PARENTS' DIET AWARENESS AND NUTRITIONAL STATUS OF PRE-PRIMARY SCHOOL CHILDREN IN CENTRAL DIVISION OF KAMPALA CAPITAL CITY AUTHORITY, UGANDA

NADIA THARANI

17/X/14523/GMEC/PE

A DISSERTATION SUBMITTED TO THE GRADUATE BOARD OF THE FACULTY OF EDUCATION IN PARTIAL FULFILMENT OF THE REQUIREMENTS LEADING TO THE AWARD OF THE DEGREE OF MASTERS IN EDUCATION (EARLY CHILDHOOD EDUCATION) OF KYAMBOGO UNIVERSITY

NOVEMBER 2019

Declaration

I, Nadia Tharani, declare that this dissertation titled ‘Parents’ Diet Awareness and Nutritional Status of Pre-Primary School Children in Central Division of Kampala Capital City Authority, Uganda is an original work which has never been submitted to any institution for any award. I am now submitting it to the Faculty of Education Graduate Board of Kyambogo University with the approval of my supervisors.

Signature: _____ Date: _____

Nadia Tharani

17/X/14523/GMEC/PE

Approval

This dissertation titled ‘Parents’ Diet Awareness and Nutritional Status of Pre-Primary School Children in Central Division of Kampala Capital City Authority, Uganda’ by Nadia Tharani has been developed with our guidance and it is now submitted for examination with our consent as supervisors.

Signature: _____ Date: _____

Dr Rukundo Peter Milton

Signature: _____ Date: _____

Dr. Stephen Ndawula

Dedication

I dedicate this dissertation to God Almighty my creator, my strong pillar, my source of inspiration, wisdom, knowledge and understanding. He has been the source of my strength and my family's strength throughout this program and on His wings only have I soared.

Acknowledgement

My deepest gratitude goes to God who has provided all that was needed to complete this dissertation
and the program. He took care of everything that would have stopped me in my tracks and strengthened me even through my most difficult times.

I whole heartedly thank my supervisors, Dr. Rukundo Peter and Dr. Stephen Ndawula who selflessly guided me throughout the research. My appreciation also goes to the Head of Department of Early Childhood Education, Dr. Godfrey Ejuu, and my sincere thanks also goes to the entire academic staff of Early Childhood Education Department.

The Co-ordinator of the MECE Program, Adela, one of the simplest people I have met who has been of tremendous help to me all throughout this program. I am and will forever be grateful to my husband Mr Naushad Tharani who has always supported and motivated me to achieve the goal of my life. I also from the depth of my heart appreciate my children: Rauf Tharani and Noman Tharani, who even at such a tender age have endured so much stress and discomfort just for me. Last but not least, I would like to thank Mrs .Aneela Mukhi, my role model who has inspired me to pursue this master's course. This page cannot tell it all. I appreciate the caretaker of my children Teddy, my siblings, friends, family and well-wishers. God bless you all.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

CBD	Central Business District
DSHS	Department of Social and Health Services
DHS	Demographic and Health Survey
ECD	Early Childhood Development
FAO	Food and Agricultural Organisation
GBD	Central Business District
ICF	International Classification of Functioning Disability and Health
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
MDGs	Millennium Development Goals
MUAC	Middle Upper Arm Circumference
NCDC	National Curriculum Development Centre
OVI	Content Validity Index
UBO	Uganda Bureau of Statistics Survey
UDHS	Uganda Demographic and Health Services
UNICEF	United Nations International Children's Fund
SD	Standard Deviation

WFP	World Food Programme
WHO	World Health Organisation

ABSTRACT

Nutrition is fundamental for good health and early childhood development. If children do not eat the right amounts of macronutrients like protein, fat, and carbohydrates and micronutrients, they may have delayed mental and motor development that can have enduring adverse effects beyond childhood, fall sick or die. However, while many parents in Kampala are aware of the need to feed their children appropriately, they are usually held back by either inadequate awareness on children's diet or knowledge of where to get the foods from. Although there are many components in improving dietary habits and food choices that families with preschool children in Kampala can adopt to ensure availability and adequate use of nutritious foods to improve children's nutrition, lack of information on diet is hindering these efforts. The general objective of the study was to establish the relationship between parents' diet awareness and the nutritional status of preschool children in Central Division of Kampala Capital City Authority, Uganda. A cross-sectional and descriptive design that uses both quantitative and qualitative approaches was used. The study applied mixed research design with target of 10 pre-primary schools in Central Division, about 200 preschool children and their corresponding parents. Interview and questionnaires were used to collect data. Nutritional status assessment involved anthropometric measurement of height and weight against age to classify nutritional status and identify malnutrition based on low height for age to indicate stunting, low weight for height to indicate wasting, and low weight for age to indicate underweight. The 2006 WHO global child growth reference standards were used to establish classification of nutritional status. The data was analyzed using statistical methods such as correlation analysis to establish the relationship between parents' diet awareness and nutritional Status of Children. In addition, descriptive and content analyses were used for the analysis of nutritional practices of parents that promote better nutrition Status of children. The prevalence of stunting is moderately high at 2% and underweight is higher at 7.5 % but prevalence of wasting (2%) is almost similar to national statistics (4%). The study showed a significant difference based on gender in wasting and underweight as well as stunting and underweight. The acute malnutrition prevalence measured by mid upper arm circumference was consistent with the weight for height scores that showed higher rates of normal children. Diet diversity is poor comprising mainly starchy food. The diet of children was mostly bananas, sweet potatoes, cassava, millet and maize which are the major staples for the majority of Ugandan families while beans, cowpeas, groundnuts, and green vegetables serve as the main protein sources. The poor nutrition practices were attributed to either lack of knowledge by the mother because they were the main respondents or lack of adequate food. Health care workers and teachers are often the people that provide diet information to parents. Diet information is also available to parents, mostly mothers, at health centres and hospitals during antenatal clinics and immunization visits. The study established that awareness on diet does not translate into improved nutritional status in pre-primary school children and better performance in school. Therefore, malnutrition among pre-primary school children in Central Division of Kampala Capital City Authority does not show less access to diet information by parents.

CHAPTER ONE

INTRODUCTION

1.1: Background

Nutrition is fundamental for good health and Early Childhood Development (WHO, 2003). Nutrition broadly encompasses all actions necessary for handling, preparing, serving, eating and utilization of food by the body (MAAIF, 2015). Adequate nutrition especially for children carries a lot of benefits that go beyond even early childhood. Proper nutrition of children means the child's body gets all the nutrients, vitamins, and minerals it needs to work at its best. On the other hand, diet awareness is the modified knowledge gained through one's own perceptions or by means of communicated information.

Adequate nutrition is a key element in children's cognitive development (Wolfe, 2010). Insufficient nutrition could lead to impaired cognitive development and poor academic performance (Espy, 2013). Evidence suggests that proper nutrition of children may improve cognitive function related to memory, test grades and school attendance (Rampersaud, 2005). Proper nutrition for children is not a short-term goal of better grades and paying attention in class. The biggest benefits to nourishing the bodies and the brains of children are; Improved alertness, quicker reaction time, better short and long-term memory, improved concentration, significant decrease in age-related cognitive degeneration, mood stability and higher energy levels.

Historically, children's nutrition has been an issue of both national and international concern. The high incidence of malnutrition among children of preschool age has been attributed to a great extent to lack of basic nutrition knowledge among parents. The main audience of diet information in Uganda is the women and mothers with young children as they are the primary care givers for preschool children (Ickes, Hurst and Flax, 2015). Through diet awareness programmes, parents are equipped with correct information on the nutritional value of foods, food quality and safety, methods of preservation and food handling, food preparation and eating to help them make the best choice of foods for an adequate diet. However, various organizations like FAO, WHO and UNICEF have tried to improve the nutritional status of children through diet education programmes aiming at improving feeding habits. Targeting parents through provision of diet information to improve children's nutrition, dietary behaviour is therefore necessary (Demory, 2004).

Children's nutritional status is a public health concern worldwide. Stunted linear growth has become the main indicator of childhood under nutrition, because it is highly prevalent in all Low Middle Income Countries (Bhutta, 2008). Malnutrition rates remain alarming; stunting is declining very slowly while wasting still impacts the development of far too many children in the world. In Africa, nutrition reports indicate that under nutrition is still persistent and the number of stunted children has increased. It is also indicated that overweight rates in children are still low though the numbers are increasing (WHO, 2017). Different approaches have been used including the medical approach, community development approach, social work approach, commercial approach, school approach and mostly mass media to provide diet awareness to parents.

According to Harvard Medical School, macro nutrients such as proteins and carbohydrates support many of a child's body functions especially cognitive functions, which helps in Early Childhood Development. According to Stanford Children's Health, most parents know that children need nutritious food to stay healthy and active during class time. But knowing exactly what food and how much they need of each is not always easy. Children need vitamins and minerals for various reasons such as: Vitamin A is important for healthy skin and normal growth, and it also helps vision which is important for reading and other school activities. Vitamin C is the body's tool for healing and fighting off infection therefore children need lots of it since they are at risk of infections in school because of the large numbers of children and Vitamin D helps the body form and maintains strong teeth and bones and assists with the absorption of minerals such as calcium. Strong bones help children in satisfying their physical needs such as gaining physical education at school. The body cannot naturally produce all the necessary vitamins and minerals, it is important to ensure that kids get these vital building blocks in the foods they eat (Stanford Children's Health, 2019).

Parents play an important role in shaping children's eating habits. Parents therefore have a big influence over the types of foods that children eat (Rich, 2012). In order for children to have all their nutritional needs, Parents need the right information about diet. When parents know more, they can help their children choose a healthy diet. Parents need to learn that good nutrition is critical for brain development and plays an important role in brain function (Wolfe, 2010). Healthy students learn better because diet affects mental and emotional state.

Conceptually, nutritional status can be defined as the state of the body in relation to the consumption and utilization of nutrients (Peter, 2015). Children's nutritional status influences their school behavior, indirectly impacting their development through two ways: childhood

exploration and caregiver interaction. Without proper nutrition, children may not have the energy or interest to explore their environment, limiting their interaction with new situations, senses, and experiences. Carlson (2014) further defines child nutrition status as any measure that reflects the nutritional state of the body, such as birth weight or anthropometric scores and child-feeding practices.

Parent's awareness, as described by Biesta & Osberg (2007) is one's ability to notice things, a state of being fully conscious of what one knows or has learned. It is possible that through generating awareness, parents may be more likely to make informed food choices and decisions conducive to their children's overall health and nutritional status. Diet awareness is linked to nutritional knowledge, attitudes, and actions, which may have an effect on people's eating practices. Diet awareness is also related to knowledge of the interrelationships between nutritional matters and human life, which may have an effect on a person's life (Yannis, 2013). The provision of optimal children's feeding practices depends upon the caregiver's knowledge and capacity to provide age appropriate feeding (Hurley, 2016). In the present study, diet awareness includes a parent being knowledgeable of the kind of foods a child eats and the reasons for eating such foods.

Theoretically, the study is based on Bronfenbrenner's Ecological systems theory. Bronfenbrenner identified four systems within which children exist that would combine to have an impact upon how they grow and develop. There are many systems in the community and these systems work together to develop children cognitively. Parents' diet awareness is brought about by a number of stakeholders within the community, and yet the parents have to be supported health workers, social workers, teachers, who altogether form systems that work together to promote child nutrition which helps in Early Childood Development. Urie's systems

were Microsystem, mesosystem, exosystem and macrosystem. According to him, all these systems are interrelated. The Microsystem which includes the children's immediate environment has the biggest impact on a child's Early Childhood. Parents influence how the child grows and develops by interacting positively or negatively with all the other systems. For this study, if parents have limited knowledge on nutrition, in combination with lack of support from immediate family members and school, cultural factors it will all affect the child's nutritional status in a certain way. The immediate relationship a child usually has is with their parents; therefore if they make wrong choices regarding children's diet then the impact will be on the child who is at the centre of all the systems.

Contextually, Good nutrition in early childhood is the key element and essential for children to attain their developmental potential; however poor nutrition often coincides with other developmental risks (Bhutta, 2008). Good nutrition is good for children's cognitive development that helps them to lead in school, if parent's have good knowledge awareness of diet they are able to provide adequate nutrition to children which will help the children develop cognitively and stay attentive during class (Baskale & Bahar, 2011). Diet awareness of parents may improve their dietary choices of food given to their children and that will have an impact on the nutritional status of children. Therefore when children have good nutritional status it helps them develop cognitively and physically that helps them to enjoy school, study well, concentrate in class and avoid drop outs from their academics. Parents need proper nutritional information at this stage of their children's lives because it is the time when most nourishing diet is required. It is the time when nutritional deficiencies lead to malnutrition without having any overt features of it unless very severe. Parents that can access good diet information from various channels on what kinds of food to give their children are able to give the right foods under all

circumstances where as those parents that do not get proper information may be negligent about the children's diet. Therefore, the combination of Early Childhood Development and Nutrition is important and makes sense biologically and programmatically. Diet awareness can be linked to good nutrition.

According to the Uganda Nutrition plan (2011-2016) Nutritional status of children in Uganda is in a sorry state and lack of knowledge on nutrition care is a contributor to the 2.3 million young children in Uganda who are chronically malnourished. 16 percent of who are children under 5 who are underweight while 6 percent are wasted. According to the Uganda Demographic and Health Survey UDHS of 2016 (UBOS& ICF, 2018), 29% of children under 5 are stunted, 11% are underweight and 4% are wasted .The report also states that 24% of urban children are stunted of which Kampala is the largest urban area. Preschool Children are often at a higher risk of malnutrition because this is a period of rapid growth and development characterized by changes in body size, composition and increased physical activity (Kabahenda, 2006). The consequences of malnutrition are severe and long-lasting when it occurs at an early age (Schroeder, Semba, Bloem, 2001).

1.2: Statement of Problem

Appropriate diet has a positive influence on the cognitive development and academic performance of children especially during Early Childhood. Recent studies in the field of nutrition reaffirm the importance of nutrition as a prerequisite for cognitive development in children therefore parents must ensure that children receive proper nutrition. Nutrition is important for the development of a child in all its dimensions and has considerable long-lasting effects on the child's life (Beryl, 2000). Children that are provided with balanced diet develop

holistically. This is portrayed in how they engage in pre-school activities, social play; interact with others, just to mention a few (Apondi, 2009). There is however not much information about Nutritional Status of Preschool Children, most of the studies generally addresses the under 5 children nutritional status without specifying that of pre-schoolers.

In the Central Division of Kampala, Preschool children are hungry at school, this is portrayed by the poor concentration in class, and their performance in most areas especially in academics is poor. It is assumed that this is because they are not receiving proper nutrition both at home and at school. It has been discovered that this happens because parents lack information on childhood nutrition which is affected by poor knowledge of the parents. Furthermore, the stunting rates of children less than 5 years in Kampala stand at an alarming 18.1% according to the 2016 Uganda Demographic and Health Survey (UDHS) report (UBOS and ICF, 2018). Accordingly, the national rates are at 29% and 9 % for severe stunting. However, inadequate empirical evidence exists on the relationship between diet awareness of parents and nutritional status of their children. Although parental awareness on diet is an important determinant of nutritional status of children, it remains unclear whether parents' practical knowledge about nutrition has an independent effect on child nutrition (Saaka, 2014). There is also a gap of knowledge transfer; if parents lack awareness, knowledge and wider understanding of children's nutrition, it affects the children's Early Childhood Development. It is this knowledge gap that this study will address.

1.3: Theoretical Framework

The Ecological Systems theory by Urie Bronfenbrenner provides a theoretical basis for this study. It describes a child's Early Childhood Development in relation to her or his cultural

and social context. There are many systems in the community and these systems work together. Parents diet awareness is brought about by a number of stakeholders within the community, but the parents have to be supported by health workers, social workers, teachers. All these people form systems that work together to promote child nutrition. Urie Bronfenbrenner (1917-2005) developed the ecological systems theory to explain how everything in a child and the child's environment affects how a child grows and develops. He labelled different aspects or levels of the environment that influence children's development, including the microsystem, the mesosystem, the exosystem, and the macro-system. The microsystem is the small, immediate environment the child lives in. Children's microsystems will include any immediate relationships or organizations they interact with, such as their immediate family or caregivers and their school or day care. How these groups or organizations interact with the child will have an effect on how the child grows and develops in all domains; the more encouraging and nurturing these relationships and places are, the better the child will be able to grow and develop holistically.

