INFLUENCE OF PARENTAL SOCIO-ECONOMIC FACTORS ON NUTRITIONAL STATUS OF PRE-SCHOOL CHILDREN IN NAIVASHA CENTRAL ZONE,

KENYA

By
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A Research project Submitted in Partial Fulfillment of the Requirements for the Award of Master of Education Degree in Early Childhood Education in the Department of Educational Communication and Technology of the University of Nairobi

2011
DECLARATION

I declare that this research project is my original work and has not been submitted for an award of a degree in any other university.

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This research project was submitted for examination with our approval as University Supervisors.

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DEDICATION

This Research project is dedicated to all children who experience malnutrition in Naivasha Central zone.
ACKNOWLEDGEMENTS

Above all is to give sincere thanks to the Almighty God for His grace and favour throughout this difficult time when I was undertaking this course.

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ABSTRACT

This study is set out to establish the factors which affect the nutritional status of the pre-school children in Naivasha Central zone in Naivasha District. The study targeted 108 respondents. This involved 20 schools teachers, 40 parents and 48 pre-school children. The zone was chosen because the pre-school children here expressed most profound signs of diverse nutritional levels. Through self administered questionnaires and oral interviews, the study elicited views on the determinants on nutritional status of pre-school children in Naivasha Central zone. In this study piloting was done prior to the actual research. This was done by use of simple random sampling of one school in the neighbouring district before the actual research then test re-test technique was used to test the reliability. The researcher got the research permit from the National council for Science and Technology and wrote an introductory letter to the targeted schools in the zone before proceeding to the field to collect data. The data was collected and analyzed with the help of a computer. This enabled the researcher to enter and analyze quantitative data using descriptive statistics in order to obtain the mean, frequencies, percentages and correlation coefficient. According to the study, the findings that 60% of the targeted pre-school parents lacked adequate knowledge on the provision of nutritious food and only 40% of the parents have attained academic standards of above secondary level which is below average. Findings on marital status indicated that where wives are involved (67.5%) in food acquisition, the children have a high MUAC (13cm and above) value confirming provision of nutritious foods. In respect to income levels, it was found out that it is only 29.2% of the parents who earned over Kshs. 10,000 per month which was adequate to purchase healthy foods. Finally, findings on family size showed that less than half (37.5%) have families of four children and below. This made it possible for them to provide nutritious foods to their children. The researcher therefore recommends that parents, caregivers, pre-school teachers and the entire community should be educated about different nutritional needs of children in order for them to provide healthy diets to pre-school children. There is also a need for the parents and communities in the research area to initiate feedings programmes in the pre-schools.
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LIST OF ABBREVIATIONS AND ACRONYMS

WHO  World Health Organization
GMP  Growth Monitoring Programme
DICECE  District Centre for Early Childhood Education
ECD  Early Childhood Development
PEM  Protein Energy Malnutrition
FAO  Food Agricultural Organization
UNICEF  United nations Children Education Funds
MOH  Ministry of Health
WFP  World Food Programme
API  African Press International
FNC  Food Nutrition Council
UN  United Nations
NHANNES  Nutrition Health and Nutrition Examination Survey
US  United States
DEO  District Education Officer
IDP  Internally Displaced Persons
MUAC  Mid-upper arm circumference
CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

One of the most important parameters that affect the development of children is their nutritional level. During the early years, growth and development of the children is rapid. Therefore parents and care givers need to know the concept of provision of healthy nutrition to the children (Proust, 1971). Food habits and behaviours are often formed in early life, and nutrition education of children can have a major role in ensuring appropriate dietary patterns and good health. In USA, most children’s foods provide poor nutritional quality, but packaging claims and healthy images could be misleading parents according to a Canadian study. Professor Charlene Elliot used America’s guidelines to review 367 products, whereby 70% of the product’s had higher than recommended sugar levels, 23% had high fat levels and 17% had high salt levels (science Daily July, 2008).

According to reports revealed by Science Daily (2008), nine out of ten regular food items aimed specifically at children had poor nutritional content because of high levels of sugar, fat or sodium. This research indicated that fewer than 70% of the products studied such as soft drinks and bakery items derived a high proportion of calories from sugar. It was also found that 62 % of the foods with poor nutritional quality (PNQ) made positive claims about their nutritional value on the front of the packet (Mc Craken, 1999).

Recent reports from university of Calgary, Canada revealed an observation that the eating habits of children had substantially changed over the past two decades. Children were obtaining greater proportions of their calories from fast foods and snacks that were typically high in fat, salt and sugar (Frum, 2011). These foods included ice-cream, chips, pizza, hamburgers, crisp and juice rather than fibre rich
foods such as fruits and vegetables. In USA, many families did not take meals together very often. Research indicated that when children ate meals with their parents they ate a more nutritious diet. The nutritional value of a child’s diet is positively influenced not only by having a good parental role model as food preferences were concerned. Children who preferred to eat by themselves tended to eat food high in sugar, fats & salts (Winston, 2003) reports from FAO indicated that for every operation that was undertaken, it had to establish what type & quantity of fast foods people needed. It was not just a question of providing food, but also making sure that what was provided was nutritionally appropriate to address the problem at hand.

Using international standards & guidance, world food programmes nutritional experts’ advice on appropriate food baskets for people facing hunger & the risk of malnutrition in children including those of pre-school age. Research confirmed that good nutrition in the early years of life was crucial for children physical growth and mental development. This was why a large part of World Food Programme Nutrition Work was directed at young children (WHO, 2004).

A study conducted in Srilanka indicated that, nutritional status of IDP children had improved (API, 2009). The nutritional status of displaced children under 5yrs of age living in welfare villages in the north had significantly improved since their arrival in the camps as reported by the secretary to the MOH and nutrition (Athula, 2009). His report showed that the nutritional status of the children had increased by 50% in comparison to the level of nutrition when they first arrived. The causes of these improvements were due to the partnership of aid agencies, UNICEF and WFP together with the health ministry. These worked together to ensure setting up of nutrition centres inside the welfare villages to provide nutrition to nearly 25000 children of 5yrs and below (API, 2009).
Research carried out by the inclusive government of Zimbabwe, the UN, and the Food nutrition Council (FNC) had launched new data on the nutritional status of Zimbabwe’s children, revealed that more than 1/3rd of Zimbabwe’s children under five years of age were chronically malnourished and consequently stunted (Harare, 2010). The Prime Minister Morgan Tsvangirai highlighted that during a national nutrition survey results that food production in the country remained low to meet the national requirements. The report further indicated that, while the overall prevalence of severe acute malnutrition remained relatively low across the country for children under 5 yrs at 2.1%, the rate doubled among younger children suggesting, inherent problems in their feeding practices, including access to right foods which would of course provided the right nutritional status in children (Mutseyekwa, 2010).

According to the studies carried out by the (Smaling, 2008), it indicated that 2008 was a challenging year for the nutrition programme in Kenya, as major government resources were diverted from core nutritional activities to dealing with post election crisis. During this period most food was gutted down in stores leaving a large number of people with little if not nothing to eat. The aftermath was malnutrition especially to the children who required adequate balanced diet which was needed to boost their nutritional status. The balanced diet could not be obtained because the displaced persons living in tents were being given rations of food stuffs once in a week. The food was not balanced as it comprised of maize meal, rice, powdered milk and cooking oil. It lacked several vital nutrients like vitamin A, iron and iodine which are crucial for children wholistic growth (Naivasha news magazine, 2009).

Nutrition has far reaching benefits on children as discussed earlier on, and ensured good nutrition was a matter of law according to (Bellamy, 1999). She argued that lack of good nutrition resulted in severe malnutrition which indicated
that some nutrients provided to the children had low nutrition level. Reports from the world health organisation (WHO, 2004), claimed that there was not enough food for all. For instance Kenya was undergoing food shortage. The threat to the food security however was the ever increasing population and the poverty experienced by the majority (Diouf, 1996).

1.2 Statement of the Problem

Good nutrition is a basic human need. Human beings including children not only needed balanced diet for good health and holistic development but also require energy to undertake or perform tasks. Ensuring that there is adequate food for all should be a matter for law Bellamy (1999). Research conducted by Godlewska and Klerebinski (1981) indicated that one of the most important parameters that affected the development of the children is their nutritional status. It is known that children who are provided with balanced diet have advantages in proper growth and development. This is portrayed in total engagement in social play, interaction with others, physical activities as well as physiological development.

