NUTRITIONAL KNOWLEDGE, ATTITUDES AND PRACTICES OF PRIMARY CAREGIVERS OF HOME GROWN SCHOOL FEEDING PROGRAMME PUPILS AT SAURI MILLENNIUM VILLAGE, SIAYA- KENYA

By

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A research thesis submitted for the degree of Master of Public Health in the School of Public Health of Kenyatta University.

October 2012
DECLARATION

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

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Supervisors’ Approval

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DEDICATION
Dedicated to my loving family-Alphas Asamba and Angela Ingado for the patience, encouragement and support.
ACKNOWLEDGEMENTS
I extend my sincere gratitude to the following individuals whose efforts have contributed to the success of this research work. To start with, Prof. Judith Waudo and Dr. Okello Agina for their tireless efforts in supervision and guidance.

I am indebted to the Healthy Learning Programme (Ministry of Education & Flemish Association for Development Cooperation and Technical Assistance (VVOB) for the award of the fellowship to undertake the field research. I would also like to thank the Millennium Development Goals (MDG) Center East and Southern Africa Office, World Agroforestry Center (ICRAF) and Columbia University for their contributions towards the research project. Special thanks go to the Sauri Millennium Village Project Team for the support during the data collection.

Lastly, I would like to thank my family, friends and colleagues for their patience, encouragement and support in ensuring that my masters programme was a success.
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## ABBREVIATIONS AND ACRONYMS

<table>
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<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>CAADP</td>
<td>Comprehensive Africa Agriculture Development Programme</td>
</tr>
<tr>
<td>CRS</td>
<td>Catholic Relief Services</td>
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<td>ECD</td>
<td>Early Childhood Development</td>
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<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<td>FGD</td>
<td>Focus Group Discussions</td>
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<td>GSFP</td>
<td>Ghana School Feeding Programme</td>
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<tr>
<td>HGSF</td>
<td>Home Grown School Feeding</td>
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<td>HGSFHP</td>
<td>Home-Grown School Feeding and Health Programme</td>
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<tr>
<td>IGLA</td>
<td>Income Generating and Learning Activities</td>
</tr>
<tr>
<td>KAP</td>
<td>Knowledge, Attitude and Practice</td>
</tr>
<tr>
<td>KEMRI</td>
<td>Kenya Medical Research Institute</td>
</tr>
<tr>
<td>KII</td>
<td>Key Informant Interview</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
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<tr>
<td>MoE</td>
<td>Ministry of Education</td>
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<td>MoH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MV1</td>
<td>Millennium Village 1</td>
</tr>
<tr>
<td>MVP</td>
<td>Millennium Villages Project</td>
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<tr>
<td>NEPAD</td>
<td>New Partnership for Africa’s Development</td>
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<tr>
<td>NGO</td>
<td>Non Governmental Organization</td>
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<tr>
<td>RDA</td>
<td>Recommended Dietary Allowance</td>
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<td>SFP</td>
<td>School Feeding Programme</td>
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<td>WFP</td>
<td>World Food Programme</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<td>VVOB</td>
<td>Flemish Association for Development Cooperation and Technical Assistance</td>
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ABSTRACT

School feeding programmes exist worldwide and provide only two thirds of undernourished children with a basic meal (WFP, 2009). Parents/guardians are important to the long-term adoption of various healthy practices as they play a major role as primary caregivers. Primary caregivers need to understand the benefits of and reasons for various healthy eating practices, as well as the reasons for designing and implementing a School Feeding Programme in certain ways. The objectives of this study were to determine the nutritional knowledge, attitudes and practices (KAP) of primary caregivers of pupils on the Home Grown School Feeding Programme and to investigate the correlation between demographic and socio-economic factors and the KAP. A cross-sectional descriptive survey was carried out at the Sauri Millennium Village in Nyanza Province, Kenya. Data were collected using structured questionnaires administered to 271 primary caregivers. Focus Group Discussions and Key Informant Interviews were also held to collect qualitative data. Data were presented using graphs and frequency tables and managed using SPSS software version 12.0. Results showed that 84% of the respondents had a high level of nutritional knowledge, 9% had average knowledge and 7% had low knowledge. Majority of the respondents had positive attitudes towards nutrition education and the Home Grown School Feeding Programme and negative attitudes towards the school meals. The respondents promoted good nutrition by preparing balanced family meals and involving children in meal preparation. However, they were inconsistent in daily provision of breakfast and fruits to school children. Nutritional knowledge had a weak positive correlation to the age of the respondent ($r = -0.343, p = 0.01$) and no significant association with the education level ($p = 0.07$), source of nutritional information ($p = 0.14$) and participation in the programme design ($p = 0.18$). Education level had a significant association with attitude towards quality of school meals ($p = 0.01$). Quality of family meals was significantly associated with education level ($p = 0.01$), marital status ($p = 0.02$), source of family foods ($p = 0.02$). The study concluded that primary caregivers of pupils on the HGSF programme had nutrition knowledge gaps despite the community nutrition education and faced challenges in provision of fruits and breakfast for school children. Based on these findings, the study recommends promotion of continuous nutrition education for primary caregivers through a multi-sectoral approach, promotion of interventions that improve quality and quantity of school meals e.g. school gardens, mainstreaming of nutrition in agriculture interventions to increase food and nutrition security and addressing of factors influencing nutritional KAP in community nutrition programme design and implementation.
CHAPTER ONE: INTRODUCTION

1.1: Background

School feeding is a well recognized safety net programme that alleviates hunger while supporting education, nutrition, health and community development. School Feeding Programmes (SFP) have been implemented both in developed and the developing world. Throughout the developing world, these programmes often occur through large organizations in collaboration with national governments and non-governmental organizations (Bennett, 2003). The largest provider of SFPs is the World Food Programme (WFP) reaching 21.1 million beneficiaries in 62 countries (WFP, 2011). Numerous other agencies and Non Governmental Organizations (NGOs) operate SFPs at the national, regional and local level. SFPs often operate in conjunction with other health and nutrition initiatives to increase their success and impact (Catholic Relief Services (CRS), 2001; Bennett, 2003).

School Feeding Programmes can range from simple snack provision (usually fortified biscuits) to breakfast or lunch programmes as well as take-home rations. The United Nations (UN) World Summit 2005, recommended the expansion of local school feeding programmes, using home-grown foods where possible as one of the “Quick impact initiatives” to achieve the Millennium Development Goals, especially for rural areas facing the dual challenge of high chronic malnutrition and low agricultural productivity (UN, 2005; UN Millennium Project, 2005). Given that most poor people in developing countries live in rural areas and earn livelihoods in the agricultural sector, Home Grown School Feeding (HGSF) is seen as a promising synergistic entry point to not only
improve educational outcomes, along with nutrition and health status of poor and undernourished children, but also to jump-start local agricultural development in Africa.

Access to good nutrition either at home or through the educational system can contribute to the reduction of malnutrition and its associated health and developmental problems. In addition, the provision of necessary nutrition knowledge and skills to children in promoting healthy dietary behaviors is integral to long-term health and nutrition of children as dietary behaviors established during childhood may well extend into adolescence and adulthood. Parents are also important to the long-term adoption of various health practices and they need to understand the benefits of and reasons for various health practices, as well as the reasons for designing and implementing the SFP in certain ways. Parental involvement in the SFP programme design and implementation is a key element to successful and sustainable school feeding operation.

1.2: Problem Statement

Nutrition education is recommended for school going-age children and key community personalities such as women in combating malnutrition in Kenya (Ministry of Health /Kenya Medical Research Institute, 1999). The Sauri Millennium village base line survey of 2005, revealed high levels of malnutrition with stunting levels at 62.3% (twice the national average, KDHS 2003) and a school meals programme that was providing less than a third of the daily caloric needs and essentially none of the micronutrients (Millennium Village Project (MVP), 2007). The Sauri HGSF programme was established to improve the food and nutrition security of the school pupils by integrating diversified local foods and promoting community nutrition education.
The most successful SFP’s include various educational components and sensitization in their programmes, not only to pupils, but also to parents, teachers and the community at large. If the teachers and parents do not have adequate knowledge or have inaccurate knowledge related to nutrition, the impact of the programme will be greatly decreased (CRS, 2001; Bennett, 2003). In addition, involving parents and teachers in project design can act as a valuable education tool and greatly impact the success of the project (Galal et al., 2005). The Sauri HGSF programme promotes community nutrition education targeting pupils and primary caregivers. However, the nutritional knowledge, attitudes and practices of the primary caregivers at Sauri Millennium Village have not been determined.

1.3:  **Purpose of the study**

This study aimed at identifying the gaps in nutritional knowledge, attitudes and practices and the factors influencing knowledge, attitudes and practices (KAP).

1.4:  **Objectives**

i. To determine the nutritional knowledge levels of the primary caregivers of pupils on the Sauri HGSF programme.

ii. To determine the attitudes of the primary caregivers of pupils on the Sauri HGSF programme.

iii. To determine the nutritional practices of the primary caregivers of pupils on the Sauri HGSF programme.

iv. To determine factors influencing the nutritional knowledge, attitudes and practices of primary caregivers of pupils on the Sauri HGSF programme.
1.5: **Research Questions**

i. What are the nutritional knowledge levels of the primary caregivers of pupils on the Sauri HGSF programme?

ii. What are the attitudes of the primary caregivers of pupils on the Sauri HGSF programme?

iii. What are the nutritional practices of the primary caregivers of pupils on the Sauri HGSF programme?

iv. What factors influence the nutritional knowledge, attitudes and practices of the primary caregivers of pupils on the Sauri HGSF programme?

