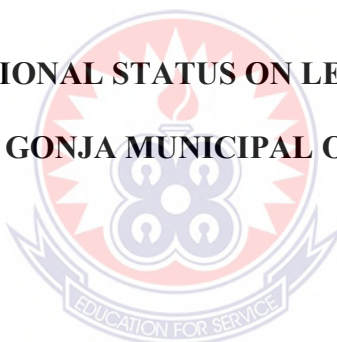


UNIVERSITY OF EDUCATION WINNEBA
COLLEGE OF TECHNOLOGY EDUCATION
DEPARTMENT OF CATERING AND HOSPITALITY EDUCATION

**THE EFFECT OF NUTRITIONAL STATUS ON LEARNING OF SCHOOL AGED
CHILDREN IN EAST GONJA MUNICIPAL OF SAVANNAH REGION**



SAAKA LAILA

2022

**UNIVERSITY OF EDUCATION WINNEBA
COLLEGE OF TECHNOLOGY EDUCATION
SCHOOL OF GRADUATE STUDIES**

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SAAKA LAILA

(1080884)



**A DESERTATION IN THE DEPARTMENT OF CATERING AND
HOSPITALITY, SCHOOL OF CATERING AND HOSPITALITY EDUCATION
SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES IN PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE
DEGREE OF M.TECH CATERING AND HOSPITALITY IN THE UNIVERSITY
OF EDUCATION, WINNEBA**

MARCH, 2022

DECLARATION

STUDENT'S DECLARATION

I **SAAKA LAILA**, hereby declare that, besides the quotations and references cited in this thesis, the findings are the outcome of my independent research and that no part of it has been presented for the award of a degree in the University or elsewhere to the best of my knowledge. I therefore accept responsibility for anything in this dissertation.

SIGNATURE:

DATE:



SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines on supervision of thesis laid down by the university.

SUPERVISOR'S NAME: DR. MRS. ELLEN OLU

SIGNATURE:

DATE:

DEDICATION

I first of all dedicate this study to God Almighty for his mercy and grace, and seeing me through this research work. I am sincerely grateful for His protection and guidance throughout this period of study.

I also dedicate this piece of work to my families, friends and all loved ones as well as wishers, through whose love, prayers and support in various ways has brought me this far.



ACKNOWLEDGEMENT

The successful completion of this work came as a result of the contributions made by several people; without which the work would not have materialized. I therefore, deem it necessary to express my profound gratitude to them.

I also express my profound gratitude to my dynamic and hardworking supervisor of the Department of Catering and Hospitality, Dr. Mrs. Ellen Olu, who did not only encourage me to write us throughout the study, but also supervised and guided me through at no cost. My thanks also go to Mr. Mohammed Abbah who helped me in administering my questionnaires and my husband Alhaji Aliu for his support and encouragement during my thesis.

To all others whose names cannot be readily mentioned, I am equally grateful to them.



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ABSTRACT

The aim of this study to look at the effects of nutritional status of school aged children in the East Gonja Municipal of the Savannah Region. To achieve this aim, data was collected from multiple levels within the Urban “B” Circuit and with various respondents, as outlined below: Household interview with the help of questionnaire: A set of questionnaires containing indicators that can directly or indirectly influence the nutrition status will be prepared and questions will be asked to the parents of the children. Information will be both qualitative and quantitative. Interview with the help of questionnaire about pregnancy history, pre- and post- natal care, recent morbidity, recent child mortality, receipt of health and nutrition services, child care and feeding practices, and knowledge and practices related to maternal and child health and nutrition. Anthropometric measurements of 5-10 of age children and the following indices will be used: Weight-for-age, height-for-age, BMI for age and Edema check for protein energy malnutrition (PEM). All responses for each item in the questionnaire were coded and analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive statistics such as frequencies and percentages will be used to summarize and determine the direction of responses. Correlational matrix and logistic regression will be computed to the effect of nutritional status of students’ learning of school aged children in the East Gonja Municipal of the Savannah Region. Based on the findings with regards to the assessment of the nutritional status, the study revealed that there is a higher prevalence of under nutrition among the children of 5-10 year of age group children of East Gonja Municipal, especially Urban “B” Circuit schools. i.e., stunting (38 %), underweight (18 %) and thinness (6 %). Secondly, collectively, males were found to be more under nourished (stunted and underweight) than females i.e., prevalence of stunting (48 % in males and 28 % females) and underweight (20 % in males and 16 % in females) respectively. Whereas, female children were found more thinned than male children i.e., the prevalence of thinness was 4 % in males and 8 % in females. In the light of the above findings the following recommendations are made: Stunting was found in high percentage than underweight and wasting. So, programs to children is required, another anthropometric nutritional survey during another season in the same areas should be conducted to determine seasonal variations and their effect on the nutritional status of the children.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Malnutrition or malnourishment is a condition that results from eating a diet in which nutrients are either not enough or are too much such that the diet causes health problems. It may involve calories, protein, carbohydrates, vitamins or minerals. Not enough nutrients are called under nutrition while too much is called over nutrition. Malnutrition is often used specifically to refer to under nutrition where there are not enough calories, protein or micronutrients. (Srilaxmi, 2002). Good nutrition is a fundamental basic right. Ghana with its ratification in 1990 of the recognizing and implementing a wide range of civil and political rights for Ghanaian children. Childhood illnesses such as diarrhea and acute respiratory infections (ARIs) are also common.

Nutrition is a fundamental pillar of human life, health and development across the entire life span. From the earliest stages of foetal development, at birth and into adulthood and old ages, proper food and good nutrition are essential for survival, physical growth, mental development, performance and productivity health and well-being (FAO/WHO, 1992, WHO 2000a); (SNA, 2008b); (Gale, 2010c).

Though some schools have no access to school mid-day meal but there should be a health education program to counsel the students, parents, school's cafeteria and those that are selling foods in the school compound to be aware of the types of food and reasons those essential nutrients should be present in the food and proper checking or monitoring should be done by the school administrator (SNA, 2008a); (Gale, 2010b).

Poverty has been the most important factor affecting diet and nutrition of people living in Salaga in the East Gonja Municipal area, even though their major occupation will be

farming, the major consumption food will be carbohydrate, that is full of starch such as; gari, TZ, Emo Tuo, fufu, yam, and they also lack the knowledge about the arrangement, the way to consume the necessary diet at appropriate time at the villages, most of them are illiterate, and they lack knowledge of nutrition. “A good eater must be a good man, for a good eater must have a good digestion, and a good digestion depends upon a good conscience”, Benjamin Disraeli, (Microsoft Encarta, 2009). Federation of African

The important tool to help improve the student achievement and their academic performance is to ensure that students are safe, drug free, resilient and healthy which is the centre to improve academic performance. How can students healthy without knowledge of nutrition, without good nutrition or balance diet.

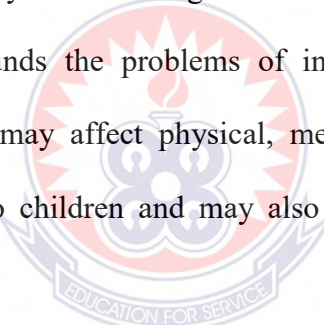
According to WHO (1946), “Health is a state of complete physical, mental and social well-being and not mere absence of diseases and infirmity” (SNA, 2008a); (Gale, 2010b).

Their hygiene and sanitation behaviors still to be improved so their children are more susceptible to the various communicable diseases. It is against this background that the researcher seeks to assess the effect of nutritional status of students’ learning of school aged children in the East Gonja Municipal.

1.2 Statement of the Problem

In an educational world filled with failing schools and apathetic students, this has generated a lot of controversy from concerned bodies, such as teachers, parents and governments. People believes will be, it is the role of the government, if nutrition is to be improve, while says parent and teachers have their own role to play(SNA, 2008a); (Gale, 2010b).