This topic is significant because it unearths the various food groups and in each group it depicts the various nutrients which are contained in each food group. For instance, a balanced diet is essential to the growth and development of the children because it contains all the essential nutrients. When it is provided to the children, it enables them to maintain the required levels of nutrition which enable them to function effectively since there are no deficiencies of any micro-nutrients (Nigel, 1997).

The overall research problem addressed in this study showed that despite the fact that parents provided their children with foods, much of it was of low nutritive value. Once such food was consumed by the children, it resulted to negative growth
and development. This was clearly observed in children with weak and brown hair, stunted growth who withdrew from play and those with an arm circumference of less than 12 centimetres. These are signs of low nutritional status. Research indicated that most parents were not capable of providing their children with the healthy foods due to factors like low income, large families, marital status and lack of adequate knowledge on the appropriate foods to provide (Jerome, 1996).

This study was therefore aimed at bringing into view points concerning healthy nutrition which is required for health growth and development of pre-school aged children in Naivasha Central Zone.

1.3 Purpose of the Study

The purpose of this study was to examine the influence of parental socio-economic factors on nutritional status of pre-school children in Naivasha Central Zone.

1.4 Objectives of the Study were to:-

1. Examine how parent’s level of education influence nutritional status of pre-school children in Naivasha Central Zone.

2. Establish how marital status influence nutritional status of pre-school children in Naivasha Central Zone.

3. Establish how parent’s income level influence nutritional status of pre-school children in Naivasha Central Zone.

4. Determine the influence of family size on nutritional status of pre-school children in Naivasha Central Zone.
1.5 Research Questions

1. How does parent’s level of education influence nutritional status of pre-schoolers in Naivasha Central Zone?

2. How does marital status influence nutritional status of pre-school children in Naivasha Central Zone?

3. How does parent’s level of income influence nutritional status of pre-school children in Naivasha Central Zone?

4. How does family size influence nutritional status of pre-school children in Naivasha Central Zone?

1.6 Significance of the Study

Once this study was duly complete, it would have significance on several people. Other researchers would acquire an advancement of knowledge on nutrition education and this would be used to write more reports which would be beneficial to other people. Students would benefit from this report as the knowledge they were likely to receive from this study would guide them particularly when searching for nutritional information. The findings would be used by the health personnel to sensitize the community around on the benefits of provision of a well balanced diet to their children. The health personnel would also use the knowledge gained to advice parents on the importance of taking their children for the growth monitoring programmes, (G.M.P.) whereby counselling sessions would ensue pertaining to the provision of adequate balanced diets to the children.
1.7 Limitations of the Study

These were constraints which the researcher may have faced in the course of the study which she or he had no control over. Some of the respondents especially parents may have failed to give correct information due to lack of understanding as a result of illiteracy or low education level. In this case, the researcher explained the meaning of some terms, which may have appeared difficult. On the other hand, some of the respondents who were used in this study may have failed to give correct information due to cultural beliefs. In this case, the researcher is expected to take sometime to study and understand diverse cultural beliefs of the respondents in order to deal with them accordingly without offending anyone.

1.8 Delimitations of the Study

The scope of the study was limited to pre-schools in Naivasha Central Zone which was just one among the many Zones found in Naivasha District. These results may not be applicable in other areas.

1.9 Basic Assumptions

This study assumed that, the targeted pre-school children in Naivasha central Zone were not provided with nutritious food. The researcher assumed that respondents would answer all the questions as honestly as possible. This would help the researcher to carry out the study effectively. The study at the same time assumed that parental failure to provision of adequate balanced diet to their children would decrease their nutritional status. Also the study assumed that there were GMP mobilization to help the parents and the community within Naivasha Central Zone where knowledge on the provision of adequate balanced diet to the children may be highlighted. Finally the study assumed that
there were variables in the area of study which might interfere with the independent variables given to influence nutritional status of children for instance, kinds of foods cooked, types of foods prepared, types of foods provided to the family and amount of food prepared.

Definitions of Significant Terms

The following terms are defined in the context of the study:-

Health personnel: A specialised worker in a health institution.

Malnutrition: It refers to physical manifestation of poor nutrition.

Nutrition status: Refers to the general level of nourishment which is caused by nutrients in a good diet.

Pre-school: It is an educational learning institution where children of three to six years attend before joining primary school.

Growth monitoring programmes: refer to health activities which are offered free of charge in government health institutions whereby young children and those of pre-school age are checked on their growth rate.

Balanced diet: Suitable food that is provided to the family which supplies all nutrients required for healthy growth.

Learning: Refers to an adaptive change in behaviour as a result of previous experience.
Organization of the Study

This study is organized into three sections:-

The first section explores the background and the statement of the problems under study. It is closely followed by the purpose, objectives, research questions, significance, limitations, delimitations, basic assumptions and definitions of significant terms of the study.

The second section comprises of the literature review which has been done under the following sub-topics:-

Educational level of parents.
Marital status.
Income level of parents.
Family size

Theoretical and conceptual framework that underpins the study.

The third section covers the research methodology to be employed in the study. This deal’s with research designs to be employed in the study, target population, sampling procedure, the instruments to be used, their validity and reliability and finally the procedure for both data collection and data analysis.
CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

The purpose of this chapter reviewed literature related to determinants of nutritional status of pre-school children in Naivasha Central Zone. The researcher discussed these determinants under the following sub-topics or key issues:- parents’ level of education, marital status, Income level and family size. This chapter indicates the relationship between independent and dependent variables. Finally the researcher discussed the theoretical framework and the conceptual framework concerning the study.

2.1 Nutrition

Nutritional status is the condition of the body in those respects influenced by the diet, which is the levels of nutrients in the body and the ability of those levels to maintain normal metabolic integrity (Ricci, 1996).

To live one must eat, but we not only eat to live but what we eat also affects our ability to keep healthy, do work, be happy and live well. Knowledge of what we eat and in what quantities is a pre- requisite to the healthy and happy life. Nutrition is the organic process of nourishing or being nourished, it is the process by which organisms assimilate food and uses it for growth and maintenance (Lanneli, 2005).

Nutrition is the science that deals with all the various factors of which food is composed and the way in which proper nourishment is brought about. The average nutrition requirements of groups of people are fixed and depend on such measurable characteristics such as age, sex, height, weight, the degree of activity and the rate of
growth. Good child nutrition is not just about trying to force kids to clean their plates, rather parents and caregivers should prepare food which encompasses all the nutrients in order to maintain the nutritional status in the children to enable them grow and develop in a healthy manner (Ricci, 1996).

Research has indicated that proper nutrition in children can reinforce lifelong eating habits that contribute to the children’s over all well-being and help them grow up to their full potential towards a healthy life (Elliot, 2003). To measure the nutritional status of the children, mid-upper arm circumference, a WHO standard is used to determine children growth (WHO, 2006). According to this, children who have attained healthy growth should attain a MUAC of 12cm and above. Good nutrition requires a satisfactory diet which is capable of supporting the individual consuming it in a state of health by providing the desired nutrients in required amounts. It must provide the right amount of food to execute physical activity.

A balanced diet on the other hand is the one that contains adequate amount of all the necessary nutrients required for the healthy growth in children and activity. It must contain carbohydrates, proteins, fat, vitamins, mineral salts and fibre. It must contain these materials in the correct proportions in order to maintain the proper or required nutritional level in children. For instance, carbohydrates provide a source of energy, proteins provide a source of materials for growth and repair, and fats on the other hand provide a source of energy and contain fat soluble vitamins. Vitamins are required in very small quantities to keep children and human beings healthy. Mineral salts are required for teeth, bones and muscles while fibres which are also referred to as roughage are required to help the intestines of the children function properly. If it is not included in the food material, people including children might end up with problems of constipation (Wikipedia the free encyclopaedia).
Parents and caregivers should always ensure that a balanced diet is provided at all times. This is because it tends to give the body the required nutrition level which enables children to function effectively since there are no deficiencies of any micro-nutrients (Nigel, 1997).