Bronfenbrenner's next level, the mesosystem, describes how the different parts of a child's microsystem work together for the sake of the child. For example, if a child's caregivers take an active role in a child's nutrition, such as finding information that is beneficial for the child’s nutrition and development, going to diet awareness workshops for parents or providing nutritious food both at home and school. This will help to ensure the child's overall growth and Early Childhood Development. The exosystem level includes the other people and places that the child herself may not interact with often her but that still have a large effect on her, such as parents' workplaces, extended family members, the neighbourhood, etc. For example, if a child's parent gets laid off from work, that may have negative effects on the child if her parents are unable to buy nutritious food or even not being able to buy any food at all; however, if her parent

receives a promotion and a raise at work, this may have a positive effect on the child because her parents will be better able to give him/her the nutrition needs for proper development.

Bronfenbrenner's final level is the macrosystem, which is the largest and most remote set of people and things to a child but which still has a great influence over the child. The macrosystem includes things such as the relative freedoms permitted by the national government, cultural values, the economy, wars, etc. These things can also affect a child either positively or negatively.

So the children's microsystem will help the children to grow in all the five domains of Early Childhood Development and become better. So, children's microsystem includes parents and immediate family. So if parents are relating with good food nutrition wise with children, then the children will be able to grow physically, cognitively and all other areas of growth. This theory will relate because it emphasizes the microsystem as the most important - which is the child's environment and immediate relationships and parents who this study focuses on are part of those relationships.

After the parent has related properly with the child then the microsystem will work for the sake of the child that is within the child. So if the child's caregivers play an active role in the child's nutrition then he/she will have overall growth and also perform well in classroom. So after the parent's role towards children's nutrition, it is the school that plays an important role in nutrition to develop children holistically and improve critical thinking and performance in early years in preschool children.

1.4: Conceptual Framework

The study can be explained in the conceptual framework below. The Independent Variable is Parents' Diet Awareness and the Dependent Variable is Nutritional Status of preschool children. The intervening Variables relate with the other two variables as shown below.

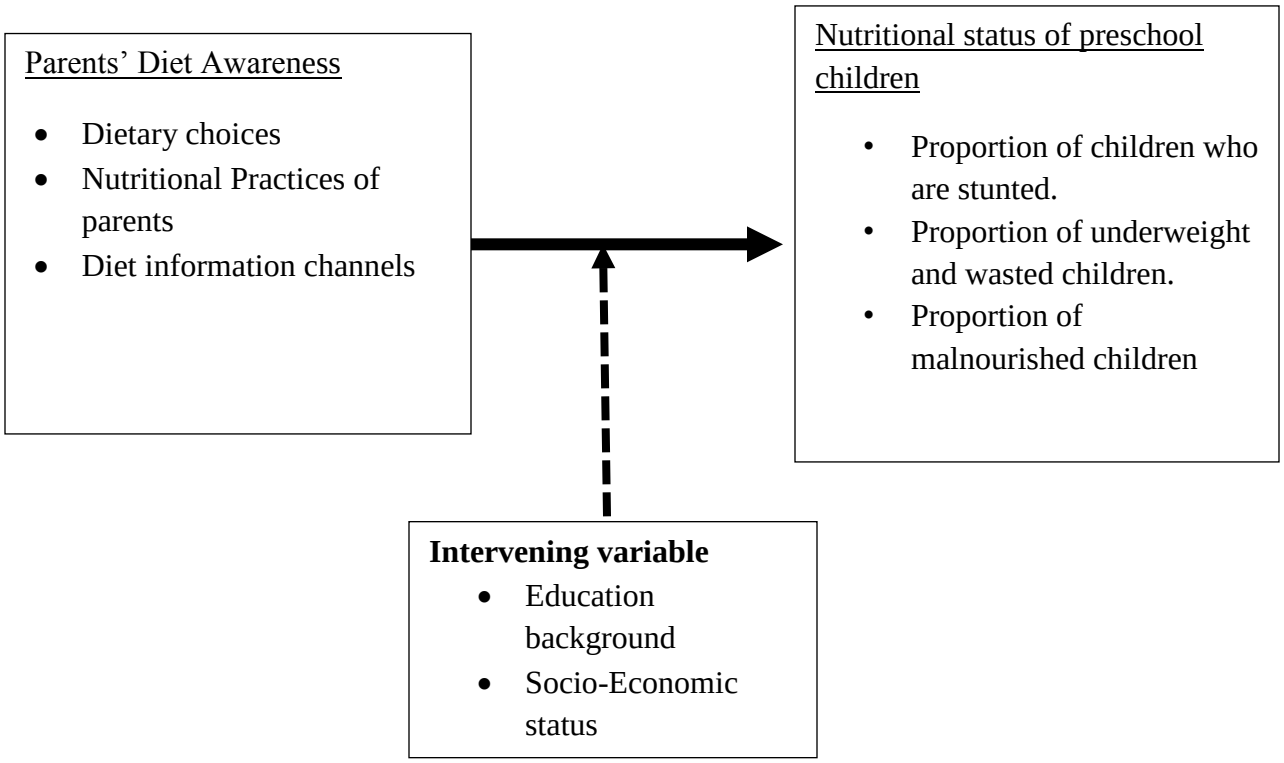


Figure 1: Conceptual Framework

Source: Developed by the student

The framework developed and it assumes that with a better education background and socio-economic status, parents' awareness concerning diet is likely to improve (Van Ansem, 2014). Dietary choices made by parents in their homes affect when children reach their development milestones (Winter, 2012).Parents' awareness on diet helps children to receive optimum and necessary nutrition for their development. Mitchell (2013) posits that the

knowledge on what foods and how to prepare them helps parents to easily plan meals and buy the nutrient foods that their children need. Parents shape the development of children's eating behaviours in a number of ways, but particularly through parental feeding practices specifically what, how much or when their children eat (Ventura, 2008).

However, there are other factors that affect the nutritional status of children in pre-school like age, genetic factors (Pelletier, 1998), birth weight and economic status of the family (Bain, 2013).

1.5: Purpose of Study

The purpose of the study was to establish the relationship between parent's awareness on diet and the nutritional status of children attending pre-primary schools in Central division of Kampala Capital City Authority.

1.6: Objectives of the Study

The objectives of the study were to:

(i) Assess the variation in nutritional status of pre-primary school children in Central Division of Kampala Capital City Authority.

(ii) Describe nutritional practices of parents, diet choices and diet information channels that promote optimal nutritional status of children.

(iii) Establish the relationship between parents' diet awareness and nutritional status of children in Central Division of Kampala Capital City Authority.

1.7: Research Questions

(i) Are there variations in the nutritional status of pre-primary school children in Central Division of Kampala Capital City Authority?

(ii) What dietary choices and optimal nutrition practices are common among parents of pre-primary school children?

(iii) Is there a relationship between parents' diet awareness and nutritional status of children in Central Division of Kampala Capital City Authority?

1.8: Hypothesis

There is a relationship between parent's awareness on diet and children's nutritional status.

1.9: Scope

The geographical scope was limited to Central Division of Kampala Capital City Authority whereas the content scope involved information from Parents knowledge on nutrition and issues of Children's Nutritional Status. The time scope of the study is between 2019 – 2024 when the content will have been overtaken by time.

1.10: Limitations

Limitation to the study was the language barrier for some parents who had challenge understanding English.

Methodological limitations in terms of the fact that not all preschools in Central Division of Kampala Capital City Authority were involved because only a representative sample was obtained for the study

Limited information and literature on previous studies on ECD and nutrition status of children in early years was a major limitation.

1.11: Significance of the Study

The findings of the study will be of significance to the academicians as the findings may provide useful information for further research.

The study findings could also provide useful information and add value to the existing knowledge on Parents' Diet Awareness and Nutritional Status of Preschool Children in Uganda since the literature that is available show that very little has been done on the same.

The study could be used by stakeholders like National Curriculum Development Centre (NCDC) and Ministry of Education and Sports in developing curriculum and programmes for equipping parents and caretakers of children with knowledge on good nutrition and importance of balanced diet.

1.12: Operational Definition of Terms

Nutrition: Any food commodity provided children 3-5 times in a day and has value to promote their holistic growth and development and ultimately academic performance

Child: Whereas the term "child" refers to a person below the age of 18, this study will focus on children in the early years. A child will, therefore, be anybody aged between 0 –6years.

Malnutrition: A poor condition of health in pre-school children caused by lack of food or the right kind of food.

Nutritional status: The condition of the body as influenced by the diet taken and determined by anthropometric measurements.

Anthropometry: The study and technique of taking body measurements, especially for use on a comparison or classification basis. It refers to the measurement of the human individual for the purposes of understanding human physical variation

Child Development: The process of change in which a child comes to master more and more complex levels of physical activity, thinking, feeling, communicating and interactions with people and objects. This is sometimes expressed as physical, cognitive, emotional and social development.

CHAPTER TWO

LITERATURE REVIEW

2.1: Methods used to Assess Nutrition Status of Children

The nutrition status of preschool children has no perfect measure, however, the literature available on nutritional research and findings shows that application of a combination of assessment methods provides a good measure of nutritional status (Shim et al, 2014). Body dimensions, physical signs of poor health or nutritional deficiencies, and dietary intake can be assessed to determine the nutrition status of children.

Assessment of the nutrition status of children involves the interpretation of anthropometric, biochemical (laboratory), clinical and dietary data to determine whether children are well nourished or malnourished (over-nourished or under-nourished). This can be summarized as the ABCD methods. These refer to the following; Anthropometry, Biochemical/biophysical methods, Clinical methods and Dietary methods

Anthropometry (the use of body measurements to assess nutritional status) is a practical and immediately applicable technique for assessing children's development patterns during the first years of life. The word anthropometry comes from two words: *Anthropo* means ‘human’ and *metry* means ‘measurement’. Anthropometric measurements are used to assess either growth or change in the body composition of children. To assess growth in children you can use several different measurements including length, height, and weight and head circumference.

In reference to the WHO growth standards of 2006, height is measured with the child in a standing position (usually children who are two years old or more). The head should be in the Frankfurt position during measurement**.** This is a position where the line passing from the external ear hole to the lower eye lid is parallel to the floor .The shoulders, buttocks and the heels should touch the vertical stand. Either a stadio-meter or a portable anthrop meter can be used for measuring. Measurements are recorded to the nearest millimetre.

For measurement of weight in children over two years a beam balance is used and the measurement is to the nearest 0.1 kg. A digital electronic scale can be used if it is available. The scale should be re-adjusted to zero before each weighing. To check whether the scale is measuring correctly, an object of known weight should be weighed first.

The MUAC is the circumference of the upper arm at the midway between the shoulder tip and the elbow tip on the left arm. The mid-arm point is determined by measuring the distance from the shoulder tip to the elbow and dividing it by two. A low reading indicates a loss of muscle mass. A special tape is used for measuring the MUAC of a child .The tape has three colours, with the red indicating severe acute malnutrition, the yellow indicating moderate acute malnutrition and the green indicating normal nutritional status.

The above measurements were used for data collection in the present study and will have to be converted to indices so that they are useful for data analysis. An index is a combination of two measurements or one measurement plus the person's age. According to WHO (2008) Weight-for-age is an index used in growth monitoring for assessing children who may be underweight or overweight. Height-for age is an index used for assessing stunting (chronic malnutrition in children). Stunted children have poor physical and intellectual performance and

lower work output leading to lower productivity at individual level and poor socioeconomic development at the community level. Stunting of children in a given population indicates the fact that the children have suffered from chronic malnutrition so much so that it has affected their linear growth. Stunting is defined as a low height for age of the child compared to the standard child of the same age. Stunted children have decreased mental and physical productivity capacity. Weight-for-height is an index used for assessing wasting or acute malnutrition. Wasting is defined as a low weight for the height of the child compared to the standard child of the same height. Wasted children are vulnerable to infection and stand a greater chance of dying. Body mass index is the weight of a child in kg divided by their height in metres squared: Weight (kg)/ (Height in meters) ^{2}

Indicators	**Moderate(GAM)**	**Severe(SAM)**
Wasting	WHZ; <-2 to ≥-3Z scores	WHZ; below -3Z
Underweight	WAZ; <-2 to ≥-3Z scores	WAZ; below -3Z
Stunting	HAZ; <-2 to ≥-3Z scores	HAZ; below -3

Source: WHO 2006 Growth Standards

Clinical methods of assessing nutritional status involve checking signs of deficiency at specific places on the body or asking the parents whether their children have any symptoms that might suggest nutrient deficiency. Clinical signs of nutrient deficiency include: pallor (on the palm of the hand or the conjunctiva of the eye), Bitot's spots on the eyes, oedema, goitre and severe visible wasting.

Dietary methods of assessment which were used during this study include looking at past or current intakes of nutrients from food by individuals or a group to determine their nutritional status. You can ask what the family or the mother and the child have eaten over the past 24 hours and use this data to calculate the dietary diversity score.

Dietary diversity is a measure of the number of food groups consumed over a reference period, usually 24 hours. Generally, there are six food groups that our body needs to have every day. Dietary diversity score is an indicator of both the balance of nutrient consumption and the level of food security (or insecurity) in the household. The higher the dietary diversity score in a family, the more diversified and balanced the diet is.

2.1.1:Trends in the Nutrition Status Of Children

Appropriate nutrition during early life is essential for optimal growth and development. The world has seen a drastic improvement in child nutrition over the past few decades with decreased rates of stunting, wasting and under nutrition. However, there are wide gaps in the nutritional status of pre-schoolers in rural and urban areas, which is a major public health concern.

2.1.2: Global and Continental Trends

In the developing world, malnutrition affects approximately 800 million people, greater than 340 million whom are children under the age of five years. Over six million of those children die every year from malnutrition. Malnutrition is a problem in a biggest manner the world currently faces and has significant with 41% or more cases of deaths that occurs annually in children aged 6 to 24 months in developed countries which is total

approximately 2.3 million (Jawad, 2016). Nutrition status of a person is a measurement of the extent to which his / her physiological needs for nutrients are being met. It also refers to the state of health of a person which is the product of a balance between nutrient intake and utilization by his body (Halterman, 2001). Good nutrition is essential for physical, intellectual and emotional development of children. Although food is essential, it has often been lacking in countries, in the qualitative and quantitative point of view resulting in the occurrence of malnutrition. Indeed, malnutrition, that is, under nutrition and over-nutrition is a public health problem of significant importance in developing countries (Asres & Eidelman, 2011).

According to the UNICEF-WHO-The World Bank Group joint child malnutrition estimates of 2018, Stunting affected an estimated 22.2 per cent or 150.8 million children under 5 globally in 2017 and that an estimated 5.6 per cent or 38.3 million children under 5 around the world were overweight in 2017.The report further affirms that in 2017, wasting continued to threaten the lives of an estimated 7.5 per cent or 50.5 million children under 5 globally.

In addition to the above statistics, the estimates also showed that the greatest number of malnourished children were in Asia and Africa. In 2017, more than half of all stunted children under 5 lived in Asia (55%) and more than one third lived in Africa (39%), almost half of all overweight children under 5 lived in Asia (46%) and one quarter lived in Africa. (25%) and more than two thirds of all wasted children under 5 lived in Asia (69%) and more than one quarter lived in Africa (27%) (UNICEF, 2017).

In East Africa alone, 36.5% of the children are said to be stunted representing the highest number in the whole of Africa. These statistics show the second highest percentage of stunting only after Oceania which is at 38.1%. Surprisingly, Africa is the only region where stunting has

risen from 50.6 million children to 58.7 million children between 2000 and 2017. Asia has seen a reduction in the numbers from 134.6 million children to 84.6 million children (UNICEF, 2017). Millions of young lives are in jeopardy around the globe due to wasting .Wasting in Southern Asia constitutes a critical public health emergency. In Asia and Oceania alone, wasting is putting nearly one in ten children under 5 at increased risk of death. 26.9 % 0f the 50.5% globally wasted children are found in only South Asia. This shows that Asia is home to the majority of children under 5 suffering from wasting and severe wasting. Of the 50.5 million children who are wasted, 16.4 million are severely wasted.

Upper-middle-income countries have the largest declines in the number of stunted children of all income groups since 2000 and the number of overweight children has increased the most in lower-middle-income countries. While only about half of all children under 5 live in lower middle income countries, two-thirds of all stunted children and three-quarters of all wasted children live there.

2.1.3: National Trends in Uganda.

According to SABER Country Report (2012), Uganda was 3rd out of the 4 countries Kenya, Tanzania, Ethiopia, and Uganda where a study was carried out with 38% of its child population below five years of age suffering from moderate & severe under nutrition. Uganda is among the developing countries with the largest population of stunted children. An estimated 2.4 million children aged less than 5 years in Uganda are stunted and this place the country at the rank of 14th based on the ranking of countries with large populations of nutritionally challenged children.

