not in harmony with the qualitative data, where one of the key informants noted that:

“ *Frequent or prolonged illness can interfere with a child's growth and development, particularly if it occurs during critical periods of growth. Malnutrition resulting from frequent illness can impair physical growth, cognitive development, and overall health, leading to long-term consequences for a child's well-being……..***”** (KII 5, Nutritionist,2024).

These results aligned with those of another investigation carried out in Nepal, which found no correlation between the number of illnesses and children under five's nutritional status (Bhandari, 2013). However, a different Burkina Faso study discovered that the frequency of illnesses was correlated with the likelihood of malnutrition (Bougma et al., 2023).

Table 9: Clinical Factors Associated with Nutrition Status

Independent variables	Categories	Dependent variable (Nutrition status)		Statistical Significance (Chi-square test)
		Well-nourished (N=177)	Mal-nourished (N=115)	
ANC attendance	yes	104(69.3%)	46(30.7%)	χ^2=9.818
	no	73(51.4%)	69(48.6%)	df=1
				P=0.002
Exclusive	yes	102(69.4%)	45(30.6%)	χ^2=9.54
breastfeeding	no	75(51.7%)	70(48.3%)	df=1
				P=0.002
Immunization	complete	86(68.3%)	40(31.7%)	χ^2=10.771
status of the child	immunized			df=2
	Ongoing	74(51.4%)	70(48.6%)	P=0.005
	immunized			
	Never	17(77.3%)	5(32.7%)	
	immunized			
Delayed	present	84(65.1%)	45(34.9%)	χ^2=1.96
developmental	Absent	93(57.1%)	70(42.9%)	df=2
milestones				P=0.162
Frequent illness	yes	63(65.6%)	33(34.4%)	χ^2=1.503
	no	114(58.2%)	82(41.8%)	df=1
				P=0.22

4.12 Binary logistic regression on clinical factors

Table 10 shows that there was a statistically noteworthy correlation (p=.008) between status of nutrition and ANC attendance. Additionally, there was a twofold decrease in the likelihood of having a child with normal nutritional status when ANC services were not sought. Utilization of postnatal care is frequently linked to attendance at ANC. A woman's likelihood of seeking postnatal care for herself and her child may also be decreased if she skips her ANC visits. Healthcare professionals can evaluate the mother's and child's health and nutritional status during postnatal care visits, address any feeding issues or concerns, and offer support for the best feeding practices for infants. Without access to postnatal care, mothers may miss out on important guidance and interventions that could promote healthy growth and development in early childhood.

These outcomes were consistent with another Tanzanian research investigation steered by Frumence et al. (2023). There was no correlation between ANC enrollment and the status of nutrition of children aged 6 to 59 months, according to a different Ugandan investigation that ran counter to the results presented above (Maniragaba et al., 2023).

Nutrition status and ANC attendance have a correlation that is statistically significant (p=.007), as shown in Table 10. Additionally, breastfeeding exclusively increased the chances of having a child with a normal nutritional status by four times. Breast milk is particularly well-suited to meet the nutritional needs of infants because it provides the perfect balance of nutrients, vitamins, and antibodies that are essential for growth and development. In order to provide the best nutrition for a baby's normal growth and development, the composition of breast milk changes to suit the baby's evolving needs.

These findings aligned with another Tanzanian investigation (Mwaseba et al., 2016) that found a connection between breastfeeding exclusively and the status of nutrition of children

under five. Another South African investigation disproved these findings (Chakona & Shackleton, 2019).

As provided in Table 10, the study respondent's immunization status did not independently predict their nutritional status (p=.12).

These research results aligned with those of an additional Indian study(Umallawala et al., 2022). Nevertheless, according to a different study conducted in South Africa, not receiving vaccinations decreased the likelihood of having a normal nutritional status by 4(Chakona & Shackleton, 2019).

Table 10: Binary logistic regression Analysis on Clinical Factors Associated with Nutrition Status

							95% C.I.for EXP(B)	
		B	**S.E.**	**Wald**	**df**	**Sig.**	**Exp(B)**	**Lower**	**Upper**
Step 1[a]	Immunization status			10.139	2	.12			
	Ongoing	.506	.554	.831	1	.362	1.658	.559	4.915
	Never immunized	1.212	.547	4.915	1	.027	3.359	1.151	9.805
							ref		
	ANC attendance	.671	.253	7.035	1	.008	2	1.191	3.212
							ref		
	Exclusive breastfeeding	-.688	.254	7.371	1	.007	4	1.211	3.272
							ref		
	Constant	**-3.320**	**.747**	**19.742**	**1**	**.000**	**.036**		

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATIONS

5.0 Preamble

The study's summary, conclusions, and recommendations are presented in this section.

