

CHILDREN'S BASIC NEEDS AND ENROLMENT IN EARLY CHILDHOOD
EDUCATION IN MIRIGA MIERU WEST DIVISION OF IMENTI NORTH
DISTRICT, KENYA

BY

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A RESEARCH THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENT
FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILLOSOPHY (EARLY
CHILDHOOD EDUCATION) IN THE SCHOOL OF EDUCATION OF KENYATTA
UNIVERSITY

OCTOBER 2009

DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

To my father Mr. Murungi Rukirangi and mother Ann Murungi, my husband Dr. Kimathi M'Mwongera and my two children; Valerie Ntinyari Kimathi and Gatobu Kimathi.

ACKNOWLEDGEMENTS

I am greatly indebted to several people without whom this work could not have been a success.

I am exceedingly grateful to my supervisors: Prof. D.M. Kiminyo of Early Childhood Department and Dr. Simon M. Rukangu of Educational Communication and Technology Department, Kenyatta University for their advice while doing this work. They willingly and patiently guided me to complete this thesis.

Thanks to the parents of pre-school age going children and pre-school teachers of the schools I visited for their co-operation during fieldwork. I would also want to express my gratitude to the Meru DICECE officers, especially the program officer Mr. Ringeera for his willingness to help researcher in tracing the schools as well as making other necessary arrangements like meeting the DEO Meru, the chiefs and sub-chiefs in the locations.

Much appreciation goes to Kenyatta University for sponsoring my PhD Program and my father Mr. Murungi Kaibiria Rukirangi who willingly sponsored me for the postgraduate program as well as giving me the moral support as I wrote my thesis. May Jehovah shine his face upon you.

Thanks to my husband, Dr. Moses Kimathi Mwongera, my lovely daughter Valerie Ntinyari Kimathi and my son Gatobu Kimathi for their understanding and moral support when I was doing my fieldwork and thesis writing. May God bless you.

Thanks to Mwenda Murungi for driving me to visit the parents of pre-school age going children in the division when doing my fieldwork. Thanks to Mrs. Murungi, Violet Murungi and Mbaya Murungi for their moral support.

Finally but not the least, I am thankful to Arthur Mutiria for lending me his printer to use all the time I have been working on my thesis. May God reward you richly.

LIST OF ABBREVIATIONS /ACRONYMS

ACC/SCN:	Administrative Committee on Co-ordination, Sub Committee on Nutrition of the United Nations
AIC:	African International Conference
APHRC:	African Population and Health Research Center
CBS:	Central Bureau of Statistics
CICECE:	City Centre for Early Childhood Education
DICECE:	District Centre for Early Childhood Education
ECD:	Early Childhood Development
ECE:	Early Childhood Education
EFA:	Education for All
EPI:	Expanded Program on Immunization
FANTA:	Food and Nutrition Technical Assistance
FAO:	Food Agricultural Organization
HAZ:	Height for Age Z-score
IQ:	Intelligent Quotient
KDHS:	Kenya Demographic and Health Survey
KIE:	Kenya Institute of Education
MDG:	Millennium Development Goals
MoE:	Ministry of Education
MoEST:	Ministry of Education, Science and Technology
MoH:	Ministry of Health
MoPND:	Ministry of Planning and National Development
NACECE:	National Centre for Early Childhood Education
NCHS:	National Centre for Health Statistics
NER:	Net Enrolment Ratio
NGO:	Non-Governmental Organization
SCN:	Sub Committee on Nutrition
SD:	Standard Deviation
UPE:	Universal Primary Education
WAZ:	Weight for Age Z-score

WHO: World Health Organization

WHZ: Weight for Height Z-score

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ABSTRACT

Human beings spend a great deal of time working to towards provision of their basic needs. Provision of such basic needs is particularly important not only to adults but also to pre-school children. Available literature shows that in Kenya enrolment of children in pre-school is low. It was believed that failure to adequately meet basic needs such as food, household size, and health status might have led to the children's low enrolment in pre-school education and other levels of education in Miriga Mieru West Division of Imenti North District. It was for this reason this study was designed; to establish and document factors related to this low enrolment especially in Imenti North District where 52% of pre-school children do not attend pre-school and in particular 64% in Miriga Mieru West Division of the District. The main objective of this study was to establish the relationship between provision of children's basic needs and enrolment in pre-school. The study used a correlation design employing a survey method, since the target population was large. The independent variables included food, household size, and health status. The dependent variable was children's enrolment in pre-school. The target population for this study comprised 78, 201 children of pre-school age going from whom an actual sample size of 390 children was selected and their parents participated in the study. Children's households were systematically sampled whereas Imenti North District was sampled purposively. Miriga Mieru West Division was selected due to its high population of pre-school age children (78,201) in comparison to other divisions in the district such as; Miriga Mieru East with 64,117, Timau with 55,292 and Buuri with 45,610 as well as its low pre-school enrolment rates (64%). The study used a questionnaire for parents and anthropometric tools for data collection. During pilot study, a test-retest was done to refine the instrument and determine its reliability. Cronbach's alpha correlation was used to compute the correlation coefficient; the Alpha Coefficients of the instrument were 0.88 and 0.98 starting with the lowest going to the highest. The researcher administered the questionnaire to parents of pre-school children both with children not attending and children attending pre-school. Collected data were analyzed using quantitative methods. Data derived from the open-ended questions were analyzed using descriptive statistics such as percentages, means and standard deviations whereas the t-test (two tailed) for testing equality of means for independent samples was used to test H_{01} , H_{02} and H_{04} while Pearson Chi-square (χ^2) for testing the relationship between variables was used to test H_{03} . So as to establish the relationship between variables at 0.05 significant level. A t-test (two tailed) for independent samples found no relationship between household size, health status and enrolment in pre-school. But it established a relationship between the number of meals consumed in a day and enrolment in pre-school. The results of the Pearson Chi-square (χ^2) test showed that there is a relationship between nutritional status in terms of wasting, stunting and enrolment in pre-school. It also showed that there is no relationship between nutritional status in terms of underweight and enrolment in pre-school. The study recommends that the government needs to subsidize pre-school education costs so that more children can enroll in pre-schools. This study concludes that basic needs are important and unless they are met we will continue to have large numbers of children not attending pre-school continuing to increase.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The twentieth century perception and importance of education can be traced back to the universal declaration of human rights in 1948, which embraced education as a basic human right (Children Rights Commission, 1989). Article 28 of the Children's Right Commission (CRC, 1989) in particular emphasizes that countries should recognize the right of the child to education. According to UN convention on the rights of the child (UNICEF, 1990), education is a sure means through which a nation's future can be developed and sustained. In the bid to meet this international declaration, the Government of the Republic of Kenya signed various global policy frameworks such as the 1990 Jomtiem World Conference on Education for All (EFA), the 1990 African Charter on the rights and Welfare of the Child, the 2000 World education forum (Dakar Senegal) and 2000 Millennium Development Goals (MDG's) as well as enacting the 2001 Children's Act which is now a legal document that not only protects children but also advocates for their rights as cited in the Early Childhood Development Service Standard Guidelines for Kenya, (2006) and MoEST, 2003. These forums underscored the importance of Early Childhood Education (ECE). Subsequently, education has been and continues to be of paramount importance and concern since it prepares people to socialize and become organized in life. Hence, the need for all children to have education which includes pre-school children cannot be overemphasized. However, pre-school age going children are not

participating in this education and reasons for this have not been established systematically and explained.

Achieving education for all is among the goals set by the government of Kenya and particularly making enrolment in Early Childhood Development programs compulsory for all school age going children (Millennium Development Goal's, 2005). It is viewed that education is the best single development investment a country can make. Education contributes to better health, higher incomes and increased enrolment in the community life (KIE & NACECE, (1987). One of the important national policies for the Kenya government is the provision of basic needs for her citizens. Currently, this might not be the case since a large percentage (65 %) of the pre-school children in Kenya is not attending the early childhood education. Pre-school enrolment in Kenya is even much lower when compared to other countries, (in the Sub-Saharan Africa, the Arab States, the Central Asia and South and West Asia), (MDG's, 2005). The goal to make enrolment in early childhood education compulsory may not be achieved if factors contributing to low enrolment in the ECD centers are not identified and described. For this purpose, the study was designed to establish factors contributing to low enrolment in Early Childhood Education.

The 2004 report on Universal Primary Education (UPE) asserts that all children of school going age should participate in education (Republic of Kenya 2004). To measure whether this is achieved, the UPE uses the Net Enrolment Ratios (NER's) at or near 100% to indicate the rate of enrolment which also suggests how close the

world is to achieving UPE. Wilson, (2004) has shown that most of the world's countries have attained Net Enrolment Ratios (NER's) of at least 70%, with North America and Western Europe, Latin America and the Caribbean, East Asia and the Pacific having NER's above 90%. In Central and Eastern Europe, more than half of the countries in the region have NER's between 70 and 90%. However, only a handful of countries in Sub-Saharan Africa reach NER's above 90%. Some larger countries have NER's below 70% or even below 50%. The only other countries reporting NER's below 70% are a few Arab States and Pakistan. Most countries in Africa have primary education NER's below 50%. This is a cause for concern, since in most countries, significant fractions of the population remain out of primary school education, 96% of those out-of-school children live in developing countries, with Sub-Saharan Africa, South and West Asia together accounting for almost three quarters of children not attending school. This could be a glaring reality to pre-school education in these countries.

Pre- school enrolment is especially low in most countries of Sub-Saharan Africa; Arab States, Central Asia and South and West Asia, while those in Latin America, Caribbean region, North America and Western Europe regions have generally higher levels of enrolment (Weikart, Montie & Xiang, 2004). In Kenya, 20% of the population is children aged between 0-5 years and only 35% of these pre-school age going children attend pre-school. Similarly, a large percentage of children who enroll for class one in primary school do not pass through ECD programs (MoEST, 2003).

In Imenti North District, approximately 2% of children were enrolled in standard one without passing through pre-school education (DICECE, 2007). Such children lacked a firm foundation for their primary education.

Myers (1992) reveals that the early years of pre-school education offer an extraordinary opportunity to avoid moderate learning problems, and to bring lasting effects to individuals and society. This may not be true for the Kenyan pre-schools where there is low enrolment of children in pre-school. Factors responsible for low enrolment of children which include basic needs have not been established. Basic needs according to Maslow (1954), are the physiological drives such as; the need for food, household size, and healthcare among other needs that sustain behaviour. These needs are essential and motivate human beings who among them are pre-school age going children. Ideally when people are hungry, pre-school children included their first interest will be in obtaining food, they will not be concerned with participating in pre-school. A hungry child may not participate in pre-school. A sick child may not have the energy and motivation to participate in pre-school. The contention of this study therefore was that low enrolment of pre-school age going children in the pre-schools could be related to provision of basic needs among other factors. However, the question of whether a relationship exists between the following basic needs; household size and enrolment in pre-school, health status and enrolment in pre-school, nutritional status and enrolment in pre-school and meals consumed and enrolment in pre-school remains unanswered. It was important to establish this relationship

particularly in Miriga Mieru West Division of Imenti North District where a large number of children (65%) were not participating in pre-school. Especially, since this relationship might have contributed to the current trend of low enrolment in pre-schools.

1.2 Statement of the Problem

Kenya in contrast to other countries of the world such as; North America, Western Europe, Latin America, Caribbean, East Asia, Central Asia and South and West Asia, the Pacific, central and Eastern Europe, and the sub-Saharan Africa, has a low enrolment (35%) of pre-school age children. The need for providing pre-schoolers with a firm foundation for primary education, future learning and personality development among others, through pre-school education cannot be over emphasized. However, there was a large percentage of children in Kenya who were not attending pre-school education; 65% in the whole country (MDG's, 2005), in Imenti North District and in Miriga Mieru West Division the percentages are 52% and 64% respectively (DICECE, 2007). This means that even though pre-school education is expansive in Imenti North District, there was need to find why the existing 64% of pre-school children was not attending pre-school education. Many studies done on early childhood education focused on children's; health status and nutritional status in relation to cognitive abilities, its effects on learning and performance amongst other related works (Chege, P. M. (2006); Glewwe, Paul, and Elizabeth K. (2001); Glewwe, Paul, Hanan, Jacoby, and Elizabeth K. (2001); Glewwe, P. & Jacoby, H. G. (1995); Gorman, K. S. (1995). ; Gustavo, J. B., Edward, M., & Charu, P. S. (2004);

Jukes, M.(2005); Miguel, E. & Michael, K. (2004); Moock, P. R. & Leslie, J. (1986); Shepherd, S. (2008)). However, while this body of literature focused on children already attending pre-school, no available study focused on provision of basic needs and enrolment in pre-school. Yet, children's failure to attend pre-school education contributes to continued failure in developing appropriate behaviours and learning patterns for children in pre-school in other levels of schooling (MoE, 2006). This study therefore, contended that, the large number of children not attending pre-schools in Miriga Mieru West Division could be due to factors relating to provision of basic needs to such children, which needed to be systematically established and explained.

1.2.1 Purpose of the Study

The purpose of this study was to systematically establish and characterize children's basic needs related to children's enrolment in pre-school in Miriga Mieru West Division of Imenti North District.

1.3 Objectives of the Study

The specific objectives of the study were to:

- i) Establish the relationship between household size and enrolment in pre-school.
- ii) Establish the relationship between health status and enrolment in pre-school.
- iii) To determine the relationship between nutritional status and enrolment in pre-school

- iv) To determine the relationship between meals consumed and enrolment in pre-school
- v) To find out what other needs affect enrolment in pre-school.

1.4 Research Questions and Hypotheses

The study specifically answered the following basic questions:

- i) What is the relationship between household size and enrolment in pre-school?
- ii) What is the relationship between health status and enrolment in pre-school?
- iii) What is the relationship between nutritional status and enrolment in pre-school?
- iv) What is the relationship between the number of meals consumed in a day and enrolment in pre-school?
- v) What other needs are related to enrolment of children in the pre-school in Miriga Mieru West Division of Imenti North District?

The study specifically tested the following hypotheses:

Ho₁. There is no relationship between the household size and children's enrolment in pre-school education.

Ho₂. There is no relationship between health status and enrolment in pre-school.

Ho₃. There is no relationship between nutritional status and enrolment in pre-school.

Ho₄. There is no relationship between the numbers of meals consumed in a day and enrolment in pre-school.

1.5 Significance of the Study

The findings of this study are likely to shed light on the importance of meeting pre-school children's basic needs, for future and long-term planning of parents and other stakeholders in early childhood education and development. It is hoped that the findings of this study might produce relevant information that can be used by parents to know the importance of providing their children with basic needs and some of the perceived negative outcomes to children if these basic needs are not met. Since pre-school teachers play a central role in provision of pre-school education, their understanding and transmission of the same relevant information to parents would form crucial support to pre-schoolers education. Provision of basic needs may provide a smooth transition from home to pre-school since most children who enroll in pre-schools may not be retained if their basic needs are not met. Findings of the study are likely to contribute to the existing literature on provision of children's basic needs particularly conceptualizing the relationship between basic needs and enrolment in pre-school.

1.6 Scope and Limitations of the Study

The study was done in Miriga Mieru West Division of Imenti North District. Hence the findings of this study may not be representative of all the divisions in the Imenti North District and Kenya at large. Lastly since almost exclusively, mothers spend more time with the young children in comparison to the fathers, gender variable was not included in the study.

1.7 Assumptions of the Study

- i) Even when there may be other circumstances constraining pre-school attendance, basic needs contribute immensely to non-attendance.
- ii) Pre-school teachers were well-trained to receive children when they go to school, such that they helped them in adjusting to pre-school routines without dropping out.
- iii) Mothers or guardians take children to healthcare clinics for checkup as well as for immunizations.
- iv) That all pre-school age going children are members of certain households, whose size can be determined.

1.8 Theoretical Framework

This study is based on Abraham Maslow's (1954) theory of basic human needs which demonstrates that once basic needs are met, people can express their other needs. Basic needs include; food, household size and healthcare among others. Maslow argues that if a person's basic needs are not met, that person spends time and energy trying to meet them, usually at the expense of other critical developments including pre-school enrolment. He adds that people are unable to fulfill their potential as well as effectively function in life if their basic needs are not satisfied. He proposes a hierarchy of needs forming the famous paradigm of self-actualization. These basic needs are followed by other equally important needs such as; the safety needs (security and stability), then love and belonging needs (affiliation and acceptance), self – esteem needs (success and status) and finally, self-actualization. In order for a

particular need to be activated and thereby guide a person's behavior, the lower level needs in the Maslow's hierarchy, which in this study are the basic needs must be met first.

Human beings are motivated by the desire to achieve and maintain various conditions upon which basic satisfactions rest. If people are hungry, their first interest will be in obtaining food, when sick the interest will be in obtaining medication, and poor housing will affect behavior. This could not only affect adults but also children, but since pre-school children are not in a position to make decisions, they will require parental provision. A sick child and a hungry child may be weak and might be less motivated to go to school, interact and socialize with other children, which denies them an opportunity to explore and discover which is, a fundamental and natural way of children's learning. When basic needs are not adequately met, pre-school children may not be motivated to act in the environment, and are likely not be motivated to attend pre-school. This leads to low enrolment in pre-school.