Despite Uganda having a great agricultural potential and significant agricultural exports, the food insecurity levels remain classified as 'serious' by the 2018 Global Hunger Index. According to the WFP Uganda Country Brief of January 2019, the northern and eastern parts of the country are most vulnerable to food insecurity and malnutrition. In some areas, stunting and wasting reach 40 and 20 percent, respectively. In Uganda, 2.2 million children under 5 years (29 percent) suffer from stunting (low height-for-age), according to the most recent Demographic and Health Survey (DHS). Under nutrition in Uganda affects over 2 million children under 5. Stunting or chronic malnutrition, measured as 'height-for-age', which occurs when a child fails to grow to the expected height or length compared to a healthy child of the same age, malnutrition remains a major public health problem in Uganda. Underweight is often considered a composite measure of both acute and chronic malnutrition.

Using the WHO (2006) Growth Standards, the Uganda Demographic and Health Survey (2016) data shows that 29 percent of children under 5 are considered to be short for their age or stunted (below -2 SD), and 9 percent are severely stunted (below -3 SD). Stunting is slightly higher among male children (31 percent) than among female children (27 percent). Stunting is greater among children in rural areas (30 percent) than urban areas (24 percent).

Stunting increases with age, peaking at 37 percent among children 18-35 months. Stunting is greater among children in rural areas which is 30 percent than urban areas which is 24 percent with some regional variations. Stunting ranges from a high of 41 percent in Toro sub-region to a low of 14 percent in Teso sub-region.

The prevalence of stunting decreases with increasing levels of the mother's education. About 4 in 10 children born to mothers with no education, 37 percent are stunted compared with

1 in 10, 10 percent of children born to mothers with more than a secondary education. Prevalence of wasting, low weight-for-height nationally is 4 percent but in the regions of Karamoja and West Nile prevalence is 10 percent. Anaemia, which reflects several micronutrient deficiencies, infections and, even genetic traits in malaria-endemic areas, affects more than half of children under 5 years (UBOS and ICF 2018).

In order to meet some of the nutrition objectives, the Government of Uganda produced the Uganda Nutrition Action Plan 2011-2016 that outlines the various ways of dealing with malnutrition in a multi-sectoral environment.

2.2: Nutrition Practices that Affect Nutritional Status of Children

Nutritional choices affect preschool children in their cognitive, physical, social, and emotional development (Kelly, 2004). Poor nutrition in preschool years can significantly impair healthy growth and development. Parents who do not know enough about proper nutrition usually don't know how to provide adequately nutritious meals to their children (Kelly, 2004).

Thomas (2003) notes that, the relationship between nutrition, health and learning is undeniably strong. Nutrition is one of the major factors that impact a child's Early Childhood Development. A child's development begins before birth, thus proper nutrition during pregnancy is important. Under nutrition of a breastfeeding mother will likewise negatively impact a child's development especially in the first six months.

Bernstein (2017) states that nutrient intake is an important implication for the nutritional status of young children in order for them to access full growth potential, adequate energy and nutrient intake required for them. In fact, for optimal growth and development young children need a variety of nutrient-dense foods such as fruits, vegetables, whole grains, meat and fish and

dairy. Insufficient energy or essential nutrients lead to malnutrition which leads to impaired immune system function, susceptibility to illness and cognitive deficits (Liu, 2008).

Nutrition during the preschool years is really important. For instance, breastfeeding of babies leads to fewer and less severe cases of illnesses such as diarrhoea, ear infections and bacterial meningitis. This is because better nourished children have an enhanced natural ability to fight infection. Uganda is among 23 countries that have achieved exclusive breastfeeding rates above 60 percent. No country in the world fully meets recommended standards for breastfeeding, according to a new report by UNICEF and the World Health Organization (WHO) in collaboration with the Global Breastfeeding Collective. In Uganda, the 2016 Uganda Demographic and Health Survey preliminary report indicates that only 66 per cent of children under the age of 6 months are exclusively breastfed, while two per cent are not breastfed at all. In addition, the percentage of children exclusively breastfed decreases sharply with age from 83 per cent of infants age 0 to 1 month to 69 per cent of infants age 2 to 3 months and, further, to 43 per cent of infants age 4 to 5 months. Evidence shows that breastfeeding has cognitive and health benefits for both infants and their mothers. Breastfeeding gives babies the best possible start in life. Breast milk works like a baby's first vaccine, protecting infants from potentially deadly diseases. It is especially critical during the first six months of life, helping prevent diarrhoea and pneumonia, two major causes of death in infants and giving them all the nourishment they need to survive and thrive.

Under nutrition has been proven to decrease a child's activity levels, social interactions, curiosity and cognitive functioning. Thomas (2003) believes that adults are responsible for providing children with appropriate amounts of food. Children have small stomachs and their

energy and nutrient requirements are best met through small and frequent nutritious meals and snacks (Wardle, 2003). Snacks are just as important as meals to children's nutrition. Under nutrition threatens the health status, growth, and survival in young children of developing countries. According to a report by the World Health Organization on Malnutrition, malnutrition accounted for about 55% of all child deaths that occurred in developing countries. This is an unclear statistic considering that an estimated 150 million children in developing countries are malnourished (UNICEF, 2001). Reducing hunger and under five mortality was among the central themes of the United Nations Millennium Development Goals(MDGs) and many nations set forth strategies for reducing childhood malnutrition. Sub-Saharan Africa and South East Asia are the two regions with staggering levels of child under nutrition.

2.3: Diet Awareness Approaches and Channels

Parents are the first providers of primary care for children, their understanding of basic nutrition and health measures strongly influence the care and attention they provide (Appoh, 2005)

Currently, there are evaluations of Nutrition awareness programmes that support the benefits of a healthy diet. Stuart (2005) states that; several approaches to diet awareness have been developed and effectively applied over the years. These include social marketing, social mobilization and development- support communication. Social marketing uses business marketing principles to advance a social course or idea (Kotler & Lee, 2008). Social marketers have been involved in promoting better health and nutrition in developing countries.

Persuasive messages are delivered through channels such as mass media for the target audience. Messages that support changes, belief and activities are delivered. Kotler (2008)

asserts that the messages need to appeal to the target audiences' need for information. A variety of media may be used such as booklets, posters, radio and television messages, newspapers, community bill boards and many others.

Social mobilization involves generating commitment and action among those who can contribute to solution of social problems. Personnel can be trained to acquire the necessary skills for implementing services. Kotler & Lee (2008) affirm that community may be involved to allow members to recognize their problems, needs and solutions to the problems. Peer nutrition education has been shown to positively affect the intended target's behaviours in breast-feeding, weight loss, chronic disease risk, and fruit and vegetable intake. First-time mothers commonly form strong social connections with mothers who have infants of a similar age. Peer groups can produce changes that are more sustained compared to individual changes. Such groups potentially offer an important system for sharing evidenced-based nutrition information with immediacy, optimal timing, and maximum impact. According to Scoggins (2015), the most common nutrition education resources currently used by parents are nutrition fact labels, television shows and healthy homework activities from their child's school.

Awareness on diet for parents in Uganda as a whole is limited yet there is great need for creation of motivation among parents in order to establish desirable nutrition practices among preschool children. The aim of diet awareness programmes is not equipping parents with facts but development of permanent behaviour changes that can impact the nutrition of children under their care. The main audience of nutrition education in Uganda is the women and mothers with young children as they are the primary care givers for children (Ickes, Hurst & Flax 2015). Diet awareness is important for improvement of nutrition because it increases the nutrition knowledge

of parents, promotes desirable food behaviour and nutrition practices. Through diet awareness, parents are equipped with correct information on the nutritional value of foods, food quality and safety, methods of preservation and food handling, food preparation and eating to help them make the best choice of foods for an adequate diet for their children.

CHAPTER THREE

METHODOLOGY

3.1: Description of the Study Area

Central Division of Kampala Capital City Authority, the commercial and political capital of Uganda and focus of this study, is located in the Central part of the country on the shores of Lake Victoria (0°18'N, 32°34'E) and covers approximately 176km2 of land. The district limits were originally demarcated by the seven main hills in the city; however they have been continuously expanded to account for urban sprawl and population growth (UN-HABITAT 2007). The city-district is further divided into administrative divisions: Kampala Central, Kawempe, Nakawa, Makindye, and Rubaga. Ten randomly selected pre-schools within central Division of Kampala Capital City Authority were involved in this study.

3.2: Research Design

This study employed a cross-sectional and descriptive survey that used both a structured questionnaire and interview to collect quantitative and qualitative data. This design was adopted because of its advantages of being cost-effective and swift in collecting data. It is also the simplest and affordable when dealing with a large population over a short time period (Neumann, 2003). Furthermore, the cross sectional survey has an advantage of catering for various categories of respondents in the study at the same time (Campbell, Machin & Walters, 2007). Information was collected from parents who were respondents of whom each represented preschool children to assess parents' diet awareness and nutritional status of preschool children.

3.3: Study Target Population

Mugenda and Mungenda (2003) describe study/target population as the population to which a researcher wants to generalize the results of a study. The target population in the study were children from preschools within Central Division of Kampala Capital City Authority and their corresponding parents.

3.4: Sample Size

The study sample was 200 children attending preschool in Central Division of Kampala Capital City Authority and their corresponding parents. Sample size was calculated using Fischer et al (1991) because the population is unknown.

The formula is as follows:

$$\mathbf{N=z^2pq/d^2}$$

Where

N= the desired sample size

z= the standard normal deviation which is 1.96 at 95% confidence interval

p= proportion of children who are stunted according to UDHS (2016) report in Kampala estimated at 18.1 %.

q=1-p proportion of children who are normal in Kampala.

d= the degree of accuracy desired set at 5%

Therefore;

$$N = \frac{(1.96*1.96)*0.181*(1- 0.181)}{(0.05)^2}$$

N= 206

Plus 5% attrition = parents each with preschool children.

3.5: Sampling Techniques

The study used stratified random sampling techniques. Stratified random sampling is a sampling technique by which a population is divided into different groups from which we sample randomly. In this study, the stratum was the Baby class and Middle class streams in pre-primary schools. The aim of random sampling is to give each individual in the population the same probability of being chosen for the study. A list of all the pre-schools in the CBD was generated from the Ministry of Education Website. The serial number corresponding to each school was entered into a raffle and 10 were selected randomly. In each school, the two streams were considered and 10 learners randomly selected from each.

3.6: Data Collection

3.6.1: Data Collection Methods

Data was collected using the following methods; anthropometric methods where by the children's height and weight were measured, clinical methods which included measuring the Middle Upper Arm Circumference (MUAC) for each child and dietary data collection to determine whether children were nourished or malnourished.

3.6.2: Data Collection Tools

The study used Child assessment forms, Questionnaires for parents and guardians and Key informant interview guides to collect qualitative data. 24 hour dietary recall was used where by the parents were asked to remember in detail the type and quantity of foods their children consumed during the previous 24 hours. For quantitative data, existing data about the study area was reviewed and anthropometric measures were used.

3.7: Semi - Structured Questionnaire

A questionnaire is a document designed with the purpose of seeking specific information from the respondents (Sansoni, 2011). The study used a questionnaire with mostly close-ended questions to obtain respondents' views and perspectives about the research problem. This was important because of the fact that it enabled the researcher to obtain hidden information from the respondents. The questionnaires were used because the information was collected from the respondents in a short period of time because all respondents can read and write **(**Sekaran, 2003)**.**

Interviewer administered questionnaires were used to draw information regarding diet awareness. They were administered to parents because they were convenient and efficient in the collection of quantitative data. The study used the questionnaire as an instrument because the study is virtually descriptive and the tool is deemed appropriate for data collection. Besides, it is time saving and cost effective.

A self-administered structured questionnaire covered all the aspects of the research variables. The data collection tools were pretested on a group of parents that were not part of the study to determine the reliability of the tools. During the pre-test, time taken to complete the

questionnaire was noted; sequence of questions and understanding of questions by the respondents. The pre-test results were used to modify the tools accordingly. Pretesting perfected the research assistant's skills on quality management and data collection.

3.8: Recruitment and Training of Field Assistants

The recruitment of assistants was advertised verbally. The criteria for recruitment consisted of good conduct, reliability, attainment of secondary level education, ability to read and write communication skills. Ladies had an added advantage because they have better skills for child handling. Training was for one day to cover areas such as; study objectives interviewing techniques, anthropometric measurements and filling the questionnaire.

3.9: Assessment of Nutritional Status of Children

The following measurements were used.

Weight: Weight measurement was reported to the nearest 0.1 kg. Ideally, weight was determined with the child wearing minimal clothing.

Height/Length: The height was measured and reported to the nearest 0.1 cm. Height board of the United Nations International Children's Fund (UNICEF) was used by the field assistants after undergoing training to measure height of children.

Mid Upper Arm Circumference (MUAC): Middle Upper Arm Circumference was taken for children up to 59 months. The arm was bent at the elbow to make a right angle

The body measurements of weight, height and age are converted into nutritional indices. To generate the indicators, any of the two variables measured are related. That is, weight, height and age as follows: Weight for height, Weight for age and Height for age.

3.10: Assessment of Child Feeding and Diet Practices

The general objective is to obtain information on the overall adequacy of the diet consumed by children in households. The 24 hour recall method will be used to determine dietary intake in addition to a dietary intake questionnaire.

3.11: Validity and Reliability

After developing the research instruments, the researcher measured their Validity and Reliability. A pilot pre-test was conducted on 10 respondents that weren't part of the sample. The researcher then u used Content Validity Index to compute validity and Cronbach's Alpha Coefficient to compute the reliability.

3.11.1: Validity

According to Amin (2005), Validity is the degree to which an instrument measures what is to measure and does so correctly. The researcher first gave the questionnaire to 10 random parents who answered the questions and judged whether they were relevant to the study. Content Validity was then used to measure the Validity. Out of the 25 questions in the questionnaire, 21 items were rated to be relevant.

According to Amin (2005), validity can be measured by the Content Validity Index (CVI) based on the results obtained for questionnaires. Results higher than 0.7 show that the instrument is valid.

$$\text{Content validity index (CVI)} = \frac{\text{Number of items rated relevant}}{\text{Total Number of Items in the questionnaire}}$$

$$\text{CVI} = = \frac{21}{25}$$

$$= 0.84$$

The validity of the questionnaire was ensured because results obtained were higher than 0.7 and according to Amin (2005), the results computed from the Content Validity Index have to be higher than 0.7 for the instrument to be considered valid. The result was 0.84, therefore the questionnaire is valid for the study.

3.11.2: Reliability

A reliable instrument is one that gives consistent results. According to Anfara (2002), reliability is dependability or trust worthiness; it is degree to which the instrument consistently measures whatever is measuring. Bennel (2002) describes reliability as the ability of an instrument to produce consistent results and hence a method is reliable if it produces same results whenever repeated even by different researchers.

For reliability, a test and retest method was used to measure the consistency of the results obtained from the questionnaire. The researcher gave 10 parents the same questionnaire with the questions that were valid on two separate occasions. The researcher first administered the questionnaires to the parents who answered the questions and returned it. The researcher then entered the results in SPSS. After two weeks, the researcher delivered the same questionnaires to the same parents as before to find out whether consistent results were obtained, they responded to the questions and the answers were entered in SPSS. The researcher then compared the results by calculating the reliability using Cronbach's Alpha coefficient using SPSS.

Table 1

Reliability Statistics

Cronbach's Alpha	No of Items
0.954	21

After calculation of reliability using SPSS, the questionnaire was considered reliable with results as 0.954.

3.12: Data Collection Procedure

3.12.1: Demographic Data

Demographic data on the parents was collected using the questionnaire. Data on parents' marital status, education status and age, main source of livelihood for parents, sex and age of the child and birth position of the child.

3.12.2: Qualitative Data

Diet awareness data was collected using a questionnaire from parents. The information collected was nutrition messages such as exclusive breastfeeding, complementary feeding special foods for children, balanced diet and meal intervals.

Secondary data was obtained from various existing documents that included library textbooks, articles, journals, published annual reports, magazines, gazettes and internet search among other relevant literature; all these documents were reviewed in a bid to collect the secondary relevant data as per the study.

3.13 : Data Processing and Analysis

3.13.1: Quantitative Data Analysis

Quantitative approach generated reliable information based on gathering data using numerical figures. After receiving the filled questionnaires from the field and delivering the interviews, a data entry capture template designed in Statistical Package for Social Scientists (SPSS), were used for data entry. Cross tabulations to obtain the Pearson Chi square were used.

3.13.2: Qualitative Data Analysis

Qualitative data, such as findings out of interviews of respondents, were put into meaningful and exhaustive categories. Content analysis was the main method of analyzing the data collected (Miles, Huberman & Saldana, 2004).