2.3 Nutrition and Parental Level of Education

It has well been established that mother’s level of education has positive effects on child nutrition in developing countries. One of the most important parameter that affects the development of children is their level of nutrients. It is known that children with a balanced diet have advantages in proper growth and development, in academic success as well as physiological development. It is during the early years that pre-school children experience rapid and holistic growth and development (Klerebinski, 1981). Since parents play a pivotal role in helping their children to implement eating pattern (Mullis, 1989).

This study sought to bring a viewpoint concerning the relationship between level of education and provision of health nutrition of the children. Food habits and behaviour are often formed early in their life, and nutritional education of children can have a major role in ensuring appropriate dietary patterns and good health as reported by Godlewska (1981).

A nutritional study conducted in schools in Poland indicated that, most children who attend primary schools are particularly well suited for teaching nutrition. Proust (1971) showed that in schools, girls can acquire skills that are later used to access modern health services and comprehend nutrition and health messages. It has been argued that children greater exposure time to mothers explains why the effect of education is greater for mothers than fathers, as fathers tend to work away from home. If however employment draws mothers away from child care at home, the
presence of other household members who are better educated than the mother may offer help ensuring that the children are given overall quality childcare which includes healthy feeding, which will boost the nutritional status of the children, (Cadwell, 1980).

Another important study by Straus and Thomas (1991) indicate that important example of interactions of the strong positive impact of mothers’ on children’s health and nutrition outcomes, and on the use of key inputs to health such as medical care, even when controlling the level of household income. This is not because health or childcare practices are taught in school but rather that educated mothers are better able to acquire and process information about provision for the health and nutritional needs of their children, such as provision of nutritious foods which will boost the nutritional status in children, Thomas, Strauss and Henriques, (1991). These examples of positive education of parent- health interactions implied the benefits of improving access to education and health (Glewwe, 1999).

Less educated older adults who are defined as those whose formal education ended prior to completing four years of tertiary education are more likely to rely upon their television, doctor and neighbours for nutrition information that people who have completed at least four years of tertiary education, according to researchers from the USDA Human Research Centre on Aging at Tufts University. According to these researchers, Education level more than any other socio-economic factor can predict disease risk, health behaviour patterns and diet quality which has been connected with maintaining a positive nutrition status in children (American Journal of Dietetic Association, 2006).

It has been suggested that one reason why higher education of parents promote more healthier diets to their children is that better educated parents may get better nutrition information from various sources, such as doctors, magazines, newspapers
and Television because they can read and comprehend the nutritional messages on their own. This was unlike the people who had not completed the four years in tertiary education, who get their nutrition education from their physician (Strauss, 1991).

According to this report, researchers said it is particularly worrisome that less educated parents rely so heavily on the doctors for nutrition information because they tend to assume that physicians do require training in this subject which is wrong (AJDA, 2006).

In respect to this research, study of USDA research centre in America, researchers revealed that low educated parents households face challenges in provision of quality healthy foods; diseases progression and containing of health care costs with dietary intervention are warranted. These positive associations between child and maternal education in Vietnam, over and above parental education and other individual-level confounders suggests that children may benefit from living in literate households. The literacy of the other members can realistically affect childcare through the sharing of knowledge and imitation of behaviour. Parents who are educated would care about their children’s nutritional status better than those who were less educated. The educated parents would wish to feed their children well in order to give a good start in life.

The nutrition education which they have acquired will enable to offer sensible feeding to their children. This feeding begins during pregnancy when the expectant mother eats sufficient proteins, fresh fruits and vegetables in order to supply enough nourishment for herself and the developing baby. After the birth, the baby is fed entirely on breast milk for the first six months, and then it is weaned on the other foods. The child will then get nourishment from a variety of foods containing
different types and amounts of nutrients. The level in the nutrients provided to the child will determine greatly its rate of growth and development (Godlewska, 1981).

2.4 Marital Status and Children Nutrition

The primary objective of this study was to evaluate the association between marital status and childhood feeding. The researcher wished to discuss the dietary differences of children from single and dual households. Research indicated that healthy, active and well-nourished children were more likely to attend school and were more prepared and motivated to learn. On the other hand, children who were overweight were not prepared to learn hence are unfit. They may develop a serious health problem in their current live and also face dire consequences in the future (US white paper on health, 2005).

Parents roles in their children nutrition begin much earlier than most think. First and foremost, we should know that we are what we eat, therefore, parents should be mindful of what food they choose for their children. Some of the foods which are given to the children might be damaging (Journal of school health, 1997).

Marital status may be associated with children’s health outcomes including their eating habits, body weight and blood cholesterol. The nutritional health and nutrition examination survey by NHANES (2004) provided a unique opportunity for matching parents to children enabling analysis of health indicators.

According to a study that was conducted by NHANES (2004), it indicated that of 219 households with single parents and 780 dual parents households were analysed as predictors for primary outcome variables of children’s body mass. Report from NHANES indicated that, children of single -parent households were significantly more over weight than those of dual-parent households. The study results revealed
or implied a strong relationship between single-parent’s status and excess weight in children (Huffman, 2007).

Single parents often experience more strain when balancing the role of wage earner with parental responsibilities. Research has indicated that children of single parents are less likely to eat at the table together and are permitted to play and watch television during meals. In the same context, profound poverty has been consistently linked with single parent households, especially those headed by women. Report by NHANNES (2004) indicated that children from dual family households have controlled diets because they eat from the same table with the parent(s).

The report showed that, children of female-headed households consume more total fat, saturated fat and sweetened beverages as well as had a higher percentage of more than two hours of television or video viewing than children of dual family households. This fat is damaging to their lives because it may lead to child obesity (Manthan, 2010).

### 2.5 Income Level and Children Nutrition

Price is an influential feature of nutrition in a family. A research conducted in Australia indicated that families with low income had a proportionally low availability of healthful foods and produce of poorer quality than do more affluent families as reported by Karen Kaphingst. The poor were characterised by a miscellany of unskilled occupations, absence of savings, a chronic shortage of cash, and the absence of food reserves in the home. There was also a frequent buying of small quantities of food many times in a day as the need arises. Still on the same context, those who were poverty stricken in modern nations, the result was not only a state of economic deprivation, or disorganization, but of the absence of something positive (Vanveen, 1986). He reported that those with low income lived in clouded
quarters where alcoholism was high. Studies conducted by Dirat (1993) indicate that in those families where parent’s earnings were low, children suffered the most, for instance, when they acquired the gastro-intestinal diseases. Among the commonest diseases in children were diarrhoea, dysentery, and intestinal worms. Those diseases reduced the absorption of nutrients by the child and so helped to cause malnutrition. This became serious in children who were particularly poorly fed.

A child stopped gaining weight at the health rate if he did not eat enough calories, proteins and micro nutrients for instance vitamins A and Zinc to cover his energy and nutrients needs. Such a child was to use his own muscles and stored fat and other nutrients to stay alive. As a result, the child emaciated, which is a symptom of low nutrition level. The thinness also means the child was undernourished (Burgess, 1994).

The study by Burgess (1994) indicated that a child stops gaining height if he does not eat enough. The result was that he became shorter than healthy children. Even if he ate well later in life, he would not grow to reach the would be normal height. Therefore, a child who was too short would have lacked important nutrients at some point in the past either when he was in the womb or during the early childhood. This condition showed a low level of nutrition in the child which as a result of low income earning by the parents. Other studies have revealed that, many families do not have adequate food to feed everyone properly throughout the year. This could be as a result of the low income level of the parents. This is one of the most significant causes of under-nutrition (low levels of nutrition) particularly in urban areas. Parents could not afford to buy enough and balanced foods when incomes were low in contrast to high food prices (Malawi, 2010). A family was likely to be short of food when the main wage earners were unemployed or were on low wages. Research indicated that, many women provided most of the family food, fetch water and
firewood, had frequent pregnancies and cared for the home and the family (UNICEF, 1996).

A woman’s work load affected the amount of time she spent breastfeeding, cooking and encouraging the young or the sick children to eat. On the other hand, fathers would work for long hours only to earn low wages. This meant that the amount of money earned was not adequate to buy enough food and a balanced diet for a healthy family. The reduced nutrients level lowered vigour of their bodies, more so to the pre-school children who required nutritious foods for holistic growth and development (Wood, Vaughan and Glanniville, 1981).