5.1 Summary

More than a quarter (39.4%) of the investigation's participants suffered from malnutrition, whereas more than half (60.6%) had a normal status of nutrition. More than a quarter (39.1%) of the investigation's respondents were underweight, and 45.2% of the malnourished individuals in the study had wasting. Stunting affected only 15.7% of the investigation's participants.

Social-demographic factors associated with nutrition status

When bivariate analysis was performed for the second objective, which dealt with social-demographic factors related to nutrition status, the following variables showed a significant statistical relationship: the study respondent's age, the child respondent's birth weight, the mother's age, and the investigation respondent's gender. As a result, these variables were imported for binary logistic regression analysis. Conversely, there was no statistically noteworthy correlation between nutrition status and either marital status or birth interval.

Social economic factors associated with nutrition status

The following variables showed a noteworthy statistical correlation when the bivariate analysis was conducted for the third objective, which dealt with social economic factors related to nutrition status: the size of the household, income, educational attainment, and water source; these variables were then imported for binary logistic regression analysis. Nutrition status did not have a statistically noteworthy correlation with the caregiver study participants' occupation status.

Clinical factors associated with nutrition status

When the bivariate analysis was performed for the fourth objective, which dealt with clinical factors linked with status of nutrition, the following variables showed a significant statistical association: the child's immunization status, solely breastfeeding practices, and ANC attendance; as a result, they were imported for binary logistic regression analysis. Nutrition status did not statistically correlate with the occurrence of frequent illness or delayed developmental milestones.

5.2 Conclusion

The investigation found that while more than a quarter (39.5%) of the participants suffered from malnutrition, more than half (60.6%) had a normal status of nutrition. Male gender and children aged 6–17 months decreased the odds of having a normal status of nutrition in the second objective pertaining to social-demographic factors related to nutrition status, whereas having a child born weighing more than 2.5 kg increased the odds of having a normal status of nutrition. The lack of a safe water source decreased the likelihood of having a normal status of nutrition while earning above the poverty line, and households with a family size of one to three members increased the likelihood of having a normal status of nutrition, according to the third objective about social economic factors related to nutrition status. In the fourth objective, which dealt with clinical factors related to nutrition status, the likelihood of having a normal status of nutrition was increased when exclusive breastfeeding was practiced, whereas the likelihood of not seeking ANC services was decreased.

5.3 Recommendations

5.3.1 Recommendation from the study

1. Comprehensive antenatal classes covering the advantages of breastfeeding, useful strategies for successful breastfeeding, and how to overcome typical obstacles should

be provided by the Ministry of Health, the Somali national government, and other pertinent stakeholders. Trained peer educators, lactation consultants, or medical professionals may lead these sessions.

2. To educate expectant mothers and their families about the value of ANC services, the Ministry of Health, the Somali national government, and other pertinent parties should launch community-based campaigns for awareness and education. To spread information, use a variety of platforms, including radio spots, community gatherings, posters, and pamphlets.
3. To promote the timely initiation of supplemental feeding around six months of age while going on breastfeeding, the Ministry of Health, the Somali national government, and other pertinent stakeholders should employ programs for health education. In order to satisfy the growing infant's increasing nutritional needs, stress the significance of introducing additional foods at the appropriate time.
4. To guarantee the sustainability and dependability of the water supply, communities should be involved in the management and upkeep of water sources and infrastructure by the Somali national government, the Ministry of Health, and other pertinent stakeholders. Create management organizations or community water committees to supervise water systems and quickly resolve problems.

5.3.2 Recommendation for further research

1. The study recommends an investigation study on home-based nutritional intervention programs on nutritional status among children aged 6-59 months in Somalia.

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APPENDICES

Appendix 1: Letter of Research Authorisation

Dear Participant,

REF: MANAGEMENT AND EVALUATION OF THE STUDY

RESEARCH

I'm a postgraduate student at Mount Kenya University working toward a Master of Business Administration with a focus on Management and Evaluation. With particular reference to the Save the Children Health Centers in Kismayo, Lower Juba, Somalia, I am required to conduct an assessment of the factors determining malnutrition among children aged 6 to 59 months in Somalia.