The Data was classified into categorical variables. Therefore, data was analyzed thematically. In using this form of analysis, major themes will be identified and classified. The collected and identified information that was relevant to the research questions and objectives

was examined (Mbabazi, 2008). A coding system based on samples of data collected and classified major items were developed.

3.14: Data Analysis

Data analysis is an activity of making sense of, interpreting and theorizing data that signifies a search for general statements among categories of data (Schwandt, 2007). Both quantitative and qualitative data analysis techniques were used in this study. Triangular techniques, transcribe and code were applied for statistical analysis. The Framework Method was used since it is appropriate for thematic analysis of textual data, particularly interview transcripts, where it is important to be able to compare and contrast data by themes across many cases, while also situating each perspective in context by retaining the connection to other aspects of each individual's account (Gale, 2013). Nutritional status analysis was based on the WHO Child Growth Standards by assigning z-scores for height-for-age and weight-for-age using the Global Child Growth reference Standards where the child is stunted, underweight, normal or wasted.

3.15: Ethical Consideration

An introductory letter was obtained from the University which introduced the study to the head teachers of the school and teachers (Annex 4). Before collecting data from the respondents, they were assured of the confidentiality and guaranteed that data collected would only be for academic purposes. This was done by seeking permission from parents to carry out the research on their children through the head teachers who sent both parent's consent forms and children's consent forms to parents (Annex 3).

These forms were filled and signed by the parents to show their consent for themselves and on behalf of their children. Illiterate parents were directly contacted by the head teacher. The parents who didn’t consent and their children were excluded in the study.

CHAPTER FOUR

RESULTS OF THE STUDY

4.1:Characteristics of the Study Population

The pre-primary school children characteristics in Kampala preschools are represented in the table 2 below;

Table 2

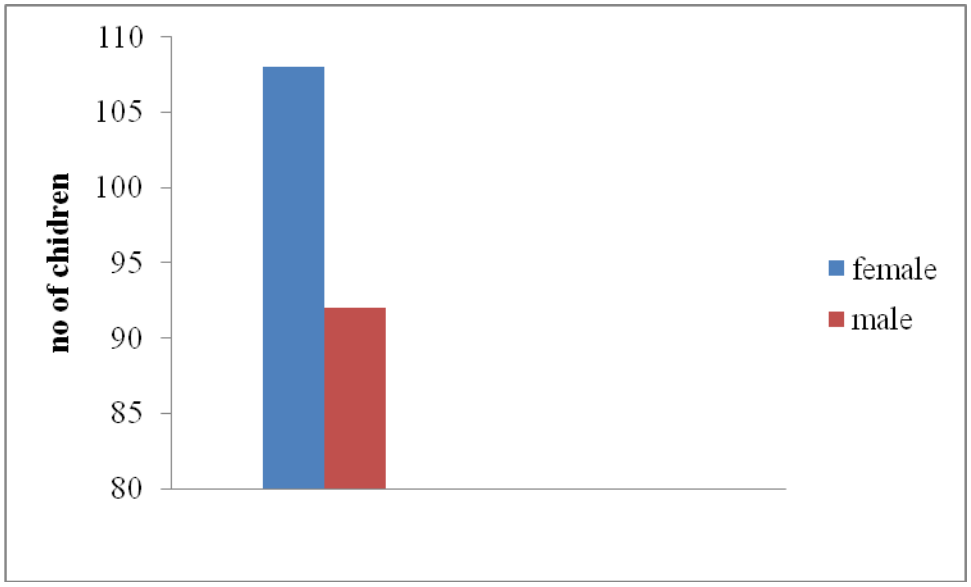
Pre-primary School Children Characteristics

Characteristic	Frequency	Percentage
Gender		
Male	92	46%
Female	108	54%
Age of child in months		
36-47	122	61%
48-59	78	39%
Birth order		
1-2	100	50%
3-4	56	28%
5+	44	22%

The table 2 shows that more than half of the children in the study were females (54%) and majority were aged 36-47 months. Half of the children were of birth order 1-2 which indicates that their parents were mostly first time parents with a few in the birth order of 3-4 and 5+ birth order respectively. These results are further explained using the graphs and pie charts below:

Figure 2

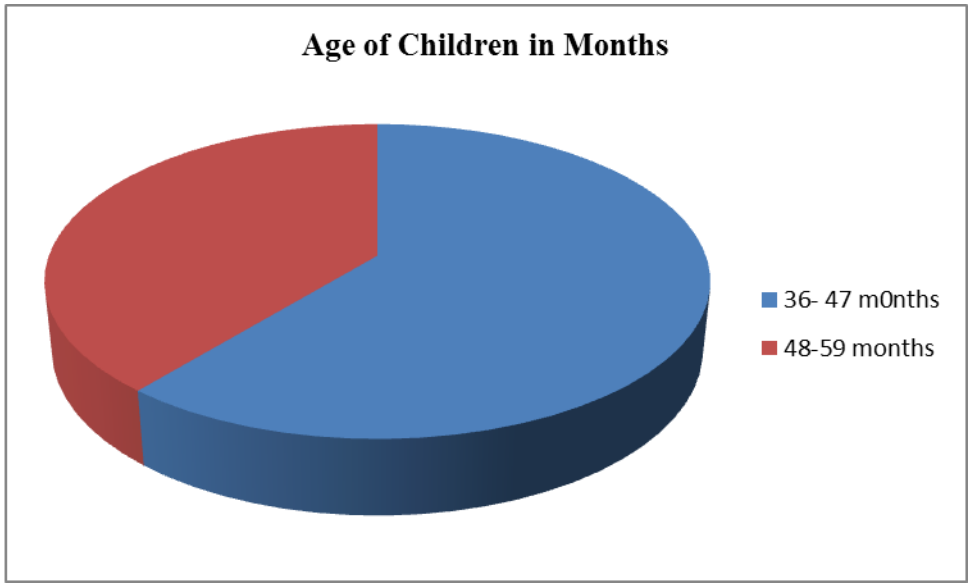
Gender of Pre-primary School Children



The figure 2 indicates that there were more female children than male therefore the findings of this study were based on the nutrition status of female pre-schoolers.

Figure 3

Age of Children in Months



The figure 3 shows the age of the study children in months. Majority of the study children were in the age range of 36-47 months as indicated on the pie chart.

A one way Analysis of Variance (ANOVA) was calculated to compare the effect of Gender on Age.

Table 3

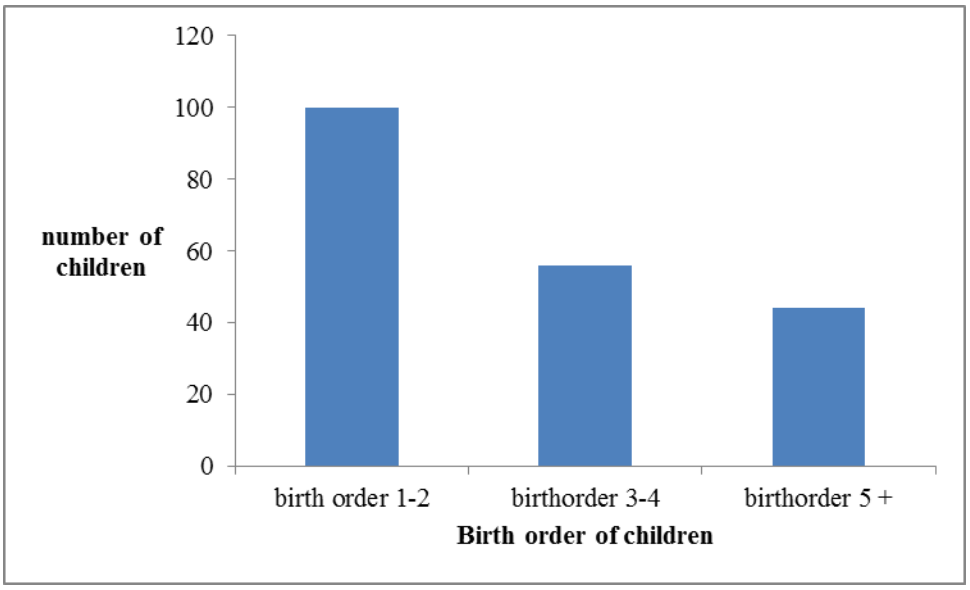
Differences in Mean Age by Sex of the Children

	N	Mean (SD) age	P- Value
Boy	92	45.08 (7.5)	
Girl	108	46.41 (6.7)	0.183
Total	200	7.038 (7.0)	

Table 3 shows that whereas the female children had a higher mean age than the male, the difference was not significant.

Figure 4

Birth Order of Preschool Children



The figure 4clearly indicates that the majority of the study children in the study are first or second born to the parents involved in the study.

Table 4

Parents' Characteristics

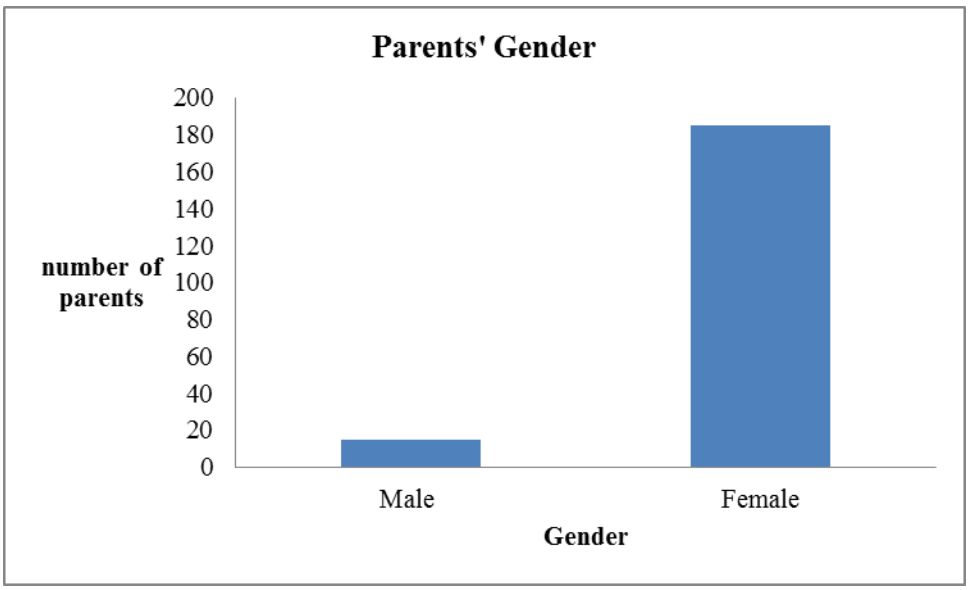
Characteristic	Frequency	Percentage
Gender		
Male	15	7.5
Female	185	92.5
Age		

20-30	110	55.0
31-40	75	37.5
40 and above	15	7.5
Marital Status		
Single	30	15.0
Married	156	78.0
Other	14	7.0
Education level		
None	8	4.0
Primary	36	18.0
O level	52	26.0
A level	29	14.5
College/ University	75	37.5
Income		
Farming	8	4.0
Wage Employment	81	40.5
Private/trade	63	31.5
Others	48	24.0
Number of Children		
1-2	73	36.5
3-5	108	54.0
6 and above	19	9.5

Results in the table 4 indicate the demographic characteristics of the parents in the study. The results a further explained using the graphs and pie charts below.

Figure 5

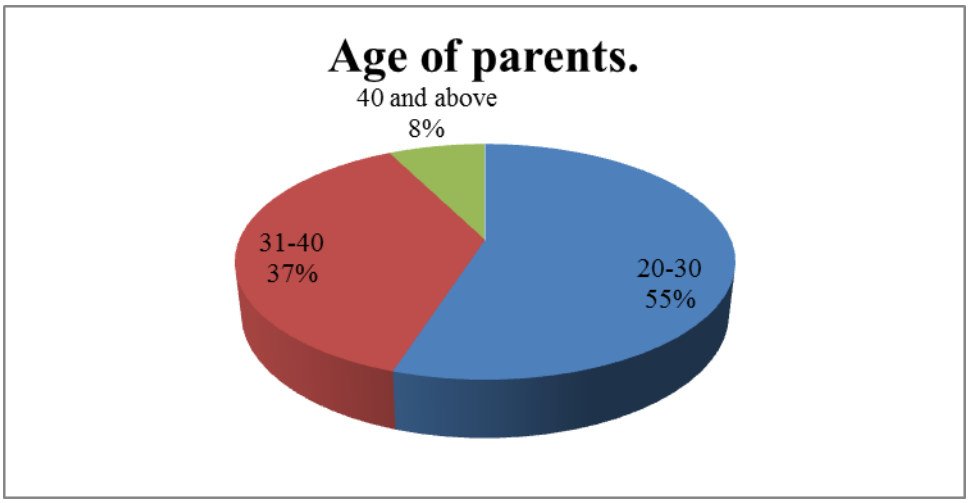
Parents' Gender



As shown in the figure 5, the majority of parents were females. This indicates that most of the information provided in the study has more of the female opinion. This also indicates that mothers and female guardians are the ones who are mostly involved in the children's wellbeing.

Figure 6

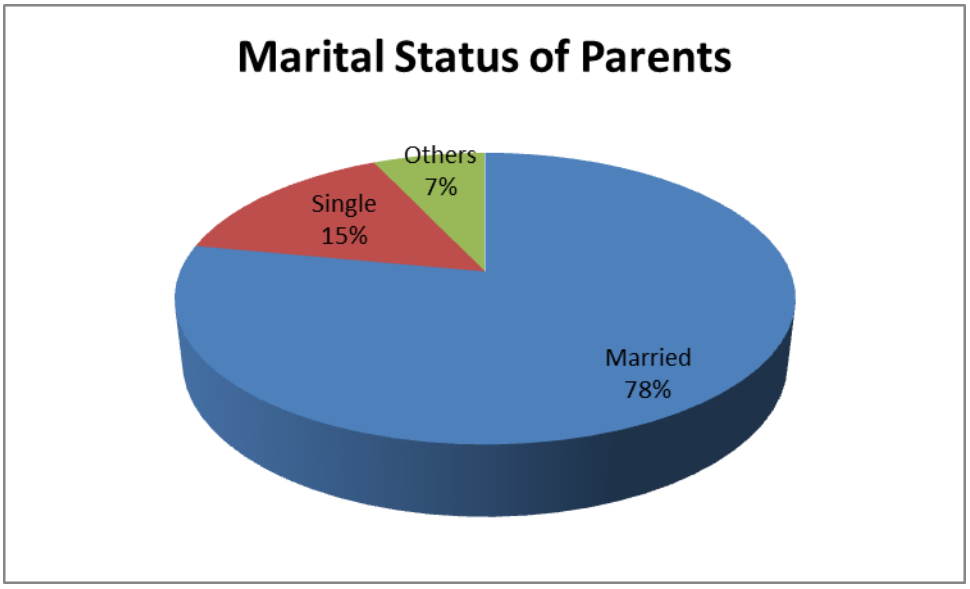
Age of Parents



This figure 6 shows the age group of parents involved in the study. More than 50% of parents were in the age group of 20-30 years, whereas 37% of parents were in the age group of 31-40 years. These results were mainly attributed to the nature of Uganda's population which comprises mainly of youths.

Figure 7

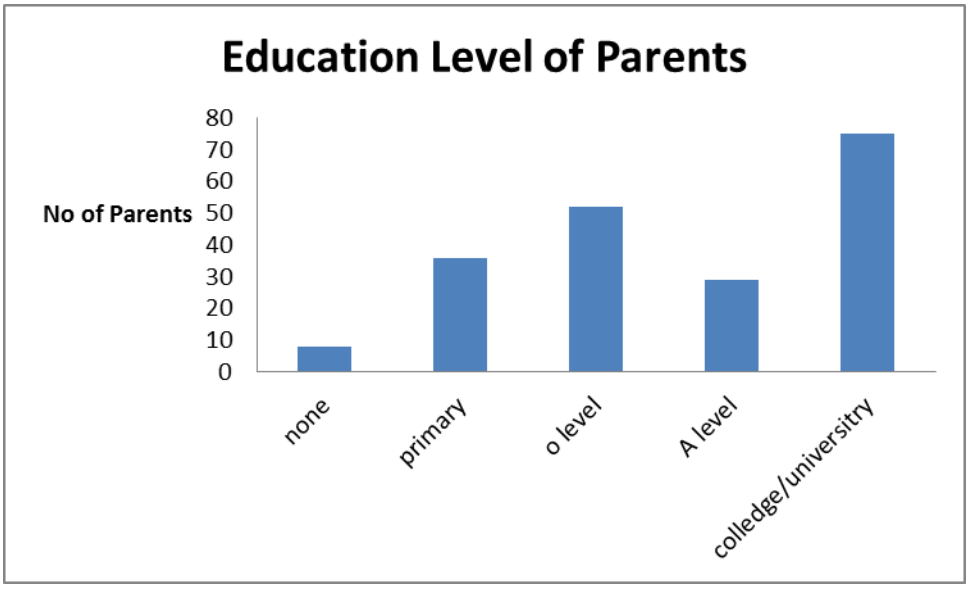
Marital Status of Parents



Results in figure 7 reveal that majority 156 (78.0%) of the parents that participated in the study are married, 30 (15.0%) are single and the rest are in the category of others. These statistics were attributed to the traditional society in Uganda whereby in order to be a parent one should be married.