Such parents obtained cheap food which was readily available and did not consider the nutrients value as reported by Osuga (2009). Burgess’s (1994) study indicated that there was a relationship between the amount of food eaten, the energy spent and the body weight. If a person or child ate more of that food than the body needs, the excess carbohydrates and fats were converted into fat and deposited in the tissues. If on the other hand, he ate less food than the body needs, the energy required was to be sort from some source and this caused emaciation. The study showed that the commonest and most important cause of under nutrition in children in East Africa was the energy deficient diet.

The nutritive value of a food product should be assessed within the framework of the function it was designed to perform in the nutritional process of any culture (Norton, 1981). Ann burgess’s research revealed that there were three stages of energy deficiency for instance, Body – building (growth) which required proteins for new tissues and energy. If the energy provided from the foods gave energy for daily activities, there would be none left for growth. In such cases, the protein in the food would all be utilized. The outcome was that there would not be any proteins left for new tissue growth leading to poor development. Secondly, if energy from the food
was insufficient, the body would use the already stored fat in the sub-cutaneous tissues. In the metabolism of these fats, the individual became thin. Thirdly, in acute hunger, when no further fatty deposits remained, the body metabolised the cellular proteins within the muscles. The result was muscle wasting in severe malnutrition, (Wood, Vaughan &Glaniville, 1981). Their report therefore concluded that, energy deficiency usually came before protein deficiency. Thus extra protein did not assist much unless the diet contained adequate energy foods because the protein would only be used for energy instead of body building. To conclude this decision, studies done have revealed that there is an association between income level of the parents and the level of nutrition in pre-school aged children. If the parents had a high income, then it meant they would be able to provide their families with adequate and healthy foods. On the other hand if the parents were low income earners, then the meagre income would not be adequate to provide for a healthy diet for the children and consequently signs of under-nutrition would be significant in such children (Malawi, 2010).

2.6 Family Size and Children Nutrition

The family size is found to have great repercussions on feeding of the children. Physical conditions, emotional and moral development could be influenced by the size of the family (De Onis, Blossner and Borgi, 1990).

It is an obvious arithmetic that if there were five mouths to feed and the food was barely adequate for one, then there would be a terrible deficit. Either the food for one would be divided by the five or taken by one alone or the other four suffer from starvation. It is also clear too that if one had ten children and another one eight, on an acre of not too fertile land, and that to make this piece of land produce enough to
feed the ten mouths would be an impossible task. The food reaped would just be a drop in the basket (Joseph, 1978).

The ability to have children is a requirement for survival and through the history of mankind; this has generally been considered a basic right. Unfortunately, there have always been a great many deaths among children due to infections, malnutrition and other diseases and as a result found it necessary for parents to conceive many children to be sure that at least some of them would survive to become adults. Even more important than the few children who die are the many who survive, but without the chance to develop to their full physical and mental potential (Kouene, 1983).

During pregnancy, and the first 1-2 years after birth, the children’s brain and neurological system, as well as other parts of the body are growing very rapidly. If the child does not have adequate and balanced nutrition, then this development maybe permanently damaged so that he can never be as bright or as strong and healthy as he should be. This is also true for a child’s personality, which is being formed in these early years. If the child does not have sufficient love and emotional support from his parents, he may never develop the emotional maturity and stability he should have. It is not only the youngest children who suffer when there are too many children in the family, but all suffer due to the provision of inadequate nutrition which is not sufficient for their growth. This result in low nutrition levels in such children, and this aspect will interfere with their proper growth (Baldin and Richard, 1985).

On the other hand, when fewer children were born in a family, in most cases their growth was better, they would be stronger and brighter and have higher chances of survival and succeed in their lives.
In planning diets for the family, the first consideration should be that of satisfying hunger at frequent intervals of the day and of offering a wide variety of different classes of foods. The mother must have sufficient quantity of food for the numbers of people in the family. The children must have as much as the adults (Koeune, 1983).

A research study conducted by Hartog and Van Steven (1985) indicated that household size influenced food habits and nutrition, particularly among the poor households depending on cash income for the purchase of food. With the increase in size of the family, consumption of animal foods which contains essential nutrients for the body building and repair of worn-out cells was minimal if not absent. They depended on cheaper products which have lower nutritive value and as a result took longer for body repair. These foods will reflect signs of low nutritional status in the growing children which would be depicted by unhealthy brown hair, an arm circumference of less than 12cm, a child withdrawal from social play, dull and sleepy among others. On the other hand, those who were well nourished portrayed signs like being highly interested in what was going on around them, engaged themselves heavily on social plays, they talked a lot with others and performed very well in school among others (Lake and Waterwork, 1980).

Nutrition experts have proved that ill-nourished children were not fully physically and mentally alert or able to achieve their full human potential. The researcher discussed the signs, and effects of a child who had low nutrition levels above. These indicate convincing evidence that poor nutrition can be a serious threat to the survival of children in particular.

Therefore, in planning for children’s welfare their nutritional health should be given top priority because this lays the proper foundation for other aspects of their development (Anazonwu, 1987). In the developed countries of the world,
appreciating the importance of a good nutrition in the overall development of children, had introduced school meals programme in their schools. In this way, children were assured of at least one square meal a day. This was a wise decision because it was very beneficial to those children who come from large families where provision of adequate nutritious foods was a mystery due to instability of family income (Williams, 1981).

2.7 Theoretical Framework

Maslow’s hierarchy of needs is a theory in psychology, proposed by Abraham Maslow in his 1943 paper; it’s a theory of human motivation. Maslow hierarchy of need is often portrayed in the shape of a pyramid, with the largest and most fundamental level of needs at the bottom.

Maslow (1962) viewed the person as having an inner nature that was constantly unfolding and growing, even if this growth was not easily visible to others. The human capacity to develop, according to Maslow, was like that of a tiny seed that contains a tremendous potential for growth. Even in adverse circumstances, it would grow despite the odds against it. Seeds differ in their ability to survive and so do humans. Maslow (1943) felt there were certain basic needs humans must meet before they can be concerned with satisfying other needs. He designed a theoretical pyramid of human needs, which rose from the bottom going up.

Maslow said we must first satisfy one set of needs before we can become involved in satisfying the next set. Unless our psychological needs which included foods were satisfied, we could continue to exist. Without food people would definitely perish, because our survival depends on it. Hunger comes from the body’s need for food which is used for growth, body repair, maintenance of health, manufacture of energy and so on (Maslow, 1962).
For the purpose of this study, it was clear that for children to grow and develop holistically and be able to participate in various activities, then they must be provided with adequate healthy food in order to satisfy their hunger and maintain their nutritional status (Maslow, 1943).

2.8 Conceptual Framework

A conceptual framework is defined as a set of broad ideas and principles taken from relevant fields of enquiry and is used to structure a subsequent (Reichel and Ramey, 1987). This study identifies the following independent variables as the ones that directly influence the nutrition level of children of pre-school age: - Parent’s level of education, marital status, and parent’s income level and family size. The identified variables in this study are four and are said to have an influence on nutritional status of children.

Figure 1: Parental Socio-economic Factors Influencing Nutritional Status.
CHAPTER THREE

METHODOLOGY

3.0 Introduction

The chapter dealt with research design, target population, sampling procedure, research instruments, validity and reliability of the instruments, procedures for data collection and procedure for data analysis.

3.1 Research Design

This study took the form of a descriptive survey research study design. In this method, data was collected from members of a population in order to determine the correct status of that population with respect to one or more variables. The researcher used this design because according to Helmastadler(1970), descriptive survey research study design often provides concrete facts describing the situation on the basis of reasonably definite plans that may be made for further action. This design enabled the researcher to describe the state of affairs as it existed.

3.2 Target Population

According to Orodho (2008), target population is all the items or people under consideration in any field of inquiry which constitute a universe or targeted
population. In this study therefore, the targeted population consisted of pre-school children, teachers and parents of the pre-schoolers in Naivasha Central zone.

Naivasha district is divided into four divisions; these divisions are further divided into four zones each. There are 81 pre-schools, eight of which are public and the remaining 73 are private. The number of pre-school teachers in the zone is 185. The number of children in public pre-schools is 415 and the private pre-schools have 760.

3.3 Sampling Procedure

Simple random sampling was used to sample the target population. The study covered 10% of the schools, children, teachers and parents. This is the smallest percentage as cited by Gay in (Mugenda, 2003) to use in order to get the sample size for this study. This type of sampling enabled all units in the defined population to have an equal chance of being selected. In order to ensure that all schools had an equal chance of being selected, selected schools were used as sampling units. The names of all selected pre-schools were written on pieces of paper which were then folded and then put in a box and shuffled. This was considered as an adequate sample for the purpose of this study.

3.4 Research Instruments

Data was collected using two research instruments. These were the questionnaire and the interview schedules. They are the best tools to use for descriptive survey research study design (Wiersma, 1986). The questionnaires were administered to the pre-school teachers. Data was gathered through responses given by the respondents. The interview was a face to face encounter and it was conducted by recording the responses in a note book. The interview dealt with the questions referring to the
background of the child and the parents. This included the occupation of the parents/guardians, the type of food that they ate regularly and the number of children in the family. On the other hand, parents were interviewed regarding their personal details, marital status, level of education and the types of foods they provided to the families.

3.5 Validity of Instruments

The researcher used the study objectives to draft the items and instruments were tested in one selected pre-school in Naivasha Central Zone. This did not comprise the study sample. Pre-testing helped to determine the validity of the research instruments. To test for validity, the researcher discussed the instruments thoroughly with the supervisor before administering them to the respondents.

3.6 Reliability of Instruments

Reliability is the measure of the degree to which a research instrument yielded consistent results after repeated trials (Mugenda, 1999). The research instruments were administered to subjects who are included in the main study. To ensure reliability, the test-retest method was used whereby both instruments were administered twice to the same respondents and a reliability coefficient established. The researcher gave a time lapse of a fortnight to which the instruments were administered again. Later on the correlation coefficient of 0.932 was obtained in order to determine the reliability of the instruments. This indicated that the instruments were reliable for data collection.

3.7 Data Collection Procedures

The researcher got a research permit from the National Council for Science and Technology and an introduction letter from the District Education Officer before
proceeding to collect the data. Upon reaching the field, the researcher created a rapport with the respondents who included teachers, parents and pre-school children then personally administered the instruments. The questionnaires were administered to the teachers and interviews conducted to the pre-school children and the parents.

3.8 Data Analysis Techniques

Data analysis is the process of bringing order, structure and meaning to the mass of raw data collected. The researcher studied the data collected thoroughly and followed by categorising the data for entry into the computer.

A reference code was established according to the responses to assist in analysing and interpreting the information. Data analysis was performed using descriptive statistics in order to produce frequencies, percentages and correlation coefficient. This is presented in form of tables, bar graphs and pie-charts. In the next chapter, qualitative data was analyzed according to research objectives and computed into frequencies and percentages. A computer was used to analyse the data. This was followed by writing of the report.
CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION OF THE FINDINGS

4.0 Introduction

Chapter four presents the findings of the study obtained by the researcher in Naivasha Central zone. The objectives are to establish the effects on pre-school children nutritional status by:-

(i) Parent’s level of education.

(ii) Parent’s marital status.

(iii) Parent’s level of income.

(iv) Family size.

The chapter also presents the results of the research findings in three sections. The first section briefly deals with questionnaires and interview return rate or the compliance, the second presents the demographic background information of the respondents, while the third part presents the research findings and discussions. This analysis will examine each research objective and discuss it in relation to the result findings.

4.1 Questionnaire Return Rate

The research targeted 108 respondents who included 20 pre-school teachers, 40 parents and 48 pre-school children. All the pre-school teachers filled their
questionnaires and returned them. This represented a 100% return. All pre-school children had responded to the interview schedule. Of the 40 parents who had been booked for interview, five did not honour the appointment thus the response rate was 87.5%. This however was considered adequate for the purpose of this study. The collected data is tabulated in Table 4.1.

**Table 4.1 Questionnaire Return Rate**

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Issued/interview</th>
<th>Returned</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-school teachers</td>
<td>20</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Pre-school parents</td>
<td>40</td>
<td>35</td>
<td>87.5</td>
</tr>
<tr>
<td>Pre-school children</td>
<td>48</td>
<td>48</td>
<td>100</td>
</tr>
</tbody>
</table>

**4.2 Demographic Background of the Respondents**

The section presents the background information of the pre-school children, pre-school parents and pre-school teachers which highlighted the age and academic qualifications.

**4.2.1 Age of the Pre-school Teachers**

The teachers in the E.C.D. school were asked to give their ages. Table 4.2 indicates the research findings. These findings indicate the average age of Pre-school teachers as 35.1 years. However, the highest number (30%) of the pre-school teachers is in the 33-37 age bracket. This implies that the teachers are mature and most if not all should have children. They may be also well versed with the nutritional requirements of the children at this critical phase of body and mental
development. They are also likely to be respected by the parents and thus are authoritative as counsellors on nutritional requirements.

Table 4.2 Age Bracket of Pre-school Teachers

<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-22</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>23-27</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>28-32</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>33-37</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>38-42</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Over 42</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>
Figure 2 shows the age distribution graphically as below indicated.

**Figure 2. Age of the pre-school teachers**

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-22</td>
<td>5</td>
</tr>
<tr>
<td>23-27</td>
<td>10</td>
</tr>
<tr>
<td>28-32</td>
<td>15</td>
</tr>
<tr>
<td>33-37</td>
<td>25</td>
</tr>
<tr>
<td>38-42</td>
<td>10</td>
</tr>
<tr>
<td>over 42</td>
<td>5</td>
</tr>
</tbody>
</table>

4.2.2 **Highest professional certificate.**

This question aimed at finding out the professional qualifications of the pre-school teachers.

The results are tabulated in Table 4.3.
Table 4.3 Professional qualifications of Pre-school Teachers

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma E.C.E</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Untrained</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>DICECE Certificate</td>
<td>11</td>
<td>55</td>
</tr>
<tr>
<td>E.C.E. Certificate</td>
<td>Nil</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The findings show that all the teachers have relevant professional qualifications. This implies that they have the necessary knowledge on quality feeding of the E.C.D. children and if not so, they have the capacity to grasp any knowledge that would be imparted on them in regard to healthy nutrition in the school feeding programmes.

4.2.3 Age of Parents

Regarding the parent’s age, the analysis was meant to obtain the age of the parents of various pre-school children through a questionnaire. These are the parents
to the children under investigation. The following information was collected and tabulated.

<table>
<thead>
<tr>
<th>Age (yrs)</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-22</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>23-27</td>
<td>7</td>
<td>17.5</td>
</tr>
<tr>
<td>28-32</td>
<td>13</td>
<td>32.5</td>
</tr>
<tr>
<td>34-37</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>38-42</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>43-47</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The average age of the parents is 33.15 years. The parents seem to be roughly in the pre-school teachers mean age so they could easily communicate on nutritional matters. The age of the parents is important since it shows that the parents have the relevant experience in children upbringing and are easy to assimilate any new information about children nutrition.

Table 3 shows that the modal group of the parents are in the 28-33 age bracket which is equivalent to 32.5%. The 33-38 years age bracket has 25% of the total
correspondents while the least number of parents fall in the 43-47 years age bracket. It also depicts that there are no parents in the 18-22 years age bracket.

4.2.4 Age of Children

The ages of the respondents was also obtained. Table 4.5 summarizes this and shows the distribution in each age bracket.

<table>
<thead>
<tr>
<th>Age (yrs)</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5-4</td>
<td>8</td>
<td>16.7</td>
</tr>
<tr>
<td>4.5-5</td>
<td>10</td>
<td>28.8</td>
</tr>
<tr>
<td>5.5-6</td>
<td>28</td>
<td>58.3</td>
</tr>
<tr>
<td>6.5-7</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>48</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The average age of the pre-school children was 5.2 years. This is within the modal group age of 5.5-6 years (58.3%). The older number of children falls within 6.5-7 years age bracket equivalent to 4.2%. This age stage of development is important as it is the stage at which the pre-schoolers are correctly expected to start early childhood upbringing and development.

4.3 Research Findings according to the Research Questions

The researcher analysed the responses so as to answer the research questions asked in the study. A systematic analysis of the questionnaires was carried out.
4.3.1 Parents Level of Education and Children Nutritional Status

Concerning this question, the researcher aimed at finding the relationship between parent’s level of education and nutritional status of their children. Various parents provided the information summarized in Table 4.6

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below primary level</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Primary level</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Secondary level</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>College level</td>
<td>13</td>
<td>32.5</td>
</tr>
<tr>
<td>University level</td>
<td>3</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The data shows that 5% of the parents had below primary education, 20% had primary level of education, (35%) had secondary level of education, 32.5% had college level of education and only three parents had university level of education (7.5%). From these findings, 25% of the parents have education to the level of primary school. This group of parents may not necessarily prioritise proper feeding of their children due to lack of adequate knowledge on nutritious foods. This is further depicted in figure 3.
When the MUAC values of their children was analysed, the following information was obtained as shown in Table 4.7

**Table 4.7 Nutritional Status of the Children (MUAC)**

<table>
<thead>
<tr>
<th>MUAC (cm)</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below primary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University level</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The average MUAC value of all the children is 9.79 cm and the modal group is 10.52-12.4 cm. This represents 16 children and a corresponding 33.3%. About 29.2% of the children (14) have a MUAC range of 8.5-10.4 cm and only 8.3% (four) have a MUAC of 6.5-8.4 cm.

According to WHO standard (2005), a well nourished child nutritionally should have a MUAC value of 12 cm or more. With respect to these findings, the average MUAC value of 9.79 cm was obtained which falls below the recommended value. This depicts that a large group of the children are poorly nourished. A graphical presentation of this information is seen in Figure 4.

**Figure 4. MUAC value of the children**
A correlation coefficient of MUAC value against the parent’s level of education is 0.84 which indicates that there is a strong relationship between education level of the parents and their children’s nutritional status.

The findings agree with the studies conducted by Thomas, Strauss and Henriques (1991), which indicated that educated parents are better able to acquire and process information about provision for healthy and nutrition needs of their children from various sources such as Doctors, magazines, newspapers and televisions.

4.3.2 Frequency of Meals provided to the Children

In the same context, the frequency of meals of the families in question was also investigated. Out of the 40 parents interviewed, 24 (60%) were able to provide meals three times a day for their children. Thirteen parents (32.5%) provided meals twice in a day, and three parents (7.5%) could provide meals four times in a day. This is shown graphically in Figure 5.

Figure 5. Frequency meals are provided to the Children
Regarding meals provision, the analysis shows that meals are offered to the children frequently by the parents. The problem therefore, may not be so much in the quantity of food but with the quality.

### 4.3.3 Type of Food provided to the Children

The various types of food that the researcher inquired on included Carbohydrates (rice, ugali, porridge, potatoes, chapati), proteinous foods which includes meat, beans, enriched porridge with fish meal and legumes which are essential for the protection against diseases.

The most popular meal among the parents is Githeri. About 28 families representing 70% reported that they served it at least once a day. This supports the fact that Githeri is the staple food of the Kikuyu community who dominate the area of research. Ugali and vegetable meal were served at least once per day by 15 or 37.5% of the parents. Rice and beans meal was popular in ten families and corresponds to 25%. Chapati, vegetables and beans meal was served by eight families in a day. Beans and green grams were the most frequently used food as a source of proteins. It was found out that only six families (15%) that took meat in a week as an alternative source of protein.

The source of vitamins was basically vegetables, ripe bananas and fruits. French beans are served in 12 families while fish and ugali meal was popular in 16 (37.5%)
families. It was also been found out 22 parents served porridge at 4.00pm when the children arrived from school. Cabbages and kales were very popular for supper with whole maize meal for ugali as accompaniments. According to the research findings, majority (70%) of the parents were not able to afford better food for their children due to economic constraints.

### 4.3.4 Marital Status and Nutritional Status of the Children

This being a sensitive part, the researcher had to be tactful while enquiring who in the house buys food for the whole family. Table 4.8 shows the research findings. This indicates that 25% of the buyers were husbands, 35% of the buyers were wives, and 32.5% was by both and only 7.5% by the relatives.

<table>
<thead>
<tr>
<th>Buyer</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatives</td>
<td>3</td>
<td>7.5</td>
</tr>
<tr>
<td>Husbands</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>Wives</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>Both</td>
<td>13</td>
<td>32.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Figure 6 below is a graphical presentation of the family members who buy food.

**Figure 6. Percentage of Food Buyers.**
A further analysis was done to compare the nutritional status of the children where either the relatives, husbands, wives or both parents bought the foods. The study revealed that there is a relationship between the buyer of the foods and the nutritional status of the children as shown in Table 4.9

Table 4.9 Relationship between Food Buyer and Children’s MUAC value

<table>
<thead>
<tr>
<th>Buyer</th>
<th>Number of children</th>
<th>MUAC (cm)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatives</td>
<td>4</td>
<td>8.7</td>
<td>8.3</td>
</tr>
<tr>
<td>Husband</td>
<td>14</td>
<td>9.5</td>
<td>29.2</td>
</tr>
<tr>
<td>Wife</td>
<td>16</td>
<td>12.8</td>
<td>33.3</td>
</tr>
<tr>
<td>Both</td>
<td>14</td>
<td>13.2</td>
<td>29.2</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

The table shows that where both parents participate in buying of food, the children have the highest MUAC value (13.2 cm) whereas where relatives are the ones buying food, the children had the least MUAC value (8.7 cm). This shows that children are nutritionally well off where both parents provide the food. A correlation coefficient of 0.8799 was obtained which shows that there is a strong relationship between families where both parents cater for children’s nutritional status.
The findings differ from that of NHANES (2004), which revealed that children of single parent’s households were significantly more over-weight than those of dual parent’s households. The reason behind this could be the single parents in the study are not able to acquire fast foods for their children due to financial status.

### 4.3.5 The Relationship between the Parent’s level of Income and Children’s Nutritional Status

The researcher believed that there is a close relationship between the economic power of the parent and the nutritional status of their children. The following data was collected where the mid-upper arm circumference of each pre-school child was measured and their respective parents interviewed to determine their income. Table 4.10 indicates the obtained parent’s level of income.

The parent’s average income is Kshs.7199.50 per month. The study indicated that 10% (4 parents) earn less than Kshs2000/- per month. 17.5% (seven parents) earn between kshs.4000/- and shs 5999/-. All these are below the average earnings per month. Only 12.5% (five parents) earn Kshs.12,000/- and above which is the highest according to the study.

<table>
<thead>
<tr>
<th>Income (kshs/month)</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1999</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>2000-3999</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>4000-5999</td>
<td>7</td>
<td>17.5</td>
</tr>
<tr>
<td>6000-7999</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>8000-9999</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Income (Kshs.)</td>
<td>Ave. MUAC (cm)</td>
<td>Number</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------</td>
<td>--------</td>
</tr>
<tr>
<td>0-1999</td>
<td>7.3</td>
<td>5</td>
</tr>
<tr>
<td>2000-3999</td>
<td>8.9</td>
<td>6</td>
</tr>
<tr>
<td>4000-5999</td>
<td>9.8</td>
<td>7</td>
</tr>
<tr>
<td>6000-7999</td>
<td>10.8</td>
<td>5</td>
</tr>
<tr>
<td>8000-9999</td>
<td>11.2</td>
<td>11</td>
</tr>
<tr>
<td>10,000-11,999</td>
<td>13.0</td>
<td>8</td>
</tr>
<tr>
<td>12,000-13,999</td>
<td>13.8</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>48</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 4.11 shows that 5 children come from families where parents earn Kshs 0-1999/- which corresponds to 10.4%. Six children who represents 12.5% come family backgrounds where parents earn Kshs. 2,000-3,999/- per month. It is only six children whose parents earn Ksh.12, 000-13,999/- which corresponds to a mere
12.5%. From the study it shows that the higher the income the higher the MUAC value hence better nutritional status. A correlation coefficient of 0.76 was obtained which indicates a strong relationship between higher income levels and children nutritional status.