I respectfully request your cooperation by having you take a moment to complete the survey. If you would like, you can ask for a copy of the completed report. All of the information supplied will be kept private.

Yours Faithfully,

Student

Hassan Abdi Mohamed

MPH/2020/64722

Appendix 2: Questionnaire

Social demographic Factors influencing Nutrition Status

1. Age of the child

1. 6-17 [ ]
2. 18-29 [ ]
3. 30-41 [ ]
4. 42-53 [ ]
5. 54-59 [ ]

2. Marital status of the caregiver

1. Married [ ]
2. Single [ ]
3. Divorced [ ]

3. Birth weight of the child

1. <2.5.kgs [ ]
2. >2.5 kgs [ ]

4. Mother's age

1. <20 years [ ]
2. 21-30 years [ ]
3. >30years [ ]

5. Gender of the child

1. Male [ ]
2. Female [ ]

6. Birth interval

1. >2 years [ ]
2. 2 years [ ]
3. >2 years [ ]

Social economic Factors influencing Nutrition Status

7. Is the source of water-safe

1. Safe [ ]
2. Unsafe [ ]

8. What is the size of the household

1. 1-3 [ ]
2. 4-6 [ ]
3. >7 [ ]

9. What's your highest education level attained

1. No education [ ]
2. Primary [ ]
3. Secondary [ ]
4. Tertiary [ ]

10. The income level of the household

……..

11. Occupation status of the caregiver

1. Unemployed [ ]
2. Self-employed [ ]
3. Employed [ ]
4. Casual labor [ ]

12. Nutrition status of the child

1. W/H Zscore…..…..
2. H/A Zscore…….
3. W/A Zscore….....

Clinical factors influencing nutrition status

13. Did you seek the ANC services

    1. Yes [ ]
    2. No [ ]

14. Was the child exclusively breastfed

    1. Yes [ ]
    2. No [ ]

15. What is the immunization status of the child

    1. Complete [ ]
    2. Ongoing [ ]
    3. Never [ ]

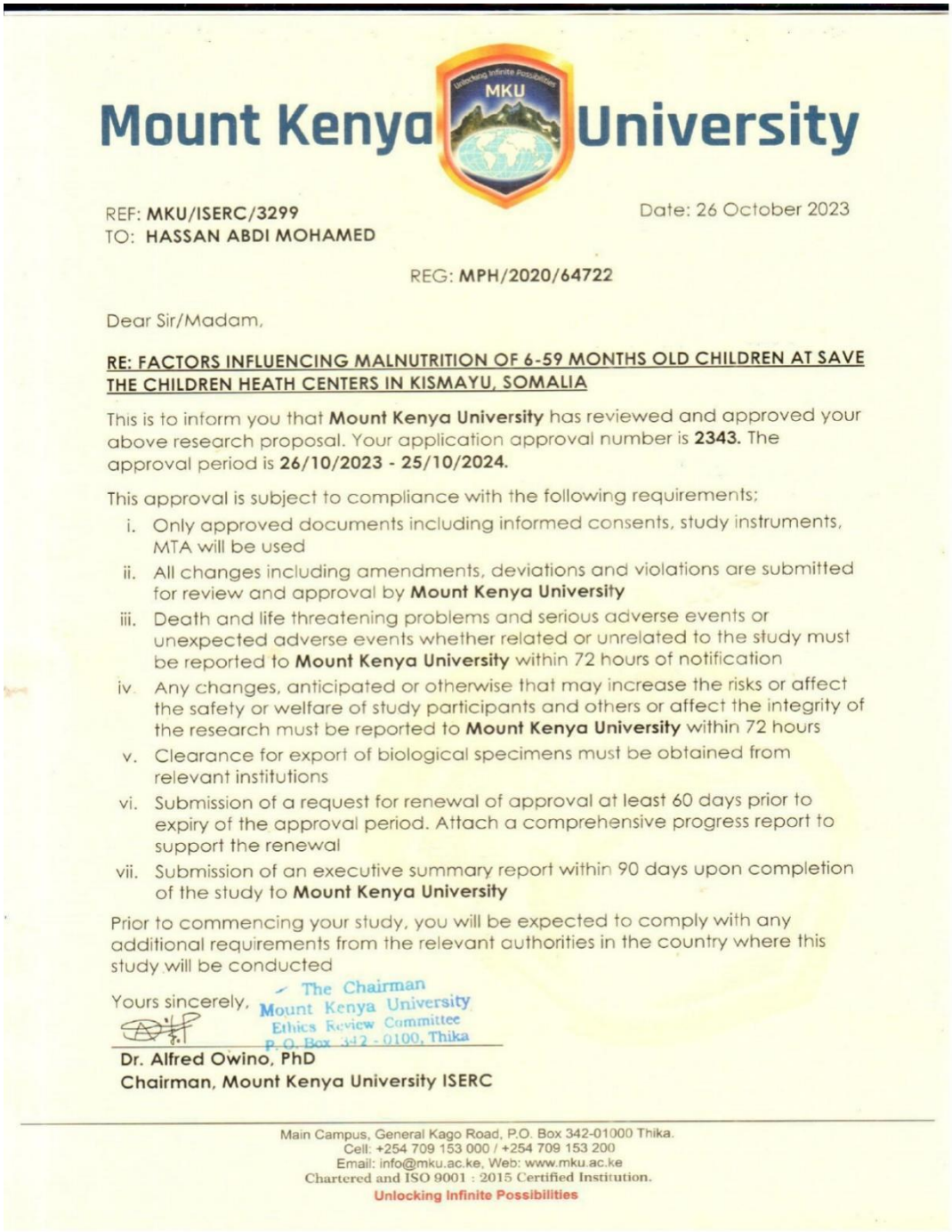
16. Does the child have delayed developmental milestones \