Figure 8

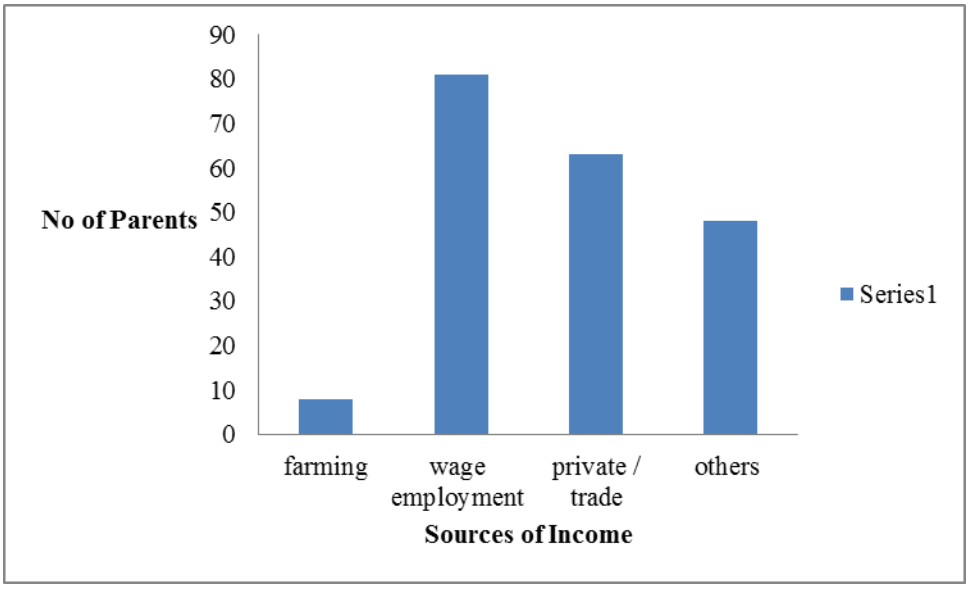
Education Levels of Parents



The results in figure 8 show that the highest education level achieved by majority of parents was College/Degree 75 (37.5%). The number of parents without any education was only 8 (4.0 %). The level of education may have serious impacts on child care as many of the parents may lack the basic skills and knowledge to look after their children by offering nutritious feeding.

Figure 9

Parents' Source of Income



Basing on figure 9 showing the main source of Income, majority of parents are wage earners 81 (40.5%). Those involved in farming were only 8 (4.0%).

Figure 10

Number of Children Parents have

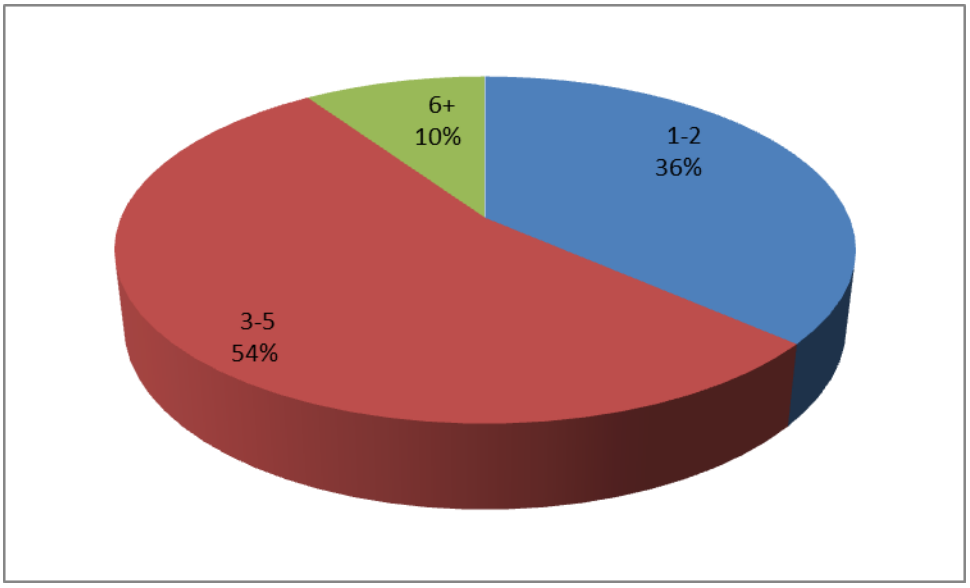


Figure 10 shows the number of children, majority of parents have 3-5 children 108 (54.0%) and parents with 6 or more children represented 9.5 % (19).

4.2: The Nutritional Status of Pre-Primary School Children

The overall nutritional status of children was compiled and the results are shown in table 5.

Table 5

Overall Nutritional Status of Children

Indicator	N	Boys	Girls
Normal Status	161	74	87
Stunting			
Severe	0	0	0
Moderate	4	4	0
Wasting			
Severe	4	4	0
Moderate	16	5	11
Underweight			
Severe	0	0	0
Moderate	15	5	10

The table 5 shows the overall nutritional status of children in the sample. 161 of the entire sample of the children had a normal status. However, 0nly 4 children were stunted, 4 were severely wasted and 16 moderately wasted. Underweight children were only 15 and were moderately underweight.

4.2.1: Stunting (height–for-age) of Preschool Children

The prevalence of stunting among the children was 0%.No child was found to be severely stunted. About 2% of the children were moderately malnourished while the rest (98%)

were normal with a p value 0.70. Therefore there was no relationship between stunting and gender. The results are further explained and represented in figure 11 below:

Figure 11

Distribution of Stunting

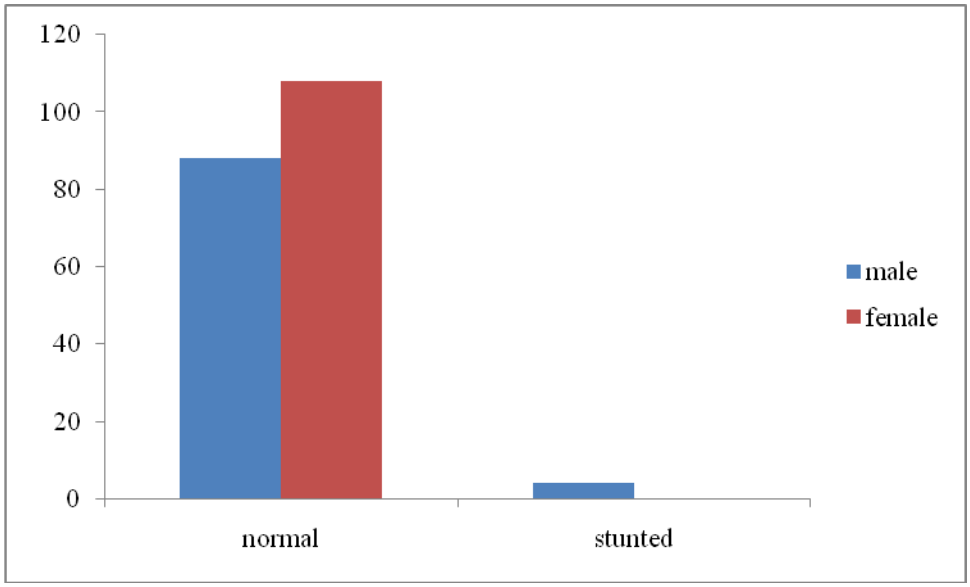


Figure 11 shows that there were more normal girls than boys yet there were no stunted girls. The table also shows that there were only stunted boys. However, the number of stunted children was way less than the number of normal children which was a positive sign.

4.2.2: Underweight (weight –for-age) of Preschool Children

Table 6

Distribution of Children Underweight according to Gender

				Total	P value
		Normal	**Underweight**		
Gender	**Male**	87	5	92	
	Female	98	10	108	0.059
Total		185(92.5%)	15(7.5%)	200	

The table 6 describes the prevalence of underweight as measured by weight-for-age z-scores. Underweight is defined as <-2 z scores weight-for-age, severe underweight is defined as <-3z scores weight-for-age). There was no evidence of prevalence of underweight observed among the children that participated in the study. However, 15 of the children were moderately underweight while the remaining 185 had normal weight. There were more underweight girls than boys. The p value was 0.059, therefore underweight is significantly associated with gender.

The results of underweight children are further explained using figure 13 as shown below.

Figure 12

Distribution of Underweight Children

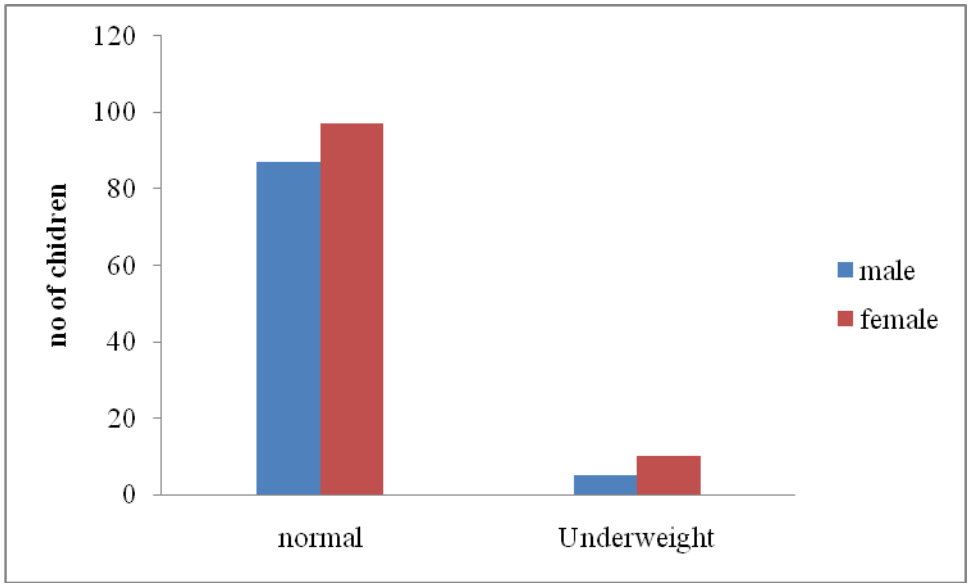


Figure 12 shows that the overall number of moderately underweight children was higher for girls than for boys. There were also more normal weighted male children than females.

4.2.3: Wasting (weight-for-height) of Preschool Children

The table 7 shows that males are more wasted than females. Males (5) preschool children are less moderately wasted than the females (5). The results of wasting in the studied children show that ninety percent of the studied children were normal.

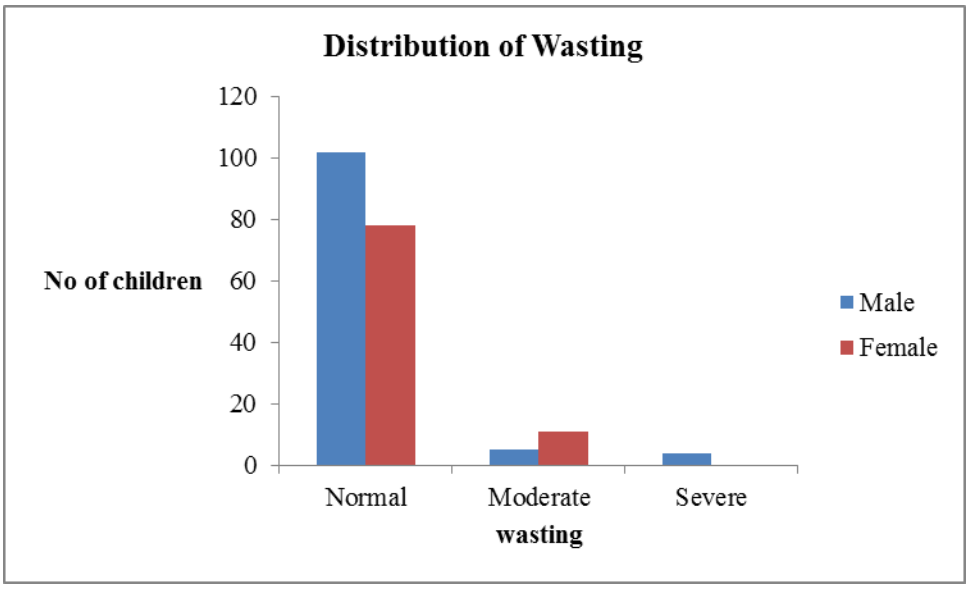
Table 7

Distribution of Wasting Basing on Gender

		Wasting			Total	P value
		Normal	Moderate	Severe		
Gender	**Male**	102	5	4	111	
	Female	78	11	0	89	0.028
Total		180(90.0%)	16(8.0%)	4(2.0%)	200	

Figure 13

Distribution of Wasting



The figure13 above shows that were more normal male children than their female counterparts, who resulted in less number of moderately wasted boys however, even though girls were more moderately wasted, there were no severely wasted female children.

4.2.4: Mid-Upper Arm Circumference (MUAC) of the Children

The table 8 shows the distribution of study children by MUAC. Majority of the children had a normal MUAC measurement (>13.5). The table8 shows that no child was found to be severely malnourished, 16 (8.0%) were moderately malnourished. The remaining 180 (90.0%) children that took part in this study were well nourished.

Table 8

Distribution of Study Children According to MUAC

		Malnutrition				
					Total	**P value**
		Normal	**Moderate**	**Severe**		
Gender	**Male**	102	5	4	111	
	Female	78	11	0	89	.028
Total		180(90.0%)	16 (8.0%)	4 (2.0%)	200	

Results from the table 9 indicate that most of the children were well nourished with a few at risk of being malnourished.

4.3: Nutritional Practices of Parents that Promote Better Nutritional Status of Children.

Basing on the table10 and figure 14, it was cited that majority of parents 176 (88%) breast fed their children for at least 18 months. Very few parents (11%) give their children less than 3 meals a day according to the study. Most of the parents 178 (89%) offer their children more than 3 meals a day. Most parents 89 (44.5%) provide additional meals for children to eat though a few

parents admitted to having to depend on school food. The results reveal that 153 (76.5%) of the parents offer meals to their children at intervals of less than 6 hours.

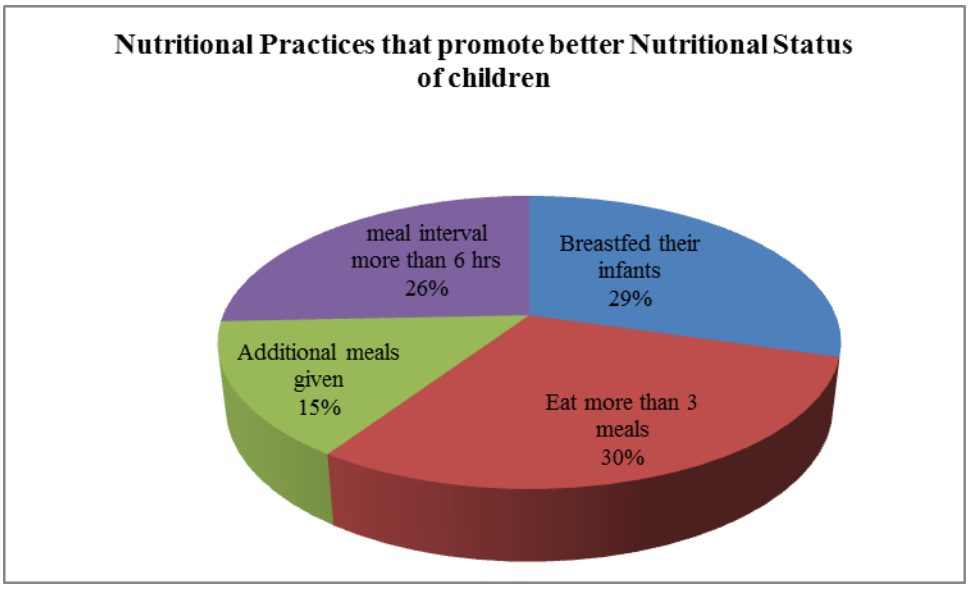
Table 9

Nutritional Practices that Promote Better Nutritional Status of Children

Practice	Frequency	Percentage
Breastfed their infants	176	88%
Eat More than 3 meals a day	178	89%
Additional meals given to child	89	44.5%
Meal intervals less than 6 hours	153	76.5%

Figure 14

Nutritional Practices that Promote Better Nutritional Status of Children



The researcher also sought opinions from some respondents through the questionnaires about nutritional practices that parents use to promote better nutritional status of children.