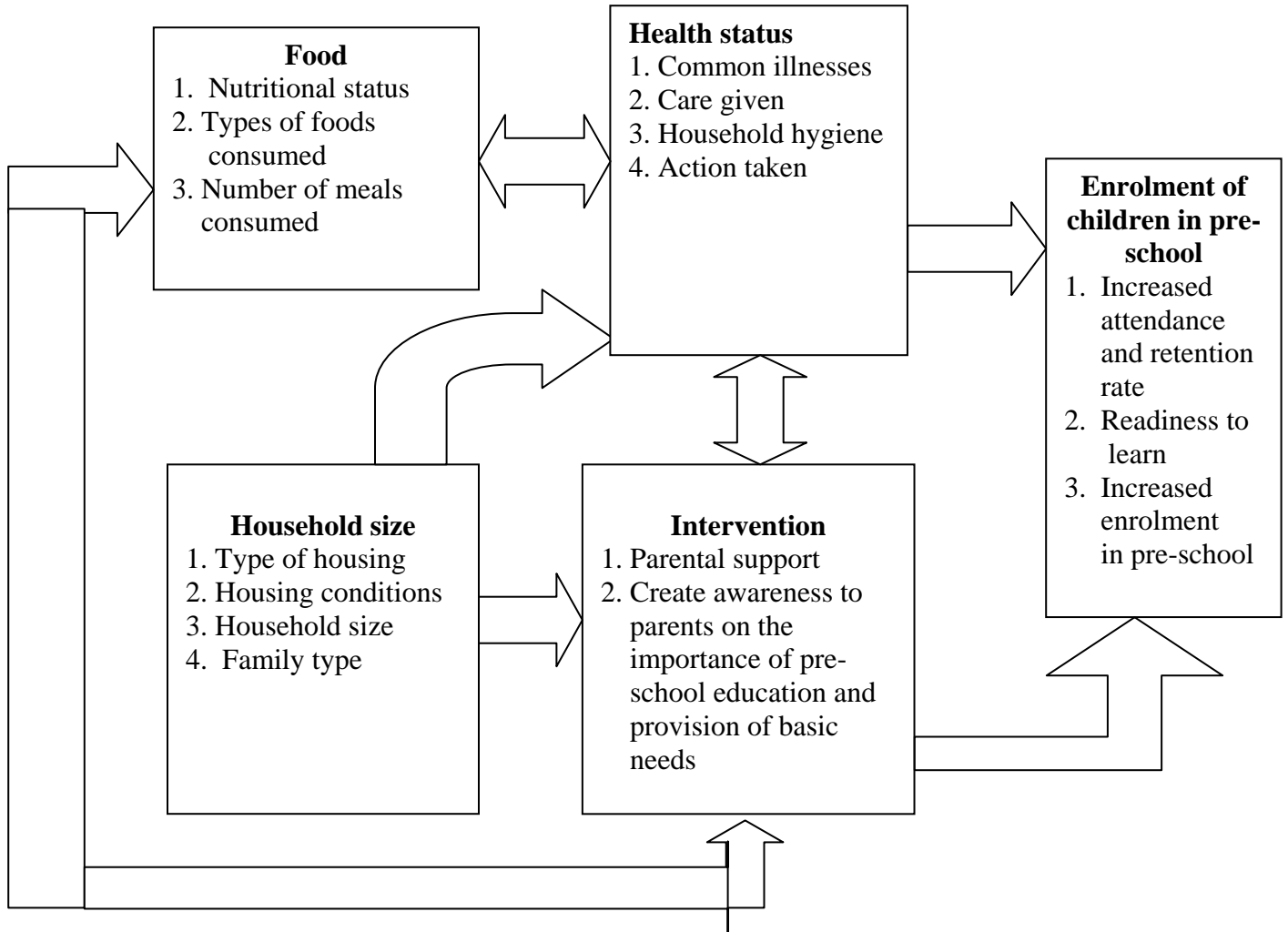
1.8.1 Conceptual Framework

When basic needs are not met, the individual must spend time and energy trying to meet them. When the basic needs are met, the pre-school children will enjoy growing up. For these children to grow and develop well, the following needs are to be met; the need for food which encompasses the need for a balanced diet to achieve normal physical growth and development, household size which involves a decent and clean environment, and health status. When children do not eat a balanced diet, and when

they are not taken to a healthcare center for medication when sick, they lack energy to actively; explore experiment and discover in their environment as well become weak to participate in pre-school. Enrolment of children in pre-school can be hindered by inadequate provision of needs as indicated above. This may lead to poor enrolment in the pre-schools, low retention rates of those children already enrolled in pre-school as well as their overall learning. If children do not attend pre-school they miss the opportunity to develop academically and socially in the present and in the future. This situation can be reversed if the needs are met.

The relationship between these factors is represented in Figure 1.1

Figure 1.1 Conceptual Framework



Source: The researcher

Key: The block arrows indicate the direction of the relationship.

Figure: 1.1 shows the main concepts in relation to pre-school enrolment. The study mainly focused on provision of food, household size and health needs.

1.9 Operational Definition of Terms

Basic needs: The physiological drives such as; the need for food, shelter, and health status that sustain behavior (in this study the terms children's basic needs and basic needs are used interchangeably).

Early Childhood Centers: The pre-schools or institutions where children aged between three years and six years are prepared to join the primary schooling

Early Childhood Education: This refers to the education offered to the children aged between 3-6 years (in this study the terms Early Childhood Education and Pre-school Education are used interchangeably).

Food consumption frequency: The number of meals taken by the child per day.

Health status: This refers to the illnesses that pre-school age children in Miriga Mieru West Division of Imenti North District suffered from.

Net Enrolment Ratio (NER): The percentage of school-age children who are enrolled in school. Its value will vary from 0% to 100%. An NER of 100% means that all eligible children are enrolled in school.

Parent: Parents or guardians of pre-school children who have children attending and not attending pre-school.

Pre-school children: Children aged between 4-5 years.

Enrolment in pre-school: Attendance of children in pre-school.

Household size: This refers to the physical structure in which the pre-schoolers live in and the number of people sharing the same structure.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature related to this study.

2.2 National Goals for Pre-school Education in Kenya

The Ministry of Education (1989) has stated and described the goals of pre-school education. The main ones are that education should produce and prepare children for:

1. National development: Education should meet the economic and social needs of national development, equipping children of the country to play an effective and productive role in the life of the nation.
2. Economic needs: The system of education in Kenya should produce citizen's with skills, knowledge, expertise, and personal qualities she requires to support her growing economy.
3. Social needs: Education in Kenya must prepare children for those changes in attitudes and relationships which are necessary for the smooth progress of a rapidly developing economy.
4. Individual development and self fulfilment: Education should provide opportunities for the fullest development of individual talents and personality.
5. Social equality: Education should promote social equality and foster a sense of social responsibility within an educational system which provides equal educational opportunities for all children.

These goals show what pre-school education hopes to achieve when children participate in pre-school. Children not attending pre-schools may not have the opportunity for self- development, fulfillment, as well as to have the ability to become fully functional in life. The factors making these children to miss out on pre-school which include basic needs are not established.

2.3 Importance of the Early Years of Development

The early childhood years are important in that they form part of the early years of life. According to Shore Rima, (1997), Mustard, (1998), O'Donnel, (1999) and Stephen's, (1999), as cited in the National Early Childhood Development Policy Framework (MOE, 2006) the first six years of life are extremely important because:

1. The environmental influences during pre-school years are significant in influencing one's life. Experiences of this period are known to either enhance or inhibit realization of a child's potential.
2. This is also the fastest period of growth and development in all aspects.

All the critical windows of opportunity are open during this period. These are the years when the children are able to learn and acquire certain knowledge, skills, and attitudes very quickly with minimal effort. Parents need to use this period in order to maximize children's holistic development through provision of the needs, and therefore giving them the power to unlock their potential in life.

3. Pre-school years are the period when the brain is most malleable and also highly impressionable. Environmental influences, especially the care provided to the children had the greatest impact on the brain.
4. During pre-school years, it is very easy to mould the character of children by inculcating social norms, values, and habits as well as regulation and control of emotions.

These years are vital in ensuring proper physiological growth and they form a crucial period for significant health and nutrition interventions that are necessary to put the child on the right track for life. Healthy and strong children are likely to participate with ease in the schooling and learning. This may not happen when children are not treated when sick and when children are not well-fed. The study sought to establish the health status of children in Miriga Mieru West Division of Imenti North District.

2.4 General Objectives for Pre-school Education

The Ministry of Education (1989), states and describes pre- school education objectives as:

- i) To provide an informal education geared towards developing the child's mental capabilities and physical growth
- ii) To enable the child to build good habits for effective living as an individual and a member of a group.
- iii) To develop a child's imagination, self reliance and thinking skills
- iv) To enrich the child's experience so as to enable him to cope better with primary school life.

These objectives bring about the benefits of pre-school education. Many children miss out on the stated benefits since they do not attend pre-schools. This study contended that, this non-attendance of children in pre-school was due to inadequate provision of basic needs which needed to be systematically established and explained.

2.5 Researches on School Enrolment

A policy review report by SOO-Hyang (2007) indicates that the Kenya National Early Childhood Policy Development and Policy Framework for 2006 which was launched in January 2007, showed that there was low access of children to early childhood education. The report also highlights that a major decline in pre-school enrolment occurred before the Free Primary Education (FPE) policy was implemented. This means that FPE is not a contributing factor to low pre-school enrolment. The report concluded that quality early childhood development experiences contribute to more human resources hence poverty reduction. This translates in this study to mean that, to ensure quality education, we have to ensure that children enroll and attend pre-school education especially in Miriga Mieru West Division of Imenti North District where a high percentage of pre-school age going children are currently out of the pre-school. This necessitated the need to find factors that influenced low enrolment in pre-schools in the district.

The results of a study done on patterns of school enrolment in primary school education comparing urban slum, urban non-slum and rural children shows that enrolment is higher in urban non-slum children than in urban slum, and is higher in slums than in rural areas (Mugisha, 2006). The study highlights the factors contributing to these results as poor quality of primary schools in the slums, limited access to secondary schools for the slum children, disabling environment at home and increased child labor. However, his study did not focus on factors influencing pre-school enrolment in relation to basic needs. The contention of this study was to establish factors influencing enrolment in pre-school.

The study by Mugisha (2006) found that children of primary school going age (6 - 13 years) had better enrolment levels in urban areas than in the rural areas. This could be explained by the assumption that urban areas are well-serviced by the social services including the schools. It also found that school enrolment varies with age increasing from age six to peak at 10 – 11 years. However, his study did not document why enrolment is low for ages six and below. He further reported that there was no significant difference in enrolment between urban slums and rural areas since slum communities are served with schools that mainly offer pre-primary and primary levels of schooling only. Many of these schools are also easily accessible in part because a number of them are community schools and the private pre-schools are considered flexible in terms of payment of school dues as well as teaching. Second, at young

ages, children are not active in the slum environment and therefore their school attendance was not affected (Mugisha, 2006).

Swadener (1995) reports that in the Nairobi slum settings many mothers, who participated in her study, supported their families through casual labor, small market or business enterprise activities. Since pre-school education is affordable, with the little income like this they can afford to pay school dues. The same study emphasizes that parental involvement is of crucial importance to the sustainability and success of any pre-school education. Among the many ways a parent can be involved is through attending workshops on making toys and materials, cooking and primary healthcare demonstrations, pre-school work days, growth monitoring for under fives, being a committee member among others and if the children are already attending pre-school education. Most importantly parental involvement for children not attending pre-school should focus on parental provision of basic needs and the awareness of these parents on the importance of pre-school education. This study was designed to find out whether parents of pre-school age going children in Miriga Mieru West Division of Imenti North District viewed pre-school education to be important.

Works by African Population and Health Research Center (2004), have shown that education is crucial to the success of the fight against poverty. Yet in Imenti North District which has a population of 243,220 pre-school ages going children of 4-5 years (DICECE, 2007) has 52% of children not attending pre-school education. To

address inequalities in schooling, the government of Kenya adopted Free Primary Education Policy in 2003, which saw the national enrolment rate rise to 104%. However, Imenti North District maintained a low enrolment rate of 62% ranking second lowest in the country's eight provinces (MoEST, 2003) as cited in APHRC, (2004). Pre-school enrolments have been much lower particularly in Miriga Mieru West Division of Imenti North District (64%).

APHRC (2004) reported a major problem of primary schools in Nairobi District to be frequent absenteeism even though the primary education was free. They attributed this to the poor quality of pre-schools, untrained and poorly paid teachers, lack of teaching and learning materials and finally overcrowding. This implies that there are other factors other than school fees responsible for the low access to education particularly in the pre-school education where many children are not enrolled in pre-school at all. Hence, there was a need to establish this systematically in Imenti North District and particularly in Miriga Mieru West Division.

A study by CCRPK/ ANPPCAN (2002) observes that children in Nairobi Province were facing problems of drug abuse, poverty, high school dropout rates, family breakdown, HIV/AIDS scourge, and corruption, effects of urbanization and industrialization as well as unemployment. All these problems worsen the status of children. The study argues that these problems constitute community influences on the schooling of pre-schools children. The study also states that these problems force

children to, among other things, go into the streets and engage in child labor. The report concluded that children should be in schools and not in factories or doing domestic work.

Gakuru (1992) explored the relationship between class and pre-school education in Kenya. He found that social-economic status of parents in a given area influences enrolments in pre-schools whereby well off to do parents are able to take their children to high cost private schools and the poor parents manage to take children to poorly equipped pre-schools in both private and public schools without enough qualified teachers. His study did not establish the reasons for children's low enrolment in the pre-school education. He also found that enrolment of children in the pre-school education was not prioritized by the government because children would still join standard one (primary school) without going through pre-school education. To date, this has been the case but since the early childhood policy was launched in March 2007, it was expected that pre-school education would be compulsory, now we are in 2009, two years later and this has not happened. The study further states that, despite efforts to expand nursery school opportunities, still majority of children both in urban and rural areas were not attending the pre-school education. That was in 1992 now we are in 2009 and enrolment of children in pre-schools in the whole country remains low.

Study by Ncabira (2005) on factors affecting students access and enrolment in primary and secondary school education in the former Meru District revealed that high cost of education was rated 100% by parents in his study attributing low access to education to; cost, poor school administration, parental perception where by parents who participated in his study preferred to educate boys than girls, household poverty whereby he found that even though high cost of education affects both the education of boys and girls, girls from poor households were doubly disadvantaged. This particular study concerned itself with establishing why there was low enrolment in pre-school for both girls and boys in Miriga Mieru West Division of Imenti North District.

World Bank (2007) reports that dropout and repetition in primary school is common among pupils from low socio-economic background and more prevalent in rural areas than urban areas. Ncabira (2005) notes that the greatest dropout among girls is attributed to parents' negative attitude towards education. Further, Ncabira (2005) highlights factors that lead to low enrolment in primary and secondary schools to be; low socio-economic levels of parents, environment and community in which the school is situated, other reasons given are death of parents and children delinquency. In addition, Ncabira (2005) attributed low enrolment in school to high cost, parental child gender preference, and parental attitude towards education.

2.6 Educational Needs for Pre-school Children

The National Policy of Kenya is that every child has a right to education and it is the responsibility of both the government and parents to ensure that this right is met. The Universal Declaration of Human Rights (1948) embraced education as a basic human right (CRC, 1989). The Children's Act passed by the Kenya government in 2001 as cited in KIE, 2002 considers provision of basic education as a basic human right that every Kenyan child should enjoy. In this view, children's education has been and continues to be of paramount concern. The current study sought to establish whether there is a relationship between children's basic needs and pre-school enrolment.

Pre-school education is an important aspect of basic education that provides a sound foundation for primary education and personality development which can make all the difference in the child's future (MoEST, 2003), & Wilson (2004). The government was making intervention anchored on both policy and legal framework to ensure that free education covers the ECD sector since pre-school education was not free until January, 2007. This might increase the pre-school enrolment and retention rates since it was initially a parental responsibility to pay pre-school children's fees which now is expected to be free after the government through the former Vice President Honorable Moody Awori announced that nursery education will also be free (Bosire 2007). But, even when pre-school education becomes free, parents will still have a responsibility to meet other pre-school children's needs, such as school uniforms, learning materials as well as provision of basic needs. This means that

parents of pre-schooler's are still faced with difficulties in providing not only children's educational needs but; learning materials which include books, pencils, crayons, plasticine, colors, uniform, paying for the school feeding program, paying the teachers salary among others, but also providing them with their basic needs. The basic needs are costly and make it impossible for the parent who is already experiencing financial constraints or hardships to meet the needs of the pre-school child. This necessitated the need for this study to find out the relationship between basic needs and children's enrolment in pre-school in Miriga Mieru West Division of Imenti North District.

2.7 Early Childhood Education

Many years ago, Early Childhood Education was simply perceived in terms of pedagogical experiences of children aged between 3-6 years in preparation for the formal schooling education (Shiundu & Mwaura, 1992). Today, it encompasses all dimensions of growth and development of the child. It is conceptualized in terms of all development experiences that would ensure a continuous individualized process of change in which children learn to cope with even more complex levels of cognition (Myers, 1992). This includes ability to learn effectively. Child psychologists have gradually established that the growth of the child's brain proceeds more rapidly from the second trimester of pre-natal stage to age 6. By fourth year of life, the brain has reached 80% of the mature adult size. By the 6th year, it has attained 90% of mature adult weight and at this age, the child is expected to be in pre-school (Jamison & Lockheed, 1987). Brain growth leads to a child's effective learning or inability to

learn. This growth depends, among other things, on the nutrition of the mother during pregnancy and nutrition of the child after birth (NACECE and KIE, 1995). While this study was done on nutrition, brain development and learning ability. It did not address the relationship between food and enrolment in pre- school. This study intended to cover this gap. In addition this study gave results based on our Kenyan situation and context, which can be used as a reference to other African countries.

2.8 Children's Basic Needs

The basic needs of children must be provided for them to grow into healthy functional and effective human beings (Maslow, 1954). When basic needs are not met, they contribute to reduced productivity, self fulfillment and motivation at all levels including enrolment in pre-school. This provided the basis to investigate the relationship between basic needs and enrolment in pre-school.

2.8.1 Health Status of Pre-school Children

Children below five years are highly vulnerable to illnesses such as cough, malaria, common cold, diarrhea and pneumonia (ACC/SCN, 1998; Fentiman, Hall & Bundy 2001). KDHS (2003) established that within the early childhood years of life (0-6) most children suffered from diseases such as; acute respiratory infections, diarrhea, measles, malnutrition, typhoid, cholera, leukemia among others. These diseases can be controlled through health status given to children when they fall sick by parents. Among the practices expected to be given is taking children for medication when they fall sick. The above mentioned diseases are said to be common in Kenya and it is

likely that they may reduce the child's ability to participate in pre-school. In line with this is also the fact that specific caring practices are associated with better nutritional status of children. This is mainly through protection of the child from pathogens which depend on; caregivers' cleanliness and sanitation, use of healthcare services for routine checkups and nursing care for the child during episodes of illness (UNICEF, 1998). It is in this view that this study sought to establish health status given to children when they fall sick in Miriga Mieru West Division of Imenti North District.

Children from birth up to 5 years are supposed to be given all vaccinations against childhood diseases, among them; BCG (against tuberculosis), Polio (against poliomyelitis), DTP (against three diseases; diphtheria, whooping cough (pertussis), tetanus), hepatitis B, and measles. These immunizations are available for Kenyan children. High coverage of immunizations against early childhood diseases is considered to be a safeguard to better nutrition and health (Viteri, 1987). Immunization enhances the quality of life by preventing childhood vaccine preventable diseases (Hussein, 2001). Until early 1990s, children worldwide received the same basic vaccines. But with the introduction of new vaccines such as; rotavirus, typhoid vaccine-against typhoid fever, hepatitis A, hemophilus influenza B-against severe bacterial infection in children as from 4-6 months, pneumococcal vaccine-against meningitis and septicemia (this is specifically for children with sickle cell disease and children who have undergone splenectomy as well as children with nephritic syndrome on steroids, the difference between vaccines available for children

in rich countries and poor countries as well as between rich and poor families increased (Hussein, 2001). The study only concerned itself with the basic five vaccines that are mandatory to Kenyan children. The study sought to establish whether children in Miriga Mieru West Division of Imenti North District are given all the immunizations that are mandatory for Kenyan children, since preventing the preventable diseases led to reduced cases of common childhood diseases and in turn improved children's enrolment in pre-school.

A key issue that is associated to a child's health is access to clean water and sanitation. Access to clean drinking water is estimated at 89% in urban areas and only 49% in rural areas (KDHS, 2003). Clinical records show that the top diseases reported in Kenya such as malaria, upper respiratory tract infections, skin diseases and diarrhea are sanitary related and inhibit a child's growth (UNICEF, 2003). Sanitation access in urban areas is estimated at 94.8% as compared to 76.6% in rural areas (Millennium Development Goals Report, 2005 & KDHS, 2003). However, even though this population has access to safe drinking water, pollution of drinking water sources is responsible for increased incidences of malaria, typhoid, and cholera in children and other diseases (MDG's, 2005). This study sought to find out whether parents boil or treat drinking water in their households since drinking water that is not safe leads to increased diseases and in turn affects children's enrolment in pre-school.