1.6: **Significance of the study**

This study sought to assess the nutritional knowledge, attitudes and practices of the primary caregivers of pupils in HGSF programme in order to determine the gaps and also determine the factors influencing the KAP. The findings from the research will inform policy makers such as the Ministry of Basic Education and line ministries on community involvement for sustainable HGSF programme. The results will also be useful for project implementers such as VVOB, MVP and WFP in the development of nutrition education programmes for primary caregivers. The findings will help fill research gaps in the field and identify gaps that can be evaluated in future research.

1.7: **Delimitation and Limitation**

All the children in the three pilot primary schools within the Sauri MV1 are on the HGSF programme and thus the findings are representative for primary caregivers of pupils in Sauri cluster. The study was however limited to primary caregivers in Sauri MV1 hence
unable to make comparisons to other SFP programmes and link differences in the knowledge levels to the HGSF programme. The nutrition knowledge assessed focused on the three basic food groups and the nutritional practices were evaluated only through the use of questionnaires thus, were short of validation in this study since a 24-hour observation was not done.

1.8: Conceptual Framework

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**Figure 1. Conceptual Framework**

The promotion of community nutrition education and diversification of school meals was aimed at reducing child malnutrition by influencing nutritional knowledge, attitudes and practices in the community. The study aims to determine the KAP among the primary caregivers.
2.0: Operational definitions of terms

Healthy Eating – Eating three balanced meals in a day consisting of the three main food groups: carbohydrates, proteins and vitamins.

Primary Caregivers - Primary caregivers represent either the parents or the guardians of the pupils. They have the responsibility of fending for and feeding the children and are mainly female.

Pupils – Refers to school going children aged 5 to 15 years.
CHAPTER TWO: LITERATURE REVIEW

2.1: Introduction
School Feeding Programmes exist in almost all High and Middle-income countries and are present, typically with support from WFP. Home-grown school feeding is a relatively new concept that involves use of locally produced and purchased foods unlike the WFP school feeding where food is not procured from local community (WFP, 2009a). The HGSF programmes are becoming popular with national governments, partners and donors, given the clear win-win benefits of HGSF programmes on local production and increasing availability of cash funding for SFPs. Linking school feeding programmes to local production creates ready markets for local farm produce, supports primary education and builds community relationships leading to strong community ownership of the SFP. Community participation and ownership involves teachers, parents and pupils in programme design and implementation is a key quality benchmark for sustainable SFPs (WFP, 2009b).

2.2: Global Overview of School Feeding Programmes
Case studies of school feeding programmes supported by WFP, revealed varying levels of community participation and ownership (WFP, 2009b). Countries with low community participation in school feeding included Afghanistan and there was a need for sensitization and awareness of Parent Teacher Associations (PTA) or School Management Shuras (Councils). Strong community participation and ownership in school feeding was found in Brazil, El Salvador, Lao PDR and Pakistan. In Brazil, the school feeding committees composed of local government, legislative and civil society representative, teachers and parents were involved in the monitoring process. The School
Feeding Committees monitored use of resources, examined quality, sanitary practices and hygiene of products across the supply chain, addressed complaints of fraudulent actions, improved menu design, increased use of local products and sensitized communities about environmental issues. The El Salvador programme designed a more varied and locally produced food basket that included local food stuffs and decreased the costs of the food basket and allowed for local purchases and smooth government take over. The community was also familiarized with its characteristics and possible local recipes for preparation of unfamiliar food types. In Lao PDR, an additional pilot initiative called *Feeding the future* – a community-based approach to nutrition education was implemented through the non-formal education unit of the Ministry of Education and some grassroots organizations. The initiative aimed to address early causes of chronic malnutrition by providing culturally tailored nutrition education to women of reproductive age and other care-givers at village level.

2.3: **School Feeding Programmes in Africa**

African governments in their aim to restore agricultural growth, food security, adequate nutritional levels and rural development endorsed the HGSF programme of the Comprehensive Africa Agriculture Development Programme (CAADP) in 2003. During the same year, the New Partnership for Africa’s Development (NEPAD) identified HGSF as having an immediate impact on food insecurity in Africa with the potential to contribute to long-term development goals (NEPAD, 2003). The African Union Special Food Summit, in December 2006, called for an expansion of HGSF to reach at least 20 percent of member states by 2008. Motivated by these strong endorsements, NEPAD, WFP and the Millennium Hunger Task Force launched a pilot Home-Grown School
Feeding and Health Programme (HGSFHP) designed to link school feeding to agricultural development through the purchase and use of locally and domestically produced food. WFP’s HGSF particular focus was to produce and purchase food for the school feeding programme from local small-scale farmers. In Africa, the challenge lies in transitioning school feeding programmes to HGSF programmes (NEPAD, 2007). Addressing this challenge requires developing appropriate linkages between existing programmes and focus areas and creating effective coordination processes (in design and implementation) to maximize the benefits from these linkages.

Community participation and ownership was found to be low and high in African countries depending on the context (WFP, 2009b). In Uganda, community participation was found to be low particularly in refugee camps. Parents participated as cooks and staff while households made a nominal monetary contribution to the programme. However, there was no sense of community ownership and little effective participation of community members. The PTA’s acted as a school lobby to camp managers, with little influence over educational decisions. The Ghana programme had low community participation and ownership in the supplier and caterer models under the Ghana SFP. Community members in all three communities visited (i.e. Kpalgun, Redco and Tibung), indicated their willingness to participate in the GSFP programme by cooking for free and providing some condiments and other food items when they were in season but the two models did not allow for community involvement. However, the school based model adopted by other SFP’s in Ghana ensured programme sustainability because the communities were involved in programme implementation. Procurement and storage of
food was carried out at the school and community level, so the community decided what to buy, when to buy and the cost. The community was also responsible for overseeing cooking and the feeding of the children. The model had a direct link with local farmers, the community and school authorities and achieved its goal of buying home-grown food for the programme and creating a market for local small-scale farmers.

In Ethiopia, the programme was found to have high community participation and ownership. Community involvement was promoted through Children in Local Development (CHILD) a community-led planning tool, currently operational in 184 schools, that involves the whole community to improve school premises and the quality of basic education. CHILD was initiated by the Ministry of Basic Education and WFP in 2003 and was primarily intended to increase the sustainability and impact of school feeding by building community solidarity with schools and initiating lasting practical changes on the ground. It mainly involved training and capacity building for government partners and beneficiary communities. CHILD also assisted communities to effectively plan for a child-friendly school environment and enabled schools to become local development centers for the communities. About 300 school communities were provided with basic planning skills, and income generation activities (silk worm production and fattening, bee keeping, etc.) were introduced. School gardens were developed in 160 schools as a showcase for vegetable production and nutrition awareness.

2.4: School Feeding Programmes in Kenya

The school feeding programme was launched in 1980 by the Government, with assistance from the WFP (Regnault De La Mothe, 2008). The main objective of the SFP was to
stabilize school enrollment and attendance in parts of the country where hunger is prevalent. The programme provides nutritious meals to about 590,000 children in Kenyan schools, improving their health and concentration and covers arid and semiarid districts and two urban slum areas in Kenya (WFP, 2010). WFP offers the food commodities, resources and technical assistance whereas the Ministry of Basic Education acts as the primary implementer of the programme. In 2009, the Kenya HGSF initiative was launched with the aim of bringing school feeding and agricultural development through local procurement, supporting school gardens and agricultural education in the classroom (Espejo, 2009). The Kenya Government increased its support for the initiative by allocating US$6 Million in its 2008/09 fiscal year for feeding 550,000 children who were previously assisted by WFP in semi arid districts (Bundy, et al., 2009).

Community participation in SFP was found to be higher in Kenya as compared to Lesotho, Malawi and Gambia owing to the contributions to overall costs of school feeding. The community contributions accounted for 15% while only 14% came from the Kenyan government and majority (71%) of the associated programme costs were provided by WFP (Galloway 2009). A baseline survey conducted in 2008, found that 94 percent of the children agreed that school feeding improved attentiveness and ability to learn, but pupils largely agreed that the programme should improve the actual cooking and preparation of the food, seasoning, increase the quantity and variety of the meals (WFP Kenya, 2008).
Other programmes within the Government include the Ministry of Agriculture “Njaa Marufuku Kenya” (Eliminate Hunger in Kenya). This is a fast track initiative that was started in 2005 by Agriculture Sector Ministries with support from FAO and the MDG Center. Its main objective is to increase food security initiatives through support to resource poor communities. It also aims to strengthen and support private sector involvement in food security initiatives as well as initiate and strengthen school meals programmes as a means of improving learning and markets for food commodities produced within the surrounding community. The project is implemented in three components, and the concept of school nutrition and meals programme forms part of component 2 (Support to Community Nutrition and School Meals Programmes). The aim is to improve the health and nutrition status of vulnerable people (pregnant and lactating mothers, children under five years and school-going children). The component addresses issues of community nutrition since hunger and poverty reduction must also include commensurate improvement on nutrition. Secondly, the component addresses community based school meals programme as a measure to support nutrition values among school-going pupils, to make the schools act as micro-markets for the surrounding farmers and to improve school attendance of the pupils from poor households. The component also aims to support improvement of Agricultural Education among the youth in Primary Schools.

2.4.1 Sauri Millennium Village School Feeding Programme

The Sauri MVP school meals programme was launched in 2007. The aim of the programme was to increase food security and enrollment in primary schools by providing a homegrown, daily, nutritious meal for children as recommended by the UN Millennium Project Hunger Task Force. Since the launch, the project has seen tremendous success,
with nearly all sites offering a daily meal to all school children. There are 31 primary schools in the Sauri cluster and approximately 21,000 pupils who receive daily school meals providing 30% of the energy and protein and 75% of Vitamin A and Iron Recommended Dietary Allowances (MVP, 2011).