    1. Yes [ ]
    2. No [ ]

17. Does the child experience frequent illnesses**?**

    1. Yes [ ]
    2. No [ ]

Appendix 3: ERC Certificate



Mount Kenya University

REF: **MKU/ISERC/3299**
TO: **HASSAN ABDI MOHAMED**

Date: 26 October 2023

REG: **MPH/2020/64722**

Dear Sir/Madam,

RE: FACTORS INFLUENCING MALNUTRITION OF 6-59 MONTHS OLD CHILDREN AT SAVE THE CHILDREN HEATH CENTERS IN KISMAYU, SOMALIA

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **2343.** The approval period is **26/10/2023 - 25/10/2024.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to comply with any additional requirements from the relevant authorities in the country where this study will be conducted

Yours sincerely,

The Chairman
Mount Kenya University
Ethics Review Committee
P. O. Box 342 - 0100, Thika

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Cell: +254 709 153 000 / +254 709 153 200
Email: info@mku.ac.ke, Web: www.mku.ac.ke
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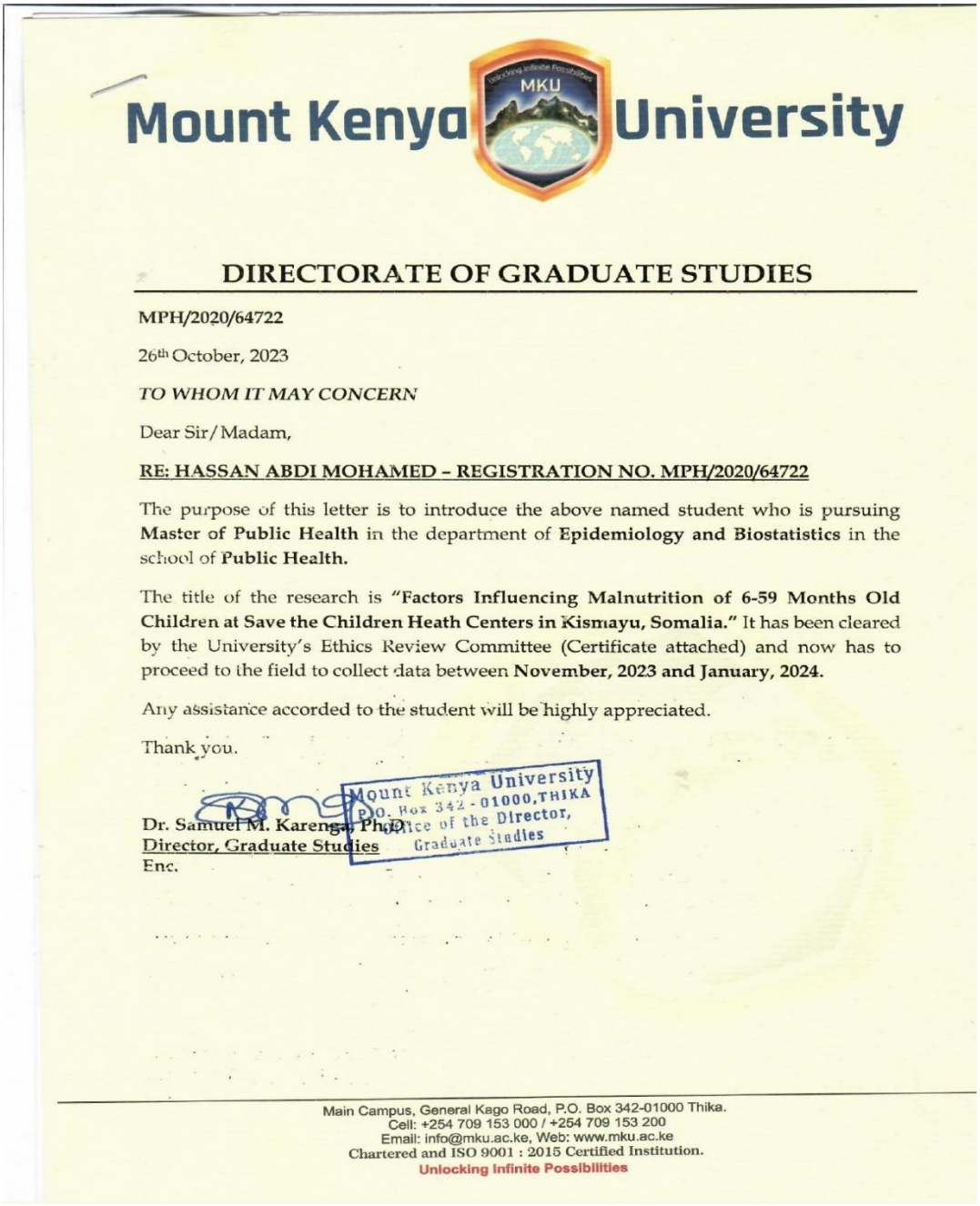
Appendix 4: Introductory Letter