The findings agrees with the study conducted by Dirat (1993), which indicated that in those families where parent’s earnings are low, children suffered the most i.e. they lack nutritious foods hence they are malnourished.

A relationship between income level of the parents and the MUAC of the children was also sought. The aim was to establish pre-school children nutritional status by their parent’s level of income. This involved measuring the respective MUAC values of the children in relation to the parent’s income levels. The data in Figure 7 was obtained.

**Figure 7. Relationship between Income level of the Parents and the MUAC of the Children**
4.3.7 Parent’s Occupation and Children Nutritional Status

This part of the interview was aimed at finding out the parent’s occupation and how it related to the nutritional status of the children. The following are the result findings:-

Out of the 40 respondents, nine (22.5%) of them were employed, 11(27.5%) were in business, five (12.5%) were house wives, two (5%) were housekeepers while another two (5%) were house helps or maids. The remainder who operated small business were either engaged in kiosk operation, tailors or casual workers in surrounding flower farms. The Table 4.12 shows this information.

Table 4.12 Parents Occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1999</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4000-5999</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>8000-9999</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>12000-13999</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
Employed                               9                                     22.5  
Business                                 11                                   27.5  
Housewives                            5                                     12.5  
Housekeeper                           2                                     5  
House helps                             2                                    5  
Small businesses                     11                                   27.5  
Total                                        40                                   100  

From this analysis, about half of the parents (20%) are in formal employment or in business, which is represented by nine and eleven parents respectively. This group can therefore be able to feed their children well nutritionally. From the deduction, the other half (20%) of the parents were not able to provide healthy nutrition to their children presumably as indicated due to their low level of education and earnings.

4.3.8. Family size and Nutritional Status of Children

The researcher sought to investigate whether there exists a relationship between the nutritional status of the pre-school children and the family size in their homes. The data in table 4.13 was obtained.

Table 4.13 Family Size.

<table>
<thead>
<tr>
<th>Family size</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3-4</td>
<td>13</td>
<td>32.5</td>
</tr>
<tr>
<td>5-6</td>
<td>15</td>
<td>37.5</td>
</tr>
<tr>
<td>7-8</td>
<td>10</td>
<td>25</td>
</tr>
</tbody>
</table>
Deductions made from Table 4.13 shows that family size of 1-2 members is (5%), 3-4 members is 32.5%, 5-6 members is 37.5% and 7-8 members 25%. When the family size shown in Table 4.13 above was analysed further, the following data was obtained showing the respective number of children and their MUAC values.

<table>
<thead>
<tr>
<th>Number of children</th>
<th>MUAC (cm)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>13.2</td>
<td>8.3</td>
</tr>
<tr>
<td>15</td>
<td>10.8</td>
<td>31.3</td>
</tr>
<tr>
<td>16</td>
<td>9.9</td>
<td>33.3</td>
</tr>
<tr>
<td>13</td>
<td>10.9</td>
<td>27.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>48</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

From Table 4.14 above, the modal group is 16 which correspond to the 33.3%. This group has children whose average MUAC value is 9.9 cm. The respective family sizes are five to six members as shown by Table 4.13. The most well nourished children have a MUAC average of 13.2cm. This group of the children comes from the family size with one to two members. There are four children in this group whose average MUAC is 13.2cm and is equivalent to an average of 8.3%.
According to the study, the smaller the family size, the better the nutritional status on the children. A correlation coefficient of 0.77 was obtained which shows a strong relationship between family sizes and nutritional status of the children.

The discussion above agrees with the findings of Balding and Richard (1985), that where there are too many children in the family, all will suffer due to provision of inadequate nutrition which is not sufficient for their growth.

4.3.9. Summary of Findings

This chapter has focused on the questionnaire return rates, demographic and background of the respondents as well as presentation of findings. The findings have been summarised as follows: Majority of the questionnaires were returned. The ages of the pre-school teachers and pre-school parents confirmed that they were all mature enough to overcome nutritional problems though this was not the case on the ground. The pre-school teachers accepted that the pre-school children had acquired nutritional deficiencies which were as result of their home backgrounds and had very little to alleviate this. The pre-school parents on the other hand did concur with the poor state of their pre-school children though most of them attributed it to their poor economic status and not lack of food. Some of the pre-school children are over age, a result of the migration of the parents from the rural area while others are due to poor economic status whereby they were not able to meet the pre-school fees.
5.1 Summary of the study

The purpose of the study was to find out the determinants affecting the nutritional status among the pre-school children in Naivasha Central zone of Naivasha District, Kenya. Four research objectives were formulated to guide the study. The first research objective was to establish how the parent’s status of education affected nutritional status of pre-school children, the second objective sought to find out how parent’s marital status affected the nutritional status of the children, objective number three sought to determine the effects of family size on the nutritional status of the pre-school children and the research objective number four sought to examine how the parent’s level of income would affect the nutritional status of pre-school children in Naivasha Central zone.
The study used survey research designs. Questionnaires and interview schedules were used to explore the relationship between variables such as parent’s level of education, marital status, family sizes and the parent’s level of income and their effects on pre-school children nutritional status. The use of survey research methods, questionnaires and interview schedules were used to collect the data. A total of 108 respondents were targeted out of which 20 were pre-school teachers, 48 were pre-school children and 40 were pre-school parents. The return rate was 100% for the pre-school teachers, 100% on the interview schedules undertaken on the pre-school children and 87.5% of the pre-school parents as 5 of them declined to respond to the interviews. The questionnaires and the interview schedules were administered personally. Demographic information was also collected to shed more light on the research objectives. The data was collected and the analyses done accordingly. This information was presented in form of frequency tables, percentages, bar graphs and pie charts.

5.1.1 Findings on the Parents level of Education

The findings indicated that majority of the targeted pre-school parents 14 in number (35%) had attained secondary education while eight represented by 20% had obtained primary education, two (5%) were below primary level, 13 (32.5%) had attained college level and three (7.5%) had made it to university level. Therefore, it is clear that 40% are the parents who have attained some sought of training which is below average. This shows that most of the parents, 60% lacked adequate knowledge on the provision of nutritious foods as is depicted by the mid-upper arm circumference.
A study carried by UNICEF (2005) on mother’s education confirms that poor education contributes to her poor health and well being, and at the same time they are not able to provide adequate nourishment to their children.

### 5.1.2 Findings on the Parent’s Marital Status

The research established that 25% of the husbands bought food for their families, wives 35%, both parents 32.5% and relatives 7.5%.

The findings indicate that where wives are involved (67.5%) in food acquisition, the children have a high MUAC value. In situations where husbands and relatives bought food for the families, the MUAC value is low an indication of poor nutritional status.

### 5.1.3 Findings on the Parent’s level of Income

The study reveals that majority of parents 20% earn Kshs. 8000/- to 9,999/-, another 17.5% earn between Kshs.4000/- and 5999/- and 25% earn below Kshs. 4000/- .This income is low and not able to avail healthful foods for the children thus producing poor quality. At the same time, it results with absence of food reserves in homes and culminates in the buying of small quantities of food many times in a day as need arise. It is only 27.5% percent of the parents who earned over Kshs. 10,000/- per month. This is closely correlating with the mid-upper arm circumference which indicates a range of between 13.0cm to 13.8cm.

Price is an influential feature of nutrition in a family, and this agrees with parent’s income levels and the MUAC of the pre-school children obtained by the researcher.
5.1.4 Findings on Family Size

The researcher found that majority of the families (62.5%) had a family size of five and above members. This size when contrasted with their income may not allow proper nutrition for most of the children. Less than half (37.5%) have families of 4 individuals and below. Therefore in most cases provided greater chances for the parents to acquire nutritious foods for their children.

The research findings concurs with Hartog and Van Steven (1985) which indicated that household size influences food habits and nutrition, particularly among the poor households depending on the income for the purchase of food. Family size could affect a family’s ability to purchase quality protein and depend on cheaper products which have low nutritive values as a result take longer for body repair.