A mother commented, *"Usually, young children eat together with their parents, during meal times or whatever snack adults are having. Rarely are special foods prepared for children. During the day, most homes cook one or two meals in a day; the first meal is prepared late in the afternoon. The evening meal is normally late, and some is stored to be eaten as breakfast the following day or to pack for the children."*

A father also commented, "*If the mother has to go to work, the remaining 'food' from the previous meal is eaten for the next meal. Because of lack of time, there might not be any special meals prepared for the children".*

Table 10

24 Hour Food Recall for Preprimary Children

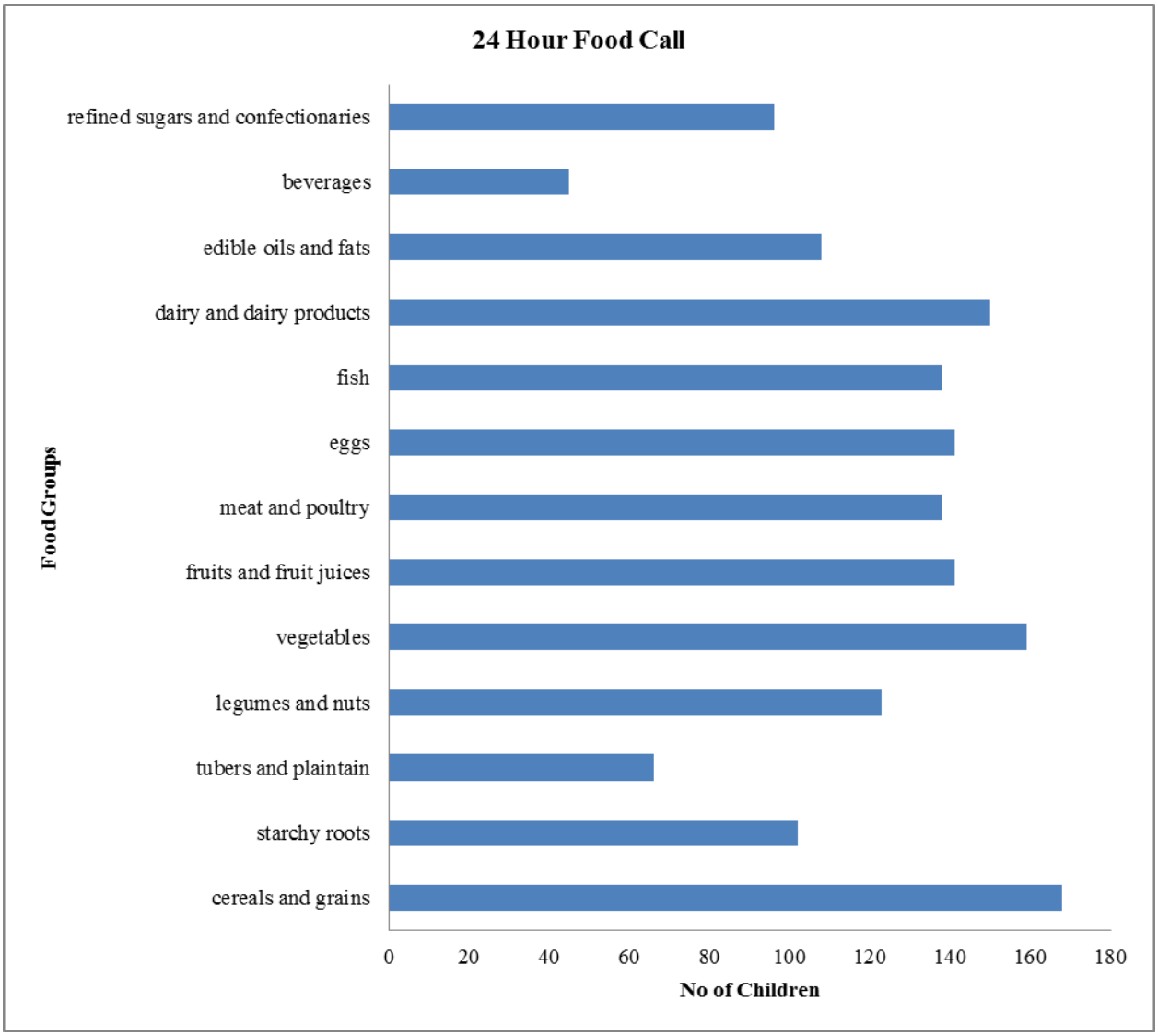
Food groups	**Frequency**	**Percentage**
Cereals and grains	168	84%
Starchy roots	102	51%
Tubers and plantain	66	33%
Legumes and nuts	123	61.5%
Vegetables	159	79.5%
Fruits and fruit juices	141	70.5%
Meat and poultry	138	69%
Eggs	141	70.5%

Fish	138	69%
Dairy and dairy products	150	75%
Edible oils and fats	108	54%
Non-alcoholic drinks and beverages	45	22.5%
Refined sugars, sweets, spices and confectionaries	96	48%

The results from the table10 show that most of the children consumed mostly Cereals and grains 168 (84%) followed by vegetables159 (79.5%) then dairy and dairy products150 (75%). The meat and poultry group was represented by 138 (69%). Non Alcoholic drinks and beverages were the least consumed food groups 45 (22.5%).The results for Eggs and Fish showed that141 (70.5%) and 138 (69%) respectively. Dairy and Dairy products were highly consumed because parents claimed they were the only animal products that are easy to find and cheap. The results show that fruits and fruit juices 141 (70.5%) were highly consumed because juice is the primary food packed by most parents for preschool children.

Figure 15

24 hour Food Recall



Respondents were asked their opinions about the food types offered to children and their responses are shown below:

A school teacher and mother commented," *Children are fed mainly matooke, posho, porridge , and beans (or "beans soup"), potatoes, pumpkins, .Preparation methods and kinds of*

food have changed over the years. Some years ago, millet or soya porridge and pumpkins were common foods for children; we never added sugar. Nowadays, few children get these foods."

4.4: The Relationship between Parents' Diet Awareness and Nutritional Status of Children

The table 11 shows the diet information channels available to parents. Majority of parents accessed information about children's diet from health centres (65%) and schools (56%). Very few included community discussions (6%) and media (43%) as sources of diet information. This was attributed to the availability of information at health centres as per government initiative. Community discussions are uncommon sources because parents largely depend on other sources for nutrition information.

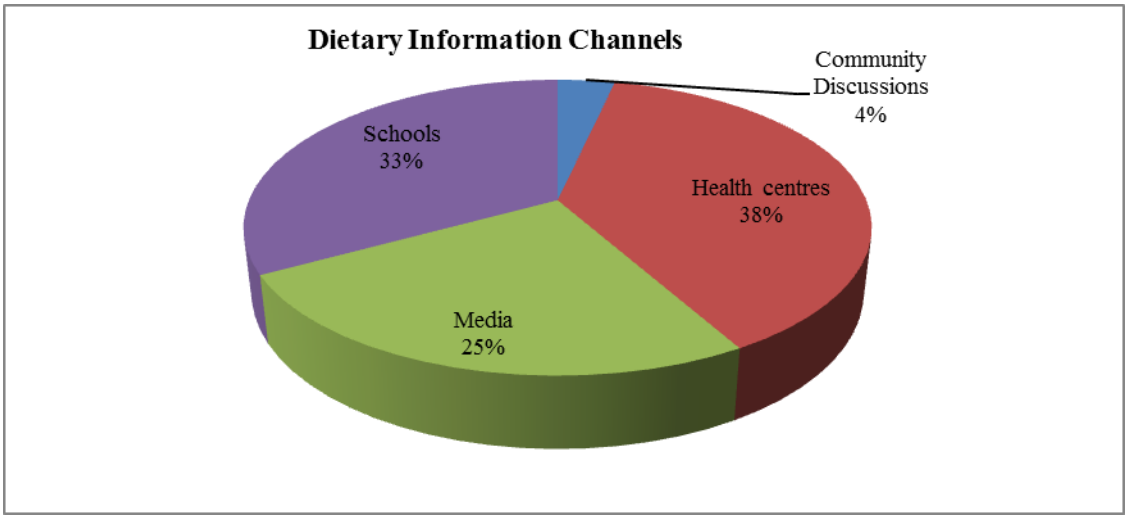
Table 11

The Diet Information Channels Available to Parents

Source of Information	Frequency	Percentage
Health Centres	130	**65%**
Media	86	**43%**
Schools	112	**56%**
Community discussions	12	**6%**

Figure 16

Dietary Information Channels



The results in the figure 16 indicate that parents have access to dietary information mainly from health centres (38%) and the least information channel is community discussion at 4%.

The relationship between parents' diet awareness and nutritional status of children was computed using SPSS and the correlation values were obtained as shown in the table.

Table 12

Cross Tabulation and Chi square of Weight for Age and Knowledge about Balanced Diet

Crosstab

			weight for age		
			moderate	normal	Total
know balanced diet	yes	Count	9	143	152
		% within know balanced diet	5.9%	94.1%	100.0%
	no	Count	6	42	48
		% within know balanced diet	12.5%	87.5%	100.0%
Total		Count	15	185	200
		% within know balanced diet	7.5%	92.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.276[b]	1	.131		
Continuity Correction[a]	1.426	1	.232		
Likelihood Ratio	2.048	1	.152		
Fisher's Exact Test				.204	.119
Linear-by-Linear Association	2.265	1	.132		
N of Valid Cases	200				

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.60.

It is clear that the highest percentage of children had normal weight (94.1%) and their parents had knowledge of a balanced diet compared to 87.5% of the normal weighted children with normal weight with parents of no knowledge of a balanced diet.

Since the p value is greater than the significance level, there is not enough evidence to suggest a relationship between Weight for age and knowledge of a balanced diet.

Table 13

Cross Tabulation and Chi Square of Wasting and Knowledge of Balanced Diet

Crosstab

			wasting			
			severe	moderate	normal	Total
know balanced diet	yes	Count	3	15	134	152
		% within know balanced diet	2.0%	9.9%	88.2%	100.0%
	no	Count	1	2	45	48
		% within know balanced diet	2.1%	4.2%	93.8%	100.0%
Total		Count	4	17	179	200
		% within know balanced diet	2.0%	8.5%	89.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.525[a]	2	.467
Likelihood Ratio	1.755	2	.416
Linear-by-Linear Association	.730	1	.393
N of Valid Cases	200		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is .96.

From the table 13, it is certain that the highest percentage (88.2%) of parents who had knowledge of a balanced diet had normal children and the least percentage (2.0%) was of children whose parents had knowledge about balanced diet.

The p value is greater than the significance level therefore the null hypothesis is accepted that there is no association between wasting and knowledge of a balanced diet. They are independent of each other.

Table 14

Cross Tabulation and Chi Square of Stunting and Knowledge of a Balanced Diet

Crosstab

			stunting		
			moderate	normal	Total
know balanced diet	yes	Count	3	149	152
		% within know balanced diet	2.0%	98.0%	100.0%
	no	Count	1	47	48
		% within know balanced diet	2.1%	97.9%	100.0%
Total		Count	4	196	200
		% within know balanced diet	2.0%	98.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.002[b]	1	.962		
Continuity Correction[a]	.000	1	1.000		
Likelihood Ratio	.002	1	.962		
Fisher's Exact Test				1.000	.670
Linear-by-Linear Association	.002	1	.962		
N of Valid Cases	200				

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .96.

The table 14 clearly shows that the highest percentage of parents with knowledge of balanced diet had normal children (98.0 %) where as those parents who had no knowledge of a balanced diet with normal children were 97.9%.

Taking the p value from the chi square test reveals that there is no relationship between stunting and knowledge of a balanced diet since the p value is greater than the significance level.

Table 15

Cross Tabulation and Chi Square of Weight for Age (Underweight) and Meal Intervals taken for Children

Crosstab

			weight for age		
			moderate	normal	Total
meal interval taken by child	0	Count	2	29	31
		% within meal interval taken by child	6.5%	93.5%	100.0%
	2	Count	2	22	24
		% within meal interval taken by child	8.3%	91.7%	100.0%
	3	Count	8	83	91
		% within meal interval taken by child	8.8%	91.2%	100.0%
	6	Count	3	51	54
		% within meal interval taken by child	5.6%	94.4%	100.0%
Total		Count	15	185	200
		% within meal interval taken by child	7.5%	92.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.586[a]	3	.900
Likelihood Ratio	.604	3	.896
Linear-by-Linear Association	.104	1	.747
N of Valid Cases	200		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.80.

Children whose parents were not sure of the meal intervals taken for their children to have meals were 31 in total out of which 93.5% of them are normal and the remaining 6.5% are moderately underweight. The highest number of children (91) had their parents reporting that they had meal intervals of 3 hours of which 91.2% of them had normal weight and 8.8 % of them were moderately underweight.

There is no association between meal intervals and underweight among children in central division since the p value is greater than the significance level.

Table 16

Cross Tabulation and Chi Square of Wasting and Meal Intervals

Crosstab

			wasting			
			severe	moderate	normal	Total
meal interval taken by child	0	Count	0	1	30	31
		% within meal interval taken by child	.0%	3.2%	96.8%	100.0%
	2	Count	0	1	23	24
		% within meal interval taken by child	.0%	4.2%	95.8%	100.0%
	3	Count	3	11	77	91
		% within meal interval taken by child	3.3%	12.1%	84.6%	100.0%
	6	Count	1	4	49	54
		% within meal interval taken by child	1.9%	7.4%	90.7%	100.0%
Total		Count	4	17	179	200
		% within meal interval taken by child	2.0%	8.5%	89.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.412[a]	6	.492
Likelihood Ratio	6.667	6	.353
Linear-by-Linear Association	.600	1	.439
N of Valid Cases	200		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .48.

From the table 16, most severely wasted children (3.3%) had their parents report that their meal intervals were 3 hourly; whereas most normal children 77 (84.6%) also had their

parents report a 3 hourly meal interval. The p value (p = .492) is greater than the significance level therefore there is no relationship between wasting and meal intervals.

Table 17

Cross Tabulation and Chi square of Stunting and Meal Intervals

Crosstab

			stunting		
			moderate	normal	Total
meal interval taken by child	0	Count	0	31	31
		% within meal interval taken by child	.0%	100.0%	100.0%
	2	Count	0	24	24
		% within meal interval taken by child	.0%	100.0%	100.0%
	3	Count	2	89	91
		% within meal interval taken by child	2.2%	97.8%	100.0%
	6	Count	2	52	54
		% within meal interval taken by child	3.7%	96.3%	100.0%
Total		Count	4	196	200
		% within meal interval taken by child	2.0%	98.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.940[a]	3	.585
Likelihood Ratio	2.881	3	.410
Linear-by-Linear Association	1.695	1	.193
N of Valid Cases	200		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .48.

It is clear that the highest number of parents reported 3 hourly meal intervals. 89 (97.8%) of these had normal children in regards to stunting while 2 (2.2%) of the parents had severely

stunted children. The p value (p = .585) is greater than the significance level which shows that stunting and meal interval are independent of each other.

Table 18

Cross Tabulation and Chi Square of Education Status of Parents and Wasting

Crosstab

			wasting			
			severe	moderate	normal	Total
education status	none	Count	1	1	6	8
		% within education status	12.5%	12.5%	75.0%	100.0%
	primary	Count	2	3	31	36
		% within education status	5.6%	8.3%	86.1%	100.0%
	0 level	Count	1	3	48	52
		% within education status	1.9%	5.8%	92.3%	100.0%
	A level	Count	0	7	22	29
		% within education status	.0%	24.1%	75.9%	100.0%
	college/university	Count	0	3	72	75
		% within education status	.0%	4.0%	96.0%	100.0%
Total		Count	4	17	179	200
		% within education status	2.0%	8.5%	89.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.742[a]	8	.008
Likelihood Ratio	17.363	8	.027
Linear-by-Linear Association	5.306	1	.021
N of Valid Cases	200		

a. 9 cells (60.0%) have expected count less than 5. The minimum expected count is .16.

The table 18 shows that the highest number 72 (96.0%) of normal children had parents with college or university level of education. Severely stunted children were both of parents with no education (12.5%) or O level education (1.9%).The p value (p = .008) is greater than the significance level, therefore the variables are independent of each other.