Illnesses suffered by children contribute to impaired development and growth retardation (ACC/SCN, 1998). In addition, illnesses compromise the nutritional status of children (Piwoz & Preble, 2000). It is also noted that lack of clean water supply and sanitation is the primary reason why diseases transmitted through human waste are so common in developing countries (KDHS, 1998; UN-Habitat, 2003b & UNICEF, 1998). In light of the above there was a need to establish the illnesses that pre-school age going children in Miriga Mieru West Division of Imenti North District suffered from as well as establishing the relationship between healthcare practice and enrolment in pre-school.

The Ministry of Health in conjunction with USAID in February and March 2003, indicated that nearly half of all Kenyans who fell ill did not seek medical treatment because they could not afford it, and only 10% of the population had access to health insurance (MOH AND USAID, 2005). Now we are in 2009 and the government of Kenya has made medicine affordable for young children. It is important to find out if children are benefiting from such support from the government by establishing whether children are taken for medication when they fall sick. Delayed treatment of children's diseases places children at an increased risk of malnutrition. This study sought to establish the action taken by parents when their children fall sick.

2.8.2 Nutritional Needs for Pre-school Children

Children's nutritional status is important not only to children's growth and development but also it reflects household and national investments in family health (GoK, 2002). Nutritional status is the condition of health of an individual as influenced by the utilization of food taken in the body. It can be determined by a thorough physical examination of the body (Robinson 1990 & Gibson 1990). Nutritional status is measured through indices weight for height, weight for age and height for age. Low weight for age (underweight) is an indicator of acute malnutrition, low height for age (stunting) is a sign of poor nutritional history and low weight for height (wasting) indicates current under nutrition (Schumacher, 1995). Unfortunately, no existing has study directly examined a child's weight and school enrolment.

Nearly 800 million people world-wide did not have sufficient food, and approximately 500 million suffered from chronic malnutrition (UNICEF, 1998). That was then now we are in 2009, which is 11 years later but, the same might be evident today. Malnutrition is reflected through wasting and underweight which is a result of long-term food shortage in the body (Moock & Leslie, 1986). Prolonged food shortage gives rise to protein energy malnutrition deficiency (ACCN/SCN 1998; Suarez & Jose 2006). In Kenya, more than one-third of children did not receive adequate food supply in 1990 (Silkind, 1990). Even though it is 19 years today, it may be true that children in Kenya are not getting adequate food. When children do

not get sufficient food, it means that they have low nutritional status; low weight for age (underweight), low height for age (stunting) and wasting which is low weight for height (Schumacher, 1995 and Applied Nutrition Program, 2000). This meant that pre-school age going children have low nutritional status which in turn led to low pre-school attendance as well as enrolment, hence the need to establish the nutritional status of children.

Children's nutritional status is affected by lack of planning by the parents (Piwoz &Preble, 2000). Swadener (1995) shows that, mothers are aware of the young children's nutritional needs, but they do not plan on how to meet them. In Miriga Mieru West Division of Imenti North District, it was expected that mothers through the training given during the health score card record checkups for their children, they know that children should be provided with a balanced diet but due to lack of planning to offer a balanced diet, they end up providing their children with an unbalanced diet which led to low nutritional status of their children. This study sought to establish whether children were provided with a balanced diet, given that inadequate food intake (imbalanced diet) is associated with poor health and low nutritional status related to child's pre-school enrolment.

Children's nutritional status is also affected by poor feeding habits as well as diseases (Piwoz &Preble, 2000). Poor feeding and diseases leads to undernourishment as well as in adequate provision of children's needs (Latham, 1988; Applied Nutrition

Program, 2000). This affects children's growth and development. When the body does not get adequate supply of food; it becomes weak and cannot develop or function properly (WHO , 2002). Children, who are undernourished lack energy and strength to play, learn and are likely not to attend pre-school. These children require taking more meals in a day so as to cater for their energy and strength needs. The number of meals children take per day influences the nutritional status (ACC/SCN, 1998). This necessitated the need to establish nutritional status of children in Miriga Mieru West Division of Imenti North District since undernourishment affects enrolment in pre-school.

Adequate supply of foods is important as it makes a child healthy, makes a child grow, prevents diseases and provides energy (ACC/SCN, 1998; Abidoye & Eze, 2000). In addition when children do not take adequate number of meals recovery from infections takes longer WHO (2002). Study by Gakuru and Koech (1995) indicated that foods and nutrition supply for pre-school children may not be adequately met even when there is adequate food supply. To meet adequate supply of nutrients, FSAU (2003) rightly states that children require more than three balanced meals per day. Similarly Fanta (2001) recommends that pre-school children should be fed with a variety of foods distributed to at least 5 – 6 meals a day. Further to this Mwema (2006) found that taking less than five meals per day leads to an increased number of stunted children. In line with this view is that taking less than five meals in a day leads to inadequate energy and protein intake which contribute to stunting

(Applied Nutrition Program, 2000; Jukes, 2005) and that poor complementary feeding practices lead to increased stunting (Meme, 1996 and Zoakah et al; 2000). The emphasis here is on the number of meals and their distribution per day. The reason for distributing meals is to ensure adequate supply of nutrients throughout the day. This made it crucial to find out the number of meals consumed by pre-school children in a day as well as establish its relationship with enrolment in pre-school, given that reduced number of meals per day relates to children's enrolment in pre-school.

According to the World Bank report (1993) on better health for Africa, 32% of the children in Kenya have stunted growth while 5% of them were wasted. The demographic health survey in Kenya (KDHS, 2003) also documents that 34% of the children were moderately stunted and 15% were severely stunted as demonstrated by low weight for age (W/A). In considering weight for height (W/H), 6% of the children below five years were wasted and 2% were severely wasted (KDHS, 2003). The millennium development goals report (2005) also revealed that there was a prevalence of underweight children less than 5 years of age. By 2003, 20% of the children below five years were underweight while the prevalence of children who were wasted declined from 6.6% in 2000 to 6% in 2003. We cannot ignore the fact that inadequate food intake (poor diet) leads to underweight, which denies a child ability to become active in the environment including the ability to attend pre-school.

Children's nutritional status strongly influences their development and the general quality of life they experience. Unfortunately, a majority of children in the world and many children in Kenya do not receive proper nutrition (Silkind 1990). This means that they do not get enough proteins for building body cells, enough vitamins and minerals for structural development, or enough carbohydrates for energy (Silkind 1990). Many reports and studies investigated the relationship between foods, nutrition and a child's development. However, no available study at least in Kenyan context has investigated the relationship between nutritional status and enrolment in pre-school hence the need for this study.

Another important issue in this study was on examining the nutritional status of pre-school age going children. Several other studies done on this issue focused on iron deficiency anemia and children. Gustavo, Edward, and Charu, (2004) examined the impact of iron supplementation on school attendance. They also investigated the relationship between iron supplementation and cognitive ability among children by surveying experimental studies and most of those works found positive impacts on iron supplementation and cognitive ability among children. Similarly, Stoltzfus *et al.*, (2001) conducted a randomized trial of iron supplementation on 614 children aged 6-59 months, and found that iron supplementation significantly improved language and motor development among severely anemic children. Gorman (1985) estimated the impact of iron supplementation on educational achievement by examining what children learnt in school and found that it improved educational achievement among

Indonesian school children. However, no available study examined children's nutritional status in terms of weight for age (underweight), height for age (stunting) and weight for height (wasting) in relation to enrolment in pre-school, particularly those not attending pre- school.

Establishing children's nutritional status was essential since through studies, it is now evident that children who are undernourished have low school performance, and are more likely to drop out of school (Alderman, Behrman, Lavy & Menon, 2004). Works on Instant Nutrition by Shepherd (2008), indicate that indices of nutritional status at pre-natal and early childhood years have different impacts on muscle, brain development, cognitive and behavioral abilities linked to learning, and on school absenteeism and learning outcomes. The following table shows how under nutrition impacts on education at pre-school years.

Table 2.1: Impact of Lack of Nutrition on Education at Various Ages

Age (yrs)	Health Status	Behavioral Status	Impact on Education
0-9 months	<ul style="list-style-type: none"> • Slow brain Development 	<ul style="list-style-type: none"> • Lethargic • Withdrawn 	<ul style="list-style-type: none"> • Slow cognitive development in the long term
9months-2yrs	<ul style="list-style-type: none"> • Stunting • prone to diseases 	<ul style="list-style-type: none"> • Less sociable • fearful of immediate environment • clinging to mothers 	<ul style="list-style-type: none"> • Poor mental development • less enrolment in learning activities
2-5	<ul style="list-style-type: none"> • Stunting • partial or full blindness • prone to infectious diseases 	<ul style="list-style-type: none"> • Increased apathy • decreased activity • less sociable and interactive 	<ul style="list-style-type: none"> • Impaired cognitive development • slow learning • less psychosocial stimulation • less enrolment in learning activities
5+	<ul style="list-style-type: none"> • Diseases • Stunting • Wasting • weak muscles 	<ul style="list-style-type: none"> • Low energy level • less interaction with parents and peers 	<ul style="list-style-type: none"> • Delayed enrolment • attention deficit • learning disability • low learning achievement • grade repetition

Adapted from Shepherd, 2008.

Table 2.1 indicates that under-nutrition affects cognitive development from before birth. When nutritional deficiencies become sufficiently severe, growth processes in all areas of the brain are affected. Works by Suarez and Jose, (2006) reveal that nutritional deficiencies are more likely to have permanent effects on the brain if they occur during critical periods of brain growth. It was likely that conditions affecting health and nutritional status of pre-school-age children as well as their learning outcome are also a problem for pre-school age going children's enrolment in pre-school. Since nutritional status of children is a manifestation of health and behavioral problems in children and has a negative impact on their education.

Statistics by UNICEF (2006) indicate that prevalence of moderate and severe stunting in children of under-five years was 42% in least developed countries, (44% in South Asia and 38% in Sub-Saharan Africa. A number of studies across Asia and Africa found that stunted children (those with a low height for their age) enrolled in school later than other children (Glewwe & Jacoby, 1995; Glewe & Jacoby 1995). Evidence from an external cause of nutritional deficit suggested that late enrolment in primary and secondary school was actually a consequence of stunting (Alderman et al, 2004). This means that stunting contributes to late enrolment in schools; however, this work did not tell as whether stunting contributes to non-enrolment in schools and particularly among pre-school age going children. Similarly, a study in the Philippines by (Mendez & Adair, 1999) found that children who were severely stunted before age 2 enrolled in primary school late and were often absent from

school. These studies were not done on pre-school children. This study therefore, established the relationship between stunting and enrolment in pre-school.

Other studies available on children's nutritional status focused on improving children's health, academic achievement and performance of children once at school; Beasley *et al.*, (2000) focused on health of enrolled and non-enrolled children of school age in Tanzania; Glewwe, Paul, and Elizabeth King (2001) concentrated on the impact of early childhood nutritional status on cognitive development; Glewwe, Paul, Hanan Jacoby, and Elizabeth King (2001) gave attention to early childhood nutrition and academic achievement and Chege (2006) engaged in children's nutritional status and dietary practices. These studies however did not address nutritional status in terms of enrolment in pre-school. This study sought to establish the relationship between; wasting, stunting, underweight and enrolment in pre-school.

2.8.3 Household Size Needs for Pre-School Children

Household size is a basic need for every child. It refers to the housing and the physical structure in which man lives with his family members, as well as its neighborhood, the community and the social requirements that go with it. Research on household size in Britain showed that children who were living in poor housing conditions exhibited behavioral problems such as mood swings, hyperactivity, aggression, depression, reluctance to eat, disturbed sleep and bed wetting (Rice, 2004). Poor housing conditions has characteristics which among others include;

crowded rooms and spaces, poor ventilation and lighting, poor drainage system, lack of social amenities like water and lack of proper disposal facilities. Household size works revealed that illnesses often rife in poor housing and that children living in poor housing conditions were growing up without health and education which they needed to realize their full potential. In Britain, studies done on household size showed that a large number of children did not attend pre- school education because they lived in poor housing and that the number not participating in the pre-school at all could fill 33,000 classrooms (Harker, 2004). In Kenya, people live in different housing structures which entail permanent (stone houses), semi-permanent (wooden or iron sheet wall houses) and even temporary structures (made of mud walls, thatched roofing as well as carton or polythene paper houses) which are found both in urban and rural areas. Considering that Britain is a developed country, the same could be a glaring reality in our Kenyan context where our Kenyan situation is different. It was not known if the 65% of children not attending pre-schools in Kenya, 52% in Imenti North District and 64% in Miriga Mieru West Division of Imenti North District was due to housing related conditions.

The study contended that the housing situation in Kenya may be different even though the schooling system caters for all the socio-economic status of parents; which are high, middle and low. Depending on the socio-economic status of parents, they can choose to enroll their children in pre-schools which may be either private with a high cost or average cost as well as public schools which are considered to be low

cost. In Kenya also, the household size varies from one housing structure to another. Household refers to the number of person's living in one structure. The mean size of a Kenyan household is 4.4 persons which are approximately 5 persons per household (CBS & MoH, 2004). The mean size of a household in Miriga Mieru West Division of Imenti North District is 6 persons per household. The study considered this mean size to be higher than the country's mean size which translated to mean that the houses were crowded.

Living in overcrowded rooms/houses, without proper ventilation and surrounded with poor drainage systems, poor sewerage systems led to spread of infections from one member of the household to the other, such as common colds and diarrhea among other illnesses (CLG, 2008). Many children (75,168) were not attending pre-school, but we did not know if the children missing out on pre-school education in the division were due to household size related conditions. The study therefore, established the relationship between household size and enrolment in pre-school in Miriga Mieru West Division of Imenti North District.

Despite an increased interest by various researchers (APHRC, 2004; Forsythe *et al.*, 1996; Rice, 2006; Harker, 2006 & CLG, 2008) to find out the extent to which household size need was related to pre-schoolers education in the Western countries, no available study has been conducted on the same especially from our Kenyan perspective. Parents who struggle to keep a roof over the family's head, and food on

the table, simply may not be able to enroll their children in pre-school. In addition, an increased number of people living in one household were directly related to high rate of wasting in children Forsythe, Rau, Cold, & Alrutz (1996). There was therefore a need to establish household size in Miriga Mieru West Division of Imenti North District, while establishing its relationship to enrolment in pre-school.

2.9 Basic Needs and Enrolment in Pre-school Education

Children need sufficient nutritious food to enable their bodies to grow in a healthy manner (Maria, 2002). Parents must ensure that pre-school age children have an adequate balanced diet since a hungry child cannot go to school to learn. Hungry children lack motivation and adequate energy; these children spend most of the time thinking about their hunger and how to get food to eat other than attending pre-school to get an education. Such children do not interact effectively with their environment. They are not able to play, explore experiment, manipulate, and observe effectively.

Children also need to be healthy; they need care and also a clean environment so that they do not become ill and when they fall sick, they need health care. Parents must ensure that children are treated when sick; a sick child cannot learn well and may not attend pre-school education. This is because a sick child spends his or her time thinking about pain instead of focusing on learning and schooling. These children lack the energy and motivation to play so their learning and schooling is impaired.

Research done on household size reveals that, living in particularly crowded households has a negative impact on children education (Rice, 2006 and Harker, 2006). Children who live in crowded households reported to be ill more often and missed out on education (Rice, 2006). Such children are also reported to have behavioral problems and tend to perform poor in schools (Harker, 2006). Children in overcrowded conditions do not have the space they need to play and do homework as well as sleep properly (CLG, 2008). Without room to grow, many children become sick, have problems at school and drop out of school (CLG, 2008). Children need to live in households that are not crowded. Parents must provide for this need by ensuring that the physical structure in which pre-schooler's live in is clean, neat, spacious, have the right temperature and light. The emphasis here is that children's basic needs are important and if they are not met they may impact on pre-school enrolment.

2.10 Summary

The chapter highlighted education as an important aspect of children's life and that it is a fundamental right for every child. The study shows that human beings are motivated by primary needs; such as the need for food, the need for household size, the need for health care. At an early age, children's basic needs need to be met so that these children can experience fulfillment and become motivated to do other things like attending pre-school. Needs make us behave in a certain way in order to fulfill them. Example if hungry we have the desire to look for food. Unless basic needs are met the higher needs may never be fulfilled.

2.11 Research Hypotheses

Following are the hypotheses of the study which were tested at a significant level of 0.05 to establish the relationships between the variables:

H₀₁. There is no significant relationship between the household size and enrolment in pre-school.

H₀₂. There is no significant relationship between children's health status and enrolment in the pre-school.

H₀₃. There is no significant relationship between nutritional status and enrolment in pre-school.

H₀₄. There is no significant relationship between the numbers of meals consumed in a day and enrolment in the pre-school.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research design, location of the study, sampling procedures and sample size. It also explains the tools that were used for data collection and data analysis techniques.

3.2 Research Design

This study was a correlation study employing a survey method. The survey method was found suitable for the present study since it does not require manipulation of variables.

3.2.1 Variables

The independent variables were; food, household size and health status while the dependent variable was children's enrolment in pre-school education.

3.2.2 Description and Characterization of Variables

3.2.2.1 Independent Variables

The independent variable food was measured through the meal patterns and nutritional status of pre-school age children. Pre-school age children are supposed to be fed with a variety of foods distributed to at least 5-6 meals a day (Fanta, 2001). For the purpose of this study if children were served with at least three main meals in a day, and snacks in between, then that indicated adequate food intake and less than three balanced meals per day indicated inadequate food intake. The number of meals

consumed per day was compared for children attending pre-school and those not attending, and then the results were correlated to establish the relationship between number of meals consumed in a day and children's enrolment in pre-school.

In addition, the variable food was also measured by establishing the nutritional status of the pre-school children. This was done by taking the measurements of children's nutritional status. Indices such as weight-for-height (wasting), height-for-age (stunting), and weight-for-age (underweight) were used to classify the nutritional status of pre-school age going children. To establish pre-school children's nutritional status, the cut of point used in the study were; >-3 S.D for severe, < -3.0 & < -2.0 S.D for moderate and > -2.0 S.D for normal. The nutritional status of children attending pre-school and children not attending pre-school was correlated to establish the relationship between nutritional status of children and pre-school enrolment.

The variable household size was measured by stating the number of people living in the same household structure. The household size was compared for children attending pre-school and children not attending pre-school and then the results correlated to establish the relationship between household size and children's enrolment in the pre-school.

The variable healthcare was measured through the health status by asking parents the illnesses their children suffered from, during the last two weeks and the care given

when the child was sick. High disease incidences compromised a child's health status and school enrolment. The health status were compared for the children attending and those not attending pre-school and then the results were correlated to establish the relationship between children's health status and enrolment in the pre-school.

3.2.2.2 Dependent Variable

The dependent variable school enrolment was measured by collecting views from parents on their children's pre-school enrolment. This information was used to establish what parents can do to ensure that their pre-school age going children participate in pre-school, as well as find out any other needs related to enrolment in pre-school in Miriga Mieru West Division of Imenti North District.

3.3 Location of Study

The study was conducted in Miriga Mieru West Division, in Imenti North District which was formerly called Meru central District. The District is approximately 1,141 square kilometres in size with 54,777 households with pre-school age children of 4-5 years. Imenti North District has a population of 243,220 pre-school age children of 4-5 years. Miriga Mieru West Division has an area of 53.2 square kilometres in size and has a population of 78,201 pre-school age children of 4-5 years. It has a total of 18,658 households having pre- school age children of 4-5 years.