5.2 Conclusions

The study investigated determinants of nutritional status of pre-school children in Naivasha Central zone of Naivasha District. From the study the researcher concludes that most of the pre-school children in this area have poor nutrition which has been identified to have negative effects on learning activities, social play, physical growth, emotional growth, moral, cognitive growth and spiritual growth and development of the child.

The factors which contributed to pre-school children having poor nutritional status in Naivasha central zone included: - Some families having little or no education on parents contributed to their inability to provide healthy nutritional
foods to their children. Husbands and relatives are incapable in the provision of healthy foods to their children unlike families where wives were involved. Parents with low income faced challenges in the provision of balanced diet and thus children with low nutritious status.

5.3 Recommendations

Proper nutrition is a basic human need. As a result, human beings including children not only need a balanced diet but also require the energy to undertake or perform various tasks. Towards this end, the researcher recommends that:

(i) Both the parents, caregivers and the pre-school teachers in the zone should be sensitized on the different nutritional needs of a child in order for them to provide healthy diets to the pre-school children.

(ii) There is need for the parents and communities in the research area to initiate feeding programmes in the pre-schools.

(iii) The pre-school teachers, Chiefs and the nutritionists from the local hospitals should hold public barazas to sensitize and educate the community on matters pertaining to provision of balanced diet to their children.

5.4 Suggestions for further Studies

The Researcher recommends the following:-
(a) The same study be replicated on a larger sample. The sample could be drawn from other parts of Naivasha District or a different geographical location and District all together.

(b) A similar study be conducted in a rural setting to give a balanced view of the factors which influence nutritional levels of children in Naivasha Central zone.

(c) A similar study be conducted in an urban setting to establish if determinants which affect nutritional status among pre-school children are similar in rural and urban settings.

REFERENCES


54


**APPENDICES**

**APPENDIX A**

**LETTER OF INTRODUCTION**

Naivasha DEB primary school,

P.O Box 61 ,

Naivasha,

6th June, 2011.
Dear Sir/Madam

**RE: REQUEST TO FILL QUESTIONNAIRE FOR RESEARCH**

I am a postgraduate student in the Department of Early Childhood Education in the University of Nairobi. I am undertaking research on the determinants of nutritional levels of pre-school children in Naivasha Central zone, Naivasha District. As you are directly involved in dealing with young children, then you have been identified as a right candidate to provide relevant information. You are kindly requested to respond to all questions as honestly as possible. Your responses will be used for the purpose of research only, and your identity will be kept confidential.

Thanking you in advance.

Yours Faithfully,

Jane W. Mugenyo.

---

**APPENDIX B**

**THE PRE-SCHOOL TEACHER**

**DEMOGRAPHIC DETAILS.**
1. School……………………………………………………………………………………………. 

………………………………

2. Age bracket   18-22 (   ) 23-27 (   ) 28-32 (   ) 33-37 (   ) 37-42 (   )

3. Highest academic certificate form  4 (   ) Dicece certificate (   ) 
                                         ECE certificate (   ) Diploma ECE (   )

i) Where do children take there lunch? In school (   ) At home (   ) Any other specify (   )

ii) How often do children in your school go for growth monitoring programme?

……………………………………………………………………………………………………

iii) Have you identified children with problems of nutritional levels in your school? Please explain……………………………………………………………………………………………………

iv) What do you think are the main reasons for malnutrition in this area? Please explain ……………………………………………………………

……………………………………………………………………………………………………

v) What help do you give to such children?

……………………………………………………………………………………………………

vi) In your opinion what else can be done?

……………………………………………………………………………………………………

vii) Is there any noticeable difference between performance of activities of the children with poor nutritional levels and those with proper nutritional levels? Please explain

……………………………………………………………………………………………………
Thank you for your cooperation.

APPENDIX C

PARENT’S INTERVIEW SCHEDULE

1. What is your gender? Male ( ) Female ( )

2. What is your marital status? Married ( ) Single ( )
   Divorced ( ) Widow/widower ( )

3. What is your age in years? 18-22 ( ) 23-27 ( ) 28-32 ( )
   33-37 ( ) 38-42 ( ) 43-47 ( )

61
4. What is your occupation? .................................................................

5. How many times do you provide meals to your family? Please explain
........................................................................................................................................................................
........................................................................................................................................................................

6. What foods do you provide to your family? Please explain
........................................................................................................................................................................
........................................................................................................................................................................

7. How do you know if the food given is useful to the child?
........................................................................................................................................................................

8. About how much do you earn per day/month?

<table>
<thead>
<tr>
<th>Daily</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-150</td>
<td>1,000-4,000</td>
</tr>
<tr>
<td>151-200</td>
<td>4,001-6,000</td>
</tr>
<tr>
<td>201-250</td>
<td>6,001-8,000</td>
</tr>
<tr>
<td>251-300</td>
<td>8,001-10,000</td>
</tr>
<tr>
<td>260-350</td>
<td>10,001-12,000</td>
</tr>
</tbody>
</table>

9.

<table>
<thead>
<tr>
<th>Food Type</th>
<th>Quantity</th>
<th>How often is it provided</th>
<th>Enrichments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ugali</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Githeri</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chapati</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10. What is your highest class? .................................................................

11. How much do you prepare for your family?
   
   (a) Just enough for the family members

   (b) More than enough

© What is available

12. When are meals taken?    At mealtime ( ) When ready ( )

   When members are hungry ( )

13. Who buys food for the family?

   Husband ( ) wife ( ) relatives ( ) both ( )

14. Is food served to all family members at the same time? Please

   Explain ...........................................................

15. How many members are there in the family? Please explain

   ...............................................................

16. How do you decide on quantity of food served to each person?

   ...............................................................

Thank you for your cooperation.
APPENDIX D

INTERVIEW SCHEDULE FOR THE PRE-SCHOOL CHILDREN

1. What is your name? .................................................................

2. What are the names of your parents?
3. How old are you? .................................................................

4. Who do you stay with at home? Father ( ) mother ( ) physical ( )

5. How many children are there in your family? .........................

6. Who buys for you school uniforms, shoes and other clothes?

7. Who buys food and fruits for you? ........................................

8. Who cooks for you? .............................................................

9. Where do your parents work?

10. When do they work? ...........................................................

11. How many times do you eat per day.................................

12. Who serves you when the food is cooked..........................

13. Is the food provided for you enough? ..............................

14. Are you added some food if you feel unsatisfied..............

15. How often are you taken to the growth monitoring programme in the local hospital?

16. How often do you eat food with your parents....................

17. How many times do you eat the following meals?

<table>
<thead>
<tr>
<th>Food</th>
<th>Number of meal taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legumes</td>
<td></td>
</tr>
<tr>
<td>Meat</td>
<td></td>
</tr>
<tr>
<td>Ugali</td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td></td>
</tr>
<tr>
<td>Chapatti</td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td></td>
</tr>
<tr>
<td>Fruits</td>
<td></td>
</tr>
</tbody>
</table>
Appendix E

Sample Correlation Coefficient of Marital Status and Nutritional Status of Children

Buyer | MUAC | \( (x - \overline{x}) \times (x - \overline{x})^2 \times (y - \overline{y}) \times (y - \overline{y})^2 \times (x - \overline{x})(y - \overline{y}) \)
\[
\begin{array}{cccccc}
3 & 8.7 & -7 & 49 & 2.35 & 5.5225 & 16.45 \\
10 & 9.5 & 0 & 0 & -1.5 & 2.425 & 0 \\
14 & 12.8 & 4 & 16 & 1.75 & 3.0625 & 7 \\
13 & 13.2 & 3 & 9 & 2.15 & 4.6225 & 6.45 \\
\hline
40 & 44.2 & 74 & & & 15.61 & 29.9
\end{array}
\]

\[
X = \frac{40}{4} = 10
\]

\[
Y = \frac{44.2}{4} = 11.05
\]

\[
S_{dx} = \sqrt{\frac{74}{4}} = 4.301
\]

\[
S_{dy} = \sqrt{\frac{15.61}{4}} = 1.975
\]

\[
r_{xy} = \frac{\sum(x - \bar{x})(y - \bar{y})}{\sqrt{N}S_{x}S_{y}} = \frac{29.9/4 * 4.301 * 1.975}{4.301 * 1.975} = 0.8799
\]

\[
r = 0.8799
\]