Community participation in the school meals programme is high with parents making a 10% in-kind contribution towards the programme. The MVP initially provided seeds and fertilizer at subsidized prices to the parents with the agreement that they will bring 10% of the harvest for school meals. The parental contributions were calculated based on the recommended dietary intake requirements per child and included 6-8kgs of maize and 4-6kgs of beans per child per term. In addition, parents were required to make cash contribution which catered for the cooks’ salaries and ingredients such as salt, onions, tomatoes, cooking oil and sugar. The meals consisted of mid morning porridge enriched with milk and lunch of ugali, vegetables, beef or nyoyo (mixture of maize and beans) and fruit in season. Upon project exit, the schools initiated Income Generating and Learning Activities (IGLA) which included dairy farming, poultry farming, vegetable production and banana farming on the school farms. The farm produce is sold to generate income for supplementing the school meals programme while the parents are still expected to make food and cash contributions. In addition, the school farm is used as a practical learning experience for the pupils on agriculture, nutrition and entrepreneurship.

2.5: Nutrition Education

Nutrition education is defined as ‘any set of learning experiences designed to facilitate voluntary adoption of eating and other nutrition related behavior conducive to health and
well-being’ (Contento, 1995). It is recognized as an important component in programmes and interventions related to health promotion and disease prevention. Achieving the desired behavioral changes related to health and nutrition requires the attainment of adequate knowledge, attitudes, skills and self-efficacy (Vereecken, Van Damme and Maes, 2005). For school-age children, nutrition education has not only been shown to improve knowledge and skills but also eating and physical activity behaviors as well as health status (Belansky, et al., 2006).

It is equally important to address the factors within the child’s familial environment such as increasing parental awareness on ways to make healthful foods more available and accessible at homes for their children, encouraging breakfast consumption, avoiding excessive control of children’s food intake and modeling of healthy food behaviors (Ritchie, Welk and Styne, 2005). Meal substitution is an unintended impact of the school feeding programme that needs to be addressed. If a child served a meal at school forgoes an additional meal at home, the associated benefit will be lost (CRS, 2001). In the WFP Ghana case study, parents interviewed indicated that their children did not eat breakfast at home since the programme began in their community because there was assurance of a hot meal at school (WFP, 2009b). The parents appeared to be substituting breakfast at home with the lunch provided in school. The case study indicated that without more education and programmes to create awareness to accompany the GSFP interventions, there is a potential for a decline in parental responsibility to feed their children.
The cultural habits and beliefs of the community are also vital to the success of a school feeding programme. Prior to designing a SFP, it is important to gather as much information as possible on the local community, as this will greatly impact the success of the project. Information on preferred time of day for meals, food preferences, and taboos (food, serving and preparation) should be collected and considered. In addition, gathering information on nutrition and food beliefs and practices will help determine any potential barriers and gaps in knowledge. If the programme attempts to incorporate practices that are not culturally accepted, a great amount of sensitization and awareness raising may be required (USAID, 2006). Successful SFP’s also require constant monitoring and evaluation to provide input on the changing needs of the students as well as data on impacts and effectiveness. Consultations with parents, staff, teachers and students may also be required at various stages to address changing needs, concerns and issues associated with implementation (Bundy, 2005; Tomlinson, 2007). School feeding and food assistance programmes have the potential of acting as centers for other developmental interventions such as early childhood care, health awareness campaigns and child-targeted programmes that improve health care (WFP, 2009b).

In Kenya, inclusion of nutrition education at maternal and child health clinics operates on the assumption that caregivers knowledge can have an impact on children’s nutritional status. However, caregivers’ practices do not match up to knowledge indicating a gap between knowledge and its application (Echoka, 2011). The cultural and social barriers to effective practice need to be identified and addressed to yield desired impacts from the knowledge acquired.
2.5.1: Nutritional Knowledge, Attitudes and Practices

Nahikian- Nelms (1997) carried out a study in Illinois, USA to measure the nutrition knowledge and attitudes of caregivers in child-care programmes and to observe the behaviors of caregivers as they interact with children at mealtime. A non experimental research design was used and 113 caregivers in 24 licensed child-care programmes were interviewed. The independent variables (caregiver nutrition knowledge, caregiver nutrition attitudes, years of teaching, prior nutrition training, and education level) were correlated to the dependent variable (caregiver behavior), using the Pearson product moment correlation. The combinations of variance from all independent variables were analyzed using the general linear regression model. There was a positive correlation \(r=0.18, P=0.04\) between caregivers' nutrition knowledge and caregiver behavior at mealtime. This may indicate that those caregivers with the highest score on the nutrition knowledge instrument were the most likely to have the highest behavior scores. Years of teaching experience and caregiver behavior were correlated \(r=0.19, P=0.03\) positively as well. This may be due to the fact that an experienced teacher may be better able to integrate nutrition into all parts of the curriculum, which would optimally include meal and snack times. There was a statistically significant relationship \(r=0.27, P=0.003\) between level of education and nutrition knowledge, which suggests that those persons with higher levels of education also scored higher on the nutrition knowledge instrument. There did not seem to be a relationship between previous nutrition training and the caregiver's attitudes toward nutrition \(r=0.02, P=0.81\). Previous nutrition training and level of education were also not related to caregiver behavior \(r=0.12, P=0.17; r=0.15, P=0.11\). This may reflect the type of nutrition training that is offered to early childhood
educators. The findings showed that although caregivers held beliefs that should have a positive influence on children's eating behaviours, they demonstrated low knowledge of nutrition and displayed behaviors at mealtimes that were inconsistent with their beliefs and expert recommendations. Positive correlations were found between nutrition knowledge and behavior at mealtime, nutrition knowledge and attitudes, and attitudes and caregiver behavior.

Grover and Singh (2004) carried out a study in Punjab, India to determine the training needs of rural mothers in nutrition, health and environmental sanitation in different agro-climatic regions. A total 150 mothers of preschool children from 24 villages of 6 representative districts of 3 agro climatic regions of Punjab were selected for the study. The findings showed that the mothers of sub-mountain region had significantly (P≤0.05) higher knowledge in all the areas as compared to central plain and south western region. Majority of rural mothers (71%) had low level of knowledge followed by mothers (25%) having medium level of knowledge and merely 4 per cent of mothers had high level of knowledge. The knowledge level of mothers indicated a positive and significant correlation with their education (r= 0.37, p= 0.01), mass media exposure (r= 0.48, p= 0.01), urban contact (r= 0.21, p= 0.05), caste (r= 0.19, p= 0.05) and land holding (r= 0.22, p= 0.05) while a negative and significant correlation with their employment status (r= -0.23, p= 0.05). On the basis of training need scores, the areas of nutritional deficiency disorders, nutrition during pregnancy and lactation, diarrhoea and its management and general nutrition in all the regions of the state were ranked as first, second, third and fourth respectively. The findings emphasized the need for nutrition and health education
interventions to upgrade the knowledge level of rural mothers and hence the nutritional and health status of their children.

Xia, et al. (2004) carried out a pilot project in Zhejiang Province, China aimed at improving the nutrition and health status of students, school personnel and parents, and developing a model project for nutrition interventions for the development of health promoting schools (HPS). The project involved three primary and three secondary schools. Interventions included establishing school-based working groups, nutrition training for school staff, distribution of materials on nutrition, nutrition education for students, student competitions, school wide health promotion efforts and outreach to families and communities. Results of a pre- and post-intervention survey one and a half years apart showed improvements in nutrition knowledge, attitudes and behavior among all target groups. Primary school students at the pilot schools made the greatest knowledge gains in the areas of Chinese dietary guidelines (increased from 49.2 to 78.0%, p < 0.01) and adequate dietary principles (increased from 42.9 to 68.0%, p < 0.01). Scores of secondary school students who reported liking school lunches rose at pilot schools from 17.9 to 45.2% (p < 0.01). School staff at control schools who reported taking breakfast declined from 81.4 to 66.6% (p < 0.01), while staff who reported taking lunch at school increased in pilot schools from 87.5% at baseline to 93.9% (p < 0.01). The largest increases in nutrition knowledge among all target groups occurred among parents and guardians. At the pilot schools parents increased their nutrition knowledge in the areas of nutritional deficiencies (from 35.0 to 66.2%, p < 0.01) and nutrient-rich foods (from 38.8 to 66.8%, p < 0.01). Discussions with target groups confirmed changes in attitudes and
behavior, and school visits revealed improvements to school facilities and school health services, establishing of school policies and a positive school climate. This study suggests that nutrition can effectively serve as an entry point to establish HPS in China and that the HPS concept is feasible to improve the dietary knowledge, attitudes and behavior of students, parents and school personnel.