Imenti North District was selected as the main area due to several reasons. First, within Imenti North District, the pre-school system is expansive and this means that

the results can be generalized to other divisions in the region. Second, Imenti North District typifies the concept of pre-school trends in both urban and rural areas as parents are fairly well informed and usually willing to send their children to pre-school education. Third, Imenti North District hosts a center that specifically deals with Early Childhood Education in the former larger Meru District regions (DICECE) in comparison to other DICECEs which deal with pre-school education in a specific locality. Lastly, the study was limited to only Miriga Mieru West Division of Imenti North District. The division was selected on the basis of its location and population density.

3.4 Target Population

According to the census report by Central Bureau of Statistics (CBS) of 1999, Miriga Mieru West Division of Imenti North District has got five locations identified and documented. These are Ntima with a population of 10,431 children of 4-5 years, Municipality with 27,349 children of 4-5 years, Igoki with 8,555 children, Ntankira with 19,554 and Nthimbiri with 12,312. The five locations of Miriga Mieru West Division of Imenti North District have a total population of 78,201 pre-school children aged 4-5 years. From this target population of 78,201 children, a sample comprising pre-school age children attending pre-school and children not attending pre-school education was selected. The reason for selecting the two categories of children was due to the fact that only few children (3033) were enrolled in the pre-schools in this division even though it was the division with a higher number of registered pre-schools (60) in comparison to other divisions in the district, (Timau -

50, Buuri -41, and Miriga Mieru East with 30 registered pre-schools). The selected division had only 3033 children enrolled in pre-schools with a whopping 75, 168 children not enrolled (Compare appendixes D and E). This Made Miriga Mieru West Division a suitable target population for this study.

3.5 Sampling Techniques and Sample Size

3.5.1 Sampling Techniques

Imenti North District was purposively selected as the region to carry out the study especially since pre-school education was considered to be expansive in the region. Miriga Mieru West Division was selected first, on the basis of its location and population density which is identified and documented in the census population by CBS (1999). Second, Imenti North District was selected due to the fact that 52% of children in this district were not attending pre-school and in particular 78, 201 children in Miriga Mieru West Division who were not attending pre-school.

From the target population of 78,201 pre-school age children of 4-5 years, a sample size was selected using a systematic formula. The parents of sampled children were then selected purposively to participate in the study. To administer the questionnaire to parents the researcher used the k-th house systematic sampling formula to reach households with pre-school children that by the time of the study were attending or not attending pre-school.

3.5.2 Sample Size

The sample of respondents was determined using the formula adopted from Mugenda and Mugenda (1999) and Rukangu (2000) as cited in Njoroge, (2002).

$$\text{Thus: } n = \frac{z^2 pq}{d^2}$$

Where by n = the desired sample size, z = the standard normal deviation at the desired confidence level, p = the proportion in the target population estimated to have characteristics being measured, q = 1-p, d = the level of statistical significance set.

For this study, children in Miriga Mieru West Division were either attending or not attending the pre-school education, that is why there was a need for probability (p, & q), which in this study was considered to be (0.50). These children belonged to a household. Parents of the sampled children automatically participated in the study; hence they were selected purposively. This made it necessary to consider Z score probability $(1.96)^2$ at a significant level of 0.05. This can be represented below as:

$$n = \frac{(1.96)^2 (.50) (.50)}{(.05)^2}$$

This calculation yields a sample of 384.16, and since we are dealing with human beings and not figures, the study went to the nearest child which makes the sample to be 385 children of pre-school going age. The sampling grid showing the distribution of the children's parents in the five locations is attached to the appendixes at the back (appendix D). To have an even number of parents who had children attending pre-

school as well as parents whose children were not attending pre-school. The distribution of parents in the division which was 77 was further divided by two. This division gave a total of 39 parents in the two categories of parents. This change gave rise to the sample size from 385 to 390. However, since the mathematical formula adopted to calculate the sample size in this study applies to a large target population (a target population of 100,000 and above); the results of the study were not any statistically different. Even if the sample size was to be increased again from 390 onwards, the results would not be any statistically different. See the sampling grid (appendix g).

3.6 Research Instruments

The study utilized the questionnaire for parents in data collection. The questionnaire was constructed following the objectives of the study and administered to parents with children attending pre-school and parents with children not attending pre-school. Even though the researcher recognized that the cost of doing the household survey was high in comparison to the postal questionnaire, the self-completion questionnaire was found suitable for use as a tool for data collection in this study due to the following reasons; it had the ability to collect a large amount of information in a reasonably quick space and time, it allowed anonymity, every respondent got the same questionnaire, and lastly since the questionnaire was administered in the households, it allowed the respondent to seek for clarification, as well as enhanced high response rates.

According to Claire, Craig & Asharaf, (2006), questionnaires are used to describe a situation and also to assess the correlation between two variables. Claire and colleagues stated that focused group discussions were not the suitable method of data collection when the research topic touches on sensitive subject matter, further suggesting that the open-ended questions to be added in the questionnaire because they greatly reduce some negative aspects of the structured questions, like over restrictive response possibilities or exclusion of important ones. Anthropometric tools; electronic bathroom scale, length/height board were used to collect data on nutrition indices weight and height.

3.6.1 The Questionnaire for Parents

The questionnaire for the parents had questions on demographic information, had contingency questions which were easier to administer since each item was followed with alternative answers and these questions were proved by the open-ended questions. Lastly the questionnaire had unstructured open-ended questions which allowed parents complete freedom to express their views about the provision of basic needs in relation to children's enrolment in the pre-school education. Since the open-ended questions were few, respondents were expected to take a shorter time to respond to them.

The questionnaire had questions that derived information from parents; regarding provision of children's basic needs (food, household size and health status) as well as

information on other needs that relate to children's enrolment in pre-school. In administering the questionnaires to parents who were not able to read and write, the researcher read for them the questions and keyed in their answers as per their response. The researcher also recognized that inability to analyze feelings can occur to adults, especially when asked questions foreign to their way of thinking. This gave the need to construct questions minimizing ambiguity (Claire *et al.*, 2006). This was enhanced further during the pilot study whereby useful information when formulating the final questionnaire was used especially on the questions that the respondents did not understand properly.

3.7 Pilot Study

The questionnaire was administered to a sample of 20 parents of pre-school age going children who at the time of the pilot study had children attending or not attending pre-school and who did not take part in the major study. Four respondents were selected randomly from each location (the division had five locations). The refined questionnaire was administered to the sample of respondents in the main study. The purpose of this was to refine the research instrument in order to:

- i) Determine the difficulty of the items in the instrument
- ii) Check the difficulty of the language used
- iii) Estimate the time allocation for the items and
- iv) Enhance the validity and reliability of the items

3.7.1 Validity

A test is valid if it measures what it claims to measure (Best, 1992). To ensure validity of the questionnaire, 20 parents were given the instrument to go through each item and give responses. This was to establish if the items were generating the required information. Afterwards, their responses were analyzed whereby content and language use was modified appropriately. The questionnaire was also considered valid because the questions were reliable. The more reliable the questionnaire is, the more valid it is.

3.7.2 Reliability

Reliability of the instruments was tested during the piloting stage. Reliable instruments are stable in whatever they measure and yield comparable scores upon repeated administration. Test-retest method was used in order to correlate the scores from the same group but for different weeks. Cronbach's Alpha Correlation was employed to compute the correlation coefficient in order to establish the extent to which the contents in the questionnaire were consistent in eliciting the same responses. Reliability is concerned with the stability of the scores. A reliable measure is one in which the scores remain the same over a few measurement points. If the test is very stable then the test-retest coefficient is high (e.g. 0.75). Cronbach's Alpha Coefficient was computed from the data collected during the pilot study to confirm the reliability of the instrument used. The Alpha Coefficients of the questionnaire were 0.88 and 0.98 reliable and the coefficients of the first administration were highly

correlated with coefficients on the second administration, thus the questionnaire had good test-retest reliability and was considered reliable.

3.8 Data Collection Techniques

Prior to data collection, the local administrators that is, the Chiefs, Assistant Chiefs, Councilors, Elders, and Village Headmen from each location were visited by the researcher and informed about the study. The purpose of the visits was to sensitize them on the nature and importance of the study. The questionnaire was administered personally to parents (parents of pre-school children who had children attending or children not attending pre-school) by the researcher in households. Household administration of questionnaires was considered since; the researcher clarified misunderstandings and misinterpretations of words or questions when necessary which led to clearer answers. It also minimized chances of respondents not responding to the entire questionnaire (Claire *et al.*, 2006). After parents finished responding to all other questions in the questionnaire apart from question 23, the researcher went to the schools to confirm whether children who were attending pre-schools attended regularly or irregularly.

Anthropometric measurements were taken by asking the mother to give the child's age which was also verified by using the growth monitoring clinic card or the birth certificate. Where age of the child was not known, estimated date of birth was done using parents' estimates or local events (FSAU, 2003). Weight was taken using an electronic bathroom scale calibrated up to 120kg at the interval of 0.1kg children. The

bathroom scale was placed on a flat surface; the child was lightly dressed and stood on the scale. When the pointer became stable, the weight was taken to the nearest 0.1kg the reading was taken twice. The average was calculated and recorded (Cogill, 2000 and FSAU, 2003). Height/length was taken using a length height board. Children stood bear feet together on the flat surface of the stadiometer (height meter). With back, head, buttocks and shoulder back and heels touching the upright of the scale, the head of the child was comfortably held upright and head piece was lowered to make contact with the head gently crushing the hair. The reading was taken to the nearest 0.1cm, the procedure was repeated and a second reading was taken. The average was calculated and recorded (Cogill, 2000 and FSAU, 2003).

3.9 Logistical and Ethical Considerations

After obtaining research permit and permission from the Ministry of Education and other relevant authorities, the researcher started with the process of data collection. The respondents were told what the study was about and what was expected of them. They were also informed that their individual rights were protected. The respondents were assured that information given was treated with absolute confidence, and that it was for academic purposes. To ensure this confidentiality the respondents of the study remained anonymous.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

In the present chapter, methods of data analysis, results and discussions are presented.

4.2 Data Analysis

Data collected were coded, organized and analyzed using quantitative methods. In inferential and descriptive statistics were used to analyze data. Raw data were first prepared for analysis using the Statistical Package for Social Sciences (SPSS). Descriptive statistics were used to analyze data obtained from; parents demographic information, child preference and reasons for child preference, information on meal patterns, health status, household size and school enrolment. Descriptive statistics calculated included: frequencies, means, standard deviations and percentages.

In inferential statistics, t-test (two tailed) for testing equality of means for independent samples and Pearson Chi-square (χ^2) for testing the relationship between variables were used to test the statistical hypotheses. A t-test (two tailed) was used to test H_{01} , H_{02} and H_{04} . The t-test (two tailed) was found suitable to test the relationship between variables in H_{01} , H_{02} and H_{04} since looking at the difference between variables is also the same thing as looking at how variables relate to each other. In using t-test (two tailed) to test the relationship between variables it means that, if two variables are significantly different then, they are related (Obure, 2002).

Pearson Chi-square (χ^2) was used to test the relationship between variables in H_{03} . Pearson Chi-square (χ^2) was found appropriate to test the relationship between variables in H_{03} first, because it is used to test the relationship between variables and second, because variables in the hypothesis are categorical (either ordinal or nominal) whereby in H_{03} , pre-school enrolment was a nominal variable, anthropometric measurements; sex, weight and height were also nominal variables, while age was an ordinal variable.

The reason for not using Pearson's Product Moment Correlation as indicated earlier in the proposal is because Pearson's R required interval data (meaning that the variables were to be measured on interval by interval scale). And in this case, variables in hypothesis three (which are sex, weight and height of the children and pre-school enrolment) were nominal variables while age was an ordinal variable. Spearman's Ranking Order Correlation Coefficient which also is a non-parametric test just like Pearson Chi-square (χ^2) and a version of Pearson Correlation Coefficient that is used to test the relationship between variables could not be used. The reason being that Spearman Correlation required ordinal by ordinal data but could not be used since in H_{03} most variables were nominal variables, only age was ordinal.

Anthropometric data were analyzed using the Nutrition Package EPI INFO 2005, where by the raw data on weight, height, and age were transformed to nutrition indices (Z-score values) by the EPI INFO (2005) computer software. To determine

the nutritional status of children's; weight for age, weight for height and height for age Z-scores were computed and the cut-off points that were used to determine the nutritional status were; < -3 S.D for severe, > -3.0 & < -2.0 S.D for moderate and > -2.0 S.D for normal

The null hypotheses tested at a significance level of 0.05 were:

H₀₁. There is no significant relationship between the household size and enrolment in pre-school.

H₀₂. There is no significant relationship between children's health status and enrolment in the pre-school.

H₀₃. There is no significant relationship between nutritional status and enrolment in pre-school.

H₀₄. There is no significant relationship between the numbers of meals consumed in a day and enrolment in the pre-school.

The results are presented below.

4.3 Results

Results of descriptive and inferential analysis have been presented in the following sub-sections:

4.3.1 Demographic Information on Parents' Marital Status, Religion, Age, Education Level and Child Preference

Below are the findings obtained from the parents' demographic information.

4.3.2 Parents' Marital Status

To establish the marital status of parents, they were asked to state whether they are single, married, divorced, separated or widowed. Out of the 390 parents who participated in the study in the five locations 288, (74%) of them were married, 44 (11%) were single, 32 (8%) of them were separated, 20 of them were widowed and less than one percent of these parents were divorced.

4.3.3 Parents' Religion

To establish the religion of parents, they were asked to tick their religion. Whether Catholic, Protestant, Muslim or specify any other religion. After this, it was evident that parents who participated in the study belonged to a certain religion of which majority 282 (72%) were Protestants, 85 parents (22%) were Catholics, Muslims and other religions accounted for 4%. Among these 15 parents were Muslims and 8 parents belonged to other religions. Religion is important not only to parents but also to young children since it inculcates in them moral values such as right and wrong, it also develops a firm foundation of faith to be built upon as they get older. Religious practices can also determine child rearing practices.

4.3.4 Parents' Age

To establish the age of parents, they were asked to indicate the category that best explained their age. A large number of parents in the study 203 (52%) were between 25 – 34 years of age while only 13parents (3%) were above the age of 55 years. Parents between the age brackets 35 – 44 years were 94 (24%), those between ages 18-24 years were 58 (15%) and ages 45 - 54 years were 22 (6%).

4.3.5 Parents' Education Level

To establish parents' levels of education, they were asked to state their highest level of education completed and their responses are indicated in table 4.1

Table 4.1: Parent's Level of Education by Location

Parents Education Level	Location					Total
	Igoki	Municipal	Ntankira	Nthimbiri	Ntima	
Primary Frequency	15	12	24	25	26	102
Percentages (%)	(19.2)	(15.4)	(30.8)	(32.1)	(33.3)	(26.1)
Secondary Frequency	22	17	13	19	18	89
Percentages (%)	(28.2)	(21.8)	(16.7)	(24.4)	(23.1)	(22.8)
Post sec/ College/ Professional training Frequency	16	10	4	11	4	45
Percentages (%)	(20.5)	(12.8)	(5.1)	(14.1)	(5.1)	(11.5)
University Frequency	3	1	1	1	0	6
Percentages (%)	(3.8)	(1.3)	(1.3)	(1.3)	(0.00)	(1.5)
No schooling Frequency	22	38	36	22	30	148
Percentages (%)	(28.2)	(48.7)	(46.1)	(28.2)	(38.4)	(37.9)
Total Frequency	78	78	78	78	78	390
Percentages (%)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.1 shows that 102 parents (26%) had a primary school education while only 6 parents (2%) had a university education. The study also found that 148 parents (38%) did not have an education at all. Among the 390 parents, 89 (23%) of them had a secondary education and only 45 parents (12%) had gone to colleges and other professional training institutions. Interestingly, Ntima and Ntankira locations had the least number of parents with post secondary education. In the five divisions the

number of parents with post-secondary education decreased as indicated in table 4.1. It was necessary to establish the education level of parents since it has been strongly associated with health of children and also the importance attached to education. Research indicates that highly educated parents seek medical advice (Gering *et al.*, 2006).

4.3.6 Parents' Child Preference for Education

Parents were asked if they did not have enough money, which of the children they would prefer to educate between boys or girls. It came out that parents in Miriga Mieru West Division of Imenti North District prefer to educate both boys and girls. Some parents 186 (48%) preferred to educate girls and 204 parents (52%) preferred to educate the boys. Some of the reasons given by parents for making their choice to educate the girls and not boys were that girls have more needs than boys, and are able to help themselves as well as others when educated. Parents also reported that girls are more merciful to them than boys, that girls are more development conscious and more responsible, they are less problematic and more vulnerable, these parents argued that boys get inheritance from parents or grandparents but girls can get married to a family with nothing and suffer more raising children and taking care of the family, but if she gets a good education, she can be a pillar to support her family comfortably. These parents also argued that boys can get many casual jobs to do than girls. Parents who supported girl education gave examples of what girls have done in their villages like constructing permanent houses for their parents, helping the needy children in the

community and cited the fact that girls can now become national leaders and take powerful positions in government.

Parents who preferred educating boys than girls said that it is better to educate a boy because a girl can become pregnant and drop out of school hence the enormous resources put to her education ends up being wasted. The same parents argued that a boy needs education to be responsible since they are expected to marry and take good care of their families. The opinions of parents who preferred educating girls and those who preferred educating boys strongly bring out the idea that both the boy-child and the girl-child need education to have a better future, get employed or start a business to help themselves and their families.

The views of these parents on child preference are consistent with those of participants in a study by Ncabira (2005) who found that parents in Meru Central District viewed educating boys to be more crucial given the ultimate roles as family heads and bread winners. They also believed that boys are more intelligent than the girls and that girls are less success-oriented than boys. Given the perceptions of parents in the two studies, it is not surprising to find girls who have dropped out of school due to family inability to meet their financial demands of schooling, or being used as a source of income for the household.

4.3.7 Information on Household Size and Family Type

To establish the household size, parents were asked to state the number of children in the household? Their responses are explained below.

Households with children below six years were 387 which is 99%. The remaining 1% of the households had 7 and 10 children respectively. In finding out why households had more children of pre-school age going and of lower primary age. Parents attributed this to the fact that responsibility was transferred to them by adolescents who left their young ones under their care since they were not able to take care of them.

Over 41% (160) households had more than 6 persons living in the same household. Only 230 (59%) households had 5 persons and below. The researcher noted that, 245 (63%) households had in excess of 6 persons living in the same home even though they shared different housing structures within the same compound and were members of the same family. Through probing, it was found that many homes with 6 person's and above had a total of 160 children not attending pre-school. This translates to mean that 82% of pre-school age going children not attending pre-schools came from families with at least 6 persons living in the same family compound even though the household structures were different.

These findings are closely related to other findings done on household size which indicate that; an increase in household size led to an increase in the number of children who were stunted (Mwema, 2006 and Chege 2006); children have a lower weight for height as the number of children in a household increases (Chege, 2006); the more the number of members in a household, the less amount of kilocalories a child is likely to consume and the poorer the nutritional status (Chege 2006). This is in agreement with the findings by UNICEF (1998), that the allocation of food per household member is likely to decrease with the increased number of family members.