Table 19

Cross Tabulation and Chi Square of Education Status of Parents and Stunting

Crosstab

			stunting		
			moderate	normal	Total
education status	none	Count	1	7	8
		% within education status	12.5%	87.5%	100.0%
	primary	Count	1	35	36
		% within education status	2.8%	97.2%	100.0%
	0 level	Count	1	51	52
		% within education status	1.9%	98.1%	100.0%
	A level	Count	1	28	29
		% within education status	3.4%	96.6%	100.0%
	college/university	Count	0	75	75
		% within education status	.0%	100.0%	100.0%
Total		Count	4	196	200
		% within education status	2.0%	98.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.454[a]	4	.168
Likelihood Ratio	5.465	4	.243
Linear-by-Linear Association	3.308	1	.069
N of Valid Cases	200		

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is .16.

It is clearly shown that the highest number of normal children (75%) had College or University graduates as parents. Moderately stunted children belonged to parents with no education (12.5%), Primary education (2.8%), O level education (1.9%) and A level education (3.4%). P value is greater than the level of significance so there is no relationship between stunting and level of education of parents.

Table 20

Cross Tabulation and Chi Square of Education Level of Parents and Underweight

Crosstab

			weight for age		
			moderate	normal	Total
education status	none	Count	1	7	8
		% within education status	12.5%	87.5%	100.0%
	primary	Count	2	34	36
		% within education status	5.6%	94.4%	100.0%
	0 level	Count	6	46	52
		% within education status	11.5%	88.5%	100.0%
	A level	Count	1	28	29
		% within education status	3.4%	96.6%	100.0%
	college/university	Count	5	70	75
		% within education status	6.7%	93.3%	100.0%
Total		Count	15	185	200
		% within education status	7.5%	92.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.468[a]	4	.650
Likelihood Ratio	2.445	4	.655
Linear-by-Linear Association	.289	1	.591
N of Valid Cases	200		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .60.

It is observed from the table 20 that the highest number 70 (93.3%) of normal children had parents who had reached college or university level. Moderately Underweight children were observed for all the levels of education with the highest percentage (11.5%) being for parents with O level education.

Table 21

Cross Tabulation and Chi Square of Parents' Source of Livelihood and Stunting

Crosstab

			stunting		
			moderate	normal	Total
main source of living	farming	Count	1	7	8
		% within main source of living	12.5%	87.5%	100.0%
	wage employment	Count	0	81	81
		% within main source of living	.0%	100.0%	100.0%
	private/trade	Count	2	61	63
		% within main source of living	3.2%	96.8%	100.0%
	others	Count	1	47	48
		% within main source of living	2.1%	97.9%	100.0%
Total		Count	4	196	200
		% within main source of living	2.0%	98.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.598[a]	3	.086
Likelihood Ratio	5.730	3	.126
Linear-by-Linear Association	.000	1	.991
N of Valid Cases	200		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .16.

The highest number of normal (81) children belonged to the parents that are salary and wage earners, who also did not have any malnourished children. The highest number of stunted children (3.2%) was for parents involved in private sources of income or trade.

The p value (p = .086) is lower than the level of significance therefore there isn't enough evidence to show relationship between parents' source of income and stunting.

Table 22

Cross Tabulation and Chi Square of Parents' Source of Livelihood and Underweight

Crosstab

			weight for age		
			moderate	normal	Total
main source of living	farming	Count	1	7	8
		% within main source of living	12.5%	87.5%	100.0%
	wage employment	Count	6	75	81
		% within main source of living	7.4%	92.6%	100.0%
	private/trade	Count	6	57	63
		% within main source of living	9.5%	90.5%	100.0%
	others	Count	2	46	48
		% within main source of living	4.2%	95.8%	100.0%
Total		Count	15	185	200
		% within main source of living	7.5%	92.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.430[a]	3	.699
Likelihood Ratio	1.495	3	.683
Linear-by-Linear Association	.520	1	.471
N of Valid Cases	200		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .60.

For the case of Underweight and main source of income, the highest number of children (75) who were normal was for parents with salary employment, while the highest number of moderately stunted children were for wage earners (7.4%) and those parents in private trade (9.5%).

The p value is higher than the level of significance and therefore underweight and income source are independent of each other.

Table 23

Cross Tabulation and Chi Square of Source of Income and Wasting

Crosstab

			wasting			
			severe	moderate	normal	Total
main source of living	farming	Count	0	1	7	8
		% within main source of living	.0%	12.5%	87.5%	100.0%
	wage employment	Count	0	8	73	81
		% within main source of living	.0%	9.9%	90.1%	100.0%
	private/trade	Count	3	5	55	63
		% within main source of living	4.8%	7.9%	87.3%	100.0%
	others	Count	1	3	44	48
		% within main source of living	2.1%	6.3%	91.7%	100.0%
Total		Count	4	17	179	200
		% within main source of living	2.0%	8.5%	89.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.891[a]	6	.558
Likelihood Ratio	5.995	6	.424
Linear-by-Linear Association	.057	1	.812
N of Valid Cases	200		

a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .16.

The table 23 shows that the highest number of normal children had parents with wage employment (90.1%) and the highest percentage of moderately and severely wasted children were for private traders. The p value is greater than the level of significance therefore no relationship exists between wasting and main source of income.

CHAPTER FIVE

DISCUSSION

5.1 Nutritional Status of Children

The findings of this study show that generally, prevalence of stunting and underweight is higher but prevalence of wasting is almost similar to national statistics. According to WHO classification for assessing severity of malnutrition in the population, prevalence of stunting is high though it is moderate. This is in harmony with the findings of the UNICEF Uganda Nutrition Situation Analysis (2018) which found out that Uganda moved from high to medium severity for stunting by dropping below the 30% prevalence threshold. Besides, this translates to a percentage of stunted children who are unlikely to grow to their full potential both physically and mentally due to under-nutrition. The process of becoming stunted, due to restricted nutrient supply and/or frequent infection, is likely a common cause of both short stature and structural and functional damage to the brain, resulting in delay in the development of cognitive functions as well as permanent cognitive impairments. Previous studies showed that stunting affects more boys than girls in Sub Saharan Africa (UNICEF, 2013)

The study showed a significant difference in wasting and underweight as well as stunting and underweight. These results are not supported by Mangusho (2010) whose study found out that wasting is not as common as either stunting or underweight in school-age children. The prevalence for stunting for Kampala is 8%, underweight is 3% and wasting is 4% (UDHS 2018). In this study, the prevalence of stunting was lower than those reported in Kampala and the national level. This implies that children in Kampala suffer from less effects of stunting.

This study however did not find severely stunted or underweight children but found 2% of the children wasted. There was no evidence of prevalence of underweight observed among the children that participated in the study. There were more underweight girls than boys.

The acute malnutrition prevalence measured by mid upper arm circumference (MUAC) was consistent with the Wasting (weight for height) scores that both indicated similar results which showed higher rates of normal children in relation to gender. MUAC and weight for height are not alternative measures of acute malnutrition, but complementary variables that measure acute malnutrition independently (Golden et. al, 2015).

The higher prevalence of malnutrition among boys may be related to the higher growth rate in boys which may cause a greater need for nutrients not available in their diets.

5.2 Nutritional Practices of Parents that Promote Better Nutritional Status of Children.

UNICEF and WHO (2012) recommends that children be exclusively breastfed for the first six months of life and children be given solid or semi-solid complementary food in addition to continued breastfeeding from 6 months to 24 months or more when the child is fully weaned. Furthermore early initiation of breastfeeding, exclusive breastfeeding for six months, and timely introduction of age-appropriate complementary feeding are the key interventions to achieve the Millennium Development Goal 1 and 4, which address child malnutrition component of the targets and mortality respectively (Bhutta *et al*., 2008). Data indicate that one in every four Ugandan children start receiving complementary foods around 2-3 months; and during the period of 6-9 months after birth, 83% of Ugandan children have received non-human milk or complementary foods.

In this study 88 % of the children were reported to have been breastfed as infants (Table 9). Despite the self-reported rate of exclusive breastfeeding by the parents, the level of malnutrition among the children is slightly high.

In the developing world, lack of dietary awareness is a critical issue where diets consist mainly of starchy staples, with less access to nutrient-rich sources of food such as animal proteins, fruits and vegetables (World Bank, 2007). The diets of Ugandan children are mostly bananas, sweet potatoes, cassava, millet and maize which are the major staples for the majority of Ugandan families while beans, cowpeas, groundnuts, and green vegetables serve as the main protein sources. These results confirm the findings of the Uganda food Consumption Survey (2008) which identified that diets of children lack micronutrients found in animal source foods. Milk is the most frequently consumed animal protein because it is cheaper and more easily accessible than other animal source foods; hence milk is the main high quality protein available to young children.

In several studies, the diets of Ugandan children have long been described as limited in animal source foods and low in calories and nutrients. This is particularly true as evidenced by this study where majority of the children consume low dietary diversified food comprising mainly of cereals, grain nuts and legumes and low consumption of animal protein. While the intake of energy is important in diet, other nutrients such as vitamins, proteins and minerals are also necessary for healthy living. The quality of diets also plays a major role in children's nutritional status. In general, the diets of the majority of Ugandans are monotonous. The monotony of the diet which is evident in this study may limit the kind of nutrient interactions required for food utilization by the body resulting to inadequate nutrient balance, hence negatively affects nutritional status.

The observation that children's age and nutritional status are not related based on stunting and underweight could be explained by the fact that as the child grows he/she becomes more dependent and access different food than the younger infant who depends on what is provided by the caregiver/mother (Macharia, 2005). This is also probably due to increased physiological activities of the child at this age which may necessitate more nutrient intake to support growth and development. Children at this age are outside homes either in school or playing, failing to feed regularly to replenish their energy. Similar to other studies (Ruel, 2002), this study found an association between nutritional status and dietary diversity. Thus, malnutrition among preschool children might be caused by other factors other than just having a diversified diet. Additional studies are required to explain cooking method and adequacy of the complementary foods consumed by children in the study area.

The high consumption of food items from mainly cereals observed in this study only confirms that the diets of the children were predominantly based on starchy staples. Besides lacking adequate nutrients, it is also possible that the quantity of carbohydrates obtained from these cereals group was still not adequate to meet the macronutrient needs of the children. While the intake of energy is important in diet, other nutrient such as vitamins, proteins and minerals are also necessary for healthy living. Moving from a monotonous diet to one containing a more diverse range of foods has been shown to increase intake of energy as well as micronutrients in developing countries (Gina *et al.*, 2007). Although legumes and nuts were the second most popular food groups after cereals, the benefit from consumption of these food groups was not evident in determining nutritional status in this study probably because other factors like quality of the diet, quantity of food consumed and utilizations by the body are also determinant factors.

5.3: Extent to which Parents Have Access to Diet Information and the Channels.

Studies show that the parent's education remains an outstanding independent predictor of stunting even after adjusting for socio-economic indicators. This suggests that providing nutrition information to the mother or major care givers of children may have profound effects on the nutritional status of young children. This is not surprising since education is well known for promoting health-seeking behaviour, which could translate into improvement in child care-giving behaviour. However, this study found out that diet awareness is limited .This is confirmed by a report by FANTA-2 (2010) that discovered that most nutritional services in Uganda are provided in health facilities through the government or local government sectors.

Diet awareness is still questionable since nutrition education is still unavailable to the majority of Ugandan parents especially in Kampala since most people do not have access to nutrition information. These findings are confirmed by a study by Kabahenda (2006) which revealed that effective channels through which health messages can be delivered are lacking. Health care workers and teachers are often the people that provide nutritional education. The health workers and teachers are often limited in number and thus do not reach very many people. Nutrition information is also available to parents, mostly mothers, at health centres and hospitals during antenatal clinics and immunization visits. Nutrition centres have played a big role in treating malnourished children and providing nutrition education to mothers, however these programs only serve people that live near them. Efforts to incorporate nutrition into the Early Childhood Development syllabus were made though the results in Kampala are yet to be seen.

CHAPTER SIX

CONCLUSION & RECOMMENDATION

6.1 Conclusion

This study concluded that though the overall nutrition status of preschool children is normal, parents' diet awareness is still lacking due to the government policy which doesn't ensure delivery of proper nutritional messages to parents. The government of Uganda needs to make proper use of the different channels available to promote better nutritional status of children to promote proper Early Childhood Development through good dietary practices by parents.

This study has established that the diversity of children's meals is poor within Kampala Central where most parents have a good education background and basic knowledge of nutrition though these factors have no significant effect on the nutritional status of children.

There overarching gap observed in this study is low parents' awareness on diet and nutrition needed for the overall Early Childhood Development of the pre-school child. The main sources of diet information are few and limited. Therefore, addressing malnutrition related consequences among pre-primary school children in Kampala City Central division needs to be sensitive to parents' awareness and access to information on child diet and nutrition. .

6.2: Recommendation

Nutritional messages should include what parents including men can do to improve child diet. The government should implement nutrition programmes that include practical ways to improve children's diet diversity. Provision of nutritional education to the community targeting

mainly the whole family instead of mothers only is also essential to address stunting. Nutritional messages should be embedded in the Early Childhood Development Classroom activities to provide skills and opportunities for children to act as transmitters of Diet information.

Preschools should add nutritional education programmes that involve the whole school where parental involvement can be ensured for example, school garden projects that can be good learning opportunities on the value of nutritious food. School feeding programmes that provide low cost nutritious food should be implemented in preschools especially during break time and lunch before home. Through the help of Parent Teacher Association, social media platforms can be used to share ideas and information about food preparation, children's menus and nutritional values of locally available foods.

More diet information can be provided to parents from health centres where parents usually visit for routine immunization and primary health care. Parents should be involved in the provision of nutritious food to their children's schools as part of school requirements every term.

REFERENCES

Amin, E. M. (2005). *Social science research: Conception, Methodology and Analysis*. Kampala: Makerere University Press.

Anfara, V. A., Brown, K. M., &Mangione, T. L. (2002). *Qualitative analysis on stage: Making the research process more public.* Educational Researcher, 31(7), 28-38. doi: 10.2307/3594403

Apondi, M. K. (2009). *The relationship between nutrition and Performance of preschool children in Rabuor Zone Kisumu county, Kenya*. Un published research thesis submitted in partial fulfillment for the degree of master of Education (Early Childhood Studies) in the School of Education of Kenyatta University

Appoh, L. Y., & Krekling, S. (2005). *Maternal nutritional knowledge and child nutritional status in the Volta region of Ghana.* Maternal and Child Nutrition. 1(2): 100-110.

Asres, G., & Eidelman, A., (2011).*L'évaluationnutritionnelle des enfantséthiopiensbêta-Israël: uneenquêtetransversale.* Col. Med. Heal. Sci. 6(4):171-6.

Auradha. (2014). *Factors influencing status of undernutrition among children 0-5 years in a rural area of Delhi a cross sectional study*.Retrieved from https://www.researchgate.net/publication/273275628_

Bachou, H.(2000). *The nutrition situation in Uganda*.South African Journal of Clinical Background Document.Final Draft. p. Pages 52.

Bain, L. E., Awah, P.K., Geraldine, N., Kindong, N.P., Sigal, Y., Bernard, N., Tanjeko, A.T. (2013) *Malnutrition in sub – Saharan Africa: burden, causes and prospects.*

Baskale, H., & Bahar, Z. (2011). *Outcomes of nutrition knowledge and healthy food choices in 5 to 6 year old children who received a nutrition intervention based on Piaget's theory*. Journal for specialists in Peadiatric Nursing, 16, 263-279.

Bennel, G.(2002).*The psychology of linking crime. A review of the evidence.*Retrieved from https://www.researchgate.net/publication/227690858_

Bernstein, M., & McMahon, K. (2017). *Nutrition Across Life Stages*. Jones & Bartlett Learning.

Beryl, K., (2000). *Present Knowledge in Nutrition* (8th edition) ILSI Press, Washington D.C.

Bhutta, Z. A., Ahmed, T., Black, R. E., Cousens, S., Dewey, K., Giugliani, E &Shekar, M. (2008). *What works? Interventions for maternal and child undernutrition and survival.* The Lancet, 371(9610), 417-440

Biesta, G., & Osberg, D. (2007). *Beyond representation: A case for updating the epistemology of schooling.* Interchange,38, 15-29.

Campbell, M. J., Machin, D., & Walters, S. J. (2007). *Medical statistics: A textbook for the health sciences* (4th ed.). Chichester, UK: Wiley. Changes in levels of childhood malnutrition since 1980.