Jordan, Timothy and Marla (2007) carried out a study to determine caregiver knowledge, attitudes and practices regarding vitamin A intake by Dominican children. A cross-sectional survey was administered to caregivers (N = 151) from rural/peri-urban villages in five provinces to assess vitamin A knowledge and attitudes, frequency of consumption of foods rich in vitamin A by an index child (age range 3–9 years), and food-related practices contributing to vitamin A intake. Caregiver knowledge regarding vitamin A was low in all villages regardless of differences in socio-economic status and level of education. A majority of the caregivers (67%) reported having a garden, but produce from the garden was thought mainly to provide a financial benefit vs. a nutritional benefit for the family. Several vegetables rich in vitamin A used as seasoning, mango, and unripe banana and plantain were commonly consumed by children as reported by caregivers. This study suggests that educational interventions should focus on basic vitamin A knowledge regarding sources as well as symptoms of deficiency. Education should also emphasize increasing the variety of foods rich in provitamin A carotenoids grown in home gardens.
Ayieko and Midikila (2010) carried out a study in Sabatia, Kenya to determine the seasonality of food supply, coping strategies and the child nutritional outcomes. The study subjects included (179) children aged 24-59 months and their mothers (N=150) who were selected for participation in the study using the EPI sampling method. Only 32.8% were able to produce enough to last a year, most households did not meet their dietary needs. 48% of the households received food remittance as supplementary. Dietary diversity positively correlated to household food availability. Increased consumption of common staples negatively correlated to food availability and dietary diversity. Stepwise regression identified access to roots and tubers, legumes and pulses, and carbonated drinks as the main determinants of food procurement and availability. Study shows that food production in households cannot meet food needs of even an area with adequate rainfall patterns. Low levels of education, employment and income observed among female caregivers constrain to household purchasing power and knowledge required to nutritional outcomes of children.

2.6: Summary and Identification of Gaps

Literature reviewed has shown that nutrition education has an effect on caregiver knowledge, attitudes and practices and should be a key component of nutrition intervention strategies aimed at improving nutritional status of children. Nutrition interventions such as SFPs can be used to promote nutrition education targeting pupils, parents, school personnel and communities. Research has focused on assessing nutritional knowledge, attitudes and practices of caregivers of infants and young children with few studies conducted on primary caregivers of pupils. This study seeks to fill the gap and
make recommendations on how to promote nutrition education so as impact on knowledge, attitudes and practices of primary caregivers of pupils on HGSF programme.
CHAPTER THREE: METHODOLOGY

3.1: Introduction

This chapter presents the methodology of the study. It includes sections on: research design, variables, location of study, study population, sampling procedures, research instruments, data management and ethical considerations.

3.2: Research Design

A descriptive cross sectional design was used for this study as it aimed at determining the nutritional knowledge, attitudes and practices at a specific point in time. Primary data were collected through interviewing the study participants, key informants and conducting focus group discussions (FGDs). Secondary data were collected through review of Sauri MVP records. The purpose of the FGDs and key informant interviews (KII) was to supplement the responses from the questionnaires.

3.3: Variables

The dependent variables in the study were nutritional knowledge, attitudes and practices. The independent variables were demographic factors, socio-economic factors and Home Grown School Feeding Programme.

3.4: Location of study

The study was carried out at the Sauri Millennium Village 1 (MV1) in Siaya County in Nyanza Province. The area is located in the Kenya highlands, 1400–1500 m above sea level and 30 km north of Lake Victoria with annual rainfall of 1800 mm (Mutuo, P. et al, 2006). The Sauri MV1 cluster consists of 11 villages with a total population of approximately 6,500 people. The main occupations are subsistence farming, consisting primarily of maize, sorghum and cassava and animal husbandry, including goats,
chickens and cattle. The Sauri MV1 has three primary schools (Nyamninia, Bar Sauri and Bar Turo) where the HGSF was piloted as part of a larger ongoing research project on achieving the MDGs.

3.5: Target Population

The study target population were primary caregivers of pupils on the HGSF programme in Sauri MV1. The total number of households in Sauri MV1 is approximately 967 with one primary caregiver per household (MVP 2008).

3.6: Sampling Techniques and Sample Size

3.6.1: Sampling Techniques

Purposive sampling was used to identify the study area on the basis of specific considerations such as the presence of HGSF programme pilot schools and a larger ongoing project. The study participants were also selected purposively from an already identified random sample of 400 households which are used by the Sauri Millennium Research Village (MV1) as part of the regular project monitoring and evaluation. To select a sample of 400 households from the beneficiary population of 967 households, both simple and stratified random sampling procedures were used. The main factors considered were the villages in which they are situated in the sub-location/Sauri Millennium Village (11 villages), wealth or wealth categories of the households (poor, medium and rich) and the gender of the household head. The 11 villages and the 3 wealth categories were combined with the 2 gender categories to give 66 population strata. The 967 households were then proportionately distributed across these strata and using simple random sample selection within each cell, 400 households were selected. All the
households with children age 5-15 years were selected for the study and a total of 275 respondents were identified for the study.

3.6.2: Sample Size

The total number of primary caregivers of pupils on the HGSF programme in Sauri MV1 is approximately 967. This number is below 10,000. Therefore, the minimum sample size was obtained using a formula as used by Fisher et al. (1998) for calculating sample sizes whose target population is less than 10,000 persons as shown below:

$$nf = n/1 + (n/N)$$

Where:

$nf$ is the desired sample size when the target population is less than 10,000

$n$ is the sample when the population is more than 10,000

$N$ is the estimated population of primary caregivers of school pupils in Sauri MV1 = 967

$$n = (Z^2pq)/d^2$$

$Z$ = the standard normal deviation at the required confidence level = 1.96 (95% confidence level).

$p$ = Proportion of the target population estimated to have the desired characteristics = 0.5

$q = 1 - p$

$d = Degrees of freedom = 0.05$

$$n = (1.96^2\times0.5\times0.5)/0.05 \quad n = 384$$

$$nf = 384/(1+ (384/967))$$

$$nf = 274$$
3.7: Construction of Research Instruments

3.7.1: Structured questionnaire

A structured interview questionnaire with open and closed ended questions was administered to the primary caregivers by the researcher assisted by 5 trained research assistants (Appendix II). The questionnaire included 12 items on nutritional knowledge, 5 items on attitudes and 4 items on nutritional practices. The knowledge section included questions on healthy eating, three basic food groups, local foods and micronutrients. All the questions on nutrition knowledge were open ended and multiple choices were provided to guide the research assistants in selecting the correct response. A 4-point Likert Scale using items rated as “strongly disagree”, “disagree”, “agree”, and “strongly agree” was used to measure attitudes towards nutrition education and the HGSF programme. The nutritional practices section included questions to assess nutrition promoting practices such as quality of family meals, consumption of breakfast and fruits by school children, involvement of children in meal preparation and caregiver involvement in the HGSF programme implementation.

3.7.2: Key Informant Interview Guide

The key informant interview guide (Appendix IV) was used to interview the members of the School Feeding Programme committee. They included school representatives, MoE officials and community representatives.

3.7.3: Focus Group Discussion Guide

The FGD guide (Appendix III) was used by the facilitator and detailed notes taken by the note recorder. Two FGD’s were conducted with 8 participants in each group. The participants were primary caregivers of pupils in the three pilot schools and were selected
to represent class categories namely (ECD, lower and upper primary). A tape recorder was also used as a data collection tool to record the proceedings of the FGDs.

3.8: Pre Testing

A pre test was conducted in July 2010 to assess the validity and reliability of the questionnaire. Five respondents from the up scaled Sauri Millennium Village (MV2) were used to test the questionnaire aimed at primary caregivers. The respondents were excluded from the main study. After the pre test, the research tools were revised in readiness for the fieldwork.

3.8.1: Validity

Validity refers to the extent to which the questions are able to address all the research objectives. Validity of the questionnaire was evaluated by two experts: a programme officer from Healthy Learning Programme (MoE/VVOB) and a Nutritionist from Sauri MVP.

3.8.2: Reliability

Reliability refers to the extent to which the questions are able to elicit similar responses. The questionnaire was tested for reliability during the pre test to ensure that respondents understood the questions. Cross checking, inspection and scrutinization of the pre tested data was carried out to determine the accuracy, relevance, completeness, consistency and uniformity of the questions. The feedbacks from the pre test were incorporated in the questionnaire before the start of field work. The research assistants were well trained before participating in the study.
3.9: **Data Collection Techniques**

The research assistants visited the selected participants’ homes to collect data by administering the questionnaire. Each questionnaire had an informed consent form which the participants were required to sign after understanding the purpose of the study. Data collection was carried out on weekdays in July 2010 and at convenient times to avoid interfering with farming activities. Special arrangements were made to interview those participants who were not available on weekdays.

3.10: **Logistical and Ethical considerations**

Permission to carry out this study was sought from the relevant authorities including; the Ministry of Higher Education, Science and Technology (MOST), Kenyatta University and the Columbia University Institution Review Board (Sauri MVP project management). Anonymity, confidentiality and privacy of the study participants were safeguarded.
CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1: Methods of Data Analysis

Data were coded, sorted, entered into the computer and processed using Statistical Package for Social Sciences (SPSS) software version 12.0

4.1.1: Descriptive Statistics

These were used to describe the demographic factors, socio-economic factors, nutritional knowledge, attitudes and practices.

4.1.2: Inferential statistics

These were used to test for associations between variables. Pearson’s Correlation test was used to test for association between non categorical variables while the Chi square test was used to test for associations between the categorical variables.

Knowledge scores were determined by taking the number of correct responses by each respondent out of the total number of questions asked and expressed as a percentage. All correct answers received a score of 2 while wrong answers got a zero score. The percentage scores were graded as follows to determine the nutrition knowledge levels: 70% - 100% (High), 40% - 69% (Average), 0% - 39% (Low). The grading scale was designed by the researcher as literature reviewed did not have a comparable scale.

The attitudes of the respondents towards nutrition education and the HGSF programme were determined using the Likert scale (Likert, 1932). The responses were grouped into four categories: strongly disagree, disagree, agree and strongly agree. Each attitude statement was analyzed individually and rated as positive or negative.
The nutritional practices were determined by analyzing responses to questions on nutrition promoting practices. The practices assessed included typical foods consumed by the family in a day, breakfast and fruit consumption by children, involvement of children in meal preparation and level of caregiver involvement in HGSF programme implementation.