One can then ask the question “what is the effect of nutrition on student academic performance. Undernourished children (low weigh for age) tend to be enrolled later in school than better-nourished children. This could be because parents deem shorter children to be young, because they do not believe the children are physically large enough to attend school, or perhaps because they are investing more in better-nourished children. In any case, late enrollment compounds the problems of intellectual impairment caused by nutritional deficits. Nutrition may affect physical, mental and emotional challenge of children and may also lead to children and may also lead to brain retardation. (SNA, 2008a); (Gale, 2010b).



Early childhood development percentage in the municipality revealed that, the community is suffering from nutritional problems which directly affect the health status of the municipal and the country at large.

This therefore makes it necessary to look into the prevailing factors which affect indirectly nutritional status of school aged children and also its impact on their learning.

1.3 Purpose of the Study

The study intends to find out the effectiveness of nutritional status of students learning of school aged children in the East Gonja Municipal of the Savannah Region.

1.4 Objectives of the Study

The objective of the study is to find out;

1. To assess the nutritional status of students learning of school aged children.
2. To assess the nutritional status of (5 to 10) years of school aged children.
3. To determine the prevalence of stunting, thinness and underweight of 5 to 10 years of children in East Gonja Urban” B” Circuit.

1.5 Research Question

1. What is the present condition of nutritional status of children (5-10 years old age) in East Gonja Urban” B” Circuit?
2. What is the prevalence of different factors that directly or indirectly influence the nutritional status of 5-10 years of children?
3. what is the nutritional status of students learning of school aged children in the East Gonja Urban” B” Circuit?

1.6 The significance of the study

The study when completed will test the effect of nutrition on student’s academic performance.

Furthermore, this study will find out some of the health related diseases that are associated with nutrition and nutritional diseases noted from students in the East Gonja Municipal

area of Ghana. Solution and prevention will also be preferred to some health problem associated with nutrition. They will also have the knowledge about diseases associated with nutrition and its effect to academic performance. It is hoped, therefore, that the findings of the study will be value to the state and the local governments in their effort to promote good health and nutritional services to students in the East Gonja Municipal of Ghana. This study will enable student s, parents and teachers to have the knowledge of how to manage the little available resources to meet up with the Nutritional Association Current Meal Pattern Requirement. It will also serve as reference point to the other researchers.

1.7 Scope and Limitation of the Study

The scope of this study is the effect of nutritional status of students' learning of school aged children in the East Gonja Municipal of the Savannah Region. It does not consider any other issues apart from the effect of nutritional status of students' learning of school aged children in the East Gonja Municipal. The study is delimited only to nutritional status of students' learning of school aged children in the East Gonja Municipal of the Savannah Region

1.8 Definitions of terms

1. Nutrition: is the science that deals with all the various aspect of which food is composed and the way in which proper nourishment is brought about
2. Nutrition disorder: refers to as lack of procedures caused by nutritional imbalance, either over nutrition or under nutrition
3. Malnutrition: the condition caused by an improper balance between what an individual eats and he requires maintaining health.

1.9 Organization of Study

The study consists of five (5) chapters. Chapter One is the introduction which contains the background to the study, the statement of the problem, research questions, objectives of the study, significance of the study, delimitation and organization of the study. The Chapter Two is devoted to the review of related literature. Chapter Three presents the methodology which describes the research design, population, sample and sampling procedure, research instrument, data collection procedure and mode of data analysis. Chapter Four presents the results and discussion. The last chapter, chapter Five, deals with the summary, conclusions and recommendations of the study



CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This review of literature will be conducted on the effect of nutritional status on student's learning of school aged children in Salaga, Searches of journal, data bases and websites, will be connected. The search produces a wealth of literature from range of professional disciplines, including medicine, public health, sociology and psychology. However, this chapter reviews literature related to the study.

2.2 Health

Health is a multidisciplinary concept with varying definitions depending upon the orientation of the person defining it. Medical professionals like Doctors and Laboratory technicians will be concerned principally with the mechanical functioning of the body.

Conventional definitions of health will be concerned basically with the mechanical functioning of the human body parts and presented health as the absence of disease.

Positive definitions of health include both negative (absence of disease) and positive elements. The widely accepted definition of health will be presented by the World Health Organization (WHO, 1978) as a complete state of physical, social and mental wellbeing and not merely the absence of disease or infirmity. This definition is multi-dimensional as it emphasizes both medical and non-medical aspects of health (social, psychological and physical). Under it, health is viewed holistically focusing on public health, biomedical health and socio economic conditions that determine health. It implies that, an individual's state of health cannot be the responsibility of only the doctor or the physician but also depends on the individual as well as other professionals and society as a whole to make

each and every one healthy. Therefore, an individual's health is determined by the economic and socio-cultural factors affecting the individual.

2.2.1 Determinants of Health

Determinants of health simply are the factors that influence the health of an individual. These factors include environmental, political, cultural and socio-economic conditions which either keep the individual in a state of good or bad health. Based on the WHO's definition of health, the determinants of health include environmental, socio-economic and cultural factors.

2.2.1.1 Environmental

Factors such as safe water and clean air, healthy workplaces, safe houses, clean communities and roads determine the state of well-being of an individual as there is a co-dependence between the individual and these environmental factors.

2.2.1.2 Socio-economic

Factors such as education, employment, food, peace and security, shelter, social relationships, support networks all come into determining an individual's health as they affect him/her in one way or the other.

2.2.1.3 Cultural

The way of life of a group that an individual belongs to, determine his state of health. Customs and traditions, belief systems, values and norms may affect the health of an individual. - For example, the Trokosi system, Female Genital Mutilation, widowhood

rites, witchcraft and some rites of passage may affect a person physically or psychologically and render him or her unhealthy.

2.2.1.4 Political

The decisions of political heads and political agendas as well as the types of regimes in place tend to determine the state of health of the citizenry of a country.

2.2.2 Characteristics of Health

Health is a state of being, which is determined by the quality of the state of a person. Thus, a desirable state of being is a state of good or bad health at every point in time.

Health has an intrinsic value in use but not in exchange. This implies that health is not directly tradable. There is no price attached to the health and no market for health as well. However, a person in a state of good health may exchange his labour for a wage. This further implies that health may affect productivity as a healthy labour force may work productively as compared to an ill one.

Inferring from WHO's definition of health can be said to be a means to an end but not an end in itself. An individual's state of good health is not for just the sake of it but to enable him carry out his daily activities effectively. It is for the attainment of well-being and to participate in all within his society.

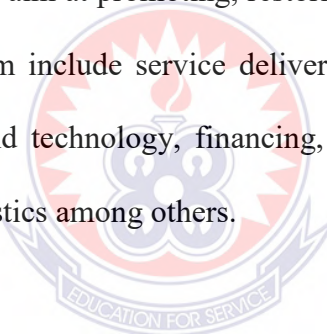
Health is a fundamental human right. It is the right of every individual to attain quality health care (WHO, 1978).

2.2.3 Health Care

Health care is a medium through which households and individual provide health services to its members. This could either be through the help of health care professionals or non-health care professionals. Holistically, all the activities, individuals or groups as well as facilities that are delivered to promote one's health are described as health care. Health care is therefore not only at the time when one is ill but also at vital points before, during and after illness.

2.2.4 Health System

Health system is the integration and dependence of all the people, society, organizations and their actions that primarily aim at promoting, restoring and or maintaining health. The components of a health system include service delivery, health workforce, information, medical products, vaccines and technology, financing, governance for providing policy direction and compliance, logistics among others.



2.2.5 Key Goals of a Health System

The health system is based on three goals; these are effectiveness, efficiency and equity. Effectiveness is all about improving upon people's health through the provision of high quality health care and also making health care delivery responsive to the health care needs of the populace by health care professionals and non-health care professionals. Efficiency is the avoidance of will betage in the disbursement and usage of resources within the health sector by ensuring that optimum health satisfaction is derived with the given limited health sector resources. Equity ensures that people physically access health care according to their needs for health care and should be able to afford health care.