To establish the family type, respondents were asked to state whether the household was headed by a child, single parent paternal, single parent maternal or double parents. The researcher found that households were of different types depending on the family head. The researcher found that 34 % of children (67) who did not attend pre-school came from households headed by children, single maternal and single paternal parents. Two of these households were headed by children. In all the houses visited during data collection period, 85 households were headed by single maternal parents. Among the single maternal headed households, 50(26%) had children not attending pre-schools with only 35(41%) children attending pre-school. Among the sampled households 21, were headed by single paternal parents and a large percentage (71%) of children in these households did not attend pre-school. Many households (282) were headed by both parents and 154 (55%) of children in these

households were attending pre-school with the remaining percentage not attending pre-school

4.3.7.1 Household Size and Enrolment n Pre-School

The objective to be achieved was to establish the relationship between household size and enrolment in pre-school. The null hypothesis stated was:

H₀₁. There is no significant relationship between household size and enrolment in pre-school. This hypothesis was tested using t-test (two tailed) and the results are presented table 4.2.

Table 4.2 Household Size and Enrolment in Pre-School

	Children's enrolment in pre-school	Mean	Std. Deviation	Std. Error Mean
Household size	Attending	4.17	1.391	0.100
	Not attending	4.39	1.644	0.118

Table 4.2 shows the overall mean score for children attending pre-school was 4.17 and for children not attending pre-school was 4.39.

Table 4.3: Independent Samples Test for Equality of Means by Household Size and Enrolment in Pre-school

A t-test (two tailed) for Equality of Means				
	t	df	Sig. (2-tailed)	Mean Difference
Household size	-1.463	388	0.144	-0.226

Table 4.3 shows that the mean difference was -0.226 and the level of significance was 0.144 (two tailed).

The t-test (two-tailed) was used to test the relationship between the independent variable household size and dependent variable enrolment in pre-school. The results in the table 4.3 shows the mean difference in the household size for children attending pre-school and children not attending pre-school was -226 with, 0.144 level of significance (two- tailed). The results were not significant at 0.05. The null hypothesis that; there is no significant relationship between household size and enrolment in pre-school was therefore accepted. The results indicate that statistically, there was no relationship between household size and children's enrolment in pre-school education ($p= 0.144 > 0.05$).

The lack of relationship between household size and enrolment in pre-school could be due to evidence in this study that many houses in the division were not overcrowded, the mean household size for children attending pre-school was 2.38 and the mean household size for children not attending pre-school was 2.73. Households in Miriga Mieru West Division of Imenti North District were not overcrowded; the reason being that some household members who were considered to be mature lived in separate housing facilities from the other family members, especially the young men who were circumcised and girls who were over 18 years. This means that although the results indicated that statistically, there was no significant relationship between the

household size and enrolment in pre-school. We cannot ignore household size and enrolment in pre-school. This is due to several reasons; first, because the more people there are in a family, the higher the likelihood of pre-school age going children living in these homes not attending pre-school, especially now that many people share a home but live in separate housing structures. Second, the household size for one household structure cannot be taken to represent the whole family's household structures. The mean size for the households with children attending pre-school was 2.38 and children not attending pre-school was 2.73 when the divisions households mean size was compared with the Kenyan household mean size which is (4.4 persons) approximately 5 persons, the Kenyan mean size was lower compared to the mean size of a single family's household structures mean size which is 6 person's per home. Third, due to the fact that 82% of the pre-school age going children not attending pre-schools were from families with more than 6 persons even though they shared different housing structures.

This finding is consistent with the study done in Britain on household size by APHRC (2004) which revealed that children lived in poor housing conditions. The fact that children in Miriga Mieru West Division of Imenti North District do not live in overcrowded houses there are other characteristics of a poor housing condition that cannot be ignored; these are lack of social amenities like water and proper disposal facilities. Even though the research did not focus on these aspects, it was evident and could not escape the researcher's eye that in some homes and particularly homes

where children were not attending pre-school, there was no piped water and the water sources available were the nearby rivers. It was also observed that households and the compound were kept clean by sweeping but garbage was not properly disposed, before burning, it was left unattended mostly near a fence or in an open field. When garbage is not properly disposed, illnesses like diarrhea may thrive. The findings disagree with Mwema, (2006) who found that sanitation issues like proper disposal of garbage and cleanliness of the household environment was observed by respondents in her study which was done in Kieni West Division of Nyeri District.

4.3.8 Information on the Health Status

To establish healthcare status, parents were asked a number of questions which are stated and their responses reported in the appropriate part.

The question here was to establish if the child was currently suffering from any disease or has been sick during the last two weeks before the study commenced as well as state what the child suffered from. Children living in the sampled households 264 (68%) reported to have been sick in the last two weeks before the study commenced. The common diseases they reported to have suffered from were malaria and common colds which accounted for 77% of the reported illnesses. This finding is supported by that of Mwema (2006) who also found that majority (52%) of children in her study suffered from Malaria and Common colds. Only 26% of the children reported to have been sick from diarrhoea, vomiting, fever, loss of appetite, as well as other illnesses. Other illnesses included HIV and AIDS, eye problem, worms, tonsillitis, meningitis, nose bleeding, typhoid and small pox.

Parents were asked what action they took when their children fell sick. Most parents reported that they took the child to medical facilities like health centre or hospital. This is in line with what was found by Mwema, (2006). Others opted to buy over the counter medication and a smaller percentage went for herbal treatment as shown in table 4.4.

Table 4.4: Action Taken When Children Fall Sick

Action	Frequency	Percentage
No action taken	63	16.16
Hospital/ health centres	203	52.06
Over the counter medication	54	13.84
Herbal treatment	70	17.94
Total	390	100

Table 4.4 shows that among the 390 parents who participated in the study, 63 parents did not take any action after their children fell sick. Reasons given by parents, who did not take any action when their children fell sick, were that the journey to the hospital and hospital charges were not affordable to them, because they did not have the money. This finding is in agreement with that by Chege, (2006). Parents in this study reported that over the counter drugs were expensive. Other parents claimed that

the child was not too sick to get medical attention, and some of them said that they believe in God to heal them and not on doctors and medication. These views are consistent with findings by Mwema, (2006) who found that 28% of respondents in her study in Kieni West Division of Nyeri District, did not give the child anything neither did they take the child to hospital because they termed the illness as not serious. The respondents in the two studies failed to understand that; care given to the sick child reduces severity and duration of current infection as well as prevents secondary infection and worsening of the illness.

Recognition of signs of illnesses and early care seeking behaviour among mothers of children less than five years prevents complications and death resulting from common childhood diseases (Mwema, 2006). One parent told the researcher that all her children were born at home and they never received any immunization or any medical attention because her religious belief that God will heal them supernaturally. The view of this parent, however denies her child utilization of primary healthcare services which has been found to buffer the child against growth deficits by decreasing the prevalence of disease through immunization (CBS, 2001).

Parents were also asked to state the reason for choosing the actions indicated in table 4.4. Most of the parents (203) who took action after their children fell sick, took them to hospital. Reasons given by parents who took action of taking children to the healthcare facilities when they fell sick were; that they believed in contemporary diagnosis, treatment and medication, that the medicines are available in the hospitals/healthcare centres, others took their children in these centres for better advice, check-up as well as laboratory testing , others also went to the hospital because their children's condition was worsening and the children needed proper medication, some parents went to the hospitals to benefit from children's free medication while other parents took their children to receive specialized care from the professionals. These findings are in line with those of Mwema (2006) who found that at least 40% of her respondents took children to hospital when sick and agrees with findings by (CBS, 2001), which indicate that access to health services is vital, where prevention, timely treatment and proper management make an important contribution towards health and morbidity rate.

Among the 390 parents who participated in the study 54 of them took their children to seek herbal treatment after they fell sick. Reasons given by these parents for their actions were that, herbal medication has no side effects; it is made from plants and vegetation that people consume daily. To add on to this point, one parent cited the case of contemporary medicine aired on TV whereby due to a doctor's negligence, a baby's toes were amputated.

Parents were asked to state whether they take their children to healthcare centers when sick. Their responses are indicated in table 4.5

Table 4.5: Whether Parents Take their Children to the Health Centres

Took child to healthcare centre	Frequency	Percentage
No	47	12.1
Yes	343	87.9
Total	390	100

In table 4.5, parents were asked whether they take their children to the healthcare centres when sick other than what they did in the last two weeks prior to the study 88% said yes and only 12% said no.

Parents who do not take their children to healthcare centres when sick were asked to state why and their responses are indicated in table 4.6.

Table 4.6: Reasons Parents Gave for not taking their Children to Hospital

Reason for not taking children to healthcare	Frequency	Percentage
Too costly	30	63
Too far	1	2.1
No drugs	3	8.5
No reason	12	25.5
total	47	100

Table 4.6 shows that a large percentage 63 % (30) of parents who did not take their children for healthcare failed because of the costs involved. Children of these respondents seem to be disadvantaged since research by FSAU, (2003) shows that poor conditions of health and inappropriate care are the major contributing factors to poor nutritional status.

Parents were asked which places they take their children for medication, 293 of them responded to the question and 95 % (278) said that they seek medical help, 3% (10) do not take their children anywhere for medication and two parents took the child for prayers when sick.

Parents of pre-school age going children in Miriga Mieru West Division of Imenti North District were asked what they do to maintain hygiene in the household. Their responses are reported in table 4.7.

Table 4.7: What Parents do to Maintain Hygiene in the Household

What is done to maintain hygiene in the household	Frequency	Percentage
Nothing	2	1.8
Cleaning house and utensils	323	72.2
Washing hands and clothes	57	19.5
Clearing bushes and	7	2.3
Sweeping	66	16.9
Total	389	100

Table 4.7 shows that most parents (72%) kept hygiene in their households through cleaning. Studies show that a clean environment has a significant effect on health by reducing a variety of diseases (FAO, 2005) and other closely related findings by Piwoz and Preble (2003) indicated that infection compromises nutritional status of children.

Parents were asked whether they give children balanced foods frequently. Their responses are indicated in table 4.8.

Table 4.8: Frequency of Giving Balanced Foods

Do you give balanced foods?	Frequency	Percentage (%)
No	49	12.6
Yes	341	87.4
Total	368	100

Table 4.8 shows that many parents, 341 (87%) reported that they give their children balanced foods frequently.

Parents were also asked to state whether they boil or treat drinking water for the children. Many parents 73% (284) reported that they either boil or treat drinking water while 27% (106) parents do not boil or treat drinking water. This finding is in agreement with that of (Mwema, 2006) who found that 51% of her respondents either boiled or added chlorine (treated) to their drinking water, while 49% did not treat their water. Use of contaminated water led to poor health conditions (FAO, 2005). When children use contaminated water they get germs – bacteria's parasites and viruses that can cause diarrhoea which increases time and money spent on healthcare(FAO, 2005)

Parents were asked to state whether their pre-school age going children were given all the immunizations. Among the 390 children in the study 97% (378) of them received all the immunizations and only 3% (12) that did not receive all the immunizations. Research shows that children who are immunized have a safeguard to better nutrition and health (Viteri, 1987). This finding is in line with that of (Mwema, 2006) who found that children's immunization coverage in Kieni West Division was high with 98% of the children fully immunized.

4.3.8.1 Health Status and Enrolment in Pre-School

The objective was to establish the relationship between health status and enrolment in pre-school. The null hypothesis stated was: H_{02} . *There is no significant relationship between health status and enrolment in pre-school.*

The t-test (two tailed) was used to test this hypothesis and the results are presented in tables 4.9 and 4.10.

Table 4.9: Health Status and Enrolment in Pre-School (N= 195)

	Children's enrolment in pre-school	Mean	Std. Deviation	Std. Error Mean
Number of Illnesses	Attending	0.76	0.663	0.047
	Not attending	0.83	0.785	0.056

According to table 4.9, the mean score of health status for children attending pre-school was 0.76 and for children not attending pre-school was 0.83.

The t-test (two-tailed) results are presented in table 4.10.

Table 4.10: Independent Samples t-test, two tailed) for Equality of Means by Number of Illnesses and Enrolment in Pre-school

	A t-test (two tailed) for Equality of Means			
	t	df	Sig. (2-tailed)	Mean Difference
Number of Illnesses	-0.907	388	0.365	-0.067

The t-test (two tailed) was used to establish the relationship between the independent variable health status and dependent variable enrolment in pre-school education. The results in the table above shows the mean difference in the health status for children attending pre-school and children not attending pre-school was -0.067 with, 0.365 level of significance (two- tailed). The results were not significant at 0.05. The null hypothesis was therefore accepted. The results indicate that statistically, there was no significant relationship between health status and children's enrolment in pre-school education ($p = 0.365 > 0.05$).

The lack of relationship between health status and enrolment in pre-school could be due to the fact that, children who were sick attended pre-school since the parents were able to provide medication as well as regular checkups which children who were not attending pre-school were not able to get. However, we cannot ignore the fact that sickness impairs learning because a sick child does not have the energy and motivation to attend pre-school. Also from the means of children attending pre-school

and children not attending pre-school, the children not attending pre-school had a higher mean of 0.83 when compared to the mean of children attending pre-school education which was 0.76. This implies that even though the relationship was not statistically significant, there were more sick children from the category of children not attending pre-school.

4.3.9 Information on the Nutritional Status (Anthropometric Measurement)

To establish children's nutritional status; their sex was taken, weight and height as indicated in table 4.11; 4.12; 4.13 and 4.14

Table 4.11: Sex of the Children

Sex of the child	Frequency	Percentage
Male	184	47.2
Female	206	52.8
Total	390	100

Table 4.11 shows that among the 390 pre-school ages going children who participated in the study in Miriga Mieru West Division of Imenti North District were both boys and girls. The sex of children and enrolment in pre-school is indicated in Table 4.12.

Table 4.12: Sex of Children and Enrolment in Pre-School

Children's enrolment in pre-school	Sex of the child		Total
	Boys	Girls	
Attending	96	99	195
Percentages	49.2%	50.8%	100.0%
Not attending	88	107	195
Percentages	45.1%	54.9%	100.0%
Total	184	206	390
Percentages	47.2%	52.8%	100.0%

Table 4.12 shows that 96 (49.2%) of children attending pre-school were boys and 99 (50.8%) of them were girls. This means that more girls than boys attended pre-school even though the difference is minimal. The table also indicates that among the children not attending pre-school the number of girls was higher 107 (54.9%) than that of boys, 88 (45.1%). There were more girls 206 (52.8%) than boys 184 (47.2%) among pre-school age going children in Miriga Mieru West Division of Imenti North District. Children's age in months is indicated in Table 4.13.

Table 4.13: Children's Age in Months

Mean	60.469
Median	60.000
Mode	72.0
Std. Deviation	10.7585
Range	48.0
Maximum	72.0

According to table 4.13, children's age average was five years (60.5 months); many children were 72 months old (6years) and were also the oldest. Children's weight and height are indicated in table 4.14.

Table 4.14: Children's Weight and Height (N= 390)

	Childs Weight (Kg)	Childs Height (Inches)
Mean	17.781	42.412
Median	18.000	42.750
Mode	16.0	42.0
Std. Deviation	3.0778	4.4353
Range	26.0	51.7
Maximum	28.0	55.1

Table 4.14 shows that children's average weight was 17.8 kilograms and the average height was 42.4 inches or 107.7 centimetres. Most children were 16 kg's, 42 inches or 107 centimetres. The children's maximum weight was 28kgs and maximum height was 55 inches or 139.9 centimetres. To get the height in centimetres, the inches were

converted. Using the information derived from tables; 4.13 and 4.14 on children's age, weight and height. This information is also categorized and summarized into nutritional status in terms of stunting, underweight and wasting using the cut-off points that are used to establish nutritional status in tables 4.15; 4.16 and 4.17. The same information is further clarified in Figures 4.1; 4.2 and 4.3. Children's nutritional status in terms of stunting is further characterized into three groups; the normal, the moderate and the severe as indicated in table 4.15

Table 4.15: Nutritional Status (Height for Age Z Scores) (Stunting)

Nutritional status	Frequency	Percent
Normal ($Z \geq -2$)	339	86.9
Moderate ($-3 \leq Z \leq -2$)	36	9.2
Severe ($Z \leq -3$)	15	3.8
Total	390	100.0

< Means less than, \geq Means greater than or equal to, \leq Means less than or equal to.

Table 4.15 shows that among the 390 pre-school age going children in Miriga Mieru West Division of Imenti North District, many children 39 (87%) were normal, 36 (9%) of them were moderately stunted and only 15 (3.8%) were severely stunted. The information from table 4.15 is explicitly described in figure 4.1.

Figure 4.1: Distribution of Height for Age Z Scores (Stunting)

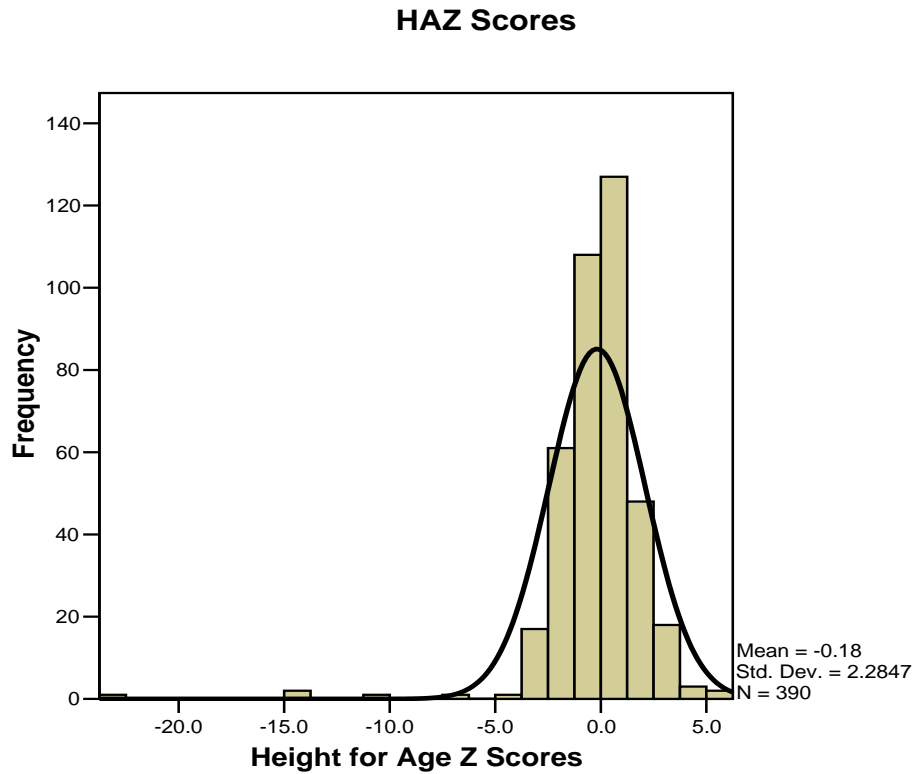


Figure 4.1 shows a normal distribution with a long left tail.