4.2: Demographic and Socio-Economic Characteristics

All the respondents interviewed were female with majority (70%) being mothers of the children and 30% relatives mainly grandmothers. Majority (65%) of the respondents were married while 31% were widows and 4% were single. Only 16.8% of the respondents had attained post primary education, 19.6% had no education while majority (65%) had primary level education. Majority (75%) of the respondents relied on farming as a source of family income and 25% relied on casual labour, family business, salaries and remittances from relatives as shown in Table 4.1

Table 4.1: Summary of Demographic and Socio-economic characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total n=271</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>30.23</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>10 (3.7%)</td>
</tr>
<tr>
<td>Married</td>
<td>175 (64.6%)</td>
</tr>
<tr>
<td>Widowed</td>
<td>85 (31.4%)</td>
</tr>
<tr>
<td>Separated/Divorced</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td>Level of Education</td>
<td></td>
</tr>
<tr>
<td>No Education</td>
<td>53 (19.6%)</td>
</tr>
<tr>
<td>Primary</td>
<td>175 (64.6%)</td>
</tr>
<tr>
<td>Secondary</td>
<td>41, (15.1%)</td>
</tr>
<tr>
<td>Tertiary</td>
<td>2 (0.7%)</td>
</tr>
<tr>
<td>Source of family income</td>
<td></td>
</tr>
<tr>
<td>Farming</td>
<td>202 (75%)</td>
</tr>
<tr>
<td>Casual labour (farm and nonfarm)</td>
<td>27 (9%)</td>
</tr>
<tr>
<td>Family business</td>
<td>16 (6%)</td>
</tr>
<tr>
<td>Salary</td>
<td>10 (4%)</td>
</tr>
<tr>
<td>Remittances</td>
<td>16 (6%)</td>
</tr>
</tbody>
</table>
4.3: Nutritional Knowledge

The knowledge score was 85% with a mean of 20.4 ± 5.4 indicating a high nutrition knowledge level. Nearly half (45%) of the respondents answered all the twelve questions correctly while only 1% did not answer any question correctly and earned a zero score. Overall, 84% of the respondents had a high knowledge level (70-100%), nine percent had an average (40-69%) and 7% had low knowledge level (0-39%). This finding indicates that majority (84%) of the respondents were highly knowledgeable on the nutrition topics assessed.

This finding was in contrast with a similar study by Grover and Singh (2004) where it was found that the mean knowledge of the rural mothers expressed as percentage of maximum obtainable scores in general nutrition varied from 25 to 37. Only 4% of the rural mothers had high level knowledge, 25% had medium level while majority (71%) had low level of knowledge. Although both studies had similar target populations, the nutrition education strategies used varied and this may have impacted the nutrition knowledge.

4.3.1: Healthy Eating

Eighty five percent and 87% of the respondents had correct knowledge on healthy eating and balanced diets respectively. This finding shows that the respondents were more knowledgeable on balanced diets compared to healthy eating. Balanced diet constituents listed included the three basic food groups comprising of carbohydrates, proteins, vitamins/minerals. Healthy eating was defined as eating balanced meals in a day and not necessarily the required number of main meals as revealed by FGDs. The school meals
programme enabled the primary caregivers to have more time for other chores as they didn’t have to prepare lunch for the children. The extra time was a positive effect of the HGSF programme though it affected healthy eating practice and this is the likely reason for the slight difference in knowledge levels.

4.3.2: Importance of basic food groups

Eighty three percent of respondents had correct knowledge on importance of carbohydrates, 73% on proteins and 77% on vitamins. This finding shows that the respondents were more knowledgeable on carbohydrates as compared to vitamins and proteins. The importance of a food was related to its known/perceived benefits to the body. Foods such as maize, porridge, sweet potatoes and cassava were commonly consumed as they provided energy required to carry out the manual farm work. Beans, fish, milk, eggs and meat were important in body building while fruits and vegetables helped in the prevention of disease and recovery from illness. Some of the foods were grouped into wrong food groups particularly proteins which were considered to be energy giving as revealed by FGDs. This may be the likely reason for the higher gap in knowledge as compared to other food groups.

This finding was in agreement with a study to determine the impact of Health Promoting Schools (HPS) concept on the dietary knowledge of parents and guardians in China (Xia et al, 2004). The results from the study showed a gap in knowledge on some nutrients and their functions among the parents and guardians at the pilot schools despite the increase in knowledge on nutrients and their functions (from 35.5 to 72.9%, p <0.01).
4.3.3: Nutritive value of local foods

Ninety six percent of the respondents had correct knowledge on local foods rich in carbohydrates, 93% on vitamins and 83% on proteins. This finding shows that the respondents were more knowledgeable on the local foods rich in carbohydrates that vitamins and proteins. Carbohydrate foods listed included maize, sweet potatoes, cassava, rice and millet. Protein foods included beans, fish/omena, beef, milk chicken and eggs while vitamin foods included kales, night shade, amaranth, cowpeas oranges, bananas, avocados, pawpaw, mangoes and guavas. The respondents who lacked knowledge on the nutritive value of some local foods were not aware of the importance of the foods as revealed by FGDs. This is the likely reason for the similarity in knowledge scores on importance of food groups which follow descending order: carbohydrates, vitamins and proteins respectively.

This finding was similar to a study to determine the impact of Health Promoting Schools (HPS) concept on the dietary knowledge of parents and guardians in China (Xia et al, 2004). The results from the study showed a gap in knowledge on nutrient rich foods among the parents and guardians at the pilot schools despite the increase in knowledge (from 38.8 to 66.8%, p < 0.01).

4.3.4: Sources of Vitamin A, C and Iron

Ninety one percent of the respondents had correct knowledge on sources of Vitamin C, 88% on Iron sources and 74% on sources of Vitamin A. This finding shows that the respondents were more knowledgeable on sources of Vitamin C than Iron and Vitamin A. Food sources of Vitamin C listed included oranges, guavas, avocados, kales, amaranth while vitamin A sources were pawpaw, mango. Iron rich foods included kales, amaranth,
cowpeas and liver. Knowledge on micronutrient rich food sources was also linked to knowledge on importance of micronutrients as revealed by FGDs. Health workers encouraged the consumption of vitamin C rich foods to aid in quick recovery from illness and iron rich foods for pregnant women. However, some of respondents were not aware of specific vitamins and this is the likely reason for the differences in knowledge level pertaining to the vitamins.

The study findings are similar to another study on caregiver knowledge, attitudes and practices regarding vitamin A intake by Dominican children (Jordan, et.al, 2007). The results revealed low levels of knowledge regarding vitamin A among caregivers of Dominican Children. It was recommended that educational interventions should focus on basic vitamin A knowledge regarding sources as well as symptoms of deficiency.

**4.3.5: Iron Deficiency Anaemia**

Ninety three percent of the respondents had correct knowledge on signs of iron deficiency anaemia while 27% lacked correct knowledge. This finding shows that majority of the respondents were knowledgeable on Iron Deficiency anaemia. Dizziness and fainting were the most common signs mentioned by the respondents. The awareness on iron deficiency was linked to involvement in a community nutritional survey and health facility visits as revealed by the FGDs. Messages on iron deficiency were during communicated during ante natal clinic visit, well baby clinic visits and household visits by CHWs. This is the likely reason for the high knowledge levels as the information was widely available.
This finding was similar to a study to determine the impact of Health Promoting Schools (HPS) concept on the dietary knowledge of parents and guardians in China (Xia et al, 2004). The results from the study showed a gap in knowledge on areas of nutritional deficiencies and their symptoms among the parents and guardians at the pilot schools despite the increase in knowledge (from 35.0 to 66.2%, \( p < 0.01 \)).

4.4: Attitudes

4.4.1: Nutrition Education

![Bar chart showing attitudes towards nutrition education]

**Figure 4.1: Attitudes towards nutrition education**

Figure 4.1 shows that 0.8% of the respondents strongly agreed, 10.7% agreed while 86.3% disagreed and 2.2% strongly disagreed with the statement ‘Nutrition education is not required to achieve healthy eating’. This finding indicates that majority (88%) of the respondents had a positive attitude towards the importance of nutrition education. Nutrition education provided important information to the primary caregivers on improving nutrition. Cultural myths and taboos prohibited the consumption of certain foods e.g liver, eggs yet the foods were nutritious and locally available as revealed by FGDs. The nutrition information helped to dispel these myths as well as to upgrade the knowledge of caregivers with no education and promote healthy eating.
4.4.2: Quantity of school meals

**Figure 4.2: Attitudes towards quantity of school meals**

Figure 4.2 shows that only 0.8% of the respondents strongly agreed, 7% agreed while 76% disagreed and 16.2% strongly disagreed with statement that “school meals are well prepared and satisfying”. This finding indicates that majority (82%) of the respondents had a negative attitude towards the quantity of school meals. Primary caregivers who expressed negative attitudes based their opinion on the feedback from the pupils as revealed by FGDs. The parents contributed the required amounts which were calculated based on the dietary needs of the children yet the children complained of not getting satisfied. Key informants interviewed mentioned that sustainability of the programme was a challenge. Some of the pupils were from vulnerable households as they were orphans and this led to inconsistent food contributions. The schools sustained the vulnerable children on existing food stocks resulting in reduced food amounts. The schools had also and the need to introduce income generating and learning activities such as school gardens to help sustain the school meals programme.
4.4.3: Quality of school meals

![Bar chart showing percentage of respondents agreement with school meals providing all required nutrients.]