Carlson, G. J., Kordas, K., Murray-Kolb, L.E., (2014). *Associations between women's autonomy and child nutritional status: a review of the literature.* Matern Child Nutr.;11(4):452-82. https://doi.org/10.1111/mcn.12113 [Links

Demory-Luce D., Morales M., Nicklas T., Baranowski T., Zakeri I., Berenson G. (2004).*Changes in food group consumption patterns from childhood to young adulthood:* The Bogalusa Heart Study. J. Am. Diet. Assoc.

Demory-Luce, D., Nicklas, T. A., Yang, S., Baranowski, T., Zakeri, I., & Berenson, G. (2004).*Children's food consumption patterns have changed over two decades (1973-1994):* The Bogalusa heart study. Journal of the American Dietetic Association, 104, 1127-1140.

Espy, M. (2013). *Nutrition, Brain function and behaviour.*Retrieved from Health Guidance website. .

FANTA II. (2010). *The Analysis of the Nutrition Situation in Uganda.* Food and Nutrition Technical Assistance 11 Project. Washington, DC: FHI 360, 2010.

FAO. 2007. *Report of the* 33rd *session of the Committee on Food Security* (Rome 7–10 May 2006). Rome.

Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013).*Using the framework method for the analysis of qualitative data in multi-disciplinary health research.* BMC medical research methodology, *13*, 117.

Gina, L., Maria, R. & Chiara, S. (2007). Dietary diversity score is a useful indicator of micronutrient intake in non-breast-feeding Filipino children. The Journal of Nutrition 137:472-477.

Global Nutrition Report. (2018) .*From Promise to Impact: Ending Malnutrition by 2030.* International Food Policy Research Institute. Available at: globalnutritionreport.org/the-report-2018

Golden, M., & Emmanuel, G. (2015). *Weight for Height and Mid Upper Arm Circumference Should be used independently to diagnose acute malnutrition: Policy Implications*; Nutrition Series; 2; Bio Med Central; London, United Kingdom;10; 16-17

Halterman, J.S., Kaczorowski, J.M., Aligne, C.A., Auinger ,P., Szilagyi, P.G. (2001) *Iron deficiency and cognitive achievement among school-aged children and adolescents in the United States*. Pediatrics 107: 1381-1386.

Hox, J.J., &Boeije, H.R. (2005).*Data collection, primary vs. secondary. In K. Kempf-Leonard (Ed.), Encyclopaedia of social measurement* (pp. 593–599). New York: Elsevier.

Hurley, K.M., A.K. Yousafzai & F. Lopez-Boo. (2016). *Early child development and nutrition: a review of the benefits and challenges of implementing integrated interventions.* Adv. Nutr. **7**: 357– 363.

Ickes, S.B., Hurst, T.E., & Flax, V.L. (2015). *Maternal literacy, facility birth, and education are positively associated with better infant and young child feeding practices and nutritional status among Ugandan children.* The Journal of nutrition.

Jawad, I. H., Al Jebory, K. H. H., &Baey, H. A.(2016). *Assessment of Nutritional Status among Children less than 5 years old in Hilla City.* International Journal of Scientific and Research Publications, Volume 6, Issue 8.

Kabahenda, M. K. (2006). *Effect of Nutrition Education on Nutritional Status and Growth of Young Children in Western Uganda.* Unpublished dissertation, University of Georgia, Athens, Georgia.

Kelly .M. (2004) *How Nutrition Impacts Early Childhood Development.*https://study.com/academy/course/praxis-pre-kindergarten-education-practice-study-guide.html

Kotler, P., & Lee, E. (2008) *Social Marketing.* Influencing Behaviors for Good.Sage.

Liu, A., Zhao, L., Yu, D. & Yu, W. (2008) .*Study on malnutrition status and changing trend of children under 5 years old in China*. Institute for Nutrition and Food Safety, Beijing, China.

Macharia, C.W., KogiMakau, W., & Muroki, N.M.(2005). *A Comparative study on the nutritional status of children (6-59 months) in a World Vision Project area and a Non Project Area in Kathenzweni Division, Makueni District, Kenya.*African Journal of Food Agriculture and Nutritional Development.

Mangusho, G. (2010). *Effect of Vitamin A- Mineral Supplementation on Serum Retinol and Overall Nutritional Status of school children aged 6-10 years in Wakiso District, Uganda : A Randomized Controlled Trial*. Makerere University

Mbabazi, T. (2008). *A sure friendly guide to research and research methods.* Kampala: Jotain co.ltd

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook (3rd ed.).* London, UK: SAGE.

Ministry of Agriculture, Animal Industry and Fisheries (MAAIF). (2015).*Food And Nutrition Hand book For Extension Workers*. MAAIF

Mitchell, G.L., Farrow, C.V., Haycraft, E., & Meyer,C. (2013). *Parental influences on children's eating behaviour and characteristics of successful parent-focussed interventions.* Appetite,Switzerland.

Mungenda, O. M., & Mugenda, A.G. (2003).*Research methods quantitative and qualitativeapproaches.*African Centre for Technology Studies.Nairobi

National Food and Nutrition Policy. (2017): Uganda: A cross-sectional study. African Journal of Food, Agriculture, Nutrition Uganda: Establishing sustainable roles for effective implementation.

Neuman, W.L (2003). *Social research method: Qualitative and Quantitative approaches* (5th ed.). Boston, MA :Allyn and Bacon

Pelletier, D. L.(1998). *Malnutrition, morbidity and child mortality in developing countries. In Too young to die: Genes or Gender?* Edited by: United Nations. New York: Department of Economic and Social Affairs, Population Division; 1998:109–32

Péter, S.; Saris, W.H.M.; Mathers, J.C.; Feskens, E.; Schols, A.; Navis, G.; Kuipers, F.; Weber, P.; Eggersdorfer, M. (2015) *Nutrient status assessment in individuals and populations for healthy aging.* Statement from an expert workshop. Nutrients, *7*, 10491–10500

Rampersaud, G.C., Pereira, M. A., Girard, B. L., Adams, J., and Metzl, J.D. (2005). *Breakfast habits, nutritional status, body weight and academic performance in children and adolescents.* J AM Diet Association.

Rich, K., LeBlanc, H., Boyce, L., Anderson, J., Christofferson, D. (2012) *Parent Nutrition Education and the Influence on Family lifestyle Behaviour Changes.* A Thesis Submitted in Partial Fulfilment of the Requirements for the Degree, of Master of Science in Nutrition and Food Sciences, Utah State University Logan, Utah.

Ruel, M. T. (2002). *Is diversity an indicator of food security or dietary quality? A review of measurement issues and research needs.* FCND Discussion paper No 140, International Food Policy Research Institute,Washington,DC,USA.

Saaka, M. (2014). *Relationship between mothers' nutritional knowledge in childcare practices and the growth of children living in impoverished rural communities.* Journal of health, population, and nutrition, *32*(2), 237.

SABER- Country Report, Uganda, 2012.

Sansoni, J. E. (2011). *Questionnaire design and systematic literature reviews*. Retrieved from http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1124&co ntext=ahsri.

Schneider, Sari .O,.Kimiywe.J,. Lubeka.C,.&Mutanen.M,.(2017). *Is competence enough to enable Kenyan mothers to make good infant and young child feeding decisions?* Maternal & Child Nutrition, 13, 4.

Schroeder ,D.G .,Semba, R. D., & Bloem, M.W.(2001) *Nutrition and health in developing countries.* Humana Press, Totowa, New Jersey, USA.

Schwandt, T. A. (2007). *The Sage Dictionary of Qualitative Inquiry (Third ed.),* Thousand Oaks, California: Sage Publication, Inc.

Scoggins, R. L. (2015). *Parent's Use and Likely Utilization of Nutrition Education Resources in the Mississippi Delta Region.* International Journal of School Health.

Sekaran, U. (2003).*Research method for business*: A skill building approach, 4th edition, John Wiley& Sons.

Shim, J. S., Oh, K., & Kim, H.C. (2014). *Dietary assessment methods in epidemiologic studies.* Epidemiol Health. 2014;36:e2014009. doi: 10.4178/epih/e2014009

Stuart, T.H. (2005) *Behaviour Change Communication in emergencies*: United Nations Children's Fund Regional Office for South Asia (UNICEF ROSA)

Thomas, J., Sutcliffe, K., Harden, A., Oakley, A., Oliver, S., Rees, R., Brunton, G., & Kavanagh, J. (2003). *Children and healthy eating: a systematic review of barriers and facilitators.* London, University of London Institute of Education, EPPI-Centre, Social Science Research Unit.

Uganda Bureau of Statistics (UBOS) & ICF. (2017) .*Uganda Demographic and Health Survey 2016: Key Indicators Report*. Kampala, Uganda: UBOS and Rockville, Maryland USA: UBOS ICF.

Uganda Bureau of Statitics (UBOS) and Macro International (2007) Uganda Demographic and Health Survey 2006. Kampala, Uganda and Calverton, Maryland, USA: UBOS and Macro International Inc.

Uganda Nutrition Situation Analysis.(2018) *trends in nutritional status, behaviours, and interventions;UNICEF*

Un-Habitat. (2007). *Situation Analysis Of Informal Settlements In Kampala,* United Nations. Nairobi.

UNICEF House. (2001).UNICEF. *The state of the world's children 2002: Leadership*. New York, USA: uninfected infants in Uganda. Journal of Nutrition. 2002;132:423-9.

UNICEF Uganda. (2018). *Nutrition situation analysis: Trends in nutrition status, behaviours, and interventions.* Kampala, Uganda: UNICEF Uganda.

UNICEF; WHO; World Bank. (2016). *Joint child malnutrition estimates: levels and trends.* Geneva.

United Nations.(2005). *The Millennium Development Goals Report 2005*. New York: United Nations.

Van Ansem, W. J., Schrijvers, C. T., Rodenburg, G., & Van de Mheen, D. (2014). *Maternal educational level and children's healthy eating behaviour: role of the home food environment (cross-sectional results from the INPACT study).* The international journal of behavioral nutrition and physical activity, *11*, 113.doi:10.1186/s12966-014-0113-0

Ventura, A. K., & Birch, L. L.,(2008). *Does parenting affect children's eating and weight status?* Int J Behav Nutr Phys Act.

Wardle, J., Herrera, M.L., Cooke, L., & Gibson, E. L. (2003). *Modifying children's food preferences: the effects of exposure and reward on acceptance of an unfamiliar vegetable.* European Journal of Clinical Nutrition, 57(2):341–348.

Winter, L., Morawska, A., & Sanders, M. (2012).*The Knowledge of Effective Parenting Scale (KEPS): A tool for public health approaches to universal parenting programs.* The Journal of Primary Prevention;33(2-3):85–97. [

Wolfe, P. (2010). *Brain Matters, Translating Research into Classroom Practice.* Alexandria, VA: ASCD.

World Bank. (2007). *From Agriculture to Nutrition: Pathways, Synergies and Outcomes:* The World Bank, Agriculture and Rural Development Department: Washington, DC, USA

World Health Organisation; International Food Policy Research Institute. (2016). Global Nutrition Report 2016: *From Promise to Impact: Ending Malnutrition by 2030.* Washington, DC.

World Health Organization (WHO). (2014). *Global nutrition targets 2025:* Stunting policy brief.

Yannis, G. I., & Michael, B. I., (2013). *Assessing the level of awareness about malnutrition and poor drinking water affecting child health in district Chiniot Punjab, Pakistan.* Pakistan J Nutr 2013;12:978–82.

ANNEXES

Annex 1: Questionnaire for Parents/Caretakers of Children

Identity No: | | | |

Place of Residence/Zone: _____

Time: _____

Section A: Characteristics of the Parents/Guardians

---

1. Child's Gender: Male ☐ Female ☐

2. How many people do you live with in the household: ☐☐

3. How many children do you have: ☐☐

4. What is the birth position of the children in pre-primary ☐

5. Marital status:

Single parent ☐ married ☐ others ☐

6. What is your education status:

None ☐

Primary ☐

O Level ☐

A level ☐

College/University ☐

7. What is your age: ☐☐ years

8. What is your main source of livelihood: Farming ☐ Wage employment ☐ private/trade ☐ others (specify): ☐

SECTION B: AWARENESS ON DIET AND NUTRITION OF THE CHILD

9. When was the child in pre-primary born : ☐☐ ☐☐ ☐☐ (dd/mm/yr)

10. Did you breastfeed your child? Yes ☐ No ☐ If yes, then for how many months? ☐☐

11. Do you know about exclusive breastfeeding? Yes ☐ No ☐ If yes, specify what is the recommended period of exclusive breastfeeding? ☐☐

12. Do you know the meaning of complementary feeding? Yes ☐ No ☐ If yes,

Specify ----------

---

13. What is your view on the diet and nutrition of your child?

---

14. How many meals do you give you child every day? : ☐ ☐

15 Who commonly prepares the child's food at home? Mother ☐

Father ☐ Caretakers ☐ others (specify)----------

16. In addition to the family meals, do you provide additional meals to the child? Yes ☐

No ☐ others (specify) ----------

17. Are there special foods you always consider for your child in their diet? Yes ☐ No ☐

If yes specify: ----------

18. Do you know the meaning a balanced diet?

Yes ☐ No ☐

If yes specify:----------

19. Do you know the meaning of an adequate diet? Yes ☐ No ☐

If yes, specify ----------

20. In the last 24- hours, which of the following food groups has your child has consumed (tick where applicable):

Cereal and grains ☐ Starchy roots ☐ tubers and plantain ☐ legumes and

Nuts ☐ vegetables ☐ fruits and fruit juices ☐ meat and poultry ☐

eggs ☐ fish ☐ dairy and dairy products ☐ edible oils and fats ☐

Non-alcoholic drinks and beverages ☐ refined sugars, sweets, spices and

Confectionaries ☐

21. Select the meal intervals taken for your child every day.

After 2 hours ☐ After 3 hours ☐ After 6 hours ☐ Not sure ☐

22. How have you accessed any kind of Nutrition Education? Yes ☐ No ☐ if yes, what was the source?

Community discussions ☐ Health Centres ☐ Media ☐ Schools ☐

23. What is your most common source of nutrition information for the benefit of your child?

Community discussions ☐ Health Centres ☐ Radio ☐ Schools ☐

24. What nutrition messages do you know in relation to child care and diet?

……

……

……

25. Has the child suffered any health related conditions in the last 12 months? Yes ☐

No ☐ If yes, specify ----------

Annex 2: Nutritional Status Assessment Child Form

Identity No: | | | |

1. Gender: M / F

2. Age : _____months Date of Birth : ----------

3. Weight of the child (in Kgs): …….

4. Height of the child (cm): ……

5. Mid-Upper Arm Circumference (cm): …….

6. Waist circumference (cm): …….

7. Hip circumference (cm): .....

Annex 3: Parental Consent Form for Child Participation in a Study

Dear Parent/Guardian,

My name is Nadia Naushad Tharani. I am undertaking a Master of Education Programme from Kyambogo University, Uganda. Currently I am in the research phase of the study.

As part of the requirements, we have design a study on *'Parents' Diet Awareness and Nutrition Status of Preschool Children in Central Division of Kampala Capital City Authority, Uganda*.' The study has been approved and we are at the data collection phase. Data collection will involve interview of the parents/guardian about the child's nutrition for a short period of about 10-15 minutes.

The purpose of this communication is to humbly request for your parental consent for the child to participate in the study as well as for you to provide information required about their nutrition. Your identity and that of the child will be treated with utmost confidentiality. Participation is voluntary and you can withdraw your participation from the study at any given time. Further information can be obtained from the Head of Department, Early Childhood Education, Dr. Ejuu Godfrey on telephone number: 0704151905

Thanking you in anticipation.

Kind regards

_____

Nadia Naushad Tharani

Date: _____

I consent to participate in this exercise and I express my willingness by signing this form.

Name: _____

Signature: _____

Designation: _____

Annex 4: Data Collection Approval Letter

KYAMBOGO UNIVERSITY

P. O. BOX 1, KYAMBOGO – KAMPALA, UGANDA

Faculty of Education

Department of Early Childhood Education

INTERNAL MEMO

FROM: Chair, Department Graduate Board, 13th May 2019

TO: Ms. Nadia Tharani REF: 17/X/14523/GMEC/PE
C/o Early Childhood Education
Department

REF: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that the Faculty Graduate School Board at its meeting of 3rd April 2019 approved your research proposal for the Master of Education (Early Childhood Education). You can now proceed to the field for data collection.

Thank you.
Yours sincerely,

Dr Ejuu Godfrey
FOR: CHAIR, FACULTY GRADUATE BOARD

CC Chair, Early Childhood Education Department Graduate Board

Supervisors

1. Dr. Rukundo Peter Milton
   Head of department Nutrition

2. Dr. Ndawula Stephen
   Head of department Odel