Children's nutritional status in terms of underweight is further categorized into three groups; the normal, the moderate and the severe as indicated in table 4.16

Table 4.16: Nutritional Status (Weight for Age Z Scores) (Underweight)

Nutritional status	Frequency	Percent
Normal ($Z \geq -2$)	355	91.0
Moderate ($-3 \leq Z \leq -2$)	23	5.9
Severe ($Z \leq -3$)	12	3.1
Total	390	100.0

< Means less than, \geq Means greater than or equal to, \leq Means less than or equal to.

From table 4.16 it is shown that among the 390 pre-school age going children in Miriga Mieru West Division of Imenti North District many of them 355 (91%) were normal, 23 (6%) of them were moderately underweight and only 12 (3.1%) were severely underweight. The information from in table 4.16 is explained in figure 4.2.

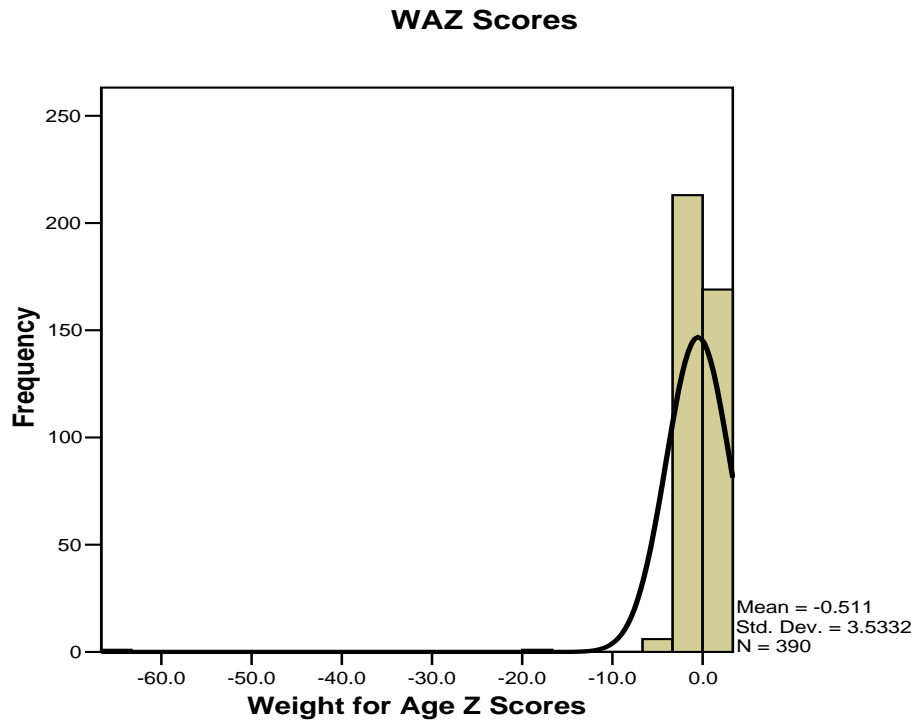
Figure 4.2: Distribution of Weight for Age Z Scores

Figure 4.2 shows an almost normal distribution but skewed to the left. Almost because the normal distribution curve does not show the two tails meaning there is skewed-ness towards the lower Z scores. Children's nutritional status in terms of wasting is further characterized into three groups; the normal, the moderate and the severe as indicated in table 4.17.

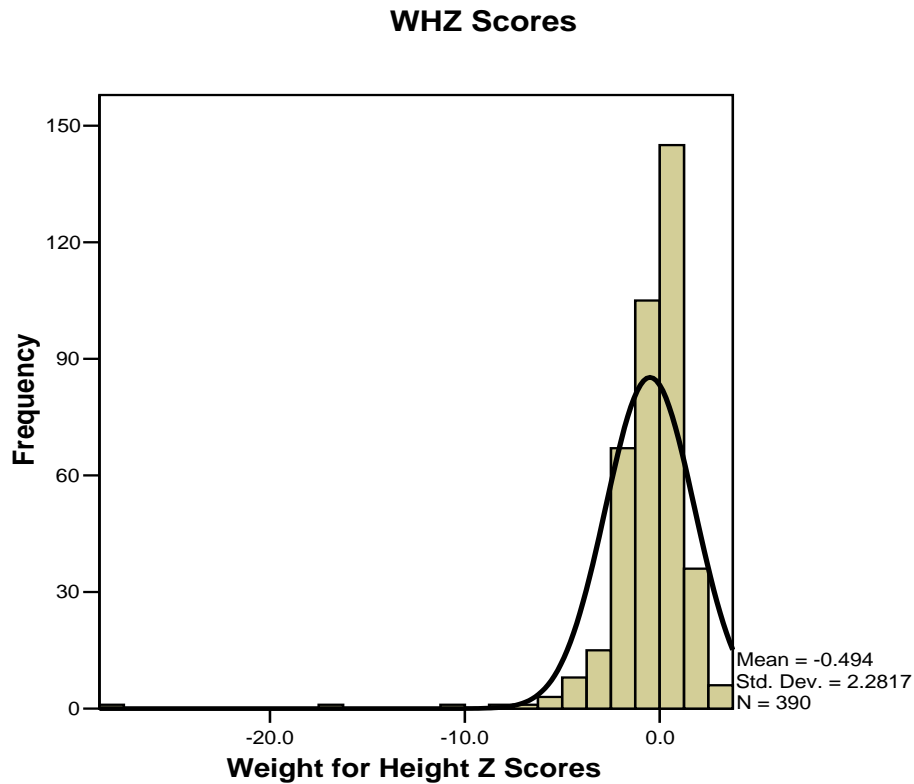
Table 4.17: Nutritional status (Weight for Height Z Scores) (Wasting)

		Frequency	Percent
Valid	Normal ($Z \geq -2$)	336	86.2
	Moderate ($-3 \leq Z \leq -2$)	30	7.7
	Severe ($Z \leq -3$)	24	6.2
	Total	390	100.0

< Means less than, \geq Means greater than or equal to, \leq Means less than or equal to.

The table 4.17 shows that among the 390 pre-school age going children in Miriga Mieru West Division of Imenti North District many of them 336 (86%) were normal, 30 (8%) of them were moderately wasted and 24 (6%) were severely wasted. The information from in table 4.17 is portrayed in figure 4.3.

Figure 4.3: Distribution of Weight for Height Z Scores



Have normal distribution, with long left tail. Generally, it is a normal distribution

Objective three sought to establish the relationship between nutritional status and enrolment in pre-school. The null hypothesis stated was: H_{03} . *There is no significant relationship between nutritional status and enrolment in Pre-school.*

Pearson Chi-square (χ^2) was used to test this hypothesis. The variable nutritional status was measured by taking indices such height for age (stunting), weight for age (underweight) and weight for height (wasting) and the results are presented for each of the indices measured.

4.3.9.1 Nutritional status Measured by Taking Indices Height for Age (Stunting)

Pearson Chi-square (χ^2) test was used to determine the relationship between the independent variable nutritional status in terms of stunting and enrolment in pre-school. The results are presented in table 4.18

Table 4.18: Nutritional status (Stunting-HAZ) and Enrolment in Pre-school

		Nutritional status (Stunting-HAZ)			Total
		Normal ($Z \geq -2$)	Moderate ($-3 \leq Z \leq -2$)	Severe ($Z \leq -3$)	
Children's enrolment in pre-school	Children Attending pre-school	179	9	7	195
	Percentages	91.8%	4.6%	3.6%	100.0%
	Children Not attending pre-school	160	27	8	195
	Percentages	82.1%	13.8%	4.1%	100.0%
Total		339	36	15	390
Percentages		86.9%	9.2%	3.8%	100.0%

Table 4.18 shows nutritional status of children in terms of stunting. Among the 195 pre-school age going children in Miriga Mieru West Division of Imenti North District that attended pre-school, many of them 179 (92%) were normal, 9 (5%) of them were moderately stunted and 7 (4%) were severely stunted. Among the 195 children who did not attend pre-school, many of them 160 (82%) were normal, 27 (14%) of them

were moderately stunted and 8 (4%) were severely stunted. Among the 390 children of pre-school age going in the division, 339 (87%) of the children were normal, 36 (9%) of them were moderately stunted and 15 (4%) were severely stunted. The above findings are in line with the findings of a survey conducted in Tharaka District (Applied Nutrition Program, 2000). Stunting was attributed to poor weaning and complementary feeding practices leading to inadequate energy and protein intake. Similar studies showing stunting with age were reported in Nyambene District and Nigeria (Meme, 1996 and Zoakah et al; 2000). Chi-Square test for stunting and enrolment in pre-school are indicated in table 4.19.

Table 4. 19: Chi-Square Tests for Stunting and Enrolment in Pre-school

	Calculated (χ^2) Value	Critical (χ^2) Value	df	Sig. level (2-sided)
Pearson Chi-Square (χ^2)	10.132(a)	5.991	2	0.006

In table 4.19, Pearson chi-square (χ^2) was used to determine the relationship between the independent variable food measured by nutritional status (nutrition indices taken) in terms of stunting and children's enrolment in pre-school. The results indicate that statistically, there is a significant relationship between nutritional status in terms of stunting and enrolment in pre-school ($p = 0.006 < 0.05$). This means that children who were stunted did not attend pre-school. Therefore, the null hypothesis is rejected.

This finding agrees with findings closely related to this study by Abidoye & Eze (2000) who found that nutritional status in terms of stunting influenced school attendance. These findings are in line with Works by Moock & Leslie (1986) who found that stunting was significantly related to the probability of not attending school and was significantly related to late school enrolment. The findings are also supported by Fentiman & Bundy (2001), who carried their study on health and cultural factors and associated stunting with enrolment in basic education in rural Ghana; Beasley *et al.*, (2000) who studied health of enrolled and not-enrolled children of school age in Tanga, Tanzania; Jamison & Lockheed (1987) who investigated determinants of enrolment in schooling and learning outcomes in Nepal. And lastly, they receive additional support from a study on the role of early childhood nutrition on delayed primary school enrolment by Glewwe & Jacoby (1995).

Work that is closely related to this study by Jamison (1986) indicated that stunting was related to the grade attained in school and the finding by Mendez & Adair (1999) which was done on severity and timing of stunting in the first two years of life and performance on cognitive tests in late childhood revealed that stunting was related to low IQ.

This finding is consistent with that by Shepherd (2008) who shows that there is a relationship between stunting, cognitive impairment and lowered educational achievement. Further, a study by Alderman *et al.*, (2004) indicated that there was no

significant relationship between stunting and education of parents. The findings of this study agree with closely related findings by Maria (2002) who reported that there was no significant difference in prevalence of stunting between low academic achievers and high academic achievers. This finding disagrees with the views of a study carried out by Maria (2002) to determine the cognitive abilities of Kenyan children in relation to nutrition, family characteristics and education who found that stunting was not significantly related to test scores. Lastly, the findings of this study agree with the work on malnutrition and cognitive development by Gorman (1995) which indicated that stunting was related to poor learning, cognitive impairment, poorer cognition and school achievement in later childhood.

4.3.9.2 Nutritional Status Measured by Taking Indices Weight for Age (Underweight)

Pearson Chi-square (χ^2) test was used to determine the relationship between the independent variable nutritional status in terms of underweight and enrolment in pre-school. Nutritional status in terms of weight for age (underweight-WAZ) is indicated in table 4.20.

Table 4.20: Nutritional Status in Terms of Weight for Age (Underweight-WAZ)

		Nutritional status (underweight-WAZ)			Total
		Normal ($Z \geq -2$)	Moderate ($-3 \leq Z \leq -2$)	Severe ($Z \leq -3$)	
Children's enrolment in pre-school	Attending	175	12	8	195
	Percentages	89.7%	6.2%	4.1%	100.0%
	Not attending	180	11	4	195
	Percentages	92.3%	5.6%	2.1%	100.0%
Total		355	23	12	390
Percentages		91.0%	5.9%	3.1%	100.0%

The table 4.20 shows that among the 195 pre-school age going children in Miriga Mieru West Division of Imenti North District that attended pre-school, many of them 175 (90%) were normal, 12 (6%) of them were moderately underweight and 8 (4%) were severely underweight. Among the 195 children who did not attend pre-school, many of them 180 (92%) were normal, 11 (6%) of them were moderately underweight and 4 (2%) were severely underweight. Among the 390 pre-school age going children in the division, 355 (87%) of them were normal, 23 (6%) of them were moderately underweight and 12 (3%) were severely underweight. Chi-square test for underweight and enrolment in pre-school are indicated in table 4.21

Table 4.21: Chi-square Test for Underweight and Enrolment in Pre-school

	Calculated (χ^2) Value	Critical (χ^2) Value	df	Sig. level (2-sided)
Pearson Chi-square (χ^2)	1.447(a)	5.991	2	0.485

Table 4.21 indicates that statistically, there is no significant relationship between nutritional status in terms of underweight and enrolment in pre-school ($p = 0.485 > 0.05$). This means that being underweight is not related to enrolment in pre-school. The null hypothesis is accepted.

The findings of this study agree with works closely related to this study by Alderman *et al.*, (2004) which indicated that there was no significant relationship between anthropometric indexes; weight for age (underweight) and education of parents. The findings also agree with closely related findings of a study by Maria (2002) which reported that there was no significant difference in underweight between low academic achievers and high academic achievers. This finding disagrees with closely related findings of a study carried out by Maria (2002) to determine the cognitive abilities of Kenyan children in relation to nutrition, family characteristics and education; found that underweight had significant relationship to performance. The findings of this study are also closely related to the works of Abidoye & Eze (2000) who carried out a study on comparative school performance through health and nutrition in Nigeria and found that nutritional status in terms of underweight significantly affects school performance.

4.3.9.3 Nutritional Status Measured by Taking Indices of Weight for Height (Wasting)

Pearson Chi-square (χ^2) was used to determine the relationship between the independent variable nutritional status in terms wasting and enrolment in pre-school.

The results are presented below. Nutritional status in terms of weight for height (wasting-WHZ) is indicated in table 4.22.

Table 4.22: Nutritional Status in Terms of Weight for Height (Wasting-WHZ)

		Nutritional status (Wasting-WHZ)			Total
		Normal ($Z \geq -2$)	Moderate ($-3 \leq Z \leq -2$)	Severe ($Z \leq -3$)	
Children's enrolment in pre-school	Children Attending pre-school	148	26	21	195
	Percentages	75.9%	13.3%	10.8%	100.0%
	Children Not attending pre-school	188	4	3	195
	Percentages	96.4%	2.1%	1.5%	100.0%
Total		336	30	24	390
		86.2%	7.7%	6.2%	100.0%

Table 4.22 shows that among the 195 pre-school age going children in Miriga Mieru West Division of Imenti North District that attended pre-school, many of them 148 (76%) were normal, 26 (13%) of them were moderately wasted and 21 (11%) were

severely wasted. Among the 195 children who did not attend pre-school, many of them 188 (96%) were normal, 4 (2%) of them were moderately wasted and 3 (2%) of them were severely wasted. In totality among the 390 pre-school age going children in the division, 336 (86%) of them were normal, 30 (8%) of them were moderately wasted and 24 (6%) were severely wasted. Chi-square test for wasting and enrolment in pre-school is presented in table 4.23.

Table 4.23: Chi-square Test for Wasting and Enrolment in Pre-school

	Calculated (χ^2) Value	Critical (χ^2) Value	df	Sig.level (2-sided)
Pearson Chi-Square (χ^2)	34.395	5.991	2	0.000

The results for the nutritional status measured by taking the indices weight for height (wasting) indicate that statistically, there is a significant relationship between nutritional status in terms of wasting and enrolment in pre-school ($p= 0.000 < 0.05$). The null hypothesis is therefore rejected. This means that more of the children who were wasted did not attend pre-school.

The findings of this study agree with the findings closely related to this work by Moock, & Leslie, (1986) who did research on wasting among the elementary school age children in southern Nepal and found that wasting was significantly related to the probability of not attending school.

This finding is closely related to the findings by Alderman *et al.*, (2004) who indicated that there was no significant relationship between wasting and education of parents. The finding also agrees with closely related findings to this study by Shepherd (2008) that there is a relationship between wasting cognitive impairment and lowered educational achievement. This finding agrees with closely related findings of a study carried out by Maria (2002) to determine cognitive abilities of Kenyan children in relation to nutrition, family characteristics and education; who found that wasting had significant relationship to performance

4.3.10 Information on Meal Pattern

This study found that majority of pre-school age going children 323 (83%) in Miriga Mieru West Division of Imenti North District do take breakfast, with only 67 (17%) children not taking this important meal. With regard to 10 o'clock snack, the trend changes with 258 (66%) not taking this meal. This figure includes children attending pre-schools where this meal is prepared on a daily basis. The reason attributed to children not taking the 10 o'clock snack by the parents with children attending pre-school was that the school porridge program was expensive for the pre-school parents to afford. Only 132 (34%) children of the pre-school age going took this meal.

Most children took lunch 348 (89%) with only 42 (11%) of the children in the whole division not taking lunch. Very few children took the four o'clock snack in the division, only 80 (21%) of children in the division took this meal, the remaining 310

(79%) did not take the meal during the time of study. A large percentage of children 85% (330) took the evening meal.

After taking the evening meal, a smaller number of children took a snack before going to bed, only 41 (11%) while 349 children (59%) did not take any snack after the evening meal. Although a very small number of children took this snack, it was interesting to note that no child took this snack in Ntankira location. The researcher found that consumption of the three main meals which were breakfast, lunch and supper was higher than consumption of the snacks in all the five locations as indicated in table, 4.24; 4.25 and 4.26.

Table 4.24: Number of Meals Children Consumed per Each Location

Meal consumed	Location					Total
	Ntankira	Municipality	Nthimbiri	Ntima	Igoki	
Breakfast	62	62	69	64	66	323
Snack 1	17	34	27	26	28	132
Lunch	67	66	70	72	73	348
Snack 2	9	21	19	7	24	80
Supper	68	58	69	66	69	330
Snack 3	0	12	17	4	8	41
Total	223	253	271	239	268	

Table 4.25: Number of Main Meals Consumed in a Day

Location	less than three main meals freq.	%	three main meals freq.	%	frequency totals	percentage totals
Igoki	20	25.6	58	74.4	78	100
Municipality	34	43.6	44	56.4	78	100
Ntankira	31	39.8	47	60.3	78	100
Nthimbiri	17	21.8	61	78.2	78	100
Ntima	27	34.6	51	65.4	78	100

Table 4.26: Number of all the Meals Consumed in a Day and Children's Enrolment in Pre-school

Number of meals consumed in a day	Not attending pre- school	Attending pre- school	Total
Breakfast Freq. %	142 72.8	181 92.8	323 82.8
Lunch Freq. %	161 82.5	187 95.8	348 89.2
supper Freq. %	152 77.9	178 91.2	330 84.6
Snack 1 Freq. %	18 9.2	114 58.5	132 33.8
Snack 2 Freq. %	6 3.1	74 37.9	80 20.5
Snack 3 Freq. %	2 1.0	39 20	41 10.5

Table 4.26 shows the number of main meals and snacks consumed by children attending and children not attending pre-school in Miriga Mieru West division of Imenti North District.

4.3.10.1 Meals Consumed in a Day and Enrolment in Pre-school

Objective four was to determine the relationship between the number of meals consumed and enrolment in pre-school. The hypothesis stated was: H_{04} . *There is no significant relationship between the numbers of meals consumed in a day and enrolment in pre-school.* This hypothesis was tested using t-test (two tailed) and the results are in table 4.27 and 4.28.

Table 4.27: Meals Consumed and Enrolment in Pre-school (N=195)

	Children's enrolment in pre-school	Mean	Std. Deviation
Number of meals consumed	Attending	3.96	1.150
	Not attending	2.47	0.755

Table 4.27 shows the mean scores of the number of meals consumed in a day for children's attending pre-school was 3.96 and for children not attending pre-school was 2.47.

Table 4.28: Independent Samples Test for Number of Meals Consumed and Enrolment in Pre-school

	A t-test (Two-tailed) for Equality of Means			
	t	df	Sig. (2-tailed)	Mean Difference
Number of meals consumed	15.197	388	0.000	1.497

Table 4.28 shows the mean difference was 1.497 and the significance level was 0.000 (2-tailed).

The t-test (two tailed) was used to determine the relationship between the independent variable food which was measured by the number of meals consumed in a day and the dependent variable enrolment in pre-school education. The results show that there is a significant difference in the number of meals consumed between children attending pre-school (have a mean of 3.96) and children not attending pre-school (2.47). This implies that there is a significant relationship between the number of meals consumed in a day and enrolment in pre-school. The results in table 4.28 also shows that the mean difference in the number of meals for children attending pre-school and children not attending pre-school was 1.497, with 0.000 level of significance (2-tailed). The results reveal that the difference between the two means is significant at 0.05. The null hypothesis was therefore rejected. The hypothesis was rejected, because the more the number of meals children consumed in a day, the higher the number of pre-school age going children who attended pre-school as assessed by the questionnaire utilized in this study. This shows that the numbers of meals consumed

are related to enrolment in pre-school among the pre-school age going children ($p = 0.000 < 0.05$). This study fills the gap left by the studies that investigated the relationship between foods, nutrition, brain development, learning ability and child development but did not investigate the relationship between food and enrolment in pre-school. The relationship between the number of meals consumed and enrolment in pre-school can be explained by the fact that with at least three meals and snacks in between, there is less likelihood of weight loss.

The relationship between the number of meals consumed and enrolment in pre-school can be attributed to the fact that the more the number of meals consumed, the more the likelihood of adequate supply of energy (FAU 2005). This finding is also closely related to that of Mwema (2006) that the number of meals consumed in a day is related to stunting. Stunting has been found in this study to have a positive relationship with enrolment in pre-school. The relationship between the number of meals consumed in a day and enrolment in the pre-school could be because of several reasons:

First, the children attending pre-school take more than three meals per day which the children not attending pre-school were not taking. This is supported by FSAU, (2003) who stated that to meet adequate supply of nutrients; children require more than three nutritionally balanced meals in a day. Similarly Fanta, (2001) recommends that children should be fed with a variety of meals distributed to at-least 5-6 meals a day

so as to ensure adequate supply of nutrients throughout the day, children who take less meals lack adequate supply of nutrients hence may not attend pre-school.

Second, inadequate food intake has been associated with poor health and low nutritional status. Findings by ACC/SCN (1998) indicated that the number of meals taken per day will influence the nutritional status of children, which in turn, might hinder enrolment in pre-school. The same study shows that when inadequate intake of food is prolonged, it gives rise to protein energy malnutrition (PEM). Wasting in children reflects acute malnutrition, but with at least three main meals and snacks in between, there are less likelihood of wasting and underweight in children WHO (2002).

Third, when the body does not get adequate supply of food, it becomes weak and cannot develop or function properly (WHO, 2002). A hungry child may be weak and may be less motivated to go to school which may lead to children not attending pre-school. Fourth, hunger is a drive activated by the hypothalamus gland in the fore brain; it results in dizziness, weakness and light headedness. Hunger pangs are felt in the stomach. Stomach demands for food by growling. This makes food important to the child since after all the processes indicated above only food will give them energy, keep them warm as well as build and repair their bodies.

4.4 Information on School Enrolment

The objective here was to find out what other needs affect enrolment in pre-school.

Descriptive results of this are presented below.

Among the pre-school age going children, 50% (195) that participated in the study were either attending or not attending pre-school education. Among the 390 children who participated in the study, 195 of them attended pre-school education. Some of the children 183 (94%) who attended pre-school were regular and only 12 (6%) children were irregular in their attendance. Parents with children attending pre-school were asked what resources they utilize in supporting their children's education. A large number of these parents 72 (37%) relied on their salary from professional jobs as stated in table 4.29.

Table 4.29: Resources Parents Utilize in Supporting Their Children's Education.

Resources utilized in educating children	Frequency	Percent
Support from parents	11	5.64
Farming	45	23.07
Business	41	21.04
Salary (professional job).	72	36.92
Informal labour	26	13.33
Total	195	100

According to table 4.29, a smaller number of parents 11 (6%) depended on their children's grandparents to support their education. The goal to make enrolment in Early Childhood Education compulsory may not be achieved if issues contributing to low enrolment in early childhood centres are not identified and described, to cover this gap, the 195 parents with children not attending pre-school education were asked to give reasons why their pre-school age going children were not attending pre-school education. Some parents gave more than one reason as to why their pre-school children were not attending pre-school. Reasons given by parents as to why pre-school age going children were not attending pre-school are presented in table 4.32.

Table 4.30: Reasons Given by Parents as to why Pre-school Age Going Children were not Attending Pre-school

Identified reasons as to why children were not attending pre-school	Frequency	Percentage
• In ability to provide basic needs	142	72.82
• Accessibility to the necessary services	8	4.10
• Lack of awareness	5	2.56
• Lack of school fees	190	97.44
• Security reasons	7	3.59
• Free primary education	6	3.08
• Pre-school education is not important	1	0.51
• My child is not interested	4	2.05

Table 4.32 shows that many parents reported inability to provide basic needs and lack of school fees to be the two main reasons why pre-school age going children were not attending pre-school education. Among the 195 parents with children not attending pre-school, 73 % (142) said that they were not able to provide their pre-school age going children with basic needs while 97% (190) of them said they lacked school fees as well as money to meet school needs such as; books, uniform, pencils among other school needs. This finding agrees with research conducted in Meru Central District by Ncabira (2005) who found that lack of school fees and relatively high cost of

schooling was a crucial variable in the withdrawal of students from school. He argued that even where schools do not have high cost such as day schools, other levies and expenses make schooling out of reach for a significant number of children.

One of the intentions of this study was to establish other factors' contributing to low enrolment of children in pre-school and as per the results in table 4.32, it seems that inability to provide required needs was the major reason for low enrolment in pre-school. This finding is close to that by Ncabira (2005) who found that lack of school fees and high cost of education led to low access in education. This is also in line with the views of 50% of the parents who participated in this study and had children not attending pre-school. They claimed that they lacked money to meet their children's health needs, put a meal on the table as well as manage the schooling expenses for their pre-school age children together with the needs of other children in primary and secondary schools.

It was interesting to note that even though it was not in the interest of this study, most parents with children not attending pre-school had children not attending other levels of schooling at home for the same reasons why their pre-school age children were not participating in pre-school education. This finding is in line with that of World Bank (2007), which indicated that very low economic profiles for the majority of households, cannot overcome the hidden or direct costs of schooling. This finding further agrees with Ncabira (2005) who found that as the level of household poverty

increased, child labour became crucial for family survival, whereby children of primary and secondary schools were employed to do domestic activities, agricultural and petty trades in rural and urban areas.

The results of this study show that we cannot ignore that there is a relationship between basic needs and enrolment in pre-school, especially now that parents with children not attending pre-school have identified inability to provide basic needs and lack of school fees to be the main reasons that contribute to the current trend of low enrolment in pre-school.

Parents who had their children attending pre-school education were asked to state what makes them take their children to school. Their responses are reported in table 4.33.

Table 4.31: Reasons for Taking Children to Pre-school

What makes the parent take the child to school	Frequency	Percentage
Pre-school education is important	178	91.28
Ability to meet the required needs	111	56.92
The child falls sick less often	11	5.64
The child is interested	3	1.54
Ability to provide nutritious food	2	1.03

Table 4.33 shows that many parents take their children to pre-school education since pre-school education is important and are able to meet the required needs. Among the 195 parents with children attending pre-school, 91% (178) of them said that pre-school education was important and 57% (111) said that they were able to meet the required needs. Among the 390 parents who participated in the study, 2% of them reported that their pre-school age going children were not interested in pre-school education. This finding is similar to that of Ncabira (2005) who found that primary and secondary school children did not like continuing with education because they lacked motivation and aspirations. This means that since it is now evident that children can lack interest and motivation to attend school, parental motivation is critical to these children's school attendance, performance and chances of their children completing schooling. The value that these families attach to education determines the motivation with which its children pursue such education.

Parents with children attending pre-school were asked to give their views on what parents with children not attending pre-school can do so that their children can also attend pre-school education. Their responses are indicated in table 4.34.

Table 4.34: Parents with Children not Attending Pre-school can do the Following so that their Children also can Attend Pre-school

what parents with children not attending pre-school can do so that their children can start attending	Frequency	Percentage
• Pray	5	2.56
• Small scale business	44	22.56
• Farming	29	14.88
• Proper planning and budgeting	12	6.15
• Informal labor and enterprise	61	31.28
• Prostitution	3	1.54
• Seek financial support	41	21.03
• Total	195	100

Table 4.34 shows that many parents with children attending pre-school education suggested that their fellow parents with children not attending pre-school to get involved in jobs like; working in someone's house, farm, shop/ supermarket as well as washing clothes for those who can pay for the service. Some of the parents with children attending pre-school 23% (44) advised parents with children not attending pre-school to engage in small scale business like run a shop, sell second-hand clothes, buy and sell milk in town, selling vegetables in the kiosk, buying and selling of firewood, planting seedlings and selling them, among other small scale-businesses.

Few parents 21% (41) advised parents with children not attending pre-school to seek financial support from well wishers, church and faith based organizations and community based organizations like LEWA conservancy.

Three parents (2%) from the municipality location gave an interesting proposal that their fellow parents should do anything including prostitution to have children attend pre-school. This drew researcher's interest in knowing what they do to support their own children and it turned out that they depended on children's grand parents for support since they were not independent. This finding is close to the views of Ncabira (2005) who reported that prostitution is another option open to school girls in Kenya, Meru included. Sugar daddies usually rich and "respectable" members of a society exploited the economically deprived situation of majority of school girls to gain sexual favours.

Further, findings closely related to this study established other needs that affect enrolment in education to be:

1. The availability of places as well as enrolment and attendance procedures (Wedgwood, 2005). This means that when strict measures are in use at the time parents are enrolling and when children miss out on school days, they may opt not to take their children to such schools, which in turn will affect enrolment.

2. The accessibility of schools was found to be good because of zoning and the provision of transport where necessary (Vavrus and Larsen, 2003). This implies that when schools are conveniently located in all the regions, then they can be accessed easily and where transportation is made available enrolment improves.

3. The low costs for parents: education was free (United Nations Millennium Project, 2005b). This calls for pre-school education to be made free or affordable to parents since it has been established that low costs will influence enrolment in school.

4. Pre-school provision is good: crèches in all districts mean that girls are not kept off school to look after younger siblings (World Bank, 2005a and World Bank, 2007).

CHAPTER FIVE: SUMMARY, IMPLICATIONS, CONCLUSION AND RECOMENDATIONS

5.1 Introduction

This chapter represents the summary of the study findings, conclusion, recommendations and implications of the findings. It also gives gaps for further research respectively.

5.2 Summary of the Findings

The study was carried out to establish the relationship between children's basic needs and enrolment in pre-school, whose findings are summarized below:

1. This study identified two major factors that led to low enrolment of children in pre-school's to be inability to meet basic needs and lack of school fees among other reasons.
2. The study found that nutritional status in terms of underweight was not significantly related to enrolment in pre-school.
3. The study has established that children in Miriga Mieru West Division of Imenti North District do not live in overcrowded households since in most homesteads; there are different housing structures that different members of a family use even though people in different housing structures belong to the same nuclear family.
4. The study revealed that most children of pre-school age going years were from their grandparents son's since in Meru children belong to their father.

5. The study discovered that parents of pre-school age going children were in a position to provide adequate meals for their children but did not take children to the hospital since they claimed that drugs were expensive and opted for over the counter medicines which were cheaper.
6. There was no significant relationship between household size and enrolment in pre-school.
7. There was no significant relationship between children's health status and enrolment in pre-school.
8. There was a significant relationship between nutritional status in terms of stunting and enrolment in pre-school.
9. There was a significant relationship between nutritional status in terms of wasting and enrolment in pre-school.
10. There was a significant relationship between the number of meals consumed and enrolment in pre-school.
11. The study established types of illnesses that pre-school age gong children in Miriga Mieru West Division of Imenti North suffered from.

5.3 Implications of the Findings

1. A hungry child cannot learn. A child who is hungry lacks adequate energy and interest to participate in pre-school. A hungry child spends most of the time thinking about hunger instead of concentrating on attending and learning in pre-school. A hungry child does not interact effectively with the environment which is his/her natural way of learning. The child is not

able to play, explore, experiment, manipulate and observe effectively. Since children learn through play, a hungry child does not learn well. Children attending pre-school should have and be part of the school feeding program to ensure that they are nourished well. When children's need for food is met then, children can focus their energy into pre-school attendance and learning experiences.

2. A sick child cannot learn at school and will miss school regularly and if the illness is prolonged, a child may drop out of school and this reduces the child's ability to participate in pre-school education. A child attending pre-school cannot learn well because he or she spends time thinking about pain instead of focusing on learning. Sick children lack motivation and the energy to play so their learning is impaired. Ensure children are treated when sick
3. Provide safe and clean drinking water, this protects children from contacting water borne diseases. Children's clothes should be clean and neat.

5.4 Conclusion

The literature reviewed in this study has shown that pre-school education is important and basic needs are equally important. If we are to educate our children to their fullest

potential, parents must meet all their children's basic needs, regardless of their ability to provide or meet the necessary needs. This study has shown that nutritional status in terms of wasting and stunting was significant to enrolment in pre-school. There was also a significant relationship between the number of meals and enrolment in pre-school. Although the nutritional status in terms of underweight, household size were not statistically significant at $\alpha = 0.05$ in this study, in practice, they are also important needs in enhancing children's enrolment in pre-school. Therefore, it is not only important to ensure that children's basic needs are met but also to ensure that pre-school age going children attend pre-school. Unless this is done, large numbers of pre-school age going children not attending pre-school will continue to grow.

5.5 Recommendations of the Study

To the Government

1. It was established in this study that many parents (190) attributed low pre-school enrolment to lack of school fees. Based on this, there is a need for pre-school education to be subsidized so that parents not taking children to pre-school can afford to educate their pre-school age children, since it is not only about the school fees but the uniforms as well as other added costs to the pre-school parent who is also burdened with other needs at home.

2. It was noted in the study that 63 parents (16%) did not take any action when their children fell sick, for this reason, health workers should check that children's health and nutritional needs are met both at home and in the pre-school centres, so as to ensure that children not taken for medication when sick are taken care of.
3. It was established in this study that many parents 148 (38%) of pre-school age going children did not have basic education. For this reason, the government needs to reconsider adult literacy programs, and maybe offer them for free alongside the free primary education so that the large number of parents without formal education as revealed in this study can be addressed.

To the Parents

4. Even though only a smaller number of children 12 (6%) attended pre-school irregularly, school feeding programs should be encouraged to ensure that children attending pre-schools are well-nourished, so that this can minimize irregular school attendance.
5. It is documented in this study that parents with children not attending pre-schools attributed this to inability to provide them with basic needs. Based on this there is need for parents to recognise that they have the power, skills and knowledge to support one another through self-help groups and

parent networks instead of waiting for donor support, whereby they can form committees and mobilise parents and the community to avail resources for children from families that are identified as not being able to meet their children's basic needs.

5.6 Suggestions for Further Research

The study identified some gaps that need further consideration in research. These include:

1. The study established provision of basic needs in one district. There is need to replicate this study and establish provision levels in other districts.
2. The study focused only on one district in Kenya. There is need to replicate this research in other districts to establish other reasons for children's low enrolment in pre-school.
3. A study taking into consideration the household size in our African perspective and context needs to be conducted, since in our African context one household structure does not represent the household size.

REFERENCES

- Abidoeye, R.O., and Eze. D.I. (2000). Comparative School Performance Through Better Health and Nutrition in Nsukka, Enugu, Nigeria. *Nutrition Research*, 20(5): 609-620. Retrieved February 19, 2008, from <http://www.insp.mx/biblio/alerta/al0500/47.pdf>
- ACC/SCN (1998). *Ending Malnutrition by 2020. An agenda for change in the millennium*. Pages (10-15). Geneva: ACC/SCN.
- APHRC (2004). Addressing Health and Livelihood Needs of the Urban Poor. Retrieved on Sunday 30th September 2007. <http://www.Aphrc.org./documents/aphrcnews/ang04.pdf>
- Alderman, H., Behrman, J. R., Lavy, V., & Menon, R. (2004). Child Health and School Enrolment - A longitudinal analysis. *Journal of Human Resources*, 36(1), 185-205. Retrieved February 3, 2007, from <http://www.nber.org/papers/w12689.ref.txt>
- Applied Nutrition Program (2000). *Food and Nutrition Security Survey in Maragua and Gikingo Locations of Tharaka District Eastern Province, Kenya*. Applied Nutrition Program, Department of Food Science Technology and Nutrition, UoN. Pp 17-45

- Beasley, N. M., Hall, A., Tomkins, A. M., Donnelly, C., Ntimbwa, P., Kivuga, J., Kihamia, C. M., Lorri, W. & Bundy, D. A. (2000). *The health of enrolled and non enrolled children of school age in Tanga, Tanzania*. *Acta Trop.* 76:223-229. Retrieved April 10, 2008, from <http://www.nature.com/ejcn/journal/v59/n1/full/1602031a.html>
- Best, J.W. (1992). *Research in Education*. New Jersey, Prentice. Hall, U.S.A
- Bosire, J. (January 15th, 2007). The Vice President Honorable Moody Awori announces Free Nursery Education. *Daily Nation* Paper. Pg 1, col.1.
- CCRPK/ANNPCAN (2002). Enhancing Community enrolment in the Delivery of Children Services in Kenya. CCRPK/ANNPCAN.
- Central Bureau of Statistics (Kenya), Ministry of Health (MOH) (Kenya) and ORC Macro (2004). Kenya Demographic and Health Survey 2003. Calverton, Maryland: CBS, MOH, and ORC Macro.
- Chege, P. M. (2006). Dietary Practices, Health and Nutritional status of HIV/AIDS Infected Pre-school Children in Kibera Slum, Nairobi. Unpublished MSc. Thesis: Kenyatta University
- Claire, B., Craig, H. & Ashraf K. (2006). *Fundamentals of Social Research Methods: An African Perspective* (4th Edition). Cape town: Juta.
- Cogill, B. (2000). *Anthropometric Indicators Measurement Guide. Food and Nutrition Technical Assistance Project*. Washington, D.C.: Academy for Educational Development. Retrieved January 20, 2007, from <http://www.fao.org/docrep/008/y5815e/y5815e0d.htm>

Epi Info (2005). A Data base and Statistical Program for Public Health Professionals.

Retrieved November 23, 2008, from <http://www.cdc.gov.epiinfo>.

FANTA (2001). *Improving the Nutritional Impacts Agriculture Interventions:*

Strategy and policy brief. Food and Nutrition Technical Assistance Project. Washington D.C.: Academy for Educational Development.

Retrieved April 15, 2006, from http://www.fantaproject.org/downloads/pdfs/uganda_HIVAIDS_guide.pdf

Fentiman, A., Hall, A. & Bundy, D. (2001). Health and Cultural Factors Associated

with Enrolment in Basic Education: A Study in Rural Ghana. *Soc. Sci.*

Med. 52:429-439. Retrieved March 11, 2007, from

<http://www.jn.nutrition.org/cgi/content/full/134/6/1439>

Food Agricultural Organization (2005). *The State of Food Insecurity in the world*

2005: Eradicating World Hunger-key to Achieving the Millenium Development Goals. Rome: FAO.

Forsythe, S., Rau, B., Gold E., Hayman, J. and Alrutz, N. (1996). *Aids : Social*

Economic Impact and Policy Implications in Kenya. AIDSCAP

Project. Family health International. Retrieved February 11, 2007,

from <http://www>.

worldbank.org/aidsecon/arv/forsythe/FORSYCV.html

FSAU (2003). Nutritional Guide to Data Collection, Analysis Interpretation and Use.

Nairobi: FSAU Pages 9 – 29. Retrieved February 3, 2006, from

<http://www.fsasomali.org/uploads/Other/361.pdf>

Gakuru, O. N. (1992). Class and Pre-school Education in Kenya. Nairobi:

Unpublished PhD Thesis: University of Nairobi.

Gakuru, O.N., Koech, B. & Nduati R.C. (1995). The Experiences of Young Children:

A Contextualized Case Study of Early Childhood Care and Education
in Kenya-Nairobi KIE/NACECE.

Gibson, R. S. (1990). *Principles of Nutrition Assessment*, Oxford University Press.

Retrieved December 8, 2007, from <http://www.depts.washington.edu/nutrpeds/faq/assessment/decanalization.htm>

Glewwe, Paul, and Elizabeth K. (2001). *The Impact of Early Childhood Nutrition*

*Status on Cognitive Development: Does the Timing of Malnutrition
Matter?. The World bank Economic Review*. Vol. 15 No.1 (81-113).

Retrieved August 22, 2008, from <http://www.apec.umn.edu/faculty/pglewwe/documents/cvglewwe-08.pdf>

Glewwe, Paul, Hanan, Jacoby, and Elizabeth K. (2001). *Early Childhood Nutrition*

*and Academic Achievement: A Longitudinal Analysis. Journal of
PublicEconomics*, Vol. 81 (345-368). Retrieved August 22, 2008,

from http://www.econ.yale.edu/growth_pdf/cdp853.pdf

- Glewwe, P. & Jacoby, H. G. (1995). *An economic analysis of delayed primary school enrolment in a low income country: The role of early childhood nutrition*. Rev. Econ. Stat. 77:156-169. Retrieved August 22, 2008, from <http://www.jn.nutrition.org/cgi/content/full/134/6/1439>
- Gorman, K. S. (1995). Malnutrition and Cognitive Development: Evidence from Experimental/quasi experimental studies among the mild-to-moderately malnourished. J Nutr, 125 (Suppl-8): 2239 S-2244 S. Retrieved February 3, 2008, http://www.cer.in.org/upload/_editor/fichiers/colloque%20PA.pdf
- Gustavo, J. B., Edward, M., & Charu, P. S. (2004). Iron Deficiency Anemia and School Enrolment. Poverty Action Lab Paper No. 7 March 2004
- Hussain, M. (2001). Immunization Schedule for Developing Countries. *The Nest* December 2001, 11: 2-4
- Jamison, D. T. & Lockheed, M. E. (1987). *Enrolment in Schooling: Determinants and Learning Outcomes in Nepal*. Econ. Dev. Cult. Change 35(2):279-306. Retrieved February 3, 2009, from <http://www.jn.nutrition.org/cgi/content/full/134/6/1439>
- Jukes, M.(2005). The long-term Impact of Preschool Health and Nutrition on Education. *Food and Nutrition Bulletin*, 26(2S): S193-S201. Retrieved February 3, 2009, [http://www.nabuur.com/files/attach/2008/10/task/School %20 Feeding% 20Programs.doc](http://www.nabuur.com/files/attach/2008/10/task/School%20Feeding%20Programs.doc)

Kenya Demographic and Health survey, (1998). The Kenya Demographic and Health Survey. Nairobi: Government Printer.

Kenya Demographic and Health survey (2003). The Kenya Demographic and Health Survey. Nairobi: Government Printer.

Kenya Institute of Education (1987). *Early Childhood Education in Kenya: Implications on policy and practice*. Nairobi, Kenya: K.I.E.

Kenya Institute of Education (2002). Early Childhood Development Regional Conference: Mombasa, Kenya: KIE

Latham, M. C. (1988). *Human Nutrition in Tropical Africa*, FAO; Rome. Retrieved November 23, 2008. <http://www.fao.org/docrep/W0073E/w0073e09.htm> - 27k

Maria, D. A. (2002). Nutritional Status of Among Low and High Academic Achievers in Selected Primary Schools in Vihiga Division, Kenya. Nairobi: Unpublished MSc. Thesis, University of Nairobi.

Maslow, A. (1954). *Motivation and Personality*. New York: Harper.

___ (1971). *The Further Reaches of Human Nature*. New York: The Viking Press.

Meme, M. R. (1996). Nutrient Intake and Nutritional Status of Primary School Children in a School with and without a Feeding Program in Nyambene District, Kenya. Nairobi: Unpublished MSc Thesis, University of Nairobi.

- Mendez, M. A. & Adair, L. S. (1999). *Severity and Timing of Stunting in the First two Years of Life Affect Performance on Cognitive Tests in Late Childhood*. *J. Nutr.* 129:1555-1562. Retrieved November 23, 2008, from <http://www.unscn.org/Publications/SCNNews/scnnews25.pdf>
- Miguel, E. & Michael, K. (2004). "Worms: Identifying Impacts on Education and Health the Presence of Treatment Externalities", *Econometrica*, 72(1), 159-217.
- Moock, P. R. & Leslie, J. (1986). *Childhood Malnutrition and Schooling in the Terai Region of Nepal*. *J. Dev. Econ.* 20:33-52. Retrieved February 3, 2009, from <http://www.econ.yale.edu/~pschultz/cdp868.pdf>.
- MOH and USAID (2005). *Household Health Expenditure and Utilization Survey: MOH and USAID*.
- Mugenda, O. M. & Mugenda, A. G. (1999). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: Acts Press.
- Mugisha, F. (2006). African Population and Health Center (APHRC) working Paper no.33, 2006, www.aprc.org. Retrieved on Sunday 7th October, 2007.
- Mwema, J. M. (2006). *Household Food Security and Nutritional status of under fives in Kieni West Division , Nyeri District*. Nairobi: Unpublished MSc Thesis, Kenyatta University

- Myers, R. (1992). *The Twelve Who Survive: Strengthening program of Early Childhood Education in the Third World*. London, Routledge.
- NACECE, KIE (1995). Early Childhood Care and Education. A report of Evaluation of UNICEF Sponsored DICECE Nairobi: Kenya.
- Ncabira, M. (2005). Factors Affecting Students' Access and Enrolment in Secondary School Education, Meru Central District, Kenya. Nairobi: Unpublished M.Ed Thesis, Kenyatta University.
- Njoroge, B. (2002). Relationship between Mathematical Language and Students Performance in Mathematics in Public Secondary Schools in Nairobi Province, Kenya. Nairobi: Unpublished M.Ed Thesis, Kenyatta University
- Obure, M. J. (2002). *Hand Book on Data Analysis Using SPSS*. Nairobi: M & O Data Experts Training and consultants.
- Piwoz, G. and Preble E. (2000). HIV/AIDS and Infant Feeding Risks and Realities in Africa. *Academy for Educational Development*. Pages (56-61).
- Republic of Kenya, Central Bureau of Statistics (CBS) (1999). Ministry of Planning and National Development: The Population and Housing Census. Nairobi: overnment Printer.
- ___ (2000). Ministry of Planning and National development: The Multiple Indicators Cluster survey (MICS).Nairobi: Government Printer.
- ___ (2001). 1999 Housing and Population Census: Vol. 1. Nairobi: CBS and Ministry of finance

- ___ (2002). Ministry of Economic Planning and National Development and CBS
National Development Plan (2002-2008). Nairobi: Government
 Printer.
- Republic of Kenya, Millenium Development Goals (2005). A Government of Kenya
 Status Report on the Millennium Development Goals. Nairobi:
 Government Printer.
- Republic of Kenya, Ministry of Education, (2006). National Early Childhood
 Development Policy Framework. Nairobi, Kenya.
- ___(2006). Early Childhood Development Service Standard Guidelines for Kenya,
 Nairobi, Kenya.
- Republic of Kenya, Ministry of Education, Science and Technology,
 (1989). *Guidelines for Pre-school Education in Kenya*. Nairobi: Jomo
 Kenyatta Foundation
- ___ (2003). National Action Plan on Education for All. Nairobi: Government Printer.
- Robinson, C. H. (1990). *Normal and Therapeutic Nutrition 17th ed*. New York:
 Macmillan Publishing Co.
- Shepherd, S. (2008). “Instant Nutrition.” Op-Ed Contribution, *New York Times*,
 January 30
- Shiundu J. and P. Mwaura (1992). “Early Childhood in Kenya: Development, Status
 and Prospects” *In basic Education Forum, Volume 1, May* pp 22-23

- Schumacher, B. (1995). The Nutrition, Health and Education Situation of Primary School Aged Children in Samburu District in Kenya. Nairobi: Unpublished MSc. Thesis, University of Nairobi.
- Silkind, N.J (1990). Child development, (6th ed). New York: Holt, Rinehart and Winston Inc.
- Soo,– Hyang, C. (2007). Policy Review Report: Early Childhood Care and Education.
- Suarez, H. & Jose C. (2006). “Community Nutrition Programs, Globalization and Sustainable Development.” *British Journal of Nutrition* 96, Supplement 1, S23-S27.
- Swadener. B., Kabiru .M. and Njenga A. (1995). Final Report of Client Consultation Study. Changing Child Rearing Practices and Community Mobilization for Young Children and Families in Kenya. Nairobi: Ministry of Education, pp 232.
- UN-Habitat (2003b). Slum of the world: A Face of Urban Poverty in New Millennium, A Working Paper, Nairobi.
- UNICEF (1990). *First Call for Children*. New York: UNICEF
- UNICEF (1998). *The State of the Worlds Children: Summary* New York: UNICEF
- United Nations (1989). Convention on the Rights of the Child: New York: United Nations. Retrieved February 3, 2009, from <http://www.cirp.org/library/ethics/UN-convention/> - 72k

- United Nations Millennium Project (2005b). *Education Towards Universal Primary Education: Investments, Incentives and Institutions*. London: Earthscan.
- Vavrus, F. and Larsen, U. (2003). 'Girls' Education and Fertility Transitions: An Analysis of Recent Trends in Tanzania and Uganda'. *Economic Development and Cultural Change*, 51(4): 945-975.
- Viteri, F. (1983). *Nutrition Related Health Consequences of Urbanization*. *Foods and Nutrition Bulletin*, 9 (4): 33 – 49.
- Wedgwood, R. (2005). Post-Basic Education and Poverty in Tanzania, Post-Basic Education and Training Working Paper Series No 1, Edinburgh: Centre of African Studies, University of Edinburgh. Retrieved April 20, 2009 WHO (2002). *Food and Nutrition needs in Emergencies*. Geneva (<http://www.cas.ed.ac.uk/research/projects.html>).
- WHO (2002). *Food and Nutrition needs in Emergencies*. Geneva
- Wilson, D. (2004). A Human Rights Contribution to Defining Quality Education, Background Paper for EFA Global Monitoring Report 2004.
- World Bank (1993). Ministry of Health and World Bank support project on ECD. Nairobi, Kenya.
- World Bank (2005a). *Education Sector Strategy Update. Achieving Education For All; Broadening our Perspective and Maximizing our Effectiveness*. Washington: World Bank.

World Bank (2007). World Development Report 2007: Development and the Next Generation Washington: World Bank.

World Conference on Education for All (1990). World Declaration on Education for All and Framework for Action to Meet Basic Learning Needs. Jomtiem, Thailand, March 1990.

World Education Forum (2000). The Dakar Framework for Action on Education for All: Meeting our Collective Commitments. Including Six Regional Frameworks for Action. Paris: UNESCO

Zoakah, A. I., Idoko, M. O., Okoronkwo, M. O., and Adeleko, O.A (2000). Prevalence of Malnutrition Using Z-scores and Absolute Values in Chi < 5 in Utan Village, Tos, Platteau, Nig. *East Africa Medical Journal*, 77 (3): 123-126.

APPENDICES

INTRODUCTORY LETTER

CATHERINE GAKII MURUNGI
KENYATTA UNIVERSITY
P.O BOX 43844,
NAIROBI

REF: RESPONDENT CONSENT REQUEST

My name is Catherine Gakii. I am a PhD student from Kenyatta University collecting information on selected basic needs. I will use the data for research on the relationship between children's basic needs and enrolment in pre-school education in Miriga Mieru West Division of Imenti North District. The results of this study will be of great benefit to you as a participant and the community at large as this information will help to understand what can be done to enhance enrolment in pre-school education, particularly in Miriga Mieru West Division of Imenti North District.

All information you give will be treated with total confidentiality. Your commitment and cooperation will be highly appreciated.

Yours sincerely,

Catherine Gakii Murungi.

APPENDIX A**QUESTIONNAIRE FOR PRE-SCHOOL PARENTS****INTRODUCTION**

The questionnaire was administered to parents whom by the time of study had children attending pre-school and children not attending pre-school education. The questionnaire had two parts. Part: I covered items dealing with the background information of the parent. Part: II covered information on meal pattern, health status, household size, nutritional status and information on school enrolment.

Instructions: Answer all the questions in the provided spaces.

Part: I Background Information (please write in the spaces provided or tick appropriately in the boxes provided)

1. Location-----
2. Marital status (1) Single
(2) Married
(3) Divorced
(4) Separated
(5) Widowed
3. Please tick your religion (1) Catholic
(2) Protestant
(3) Muslim
(4) Other (specify)

4. What category best explains your age? (1) 18-24
- (2) 25-34
- (3) 35-44
- (4) 45-54
- (5) 55 years and above

5. What is your highest level of education that you completed?

- (1)Primary
- (2)Secondary
- (3) Post secondary school / college / professional training
- (4)University
- (5) No schooling

6. (a) If you did not have enough money to educate your children, which of the children would you prefer to educate between the boys and the girls?

(1) Boys-----

(2) Girls -----

(b) Reasons for making your choice to educate either boy or girl as indicated

above-----

Part: II Information on Meal Pattern, Healthcare Practice, Household Size, Nutritional Status and School Enrolment.

7. Please indicate the number of meals consumed in the 24 hour dietary recall table below

Number of Meals Consumed in a Day

Dietary Recall	Meal Consumed
Breakfast	
Snack 1	
Lunch	
Snack 2	
Supper	
Snack 3	

Household Size

8. How many children are in the household? -----

9. What is the family type?

1. Child headed
2. Single (maternal)
3. Single (paternal)
4. Double

Health Status

10. Is the child currently suffering from any disease or has the child been sick during the last two weeks?

a. Yes

b. No

11. What was the child suffering from?

1. Malaria

2. Diarrhea and vomiting

3. Common cold

4. Fever

5. Loss of appetite

6. Not sick

7. Others (Specify) -----

12. What action was taken when the child fell sick? -----

13. State the reason for choosing the action above -----

14. Do you take your child to a healthcare centre when sick?

a. Yes

b. No

15. If no, why?

a. Too costly

b. Too far

c. No drugs

d. Others (specify)

16. What do you do to maintain hygiene in the household? -----

17. Do you give your child balanced foods frequently?

a. Yes

b. No

18. Which places do you take your child for medication? -----

19. Do you boil/treat drinking water for the child? -----1. Yes 2. No

20. Was your child given all the immunizations? -----1. Yes 2. No

Anthropometric Measurement

21. Measurement of children's nutritional statuses was taken.

1. State the sex of the child by ticking the appropriate box.

1. Male

2. Female

2. State the age of the child-----months (to be confirmed with the clinical card)

3. Measure the child's nutritional status indicate the (appropriate figure in the appropriate box).

(a) Weight in kgs

1st reading

2nd reading

Average weight

(b) Height in cm

1st reading

2nd reading

Average height

School Enrolment

22. Is your child attending pre-school education? -----

1. Attending

2. Not attending

23. The researcher to confirm with the school if the attendance is -----

1. Regular

2. Irregular

24. What resources do you utilize in supporting your child's education? -----

25. Please give reasons why your child is not attending pre-school?

- a. In ability to provide the basic needs
- b. Accessibility to the necessary services
- c. Lack of awareness
- d. Lack of school fees
- e. Security reasons
- f. Free primary education
- g. Pre-school education is not important?
- h. My child is not interested
- i. Any other reason (specify)

26. What makes you take your child to pre-school?

- a. Pre-school education is important
- b. Ability to meet the required needs
- c. The child falls sick less often
- d. Child is interested
- e. Ability to provide nutritious food so the child falls ill less often

27. In your own opinion what can parents do to ensure that children not attending pre-schools start attending? -----

APPENDIX B**A LIST OF REGISTERED PRE-SCHOOLS****Total Population of Registered Pre-schools in Miriga Mieru West Division of Imenti North District**

Division	Type of school	NO. OF PRE-SCHOOLS	TOTAL NO.OF PRE-SCHOOLS	GIRLS	BOYS	TOTAL POPULATION
Miriga Mieru West	Private public	38 22	60	1544	1489	3033
Miriga Mieru East	Private public	6 24	30	672	689	1361
Buuri	Private public	9 32	41	793	926	1719
Timau	Private public	12 38	50	1030	1018	2048

Source: DICECE 2007.

APPENDIX C

**IMENTI NORTH DISTRICT POPULATION DISTRIBUTION OF
PRE-SCHOOL CHILDREN (CBS, 1999) 2007**

Name of the Division	Total Population of pre-school age children aged 4-5 years (Both girls and Boys)
Miriga Mieru West	78, 201
Miriga Mieru East	64, 117
Buuri	45, 610
Timau	55, 292
Total	243, 220

Source: (CBS, 1999)

APPENDIX D

DISTRIBUTION OF PARENTS IN EACH LOCATION

In each location parents were divided into two categories, those with children attending pre-school and those with children not attending pre-school. The 77 parents in the location were divided by two. This yielded a result of 38.5 and since there is no half human being the researcher rounded the figure, this led to adding one parent who gave rise to 39 parents from each location and this changed the number of 77 parents per each location to 78 parents per each location. See the following distribution table.

This Table Shows Distribution of Parents in Each Location

Name of the location	Number of parents with children not attending pre-school	Number of parents with children attending pre-school	Total
1. Ntima	39	39	78
2. Municipality	39	39	78
3. Igoki	39	39	78
4. Ntankira	39	39	78
5. Nthimbiri	39	39	78
TOTAL	195	195	390