Figure 4.3 shows that only 3% of the respondents strongly agreed, 40.2% agreed while 52.8% disagreed, 4% strongly disagreed while and with the statement “school meals are provide all required nutrients”. The finding indicates that about half (57%) of the respondents had a negative attitude towards the quality of the school meals. Primary caregivers who disagreed that school meals provided all the required nutrients based their opinion on the lack of a vitamin rich food. Both FGDs and KII revealed that at the start of the programme, the pupils were provided with a varied menu consisting of maize, beans, ugali, beef, vegetables, fruits and enriched mid morning porridge. The diversification of the school meal was financed by the MVP project and upon exit, parents opted for an affordable menu which consisted of only maize and beans. However, some of the schools opted to include vegetable oil, onions and tomatoes at an extra cost to the parents this is the likely reason for the positive attitude towards the quality of school meals.
4.4.4: HGSF Programme promotion of local production

Figure 4.4: HGSF Programme promotes local foods

Figure 4.4 shows that 1.8% of the respondents strongly disagreed, 82.4% disagreed while 15.1% agreed and 0.7% strongly agreed with the statement “HGSF Programme promotes local foods”. This finding indicates that majority (84%) of the respondents had a positive attitude towards the HGSF Programme promotion of local production. The school meals programme created a ready ‘market’ for farm produce through and some of the primary caregivers were able to generate extra income by supplying schools with foodstuffs such as onions and tomatoes. Locally available fruits such as avocados and guavas were not purchased by the schools as the fruit trees were common in most homesteads as revealed by FGDs. Some caregivers didn’t perceive the food contribution for school meals as a promotion of local production as they didn’t get a direct financial benefit. This is the likely reason for the negative attitudes.
4.4.5: HGSF Programme provision of nutrition education

![Graph showing percentage of respondents agreeing with the statement "HGSF Programme provides nutritional information to parents"]

Figure 4.5: HGSF Programme provides nutritional information to parents

Figure 4.5 shows that majority (80%) of the respondents agreed with the statement “HGSF Programme provides nutritional information to parents” indicating positive attitudes towards the HGSF programme promotion of nutrition education. Nutrition information was passed on to primary caregivers during meetings with SFP committee as revealed by FGDs and KII. Nutritionists were invited to the meetings and they explained the need to provide balanced meals in school and at home. However, some primary caregivers felt that the subsequent meetings after the programme launch provided minimal nutrition information and focused on food contributions. This is the likely reason for the negative attitude towards the HGSF programme.

4.5: Nutritional Practices

4.5.1: Quality of family meals

Majority (93%) of the respondents’ prepared balanced family meals 7% did not prepare balanced meals. Breakfast consisted of mainly milk tea or porridge enriched and accompaniments such sweet potatoes, bread and occasionally left over foods. Lunch meals consisted of mixture of maize and beans, sweet potatoes, cooked bananas, cassava.
The evening meal consisted of mainly ugali, vegetables and fish or beef. Fish was a delicacy in the area owing to the close proximity to lake and increased promotion of fish farming by the MVP project.

The respondents relied on markets for a variety of foods as shown in Table 4.2. The markets provided a sustainable supply of foods to meet family needs as well as food deficits as revealed by FGDs. The variety of foods purchased is an indication of the availability and access which increases consumption of quality family meals.

**Table 4.2: Frequency of purchase of main food categories by primary caregivers.**

<table>
<thead>
<tr>
<th>Foods</th>
<th>Frequency of purchase (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=6</td>
<td>Daily (%)</td>
</tr>
<tr>
<td>Maize</td>
<td>17.7</td>
</tr>
<tr>
<td>Beans</td>
<td>1.5</td>
</tr>
<tr>
<td>Fruits</td>
<td>3.7</td>
</tr>
<tr>
<td>Vegetables</td>
<td>36.5</td>
</tr>
<tr>
<td>Dairy</td>
<td>25.8</td>
</tr>
<tr>
<td>Fish</td>
<td>1.5</td>
</tr>
</tbody>
</table>

These findings show that the primary caregivers were able to provide a variety of balanced family meals by relying on markets in addition to on both own production. The nutrition strategies used by the MVP project emphasized the importance of dietary diversity in achieving food and nutrition security. The clinical and school based interventions focused on persistent macro- and micronutrient deficiencies in children and the need for diverse meals. Community and household-based interventions promoted agricultural production, greater diet diversity and enhanced livelihood security to address longer-term nutritional needs.
4.5.2: Provision of Breakfast for school going children

![Pie chart showing the provision of breakfast for school children. The chart shows 57% provided breakfast daily, 22% did not, and 21% provided sometimes.]

**Figure 4.6: Daily provision of breakfast for school children**

Figure 4.6 shows that 57% of the respondents provided breakfast daily for school children, 22% did not provide breakfast daily and 21% provided breakfast sometimes. This finding shows that about half of the respondents were consistent in provision of breakfast for school children yet it was an important meal. Respondents who provided breakfast sometimes explained that they could not always afford to buy ingredients such as milk and sugar to prepare nutritious breakfast and occasionally prepared black tea which was considered a poor quality meal. Those who didn’t provide breakfast at all attributed it to early reporting times for children especially those in the upper primary level. Meal substitution is an unintended effect of SFP and the finding has shown that the inconsistency was not attributed to the school meal but affordability and preparation time. Key informants interviewed mentioned that pupils who didn’t get breakfast at home tended to have poor concentration in class and the schools had introduced mid morning porridge for upper primary pupils with parents required to make an extra maize contribution.
4.5.3: Provision of fruits for children

![Chart showing daily fruit provision for children]

Figure 4.7: Daily provision of fruits for children

Figure 4.7 shows that 37% of the respondents provided fruits daily, 59% provided sometimes and 4% did not provide fruits daily. This finding shows that a minority (37%) of the respondents were consistent in the provision of fruits—an important source of vitamins. Respondents who were inconsistent attributed it to seasonality and cost. Most homesteads had fruit trees such as avocados, guavas, mangoes which helped to meet the family requirements only when in season as revealed by FGDs. The markets provided a sustainable supply of both indigenous and exotic fruits though more costly especially the citrus. Key informants interviewed confirmed that the provision of fruits at school was also a challenge due to cost hence the school meals no longer included fruits. Parents were encouraged to plant fruit trees and promote consumption of indigenous varieties such as guavas which were higher in Vitamin C content than citrus.

4.5.4: Involvement of children in meal preparation

Majority (82%) of the respondents involved children in meal cooking while 18% did not. The respondents who did not involve children in the cooking explained that the children were too young. Involving children in meal preparation promoted the transfer of
knowledge from parents to children and vice versa. Children were likely to share knowledge if they were involved in health promoting activities at school. The HGSF programme not only offered nutritious home grown meals but also offered nutrition education to the pupils through the curriculum. Practical sessions were used to reinforce the nutrition messages as pupils got involved in the 4Kclubs. From focus group discussions, it was found that primary caregivers were keen on involving children in actual meal preparation so that they could teach them about preparation of healthy foods and also learn from the children. The children shared knowledge on balanced meals and the importance of fruits which they had learnt in school.

4.5.5: Caregiver involvement in HGSF programme implementation

Ninety seven percent of the respondents were involved in food and money contribution, 0.4% in meal preparation and 2.6% were not involved in any activity. This finding shows that few of the respondents were not involved in programme implementation. Food contributions were collected after the harvest period and each parent/guardian was expected to provide the required amounts per child till the next harvest. From focus group discussions, it was found that some primary caregivers were unable to contribute the required amounts due to poor harvests and had opted to withdraw the children from the HGSF programme.

4.6: Factors influencing Nutritional knowledge, attitudes and practices

This study assessed the relationship between nutritional knowledge, attitudes, practices of the primary caregivers and associated demographic factors.
4.6.1: Factors Influencing Nutritional Knowledge

Age

The respondents’ age ranged from 15 to 82 years with a mean age of 44.7 (SD 15.4). Sixty six percent of the respondents were within the reproductive age group (15-50 yrs) while the remaining 34% were the elderly (above 51 yrs). Age of the respondent had a weak negative correlation with knowledge score ($r = -0.343$, $n = 271$, $p = 0.01$). This finding suggests that the nutritional knowledge scores decreased with increasing age of the respondents. The older respondents were mainly grandmothers with little or no education as revealed by the FGDs. However, the community nutrition education coupled with many years experience as primary caregivers may have contributed to increased nutrition knowledge among older respondents. This is the likely reason for the weak correlation between knowledge and age as found in the study.

Education level

A Pearson chi square test revealed no significant association between nutrition knowledge level and the education level of respondents at 0.05 level of significance ($\chi^2 = 5.316$, $df=2$, $p=0.07$). About half (58%) of the respondents with low knowledge level had education while (42%) of the respondents had no education as shown in Table 4.3

Table 4.3: Cross tabulation of two variables: Nutrition Knowledge level against education level.

<table>
<thead>
<tr>
<th>Education level</th>
<th>Nutrition Knowledge Level</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Average</td>
</tr>
<tr>
<td>No education</td>
<td>33</td>
<td>10</td>
</tr>
<tr>
<td>Education(primary, secondary, tertiary)</td>
<td>196</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>229</td>
<td>18</td>
</tr>
</tbody>
</table>

($\chi^2 = 5.315$, $df=2$, $p=0.07$)
The finding was in contrast with studies in USA and India, which showed a positive correlation between the level of education and the nutrition knowledge of the respondents (Nahikian- Nelms, 1997; Grover et al, 2004. Higher education levels lead to increased nutrition knowledge levels as the nutrition messaging is more comprehensive as compared to lower education levels. However, the multi-sectoral nutrition education strategy employed by the Sauri MVP increased the chances of impacting on nutrition knowledge of primary caregivers irrespective of their educational background.