Mount Kenya University

MKU

DIRECTORATE OF GRADUATE STUDIES

MPH/2020/64722

26th October, 2023

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: HASSAN ABDI MOHAMED – REGISTRATION NO. MPH/2020/64722

The purpose of this letter is to introduce the above named student who is pursuing **Master of Public Health** in the department of **Epidemiology and Biostatistics** in the school of **Public Health.**

The title of the research is **"Factors Influencing Malnutrition of 6-59 Months Old Children at Save the Children Heath Centers in Kismayu, Somalia."** It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **November, 2023 and January, 2024.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

Mount Kenya University
P.O. Box 342-01000, THIKA
Office of the Director,
Graduate Studies

Dr. Samuel M. Karenga, PhD
Director, Graduate Studies
Enc.

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Cell: +254 709 153 000 / +254 709 153 200
Email: info@mku.ac.ke, Web: www.mku.ac.ke
Chartered and ISO 9001 : 2015 Certified Institution.
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Appendix 5: MOH Clearance Certificate

DOWLAD GOBOLEEDKA JUBALAND
EE SOOMAALIYA
WASAARADA CAAFIMAADKA
Xafiiska Agaasimaha Guud

JUBALAND STATE OF SOMALIA
MINISTRY OF HEALTH
Office of the Director General

دولة إقليم جوبالاند الصومالية
وزارة الصّحة
مكتب المدير العام

20th November 2023

Dear Hassan,

RE: Clearance to conduct research in Kismayo, Jubaland

I am in receipt of your request to conduct a study on **"Factors influencing Malnutrition of 6-59 months old Children at Save the Children Health Centres in Kismayu, Somalia"**.

Upon review, your request to conduct the study has been approved. Kindly maintain confidentiality of the information collected at all times. This approval will also serve as your introduction to the facility in-charges at the facilities where your study takes place.

Please keep us abreast of any developments during your study and we will provide any other support you may require.

Yours Sincerely,

Mr. Hussein
Maalim Ali,
Director General,
Ministry of Health Jubaland

Kismayo, Jubaland, Somalia Email: dg-moh@jubalandstate.so Phone Number: 252612652897

Appendix 7: Similarity Index Report

15% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

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- Bibliography

Exclusions

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- 42 Missing Quotations 2%
  Matches that are still very similar to source material
- 4 Missing Citation 0%
  Matches that have quotation marks, but no in-text citation
- 6 Cited and Quoted 0%
  Matches with in-text citation present, but no quotation marks

Top Sources

11% Internet sources
8% Publications
9% Submitted works (Student Papers)

Integrity Flags

0 Integrity Flags for Review

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A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

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Appendix 8: Somalia - Kismayu District Reference Map