2.3 Concept of nutrition

Nutrition is a fundamental pillar of human life, health and development across the entire life span. From the earliest stage of foetal development, at birth, during infancy, childhood, adolescence, into adulthood and old age, proper food and good nutrition are essential for survival, physical growth, mental development, performance and productivity, health and wellbeing. It is an essential foundation of human being and national development (WHO, 2002)

Nutrition is the study of food in relation to the physiological processes that depend on absorption by the body (Growth, energy production, repairs of the body tissue etc.). The science of nutrition includes the study of diets and of deficiency diseases. (Concise Medical Dictionary, 6th Edition). In hospitals, nutrition may refer to the food requirement of patients, including nutritional solution deliver via any IV (intravenous) or IG (intra gastric) tube.

Nutrition also involve identifying how certain diseases, conditions or problems may be caused by dietary factors, such as poor diet (malnutrition), food allergies, metabolic diseases, etc. The human body requires seven major types of nutrients. A nutrient is a source of nourishment, an ingredient in a food e.g. protein, carbohydrate, fat, vitamin, mineral, fiber and water. Life styles have change considerable over the years. With the hurried life style of day's families, quickly and less nutritional meals have become typical, and adolescents are adopting these unhealthy eating habits. There are a number of nutrients that individual, particularly the young, need to ensure proper development and health. Children in the UK are falling short of meeting some of their daily nutritional requirements (scientific Advisory committee, 2005). The basic for the nutritional requirements for children and adolescents is debated. In fact, some researches propose

moving to measures such as the “functional effects of food and concepts such as optimal nutrition, which take into account the prevention of particular negative health outcomes (Aggett, 2004).

Generally, it is the management and optimization of nutrients that amounts to a healthy diet. In fact, there are no bad food, only badly managed diets. For example, in an investigation of the relationship between the percentage of energy consumed from fat, had a negative effect on the intake of other nutrients such as zinc, retinol, iron and vitamin c (Rogers et al., 2002). Below is a summary of nutrients traditionally considered important in certain amounts for a healthy diet (British Nutrition Foundation, 2005c); (Aggett, 2004b); (Rogers et al., 2002a)

Zinc

Zinc is found in protein rich foods, such as meat, shellfish, dairy products, bread and cereals. It is found to help with the production of new cells and enzymes. It helps process protein, fat and carbohydrate and with the healing wounds, however, excess zinc can lead to anemia and weaking of bones.

Iron

Iron is found in liver, meat, beans nuts, dried fruit, whole grains (brown rice) soya bean flour and dark leafy vegetables, iron helps with the production of red blood cells that carry oxygen around the body.

Sugars (glucose/sucrose)

Sugars, such as sucrose, fructose, and maltose, are naturally found in fruit and milk, but are added to many other manufactured foods.

Carbohydrates

Carbohydrates are found in sugars and starch and are major sources of energy. In terms of sugars, there are two types; extrinsic, not part of the cellular make-up of the food, e.g., in whole fruits and vegetables. Starch can be found in items such as potatoes and bread.

Thiamin (vitamin B1)

Thiamin is found in pork, vegetables (especially peas), milk, cheese, fresh and dried fruit, eggs, whole grain breads and some breakfast cereals. It helps to break down and release energy from the food that we eat and also helps to maintain nerves and muscle tissue.

Essentially fatty acids

There are two categories of essential fatty acids; unsaturated fat found in fish, avocados, nuts and seeds, sunflower and vegetable oils and saturated or trans-fat, found in meat, cheese, butter and pastry. Essential fatty acids help the body to absorb vitamins and are also a source of energy. However, too much fat, particularly saturated and trans-fat, leads to weight gain and increased cholesterol in the blood that lead to heart disease.

Sodium chloride (found in salt)

The amount of sodium needed can easily be obtained from a healthy diet. Too much can raise blood pressure, potentially leading to heart disease and stroke.

Fibre

Fibre is a type of carbohydrate found in plants and is important for digestion.

Protein

Protein is essential for growth and repair of body. The main sources of protein include meat, fish, eggs, milk, cheese, cereals and cereal products (e.g. bread), nuts.

Calcium

Calcium is mainly important for the development and maintenance of bones and teeth. The primary sources in the UK are milk, cheese and other dairy products.

Vitamin A (Retinol)

Vitamin A is important for the function of the skin and mucous membrane. It is also essential for vision and the immune system. It is related to cell differentiation and thus is crucial for growth and development. Vitamin A is always found in liver, milk, cheese and butter and it can also be found in vegetable such as carrots and leafy vegetables.

Vitamin C

Vitamin C is responsible for the formation of connective tissues found in skin, cartilage and bones and thus is part of the healing process from injury. It is also implicated the development of blood vessels and in neurological functions. It is mostly found in fruit and vegetables, but can also be sourced in milk and liver

Folate

As with vitamin A, folate is important for normal cell division that preludes growth and development. It is also partly responsible for the formation of blood cells. Folates are found in liver, yeast extract, orange juice and green leafy vegetables. Although, nutritional requirements varies between individuals and at different stages of health. It varies with age, gender and stage of health. Individual requirement depends not only how much of particular nutrient the respondent needs to successfully digest, but also on their ability to absorb and make use of each type of nutrient, (British nutrition foundation, 2005).

2.3 Effects of Nutrition

The effects of nutrition on student's academic performance may be difficult to be discussing, but for the purpose of this study, discussion will be based on this area;

Sight, hearing and speech,

Motor skills

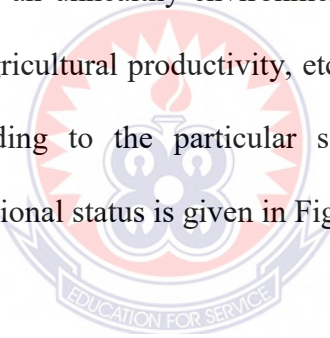
Skeletal development

Body mass index and obesity.

2.4 Conceptual Framework

The literature repeatedly shows that malnutrition is caused by a combination of factors, such as low income, illiteracy, an unhealthy environment, unsatisfactory health services, inadequate food habits, low agricultural productivity, etc., and that all these factors affect each other differently according to the particular situation (Beghin *et. al.*, 1988).