**Source of Nutrition Information**

The sources of nutrition information relied on by the respondents were community health workers (41%), media (29%), school feeding programme (24%), health facilities and seminars (6%). A Pearson Chi-square test showed no association between the source of nutrition information and the knowledge level at the 0.05 level of significance ($\chi^2 = 5.41$, $df =3$, $p=0.14$). Majority (64%) of the respondents with low nutrition knowledge level relied on CHWs while 36% relied on media, SFP, Health facility and seminars as shown in Table 4.4.

**Table 4.4: Cross tabulation of two variables: Nutrition Knowledge level against source of nutritional information.**

<table>
<thead>
<tr>
<th>Source of nutritional information</th>
<th>Nutrition Knowledge Level</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Media</td>
<td>72</td>
<td>8</td>
</tr>
<tr>
<td>SFP</td>
<td>64</td>
<td>1</td>
</tr>
<tr>
<td>CHWs</td>
<td>74</td>
<td>27</td>
</tr>
<tr>
<td>Health Facility and seminars</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>229</strong></td>
<td><strong>42</strong></td>
</tr>
</tbody>
</table>

($\chi^2 = 5.41$, $df =3$, $p=0.14$)
This finding is in contrast with a study in India where the knowledge levels of mothers were found to have a positive correlation with mass media exposure. The use of various channels to communicate nutrition messages increased the chances of reaching the target audience. Although the study findings showed no association between source of information and knowledge, the primary caregivers found CHWs, SFP and seminars to be more reliable as revealed by FGDs. The sources provided focused messages and allowed for interactions with resource persons. Community Health Workers were part of the MVP health team and were charged with responsibility of promoting good nutrition at household level as confirmed by key informant interviews.

**Participation in the HGSF Programme design**

A Pearson chi – square test revealed no significant relationship between participation in the programme design and the knowledge level at the 0.05 level of significance ($\chi^2 = 3.386, df =2, p=0.184$). Majority (68%) of the respondents who had high nutrition knowledge level did not participate in the programme design had while 32% participated in programme design as shown in Table 4.5

**Table 4.5: Cross tabulation of two variables: Nutrition Knowledge level against participation in the HGSF Programme design.**

<table>
<thead>
<tr>
<th>Participation in the programme design</th>
<th>Knowledge Level</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Average</td>
</tr>
<tr>
<td>Yes</td>
<td>72</td>
<td>8</td>
</tr>
<tr>
<td>No</td>
<td>157</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>229</td>
<td>24</td>
</tr>
</tbody>
</table>

($\chi^2 = 3.386, df =2, p=0.184$)
The result suggests that participation in HGSF programme design by the primary caregivers had no influence on the nutrition knowledge levels. The finding was in contrast with study in Egypt which showed that participation of parents in the school feeding programme design could influence knowledge level (Galal, 2004). The design of the Sauri HGSF programme involved several meetings with primary caregivers and provided an opportunity to teach about healthy eating as revealed by key informant interviews. When the programme moved to implementation phase, the focus shifted to parental contributions with minimal nutrition education. This explains why participation in the design did not influence nutrition knowledge levels.

4.6.2: Factors influencing attitudes

A Pearson chi square test revealed a significant association between attitudes towards quality of school meals and the education level of respondents at 0.05 level of significance ($\chi^2=26.092, df=12, p=0.01$). The result suggests that higher levels of education promote positive attitudes towards the quality of school meals. The likely reason is that the school meals menu variation may include foods that can be grouped differently by the respondents depending on their education level. The finding is in contrast with a study in USA that showed no relationship between previous nutrition training and the caregiver's attitudes toward nutrition (Nahikian- Nelms, 1997). From focus group discussions, it was found that the addition of oil, onions and tomatoes to schools meals made it to be considered as balanced by the more educated respondents.
4.6.3: Factors influencing nutritional practices

Education Level

A Pearson chi square test revealed a significant association between education level of respondents and the quality of family meals at 0.05 level of significance ($\chi^2=2.85$, $df=2$, $p=0.01$). Half (53%) of the respondents whose family meals were not balanced had attained primary education, 44% had no education while only 3% had post primary education as shown in Table 4.6

Table 4.6: Cross tabulation of two variables: Family meals prepared in a day against Education level.

<table>
<thead>
<tr>
<th>Education level</th>
<th>Family meals prepared in a day</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Balanced</td>
<td>Not Balanced</td>
</tr>
<tr>
<td>No education</td>
<td>37</td>
<td>16</td>
</tr>
<tr>
<td>Primary</td>
<td>156</td>
<td>19</td>
</tr>
<tr>
<td>Post Primary</td>
<td>42</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>235</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

$\chi^2 = 2.85$, $df=2$, $p=0.01$

The finding suggests that quality of family meals was influenced by education level of the primary caregiver. Higher education levels influenced the nutrition knowledge levels as they equipped one with proper information to make right food choices. However, nutrition knowledge alone was not sufficient if the right foods were not available and affordable. The finding is similar to findings in China and Kenya which showed a positive correlation between education level and nutrition practices (Ayieko, 2010). The production of family foods is not self sufficient and requires extra income which was a challenge for primary caregivers who had minimal or no education as revealed by FGDs.
Minimal education reduced chances of permanent and salaried jobs that provided extra income to sustain balanced family meals in addition to own production.

**Marital Status**

A Pearson chi square test revealed a significant association between quality of family meals and the marital status of respondents at 0.05 level of significance ($\chi^2=8.869$, df=2, $p=0.02$). Majority (67%) of the respondents who prepared balanced family meals were married while the remaining 37% were either widows or single. Half of the respondents who did not prepare balanced family meals were widows while majority (89%) of the remaining were married as shown in Table 4.7

**Table 4.7: Cross tabulation of two variables: Family meals prepared in a day against Marital status.**

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Family meals prepared in a day</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Balanced</td>
<td>Not balanced</td>
</tr>
<tr>
<td>Single</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Married</td>
<td>159</td>
<td>16</td>
</tr>
<tr>
<td>Widowed</td>
<td>67</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>235</td>
<td>36</td>
</tr>
</tbody>
</table>

($\chi^2=8.869$, df=2, $p=0.01$)

The marital status of the respondents influenced the available family resources as married respondents were more likely to have higher family income than widows or singles. Widows had to provide for basic family needs singlehandedly and given the limited resources, providing a meal was more important than quality of meal as found out during FGDs.
Source of Family Foods

A Pearson Chi-square test showed a significant association between quality of family meals and the source of family foods at the 0.05 level of significance ($\chi^2 = 5.168$, $df = 1$, $p=0.02$). Majority (97%) of the respondents who prepared balanced family meals got foods from own production, while the remaining 3% purchased the foods as shown in Table 4.8

Table 4.8: Cross tabulation of two variables: Family meals prepared in a day against main source of family foods.

<table>
<thead>
<tr>
<th>Main source of family foods</th>
<th>Family meals prepared in a day</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Balanced</td>
<td>Not balanced</td>
</tr>
<tr>
<td>Own production</td>
<td>173</td>
<td>35</td>
</tr>
<tr>
<td>Purchase</td>
<td>62</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>235</td>
<td>36</td>
</tr>
</tbody>
</table>

($\chi^2 = 5.168$, $df = 1$, $p=0.02$)

The findings are similar to study in Sabatia, Kenya that found that food production in households could not meet food needs of an area with adequate rainfall patterns (Ayieko, 2010). Access to a variety of foods from both own production and markets increased the likelihood of consuming balanced family meals. From focus group discussions, it was found that the primary caregivers relied on markets for a variety of foodstuffs as farming was not self sufficient.

Source of Family Income

A Pearson Chi-square test showed no significant association between quality of family meals and the source of family income at the 0.05 level of significance ($\chi^2 = 6.295$, $df = 5$, $p=0.279$). The study finding was in contrast with findings in Sabatia, Kenya where
income was found to constrain household purchasing power and hence the foods consumed in a day (Ayieko, 2010). Rural farming communities had better access to food thereby reducing reliance on income to provide family meals. However, source of income was important for purchasing foods from markets to supplement own production as revealed by FGDs.
CHAPTER V: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1: Introduction

This study aimed at determining the nutritional knowledge, attitudes and practices of primary caregivers of pupils on the HGSF Programme and factors influencing the KAP. This chapter provides a summary of the study conclusions, recommendations and suggestions for further research.

5.2: Summary

i) Primary caregivers had higher knowledge levels on the local food sources of carbohydrates, protein, vitamins compared to knowledge on importance of the three basic food groups. Knowledge levels on local food sources of vitamins were also higher than knowledge on sources of specific vitamins. Although the primary caregivers had high knowledge levels on iron deficiency anaemia, it was not comparable with knowledge on local food sources of iron.

ii) Primary caregivers had positive attitudes towards nutrition education as majority agreed that it was required to achieve healthy eating. The attitudes towards the HGSF Programme promotion of local production and nutrition education were also positive. However, they had negative attitudes towards the school meals as minority agreed that they were satisfying and less than half agreed that the meals were balanced.

iii) Primary caregivers practiced good nutrition by preparing balanced family meals using locally available foods and involving children in meal preparation. However, they were inconsistent in key practices of providing fruits and breakfast daily for school going children.
iv) Nutritional knowledge was influenced by age of primary caregiver while attitudes towards school meals were influenced by education level. Nutritional practices were influenced by education level, marital status and source of family foods.