Conceptual framework of nutritional status is given in Fig. 1.2 below



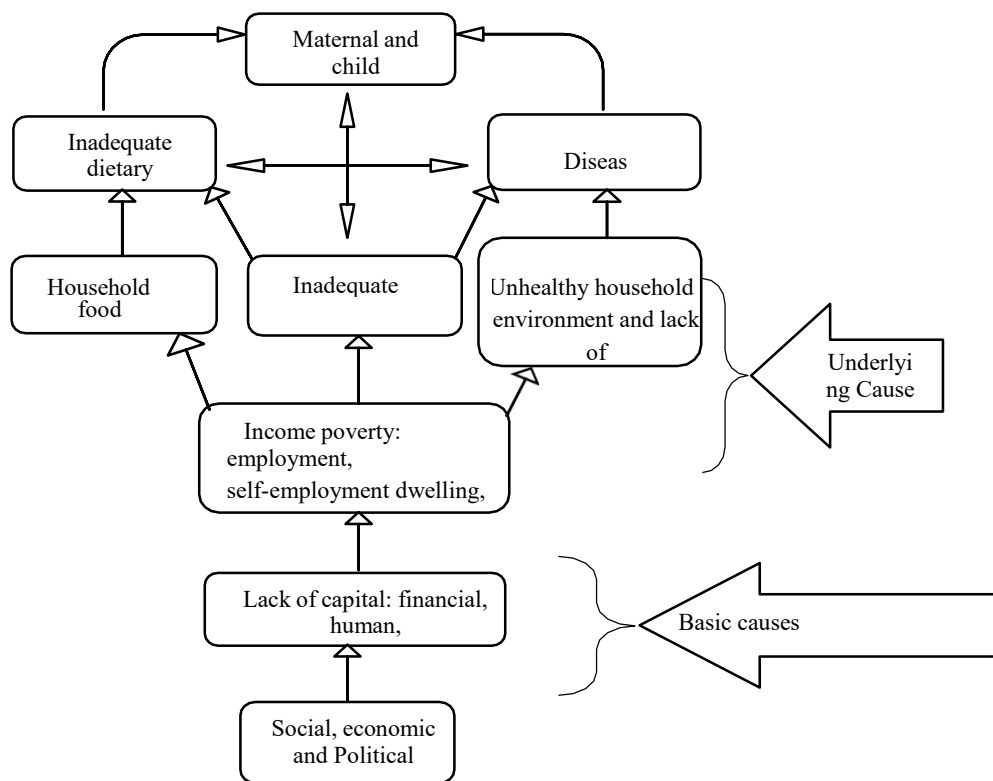
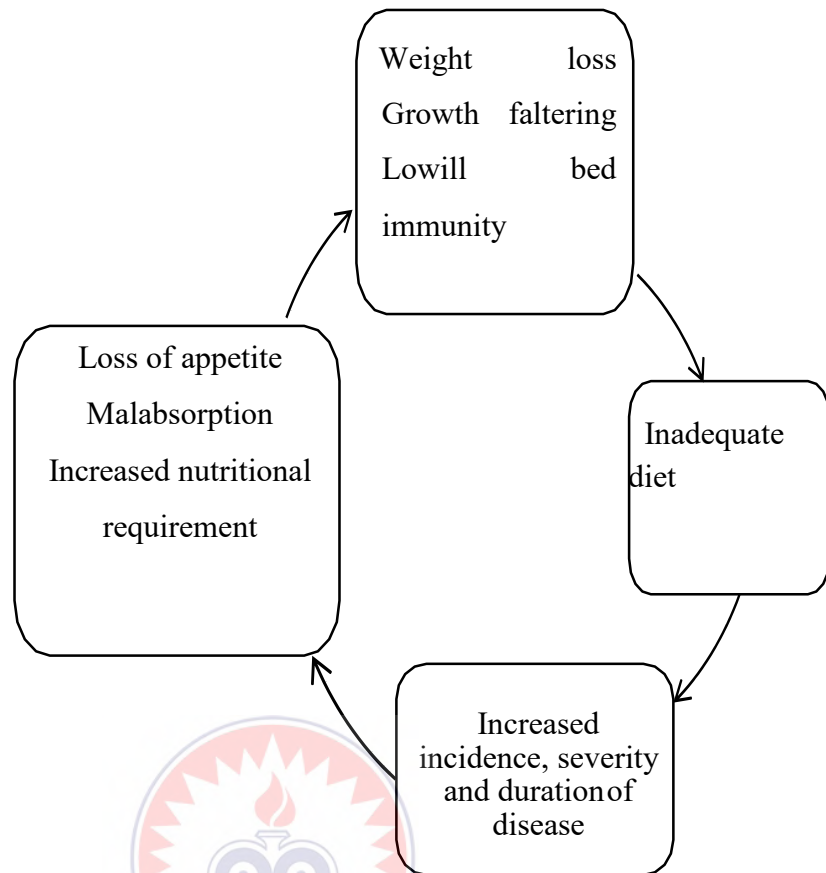


Fig. 1.2 UNICEF conceptual frameworks (UNICEF, 2015).The above figure can be divided into following parts:

Immediate causes of under nutrition: The immediate cause of under nutrition is a result of a lack of dietary intake, or/and disease. This can be caused by consuming too few nutrients or/and infection which can increase requirements and prevent the body from absorbing nutrients. This part focuses on the infection-under nutrition cycle. In practice, under nutrition and infection often occur at the same time because one can lead to another.

This is illustrated in the Fig. 1.3 below (UNICEF, 2015).



The level of interaction depends on the infection and the extent of under nutrition but in general, poor nutrition can result in reduced immunity to infection. This can increase the likelihood of an individual getting an infection or increase its duration and/or severity. Infection can result in loss of appetite, increased nutrient requirements and/or decreased absorption of nutrients consumed. This triggers further weight loss and reduced resistance to further infection. The vicious cycle needs to be broken by treatment of infection and improved dietary intake.

Underlying causes of under nutrition: Whether or not an individual gets enough food to eat or whether s/he is at risk of infection is mainly the result of factors operating at the household and community level. Within the UNICEF framework just described these are

classified as underlying causes (UNICEF, 2015). They can be grouped into three broad categories:

Household food insecurity

Inadequate care

Unhealthy household environment and lack of health services (poor public health)

Household food security is defined as sustainable access to safe food of sufficient quality and quantity to ensure adequate intake and healthy life for all members of the family.

When members of household do not have access to sufficient quantity and quality of food they can be said food unsecured. Food must not only be in the market but people must be able to afford it. Additionally, for an active and healthy life, people need enough food as well as the right balance of fat, protein, carbohydrate and micronutrients (UNICEF, 2015).

Caring practices such as breastfeeding, appropriate complementary feeding, as well as hygiene and health seeking nutrition. This practice can be severely disrupted in an emergency which can lead to poor dietary intake and increased infection, both of which are underlying causes of under nutrition (UNICEF, 2015).

The third category of the underlying causes of under nutrition refers to those related to poor public health. This includes factors relating to the health environment, exposure to disease and access to basic health services. The health environment is affected by access to clean, safe water and sanitation, the presence of malarial breeding sites, the quality of shelter and consequent level of cold, stress, overcrowding. Extent to basic health services determines the extent to which infection and disease can be prevented or treated (UNICEF, 2015).

Basic causes: The third level of factors contributing to undernutrition identified by the conceptual framework is considered basic causes. These refer to what resources are

available (human, structural, financial,) and how they are used (the political, legal and cultural factors). These can be thought of as the real reason behind the underlying causes. Political, legal and cultural factors may defeat the best efforts of households to attain good nutrition. These include the degree to which the right of women and girls are protected by law and customs; the political and economic system that determines how income and assets are distributed; and the ideologies and policies that govern the social sectors. Overcoming entrenched poverty and under development requires resources and inputs (UNICEF, 2015).



CHAPTER THREE

METHODOLOGY

3.1 Research Design

Data will be collected from multiple levels within the Urban “ B” Circuit and with various respondents, as outlined below:

Household interview with the help of questionnaire: A set of questionnaires containing indicators that can directly or indirectly influence the nutrition status will be prepared and questions will be asked to the parents of the children. Information will be both qualitative and quantitative. Data will be collected on household socioeconomic, food security and dietary characteristics, including education and occupation of parents, hygiene and sanitation behavior and health care and nutrition services and so on.

Interview with the help of questionnaire about pregnancy history, pre- and post- natal care, recent morbidity, recent child mortality, receipt of health and nutrition services, child care and feeding practices, and knowledge and practices related to maternal and child health and nutrition.

Anthropometric measurements of 5-10 of age children

The following indices will be used:

Weight-for-age ii. Height-for-age iii. BMI for age

Edema check for protein energy malnutrition (PEM)

The 24-hour dietary recall: In this method, respondents will be asked to remember details of the types of foods given to their children during the previous 24 hours. This information will be collected to know common types of foods they eat.

3.2 Measurement methods

Height measurement

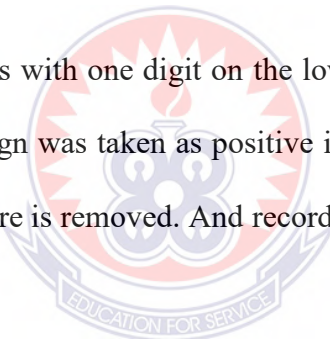
Height measuring stand (Stadiometer): - The height measuring tape of 5ft capacity (2 pieces).

Weight measurements

The type of the weighing scale used will be Digital bathroom scale, Swiss made, Micro life co. pvt. Ltd. The child will be subjected to the machine with the minimum number of cloths to reach nearer to actual value. The child will be guided to stand straight and erect and look straightforward not downward or upward. The measurement will be noted as indicated by the machine. The measurements will be taken three times for each child.

Edema checkup

Firm pressure for three seconds with one digit on the lower portion of the median surface of the tibia was applied. The sign was taken as positive if there was a visible and palpable pit that persists after the pressure is removed. And recorded only if present bilaterally.



3.3 Population of the study

The term population is a well-defined collection of objects or individuals that possess similar characteristic. Kombo and Tromp (2006) define population as a group of individuals from which samples are taken for measurement. It is for the benefit of the population that researchers conduct a study. Children will be used for the anthropometric measurements. Mothers of the respected children will be asked framed questionnaire about the breastfeeding, nutritional care, health care and the hygiene and sanitation related practices. Father/Mother or the head of the family will be asked questions about the household members, occupation and education etc. in urban "B"

Circuit in the East Gonja Municipal relating to basic foods, nutrition, hygiene and sanitation.

3.4 Sample and Sampling Technique

According to Nesbary (2007) a sample is a subset of a population that has been selected and contains the characteristics of a population. This study employed convenience sampling and purposive sampling, both non-probability sampling techniques. The convenience sampling will be employees to select company. It will be selected based on proximity and easy access to data. That is effect of nutritional status of students' learning of school aged children in the East Gonja Municipal of the Savannah Region. This is the census method so sample size was not calculated. 50 children will be studied.

Pre- testing

The equipment was tested before the actual survey by measuring 5 to 10 years old children. Since no fault was found on the equipment they were confirmed for the actual survey. The questionnaire was pretested among the mothers of urban "B" Circuit in the East Gonja Municipal to see if there were any ambiguous questions or not and also to see if all the questions and options on the question will be easily understandable or not. By taking the suggestions from the people, the questions will be modified.

3.5 Data Processing and Analysis

All responses for each item in the questionnaire will be coded and analyzed using statistical software called Statistical Package for the Social Sciences (SPSS). Descriptive statistics such as frequencies and percentages will be used to summarize and determine the direction of responses. Correlational matrix and logistic regression will be computed to the

effect of nutritional status of students' learning of school aged children in the East Gonja Municipal of the Savannah Region. This will be specifically the approach in analysing the data obtained. Finally, the data from questionnaires will be matched up to provide well-validated and substantiated findings to answer the research questions. Also, the anthropometric data was analyzed by the help of WHO Anthro plus v1.0.4. Z-score of height for-age, weight-for-age and BMI-for-age for each child was calculated and curve was made. Other qualitative and quantitative data were analyzed by IBM SPSS Statistics 20 and Microsoft Excel 2016. Frequencies of different variables were calculated in the visual dashboard. Mean of the triplet anthropometric measurement was filled in the WHO anthro plus.



CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Research Question One: What is the nutritional status of students learning of school aged children in the East Gonja Urban” B” Circuit?

With respect to the first research question, the study revealed that, Height-for-age, the prevalence of moderate stunting was 28% among which 20% were female and 36% were male. Prevalence of severe stunting was 10% among which 12% were male and 8% were female. 62% children were normal according to height-for-age among which 72% were female and 52% were male as shown in Table 4.1.

Table 4.1 Prevalence of stunting based on height-for-age Z-score and by sex

HAZ	Classification	Female		Male	Total		
		Frequency	%	Frequency	%	Frequency	%
< -3	Severe	3	8	2	12	5	10
-3 to < -2	Moderate	9	20	5	36	14	28
- ”	Normal	13	72	18	52	31	62
Total		25	100	25	100	50	100

Source: Field Survey, January, 2022

The HAZ distribution curve obtained from the children is different than that of WHO standard curve. The median value of children is slightly shifted to the left indicating that most of the children in the population, and not only those below a given cut-off, were affected as shown in Fig. 4.1. The median value of HAZ was -1.63.

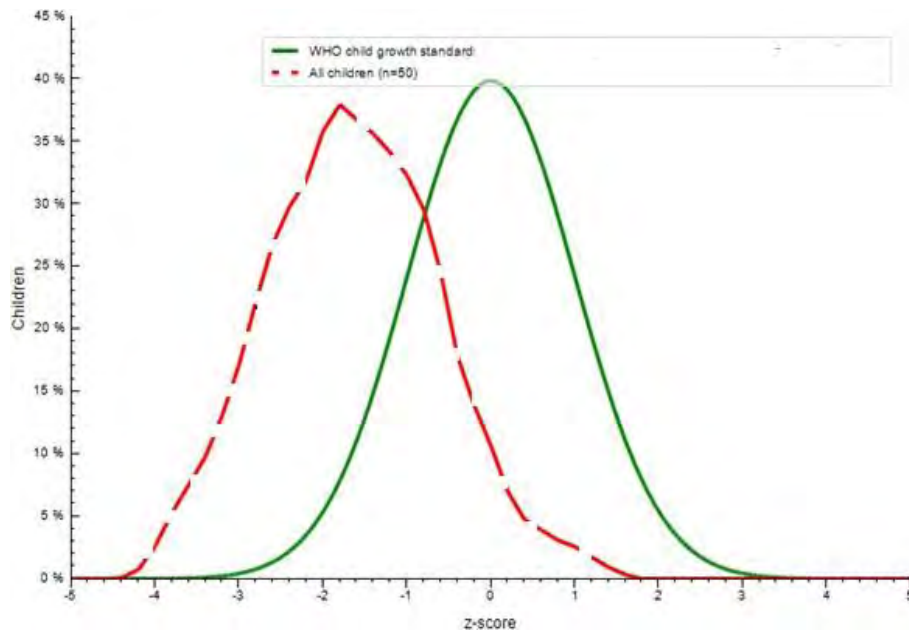


Fig. 4.1 Distribution height-for-age Z-score curve comparing with WHO standards 2007

On comparison of this studies with previously performed studies, the study conducted by (Dhakal, 2015), reported that 23.57 % of the children (5 to 10 group) were stunted which was less as compared to this study. The reason this study showed stunting 38% was more than the study conducted by (Dhakal, 2015) might because it was affected by the difference in the study area, where our study was conducted in East Gonja Municipal Urban “B” Circuit which is an underdeveloped village where tourism industry has just flourished and is emerging as main tourism spot in eastern development region and his study was conducted in Itahari municipality which is far more developed then the place where this study. Another reason that showed the difference in the result might be the level of education among their parents where the parents of the children in this study were less educated as compared to the parents of those children in the study conducted by (Dhakal, 2015).

The current study showed that the prevalence of stunting among public 5 to 10 children was found higher in male than in females. This might be due to fact that, illiterate mothers have no or very little knowledge regarding to improved maternal and child health care whose effects can be seen as stunting in children as a chronic effect in future.

Only 62% children were not stunted but still 38% children were below -2 Z-score in which 10% were severely stunted and 28% were moderately stunted among which 48% were male and 28% were female as shown in table 4.1. The result showed that more male were lack on taking sufficient amount of nutritious food for longer period of time which might be due to the parents busy schedules, improper caring, skipping of midday meal and snacks by children.

1.1.2 Weight-for-age

Moderate underweight prevalence was 14% among which 16% were female and 12% were male. Prevalence of severe underweight was 4% among which 0% were female and 8% were male. 82% children were normal according to weight-for-age among which 84% were female and 80% were male as shown in Table 4.2.

Table 4.2 Prevalence of underweight based on weight-for-age Z-score and by sex

		Frequency	%	Frequency	%	Frequency	%
<-3	Severe	0	0	2	8	2	4
-3 to <-2	Moderate	4	16	3	12	7	14
- "	Normal	21	84	20	80	41	82
Total		25	100	25	100	50	100

Source: Field Survey, January, 2022

The WAZ distribution curve obtained from the children is different than that of WHO standard curve. The median value of children is slightly shifted to the left indicating that

most of the children in the population, and not only those below a given cut-off, were affected as shown in Fig. 4.2. The curve shows that more number of children was within normal range but there was still prevalence of moderate underweight and prevalence of severe underweight was also found. However, the prevalence of overweight was not reported. The prevalence of severely underweight children was less than moderately underweight children. The median value of WAZ was -0.57.

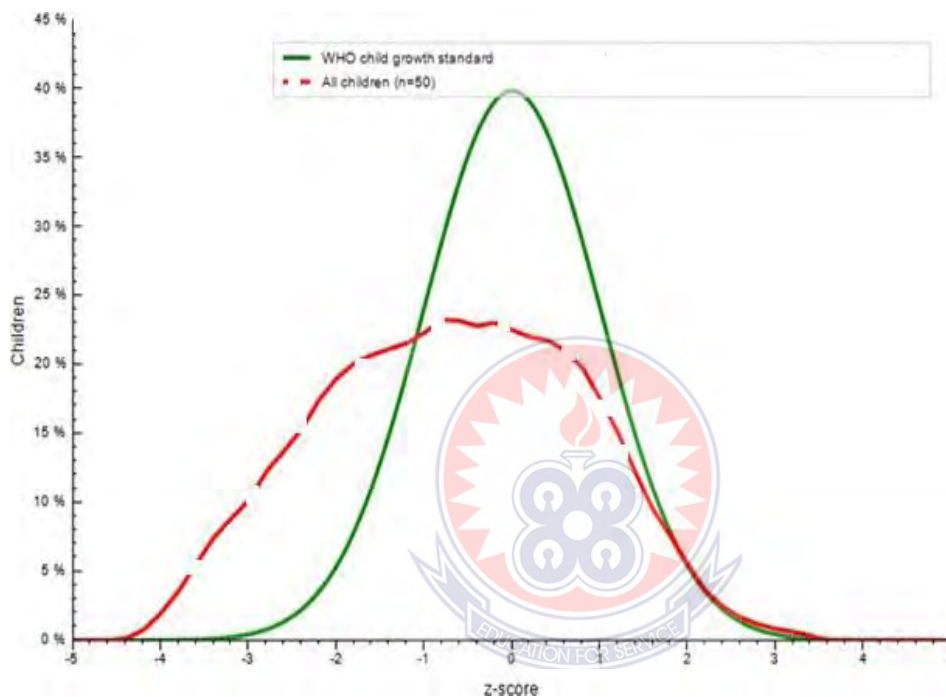


Fig. 4.2 Distribution of weight-for-age Z-score curve comparing with WHO standards 2007

The current study showed prevalence of underweight was found to be more among males (16% boys Vs 20% girls) which is contrast to result noted in survey done at Medical Teaching Hospital, Uttarkhel where 17% male and 11.9% female were undernourished (Rijal *et al.*, 2011) similarly higher prevalence of underweight in girls than boys was noted in result by B Shrestha, where 23.1% boys and 15.3% girls were underweight (Shrestha, 2014).

Similarly, a cross-sectional study conducted in Itahari municipality, Nepal by (Dhakal, 2015) reported that, 10.57% of children of age group 5-10 years were underweight which was less as compared to this study where underweight is (18%). A cross-sectional study conducted by (Neupane, 2015) in Nepal reported that 30.76% of public primary school children were underweight which was far more as compared to this study (18%).

Only 82% children were not underweight but still, 18% children were below -2 Z score in which 4% was severely underweight and 14% were moderately underweight among which 20% were male and 16% were female as shown in table 4.2. The result obtained of the prevalence on underweight was found lower as compare to a cross sectional study conducted in Pumdi Bhumdi village of Kaski district where 35.4% children were underweight (Bastola *et al.*, 2015).

Among three indicators of malnutrition (38% and 18% stunting and underweight respectively) were found to be most prevalent in the Municipal. Stunting occur due to long term exposure of malnutrition and disease starting before the birth of the child i.e. with the pregnant mother. Underweight occur due to the long term deficient in food intake. So, an intervention to improve the nutritional status of pregnant mother as well as the child of under-five is also required. The prevalence of stunting and underweight as dominant was due to the ignorance by parents.

BMI for Age

Moderate thinness prevalence was 4% among which 4% were female and 4% were male. Prevalence of severe thinness was 2% among which 4% were female and 0% was male. 94% children were normal according to BMI for age among which 92% were female and 96% were male as shown in Table 4.3.

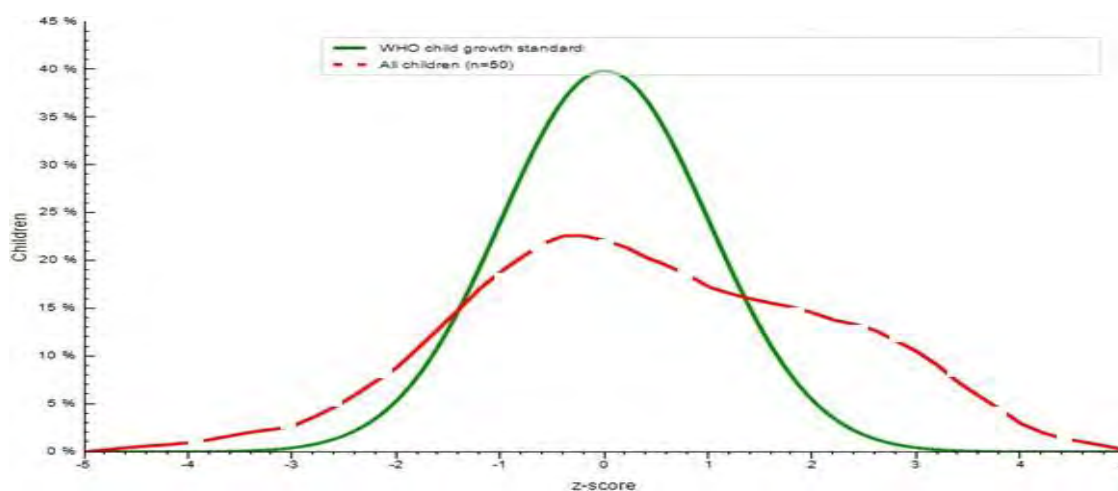
Table 4.3 Prevalence of Thinness based on BMI for age Z-score curve and by sex

WHZ	Classification	Female		Male		Total	
		Frequency	%	Frequency	%	Frequency	%
<-3	Severe	1	4	0	0	1	2
-3 to <-2	Moderate	1	4	1	4	2	4
-	Normal	23	92	24	96	47	94
Total		25	100	25	100	50	100

Source: Field Survey,2022

The BMIZ distribution curve obtained from the children is different than that of WHO standard curve. The median value of students is slightly shifted to the Right indicating that most of the students in the population, and not only those below a given cut-off, were affected as shown in Fig. 4.3. The median value of BMIZ was 0.41.

Fig. 4.3 Distribution of BMI for age Z-score curve comparing with WHO standards 20.



According to BMI for age z-score, 4% were below -3 SD to -2SD i.e. moderately thinned, 2% were below -3 SD i.e. severely thinned. In the Case of female Gender group 4% were below -3SD i.e. severely thinned, 4% were below -3 SD to -2SD i.e. moderately thinned, Similarly, in case of males 0% were below -3SD, 4% were between -2 SD to -3 SD, 51 as shown in table 4.3

Among all the children 94% were not thinned but still, 6% children were below -2 Z score in which 2% were severely thinned and 4% were moderately thinned among which 4% were male and 8% were female as shown in table 4.3. Similar result was found in a descriptive, cross-sectional study conducted in Dhankuta and Inaruwa where 10.4% children were thinned (Shakya *et al.*, 2002). The obtain result of this study was lowered as compared to the study conducted in Pumdi Bhumdi village of Kaski district where 12.3% children were thinned (Bastola *et al.*, 2015).

This result might be due to intake of nutrient at recent was less? Only small percentage of children were severely thinned which indicate that more children were taking enough nutritious food on their daily diet. East Gonja Municipal is an emerging tourist destination until now it was hidden until TV3 discovered it as top 10 most need to visit place but not yet discovered so it is accelerating the development of village and Tourism industry is also booming in this study area which is upgrading the living standard of this village which directly plays role in improving nutritional status of population.

Research Question Two: What is the prevalence of different factors that directly or indirectly influence the nutritional status of 5-10 years of children?

With regard to the second research question, the study revealed that, No cases with nutritional edema were found. Family detail 64% of families were living in nuclear manner and 36% of families were living in joint manner. Mean of family members was

5.90. Family with minimum number of member was 3 and the maximum number of member was 10. The most of household had 4 family members as shown in Table 4.4.

This is similar to study conducted by (Hasan *et al.*, 2011) in which maximum 55.40% belonging to nuclear family. From this result, there must be least of member were available for caring the children. The children were receiving not in optimum level of care by their families because of business and child can intake the food mostly from market rather than food made by their parents. Due to the modernization and education this study has indicated that joint families have changed to nuclear manner.

Table 4.4 Distribution of family members

	Mean	Minimum	Maximum	Mode
Total member	5.9	3	10	4

Source: Field Survey, January, 2022

Education

16 % of fathers had primary education, 8 % had a lower secondary education, 22 % had a secondary education, 34 % had a higher secondary education, 10 % had a bachelor level education and 10 % were illiterate. 22 % of the children's mother had only a primary education, 26 % had a lower secondary education, 24 % had a secondary education, 6% had a higher secondary education and 22% were illiterate. The result might be due to the gender discrimination in previous generation in terms of education.

On malnutrition and wasting level (MOHP, 2020). Percentage of illiterate mother was 22%, which may be one of the major causes of malnutrition among children. Comparatively female guardians were found to be less in number than male in education.

This is similar to the study conducted by (Hasan *et al.*, 2019) and the study conducted by (Amruth, 2020) was more literate father than mother.

Socio-economic factors

Most parents (Mother and Father) are located near to the village, 10 % of father and 4 % of mother were involved in service, 36% of father and 30 % of mother were labor due to the lack of special skills, and 12 % of father and 8 % of mother were involved in business. 14 % of mother was involved in housework as shown in table 4.5.

Many of parents were uneducated, so they did not have good jobs and involved in the agriculture and manufacturing industry as a labor. Due to the lack of good job, they had low income. This low income was creating vicious cycle of poverty and malnutrition. Better education for this generation will ultimately improve the income. They can get good health services, improve their lifestyle etc. In this way, vicious cycle of poverty and malnutrition can be broken.



CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The chapters considers summary of findings, conclusions and recommendations based on the findings. It further suggests recommendations for future studies.

5.1 Summary of key findings

Based on the analyzed data and the results, the key findings of the study are summarized as follows:

The assessment of the Nutritional Status

With respect to the first research question, the study revealed that, Height-for-age, the prevalence of moderate stunting was 28% among which 20% were female and 36% were male. Prevalence of severe stunting was 10% among which 12% were male and 8% were female. 62% children were normal according to height-for-age among which 72% were female and 52% were male.

Moderate underweight prevalence was 14% among which 16% were female and 12% were male. Prevalence of severe underweight was 4% among which 0% was female and 8% were male. 82% children were normal according to weight-for-age among which 84% were female and 80% were male.

Moderate thinness prevalence was 4% among which 4% were female and 4% were male. Prevalence of severe thinness was 2% among which 4% were female and 0% was male. 94% children were normal according to BMI for age among which 92% were female and 96% were male

5.1.2 Assessment of the Prevalence of Different Factors that Directly or Indirectly Influence the Nutritional Status of 5-10 years of Children.

With regard to the second research question, the study revealed that, No cases with nutritional edema were found. Family detail 64% of families were living in nuclear manner and 36% of families were living in joint manner. Mean of family members was 5.90. Family with minimum number of member was 3 and the maximum number of member was 10.

This is similar to study conducted by (Hasan *et al.*, 2011) in which maximum 55.40% belonging to nuclear family. From this result, there must be least of member were available for caring the children. The children were receiving not in optimum level of care by their families because of business and child can intake the food mostly from market rather than food made by their parents. Due to the modernization and education this study has indicated that joint families have changed to nuclear manner.

16 % of fathers had primary education, 8 % had a lower secondary education, 22 % had a secondary education, 34 % had a higher secondary education, 10 % had a bachelor level education and 10 % were illiterate. 22 % of the children's mother had only a primary education, 26 % had a lower secondary education, 24 % had a secondary education, 6% had a higher secondary education and 22% were illiterate. The result might be due to the gender discrimination in previous generation in terms of education.

On malnutrition and wasting level (MOHP, 2020). Percentage of illiterate mother was 22%, which may be one of the major causes of malnutrition among children. Comparatively female guardians were found to be less in number than male in education. This is similar to the study conducted by (Hasan *et al.*, 2019) and the study conducted by (Amruth, 2020) was more literate father than mother.

Most parents (Mother and Father) are is located near to the village, 10 % of father and 4 %

of mother were involved in service, 36% of father and 30 % of mother were labor due to the lack of special skills, and 12 % of father and 8 % of mother were involved in business. 14 % of mother was involved in housework as shown in table 4.5.

Many of parents were uneducated, so they did not have good jobs and involved in the agriculture and manufacturing industry as a labor. Due to the lack of good job, they had low income. This low income was creating vicious cycle of poverty and malnutrition. Better education for this generation will ultimately improve the income. They can get good healthservices, improve their lifestyle etc. In this way, vicious cycle of poverty and malnutrition can be broken.

5.2 Conclusions

Firstly, with regards to the assessment of the nutritional status, the study revealed that there is a higher prevalence of undernutrition among the children of 5-10 year of age group children of East Gonja Municipal, especially Urban “B” Circuit schools. i.e., stunting (38 %), underweight (18 %) and thinness (6 %).

Secondly, collectively, males were found to be more under nourished (stunted and underweight) than females i.e., prevalence of stunting (48 % in males and 28 % females) and underweight (20 % in males and 16 % in females) respectively. Whereas, female children were found more thinned than male children i.e., the prevalence of thinness was 4 % in males and 8 % in females.

5.3 Recommendations

In the light of the above findings and conclusions, the following recommendations are made:

1. Stunting was found in high percentage than underweight and wasting. So, programs to children is required
2. Another anthropometric nutritional survey during another season in the same areas should be conducted to determine seasonal variations and their effect on the nutritional status of the children.
3. Consider the provision of supplementary food targeting the most vulnerable in the community, pregnant and lactating women and children under.
4. Health education program should be conducted targeting behavior change for pregnant women, lactating mothers and caretakers of children, with a special focus on hygiene and sanitation and appropriate health practices.
5. Strengthen routine expanded micronutrient supplementation program at community level.
6. Professionals in the study should disseminate health information on importance of colostrum milk.
7. Moreover, to validate the data obtained from anthropometry and household survey biochemical tests and clinical examinations can be performed
8. There is the need for intervening nutritional and health education to the parents as educated parents are most likely to provide better care in terms of healthy eating behavior and thus good nutrition and better hygiene practices which in turn improve the nutritional status of their children

5.4 Suggestions for Further Research

The main purpose of the study was to assess the nutritional status of school children in the East Gonja, Urban “B” Circuit Schools in the Savannah Region. The researcher, therefore suggest that future research should touch on the following areas. Thus, a more comprehensive study on the same topic should be conducted on a large sample size across metropolis and districts, so that the findings can be generalized.



REFERENCES

- Adhikari Dewa Journal of Nobel Medical College vol.2 No.1 Issue 3.
- Amruth, M. (2012). A study on Nutritional Status and risk factors for malnutrition among primary school children in sullia, Karnataka. (M.D, Thesis), Rajiv Gandhi University of Health Science. PP.24-49.
- Bantamen, G., Belaynew, W., & Dube, J. (2014). Assessment of Factors Associated with Malnutrition among Under-five Years Age Children at Machakel Woreda, Northwest Ethiopia: A Case Control Study. *Nutri. Food Sci.* **14**, pp. 99-109.
- Bastola S, Acharya B. (2015). Nutritional status of primary school children in Pumdi Bumdi village of kaski district, Nepal. *Int. J. Health Sci. Res.* 5(5); 339-346
- Beghin, I., Cap, M., & Dujardin, B. (1988). "A Guide to Nutritional Assessment". Geneva. World Health Organization. p. 63.
- Blakely, T., Simon, H., & Alistair, W. (2004). "Assessing the Distribution of Health Risks by Socioeconomic Position at National and Local Levels" (10th Ed.). Geneva: World Health Organization.
- Caroline, G. (2007). Nutritional Survey in Bhajang District of Nepal [Report]. ACF. Nepal.
- CDC. (2007). "National Health and Nutrition Examination Survey: Anthropometry Procedures Manual". Center for Disease Control and Prevention. pp. 89-106.
- Cogill, B. (2003). "Anthropometric Indicators Measurement Guide: Food and Nutrition Technical Guide". Washington D.C.
- Den Hartag AP (1990). Adjustment of food habits in situations of seasonality. Seasons, food supply and nutrition in Africa. D.W.J foeken and A.P.den Hartag. Leiden, Africa studiescenter; 43:76-88.
- Den Hartag AP (2002). Unequal distribution of food within the household; a somewhat neglected aspects of food behavior. IOA Nutrition Newsletter 10(b): 8-17
- Dhakar, U (2015). Assessing the Associated Factors for Nutritional Status of 5 to 10 years

- Children in Halgada pipal chowk of Itahari, Sunsari District. (BSc Nutrition and Dietetics Dissertation), Tribhuvan University. pp. 50-55
- Hasan, I., Zulkifle, M. and Ansari, A. H. (2011). A study of prevalence of malnutrition in government schools in the field area of Azad Nagar Banglore, India. *Archives of appliedscience research*. 3(3), 167-176.
- Joshi, H., Gupta, R., Joshi, M.C., Mahajan, V. (2011). Determinants of Nutritional status of school children- A cross sectional study in the western region of Nepal. 2(1), 12.
- Jelliffe, D. B. (1966). "WHO Monograph Series: The Assessment of the Nutritional Status of Community" (35th ed.). Geneva.
- Kandala, N. B., Madungu, T. P., Emina, J. B., Nzita, k. P., & Cappuccio, F. P. (2011). Malnutrition Among Children Under the Age of Five in the Democratic Republic of Congo (DRC): Does Geographic Location Matter? *BMC Public Health*, 11:261.
- Rijal, P., Sharma, A., Shrestha, S. and Upadhyay, S. (2011) Nutritional assessment of children at Nepal Medical College Teaching Hospital. *J Nep Pediatr Soc*. 9 (3), 184-188.
- Mishra, S. K., & Sharma, R. (2010). Nutritional Status of Children Under Five Years and Factors Associated in Mahottari District, Nepal, 2010. *Nepal Health and Res. Coun.*, 30-40.
- Ministry of Health and Population (MOHP) [Nepal], New ERA, and ICF International Inc. (2012). *Nepal Demographic and Health Survey 2011*. Kathmandu, Nepal: Ministry of Health and Population, New ERA, and ICF International, Calverton, Maryland.
- Molina, H. (2012). "Review of Health and Nutrition Indicators in Early Childhood". Chile. United Nations International Children Emergency Fund. pp. 60-90.
- MOHP. (2004). "National Nutrition Policy and Strategy". Nutrition Section (Ministry of Health and Population). pp. 6-35.
- Neelu, s., Bhatnagar, M., Garg S.K., Chopra, H., Bajpai, S.K. (2010). Nutritional Status of urban primary school in meerut. 8(1).

- Neupane, U (2015). Nutritional Status of Primary level school children age 5-10 years from Selected private and public schools at Itahari, Sunsari, Nepal. pp.34-53
- Osei, A., Houser, R., Joshi, T., Hamer, D. (2010). Nutritional Status in Primary school children in Garhwali Himalayan villages of India. 3(2), 221-233.
- Shakya S R, Bhandari S, Pokharel P K. Nutritional status and Morbidity pattern among Governmental primary school children in the Eastern Nepal. Kathmandu University Medical Journal (2004: 218): 307-314.
- Shrestha, B. (2014) Nutritional status of under five children in Western Nepal. J Nepal Paediatr Soc. 34 (2), 119-124.
- Shah, N. (2004). Determinants of Child Malnutrition in Nepal: A Case Analysis from Dhanusha, Central Terai of Nepal. *Nepal Health Res. Coun.*, 50-54.
- Smith, J. (2013). Anthropometric Nutrition and Retrospective Mortality Survey. ACF International. pp. 10-37.
- Srilaxmi, B, Dietetics, New Age International (P) Limited, 4th edition, 2002
- Subba, J. (2003). An Area Nutrition Survey of school children of private boarding school in Belbari VDC, Morang Nepal. (B. Tech Dissertation), Tribhuvan University
- Ulak, M., Chandyo, R. K., Mellander, L., Shrestha, P. S., & Strand, T. A. (2012). Infant feeding practices in Bhaktapur, Nepal: a cross-sectional, health facility based survey. *Int. Breastfeeding J.* 19, 77-99.
- UNICEF. (2009). "Tracking Progress on Child and Maternal Nutrition; A Survival and Development Priority". New York. United Nation International Children Emergency Fund. p. 45.

INTERVIEW GUIDE

Dear Sir/Madam, this interview is on effect of nutritional status of students' learning of school aged children in the East Gonja Municipal of the Savannah Region in Ghana. Kindly note that your view on the subject matter will be kept in strict confidence and for academic purposes only. Thank you!

In your opinion what is the nutritional status of students' in your school?

Have some of the parent socio-economic status has any role on students' academic performance?

What role does balance diet play to ensure proper students' academic performance?

Does food availability have any influence on students' academic performance?

Can knowledge of nutrition has any influence on students' academic performance?



QUESTIONNAIRE

EFFECT OF NUTRITIONAL STATUS OF STUDENTS' LEARNING OF SCHOOL AGED CHILDREN IN THE EAST GONJA MUNICIPAL OF THE SAVANNAH REGION IN GHANA.

Dear Respondent, this questionnaire is to determine the effect of nutritional status of students' learning of school aged children in the East Gonja Municipal of the Savannah Region in Ghana. Kindly tick correct responses that represent your view on the subject matter which will be kept in strict confidence and for academic purposes only. Thank you!

SECTION A: BIO-DATA OF RESPONDENTS

Please respond to the following by ticking () the appropriate answer

Gender: a. Male [] b. Female []

Age (Years): a. 20-30 [] b. 31-40 [] c. 41-50 [] d. Above 51 []

Level of Education: a. no education [] b. primary school [] c. senior high school [] d.

Diploma [] e. Bachelor's Degree [] f. Master's Degree [] g. Other (specify).....

Name of the School.....

4. In your work practice at the school, what are the effects of nutritional status of students' learning of school aged children in the East Gonja Municipal of the Savannah Region?

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4. Does parent socio-economic status have any role on students' academic performance?

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5. Can knowledge of nutrition has any influence on students' academic performance

6. What role does balance diet play to ensure proper students academic performance?

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7. Does food availability have any influence on students' academic performance?

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8. Can knowledge of nutrition has any influence on students' academic performance?

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