5.3: Conclusion

This study has shown that there were nutrition knowledge gaps among primary caregivers of pupils on the HGSF programme despite the existence of community nutrition education. Although the primary caregivers had negative attitudes towards school meals, they had positive attitudes towards the role of HGSF programme in provision of nutrition education. Community nutrition education coupled with availability of foods from local production promoted the adoption of healthy eating practices by primary caregivers. However, the daily provision of fruits was a challenge for both primary caregivers and the HGSF programme. Demographic and socio-economic factors were also found to influence the nutritional knowledge, attitudes and practices of the primary caregivers.

Involvement of primary caregivers in implementation of HGSF programme fostered school and community linkages which were necessary for promotion of nutrition education and adoption of healthy eating practices.

5.4: Recommendations

i) Promotion of continuous nutrition education for primary caregivers of pupils on the HGSF programme using a multi sectoral approach in order to address the nutritional knowledge gaps.

ii) The government of Kenya through the Ministry of Basic Education should promote interventions that improve the quality and quantity of school meals e.g school gardens.
iii) The government of Kenya through Ministry of Agriculture should strengthen the mainstreaming of nutrition in agriculture interventions to diversify local food varieties especially fruits.

iv) Community nutrition programmes should address factors influencing nutritional knowledge, attitudes and practices in programme design and implementation in order to ensure high nutrition knowledge levels, positive attitudes and adoption of healthy eating practices.

5.5: Further Research

i) A Comparative study should be carried on Knowledge, Attitudes and Practices of the primary caregivers of pupils on the HGSF Programme and the primary caregivers of pupils who are not on a school feeding programme.

ii) A Study should be conducted on the Knowledge, Attitudes and Practices of pupils on the HGSF Programme.
5.6.1: References


APPENDICES

Appendix I

Informed Consent Form

I am Mundia N. Daisy and studying for Masters of Public Health (MPH) Degree at Kenyatta University. I am here to carry out a study on nutritional knowledge, attitudes and practices of primary caregivers of pupils in the home grown school feeding programme. Participants in the study will be parents or guardians. The information you give will be confidential and you will not be asked to give your name. Your cooperation during the study will be highly appreciated. If you agree to participate in the study please acknowledge below. Thank you.

SIGNATURE………………………………………

DATE………………………………………...
Appendix II

STRUCTURED QUESTIONNAIRE

INTERVIEWEES: PRIMARY CAREGIVERS OF PUPILS ON THE SAURI HOME GROWN SCHOOL FEEDING PROGRAMME

Questionnaire No……………………………

Date of Interview……………………………

Name of Interviewer…………………………

SECTION A: SOCIO-DEMOGRAPHIC DETAILS

1. What is your age? __________

2. What is your marital status?
   1) Single
   2) Married
   3) Widowed
   4) Separated/Divorced

3. What is your primary occupation?
   1) Caregiver
   2) Casual
   3) Employed
   4) Self employed
   5) Student
   6) Other(Specify)………..

4. What is your level of education? (Indicate if complete or not)
   1) No education
   2) Primary
   3) Secondary
   4) Vocational Training
   5) University

5. What is your relation to the school pupil?
   1) Parent
   2) Relative
   3) Househelp
   4) Other (specify)……
6. What is the current number of household members? ____________

7. What is your main source of family foods?
   1) Own production [ ]  3) Borrowing [ ]
   2) Purchase [ ]  4) Food aid / in kind sources [ ]

8. What foods do you often purchase? Tick all that apply

<table>
<thead>
<tr>
<th>Food</th>
<th>Frequency (Daily, weekly, Monthly, Twice per week, Fortnightly)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grains (maize)</td>
<td></td>
</tr>
<tr>
<td>Legumes (beans)</td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td></td>
</tr>
<tr>
<td>Fruits</td>
<td></td>
</tr>
<tr>
<td>Dairy products</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td></td>
</tr>
</tbody>
</table>

9. What is the main source of income for the household?
   1. Farming/Farm produce [ ]  4) Casual farm labour [ ]
   2. Casual non farm labour [ ]  5) Salary [ ]
   3. Family Business [ ]  6) Remittances [ ]

10. What is your most reliable source of nutrition information?
    1. Media [ ]  3. Community Health Worker [ ]
    2. School feeding Programme [ ]  4. Other (specify) ……………………
SECTION B: QUESTIONNAIRE ON KNOWLEDGE

1. What is healthy eating?
   1) Eating three meals in a day consisting of three basic food groups
   2) Don’t know

2. List foods that make a proper (balanced) diet?

1) Balanced (Carbohydrates, Proteins, Vitamins/Minerals
   2) Not balanced

3. What is the importance of the following group of foods in the body?
   (Maize, Rice, Sweet potatoes, Cassava, Sorghum, Millet, Irish potatoes)
   1) Provision of energy /strength
   2) Don’t know

4. What is the importance of the following group of foods in the body?
   (Beans, Meat, Fish, Eggs, Soya Beans, Milk)
   1) Body building
   2) Don’t know

5. What is the importance of the following foods in the body?
   (Sukuma wiki, Osuga, Terere, Tomatoes, Onion, Bananas, Mangoes, Pawpaw, Guavas)
   1) Disease prevention/ Recovery from illness/ Healing of wounds
   2) Don’t Know
6. Which local foods are rich in:

   a) Carbohydrates (Energy giving)

   b) Proteins (Body building)

   c) Vitamins (Fruits and vegetables)

7. Which vegetables/fruits help the body to recover from illness?

   1) Vitamin C Rich foods (Oranges, Lemons, Green leafy vegetables)

   2) Don’t know

8. What are the signs of having little/insufficient blood in the body?

   1) Fainting, Dizziness, Paleness

   2) Don’t know

9. Which foods help to build/add blood in the body?

   1) Iron Rich Foods (Liver, Beef, Green Leafy Vegetables, Beans)

   2) Don’t know

10. Which foods are rich in Vitamin A?

    1) Yellow fruits, Green leafy vegetables, Carrots

    2) Don’t know
SECTION C: QUESTIONNAIRE ON ATTITUDES

1. Nutrition education is not required to achieve healthy eating.
   a) Strongly agree ☐ c) Disagree ☐
   b) Agree ☐ d) Strongly disagree ☐

2. School meals are well prepared and satisfying.
   a) Strongly agree ☐ c) Disagree ☐
   b) Agree ☐ d) Strongly disagree ☐

3. School meals are balanced.
   a) Strongly agree ☐ c) Disagree ☐
   b) Agree ☐ d) Strongly disagree ☐

   a) Strongly agree ☐ c) Disagree ☐
   b) Agree ☐ d) Strongly disagree ☐

5. Home Grown School Feeding programme provides nutrition information to parents.
   a) Strongly agree ☐ c) Disagree ☐
   b) Agree ☐ d) Strongly disagree ☐
**SECTION D: QUESTIONNAIRE ON PRACTICES**

1. What does the typical family breakfast, lunch and supper consist of?

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>Lunch</th>
<th>Dinner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Balanced  □       2) Not balanced □

2a) Do you provide breakfast to children going to school?

1) Yes □    2) No □    3) Sometimes □

2b. If no or sometimes, why?


3a. Do you provide fruits to your children daily?

1) Yes □    2) No □    3) Sometimes □

3b. If no or sometimes, why?


4a. Do you involve children in meal preparation?

1) Yes □    2) No □

4b. If no, why?


5a. Did you participate in the planning/design of the Home Grown School Feeding programme?

1) Yes  

2) No

5b. If yes, how did you participate?

……………………………………………………………………………………………………………………………..

6. Which Home Grown School Feeding Programme activities are you involved in?

1) Menu planning  

2) Food and money contribution  

3) Meal preparation  

4) Other (specify)………………….
FOCUS GROUP DISCUSSION GUIDE

1. What is healthy eating in your opinion?
2. Which local foods are healthy and what nutrients do they contain?
3. What are the key determinants of family foods/ meals?
4. What are the benefits of the Home Grown School Feeding Programme?
5. What are the challenges of the school meals programme?
Appendix IV

KEY INFORMANT INTERVIEW GUIDE

Date of Interview_____________________

Age in Years_________________________

Gender_______________________________

Position_____________________________

1. What did the planning/design of the HGSF Programme entail?
2. What is the composition of the school feeding programme committee and specific roles?
3. What are functions of the school feeding programme committee?
4. How is nutrition knowledge passed on to parents through the HGSF Programme?
5. What are some of the challenges encountered in the implementation of the Home Grown School Feeding programme?
Appendix V

Map of Siaya County and the Study Area.
KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
       dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School
TO: Mundia Daisy Nekesa
c/o Draft of Public Health

DATE: 8th April, 2010
REF: IS7/10598/06

SUBJECT: RESEARCH PROPOSAL

This is to inform your M.P.H. Research Proposal was approved on 8th April, 2010.

Thank you.

JOHN M. ODONGI
DEAN, GRADUATE SCHOOL

cc. Chairman, Department of Public Health
    Supervisors:

    1. Prof. Judith Waudo
       c/o Foods, Nutrition and Dietetics Department

    2. Dr. Okello Agina
       c/o Department of Public Health/Obs Gyne

JMO/bwk

Committed to Creativity, Excellence & Self-Reliance
NCST/RR1/12/1/MAS/64/4

Ms. Daisy Nekesa Mundia
Kenyatta University
P. O. Box 43844
NAIROBI

Dear Madam,

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "Nutritional knowledge, attitudes and practices of primary caregivers of Home Grown School feeding programme school pupils at Sauri Millenium Village, Kenya" I am pleased to inform you that you have been authorized to undertake research in Gem District for a period ending 31st May, 2011.

You are advised to report the District Commissioner and the District Education Officer, Gem District before embarking on the research project.

On completion of the research, you are expected to submit two copies of the research report/thesis to our office.

P. N. NYAKUNDI
FOR: SECRETARY/CEO

Copy to: