CHILDCARE PRACTICES AND NUTRITIONAL STATUS OF CHILDREN 0 - 2 YEARS OLD IN MAKONGENI ESTATE, THIKA - KENYA

BY

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Thesis submitted in partial fulfilment of the requirements for a master of science degree in Applied Human Nutrition in the Department of Food Tecnology and Nutrition.

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DECLARATION

I FAITH MUGURE KAMAU hereby declare that this thesis is my original work and has not been presented for a degree in any other university.

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DEDICATION

This work is dedicated to my beloved parents for their educational investment in me, and for their gracious encouragement and prayers.

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Abstract

This thesis reports on a study carried out in Peri-Urban Thika. The study aimed at establishing from the mothers of children 0 -2 years old which of their dailly activities are regarded specifically as childcare activities, and also to establish the time spent in accomplishing each activity. Some characteristics of the caregivers in this community were also determined and described.

The study population consisted of mothers from the low income group who were interviwed using a structured questionnaire to obtain demographic information. The time taken performing the various childcare activities was determined and recorded using a time schedule applied for 2 day (10 hour) periods of continous observation. The mean for the two days was used in the analysis.

Results showed that Food Preparation, Bathing, Feeding and Washing the child's clothes are regarded as the most important childcare activities. These were also observed to be the most frequently performed activities irrespective of who provided the care. Breastfeeding and holding the child though time consuming considerable amounts of time were not however regarded as 'work' by most of the mothers. The findings further indicated that time taken to perform the various childcare activites tended to vary with the child's age, birth

order, number of children less than 5 years in the household, mothers level of education and whether the mother had some form of employment. However, these findings were not statistically significant (P=0.05).

Mothers in the study community emerged as the principal caregivers. However, the task of caregiving was also shared with not only other household members but with neighbours as well. The nutrition status of children in the community as determined by anthropometry was found to be fairy good with the level of wasting (0.7%) and stunting (14%) being relatively low. However, the findings indicated that comparatively, children who were stunted had less time devoted to them for breastfeeding, food preparation and feeding than those who were not. In summary, the results indicated that there is a strong emphasis on physical compared to psychosocial aspects of care, judging from the amount of time allocated to activities in the two categoreis.

There is therefore need to raise the level of awareness on the importance of care for early child growth and development among mothers. Education, especially on aspects of cognitive and psychosocial care should be integreted into existing health and nutrition packages for mothers.

DEFINITIONS AND ACRONYMS

Child care: "Care" as used here refers to the routine activities performed for the child by either the mother or an alternative caregiver in the household e.g washing a child's clothes, bathing, feeding, changing him/her when wet, breastfeeding and teaching.

Sick child: A sick child was considered as one who was confined to bed.

Caregiver: For purposes of this study, a caregiver/caretaker refers to any person providing care to the child.

Substitute caregiver: This refers to any other caregiver apart from the mother reported or observed to provide care to the child.

Caregiver idle: Refers to the time when the caregiver was not engaged in carrying out either household chores or childcare.

Household: Refers to individuals living and cooking together and contributing to the upkeep and running of the unit.

LIST OF ABBREVIATIONS

NGO	Non Governmental Organisations
UNICEF	United Nations Children's Fund
WHO	World Health Organisation
NCHS	National Center for Health Statistics
CRSP	Collaborative Research Support Programme
SPSS	Statistical package for social sciences
ROK	Republic Of Kenya
GM	Growth Monitoring
SD	Standard Deviation
N	Number of subjects
K. SH	Kenya shillings
KM	Kilometres
HHD	Head of household
TCM	Thika cloth mills
KTM	Kenya Textile Mills
MB	Metal Box
DM	Del monte
KVM	Kenya vehicle manufacturers
BAT	British America Tobacco
UTI	United Textile Mills
LIS	Low Income Section
MIS	Middle Income Section

GLOSSARY OF NON ENGLISH WORDS

Matatu:

These are privately owned public service vehicles which form the commonly used mode of transport in many parts of Kenya.

Mitumba:

Refers to second hand items like clothes, shoes and bags which are usually bought in bulk. These are mostly sold in shops and in the open air markets at cheaper prices as compared to new items.

Kiosk:

These are mini retail shops that are usually stocked with groceries and vegetables. In the study area, these were scattered all over the estate facillitating convinient shopping because of their easy access to the households.

Uji:

This refers to a gruel, usually made from maizemeal flour, or a mixture of maize and sorgum or millet flour. Sometimes it is enriched with milk and is commonly fed to children.

Jua Kali Industry:

Refers to goods that are made in the informal

Low income zone: Refers to those sections in the study area where households live in single roomed units requiring a rent of 350 - 500 k.sh per month. (phases 1 - 8)

Middle income zone: Refers to zones in the study area that have self-contained housing units usually with 2 bedrooms and with a rent of 1500 -2000 k.sh per month. (Phases 9 - 11).

Seasonal workers: These are employees who's paid engagement fluctuates with availabbility of raw materials to be processed.

Index child: This is the youngest pre-school child in the household, but who is less than two years old.

Housegirl: Refers to an individual hired to carry out housework, who also lives as part of the household.

sector (usually in open air sheds), and sold in shops and markets. These include household utensils like cooking pots and pans, boxes and water tanks.

CHAPTER ONE

INTRODUCTION

1.1 STATEMENT OF THE PROBLEM

The pre-school child has very different requirements from the school going child, or the older child. This age group is especially vulnerable because of it's total dependence upon a caretaker to provide all the basic requirements for nurturing, training, care and protection. This is also the crucial stage when most of the physical mental and developmental changes occur. Therefore, any interference with the child's nutriture, handling or environment may lead to maldevelopment.

Various studies have indicated the effects of inadequate nutrition and infections on growth and development of under fives. Psychologists have also related the psychological effects of maternal separation on children in this age group. Other studies have pointed out the effect that the environment has on the development of small children. There are, however, very few studies that have investigated the type and quality of care given to children and their possible nutritional impact.

The role of 'care' for the well being of children cannot be over-emphasised. Care has been identified as one of the underlying determinants of child survival, growth and development (UNICEF, 1990). From studies carried out, it has become increasingly clear that inadequate food intake, and the

child's morbidity status are not the only causes of malnutrition and under development in small children. Very often, a caregivers knowledge, attitude, and actions towards proper care for the child are very important.
Poor care for the child is probably mediated through morbidity and malnutrition.

This study therefore sort to identify the activities that are perceived as childcare by the community, and to observe these in the context in which they are performed in order to determine the time taken, as well as the caregivers involved.

1.2 JUSTIFICATION

Investigations that have attempted to measure child care have mainly utilized questionnaires, interviews and in some instances reported case histories. There are however, very few studies that have tried to assess the activities that would be labelled as child care, and to measure these in terms of actual care taking actions performed by a caregiver. The aim of this study was therefore to verify which of the activities of a care giver can be termed as child care, as well as to determine the actual time vested in achieving them.

1.3 EXPECTED BENEFITS

The results of this study are expected to aid in improving the quality of care given to children through the development of education packages for mothers. They will also add to the wealth of knowledge available on child care and development. The findings are also expected to be of interest to Non-governmental organizations as well as government ministries whose programmes focus on improving the welfare of children. The study will open up areas needing further research especially towards the development of a tool for measuring the quality of care given to children.

1.4 STUDY OBJECTIVES

1.4.1 To determine the activities performed by mothers of children 0-2 years in the study population while at home.

1.4.2 To describe the characteristics of the various caregivers in the population.

1.4.3 To observe and time the activities described as child care that are performed by any of the caregivers.

1.4.4 To determine the nutritional status of 0-2 year old children in the study population.

SUB-OBJECTIVES

1.4.1.1 To interview mothers of children in the study population by means of a structured questionnaire on their activities in a normal day spent at home.

1.4.1.2 To qualify from the mothers which of the activities she performs are regarded specifically as child care.

1.4.2.1 To determine the social demographic characteristics of various caregivers.

1.4.3.1 To observe childcare activities performed by caregivers.

1.4.3.2 To determine the time taken to perform each of the activities.

1.4.4.1 To determine by anthropometry the nutritional status of the study children.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Child care has been described as the process of attending to a child's basic needs of shelter, protection, food, clothing, and health, although it can also be more broadly understood as including a child's emotional welfare as well as cognitive and moral development (Myers and Indriso, 1987).

From the above statement, it can therefore be said that the developmental costs of inadequate child care are high. Children lacking appropriate care are exposed more frequently to a clustering of risk factors e.g illness, poor nutrition, family stress and unstimulating environments. The long term costs can be measured in terms of school dropouts, unemployment, delinquency and the inter-generational perpetuation of poverty and failure (Grant, 1985). Care is therefore crucial for child survival, growth and development.

The amount and quality of care that is provided to children can for example have an effect on their nutritional status through increasing the child's nutrient intake and reducing diseases. Experimental studies have also shown that increasing maternal caregiving through home teaching is associated with increased psychological development and increased growth for children. Mothers who are given assistance in child stimulation seem to

increase attention to their children's food needs and channel more food to them (Engle and Patrice, 1992).

Care has also been shown to have substantial effects on the survival and growth of children even in otherwise relatively poor conditions. For example, Landers (1989) found high rates of physical growth and adequate cognitive performance among south Indian infants at 3 months of age despite low birth weights, small maternal stature, poor maternal weight gain and poor environmental conditions. The reason for the difference lay in the cultural patterns of care. Maternal proximity, high levels of skin stimulation, coupled with the powerful psychosocial commitment of the Indian mother and her culture to the child.

The kind of care that a child receives is influenced by characteristics of both the mother and the child. For instance, maternal stress, depression or psychological dysfunction can reduce responsiveness to a child (Engle and Patrice, 1992). Psychologists also point out that this interaction can also be compromised by characteristics of the child influencing the type of care that he/she receives. For example, a listless and apathetic child is less likely to receive good caregiving than an energetic demanding child, especially when a mother has a heavy workload. Gender in many societies also influences the

care a child receives. In many societies, girls receive smaller amounts of care than boys because of their less perceived value (Engle and Patrice, 1992).

Other constraints to maternal care that have been identified include poor health of the mother, education and beliefs of caregivers, mental health and self-confidence of the mother, lack of social support from the family and community, excessive workload of the mother, and lack of resources and/or the control of them. Evidence has shown that removing any of these constraints usually results in more care (Engle and Patrice. 1992).

2.2 CHILD CARE DEFINATIONS

'Care' basically refers to caregiving behaviours performed either by the mother or other caregiver in the family. The meaning of care differs by discipline (Myers, 1992). For example to medical personnel, care may refer to preventive and curative care for illness and infections in children, while for social welfare professionals, it may refer to the care for children without families.

According to Zeitlin, (1991) and Myers, (1992), specific caregiving behaviours include breastfeeding, providing emotional security and reducing the child's stress, providing shelter, clothing, feeding, bathing, supervising of the child's

toilet, preventing and attending to illness, nurturing and showing affection, interaction and stimulation, playing and socialising, protecting from exposure to pathogens and providing a relatively save environment for exploration. A second set of behaviours include the use of resources outside the family including curative and preventive health clinics.

Zeitlin, Houser and Johnson (1989) draw a distinction between those behaviours intended to return a child to a previously accepted state of health or development (compensatory care) and those that serve to enhance further development (enhancement care). Compensatory care could include taking an ill child to a health centre for treatment, or encouraging an anorexic child to eat. Enhancement care on the other hand could include stimulating a child in play and language, encouraging a well eating child to finish, or taking a child to the health centre for preventive care.

2.3 EFFECT OF DEVELOPMENTAL STAGE ON CARE GIVEN

The importance and relevance of child care activities varys by developmental period. During the first five years of a child's life the conditions that comprise growth and development vary greatly (Engle and Patrice, 1992). The relative importance of the mothers time in care giving also varies with the child's age. Four stages of development relevant to nutrition of young children can roughly be defined as prenatal, infancy,

toddlerhood and pre-school periods. The responsibility of care giving differs for each period. The care environment also differs, with the first two being more related to the mother, and the second two involving the wider social context in which care occurs.

In most cultures, mothers devote considerable time to the infant, particularly in the first 6 - 9 months of the child's life (Werner, 1988). Therefore, during the first year of the child's life, the loss of the mothers time with her child without an adequate alternative can have far reaching implications on the child's development.

The risk of mortality is greatest in the first year of the child's life. The second and third years are the period of greatest risk for growth faltering, although this usually begins during the complementally feeding period.

2.4 MATERNAL TIME AVAILABILITY

Most women of reproductive age face the need at some point in their lives to combine economically productive work with nurturing their children. The burden of this dual responsibility however falls most inevitably and heavily on low income women in the developing countries (Leslie and Paolisso, 1989).

A mother's workload influences her capacity to care for the family. Women on average work more hours in the home and in economic production than the men in their families (Carr and Sadhu, 1987). The picture emerging from time allocation studies is one of "constantly competing demands on women's time, and an unyielding round of dreary and under enumerative (not counted) tasks" (Carr and Sadhu, 1987). This often means that if additional time is to be spent on child caregiving, time has to be subtracted from another activity.

The effects of women's income earning activities on the welfare of children has raised much concern since these may reduce time for child care. Different schools of thought have emerged over time because of the failure of finding a consistent relationship between women's work and child's nutrition status. Some studies have found positive associations between women's work and child nutrition status, others have found a negative association, and yet others have found no association at all. For example, Leslie's (1988, 1989) review of 25 studies from 16 developing countries found no conclusive evidence linking maternal employment with poorer nutrition status of children. The effects however seemed to be determined by the type of work, type of alternate caregiver, and the child's age. The inconsistent research findings on the relationship between women's work and child nutrition status reflect and underscore the complexity of the relationship through which women's work

affects the development of small children.

Although it is sometimes assumed that when a mother is not employed she's the primary caregiver, care has been shown to be shared by other family members in many societies. A common pattern is for the mother to provide a high proportion of the care to the child during the first year of life, and then to share more care of the child with a number of other family members especially the older girl child. In fact, multiple caregiving is probably the most common arrangement worldwide (Werner, 1988; Engle and Kinser, 1989; Cassidy, 1980; Weisner and Gallimore, 1977),

Women's income earning has major implications for the care of the child. The effects of maternal care for earnings are determined to some extent by the quality of the alternate caregiver. Some evidence suggests that alternate care by adults does not have negative effects on the child's growth and development (Engle, 1991). However, care by a pre-teen has been shown to be associated with poorer nutrition outcomes (Joekes, 1989).

2.5 EFFECTS OF CARE ON NUTRITION STATUS

Studies comparing well and poorly nourished children have found specific caring practices associated with better nutrition status in children. From a summary of studies, Zeitlin et al.

(1990, 1991) report that examples of these caring behaviours are frequent physical contact, a consistent responsive reaction to the child's needs, and showing affection to the child. Recent studies from several countries have reported significant association between a caregivers active role in child feeding and the child's nutrition status among one and two year old children.

In Nicaragua, Zeitlin et al (1990) found that families most likely to have malnourished children were those in which neither father nor mother were employed or child care was provided by a pre-teen. Engle, (1991) also found significantly lower nutrition status among two year old children cared for by a pre-teen sibling in peri-urban Guatemala than children cared for by mothers or adults in the home. Thus a family without adequate economic support or with an inadequate caregiver will be at greater risk of having a malnourished child.

Caregiving also affects the child's health status and consequently the nutrition status. This is mainly through protection of the child from pathogens, which depends on the caregiver's cleanliness and sanitation, use of health care services for routine checks (e.g growth monitoring) and nursing care for the child during episodes of illness. Pelto and Allen (1991) found significant association between ratings of household's cleanliness over a number of home visits and

child's nutrition status in rural Mexico.

2.6 EFFECT OF MATERNAL/CARETAKER'S EDUCATION ON CARE GIVEN

Since the primary providers of care in all societies are women (Werner 1988), the care of the child is inextricably linked with the situation of the women. A caregivers knowledge about care and her access to and control of resources, determine to a large extent the care she can provide for the child. Lack of resources in the form of knowledge, time and income, together with the insubordination of women in many societies constitute the major underlying causes of malnutrition (Patrice,1992).

Virtually all emphirical studies have found a consistent and strong relationship not only between increased maternal education and child nutrition, but also between maternal education and other measures of child welfare (Candwell 1979, Cochrane, Leslie and O'hara, 1982; Ware, 1984). Education for women has therefore increasingly been seen as an entry point for child welfare interventions. As a result, a consensus has emerged that investing in education for girls is one very important way to improve child survival and development (UNICEF, 1985; World Bank, 1988).

It has been suggested that more educated mothers make better use of health facilities, provide better child care, have

greater hygienic household practices and personal habits. They also have a higher status in the family, are more assertive and more prone to change their beliefs (Grosse and Auffrey, 1989; Levine, 1988; Caldwell et al, 1984).

Levine found that Mexican mothers with more education interacted verbally with their children more often than those with less education. According to Levine and co-workers (1981), the educated mothers take a more active role in the education and stimulation of their children than the less educated mothers

Belief patterns may also have a substantial effect on feeding behaviour. For example, Dettwyler (1989a), in Mali found that many parents did not believe that food for children was associated with their health. Parents tended to think that older family members should eat better food than children since they were able to appreciate food and had less time to live. Such attitudes obviously would tend to perpetuate malnutrition of young children.

2.7 EFFECT OF MATERNAL NUTRITIONAL STATUS AND HEALTH ON CARE GIVEN

Improved physical health and nutrition of the mother or caregiver is associated with improved caring capacity (Engel and Patricia, 1992). A woman with increased energy expenditure

associated with higher nutrient intake may be more involved in optional activities like enhancement care for children than a woman with lower dietary intake (Mortell and Arroyale, 1988). Munoz et.al (1974) also found that the mothers of malnourished children had consumed poorer diets.

Among the most widespread nutrition problems particulary for low income women living in tropical areas is anaemia due to iron deficiency (Leslie, 1991). Iron deficiency maybe associated with mothers caring behaviours. Scrimshaw (1988) categorised female plantation workers in Guatemale in terms of their success in raising adequately nourished children. The non-Successful mothers were more likely to have low iron stores.

Engle and Zeitlin (1992) examined patterns of mother-child interactions with 12-18 month old children in urban Nicaragua. Mothers with a history of anaemia interacted significantly less often with their children during the observation period than those without this history. Anaemia and current protein energy malnutrition for woman may reduce responsive enhancing interactions with children.

2.8 SUBSTITUTE CAREGIVERS

Sources of non-maternal child care can be divided roughly into four types. The first is the non-existent child care. This is a common situation where children are simply unattended while the mother is otherwise occupied. The second is what is provided by other members of the mothers own household, frequently other siblings. The third pattern involves reciprocal exchanges of child care among members of a residential group, without financial compensation. Fourthly, child care can be provided at a fee (Joekes and Susan, 1989).

The availability of caregivers within the household is a function of the size and composition of the household. Extended or joint domestic groups provide a wide range of caretaking opportunities (Myers and Indriso 1987). Majority of low income women in a comparative study of low income women in six developing countries met their child care needs within the household (OEF, 1979). Grandmothers, female relatives and other female substitutes were preferred substitutes for the mother. Adult male household members play a minimal role, though pre-adolescent male siblings may take on some child care (Weisner and Gallimore, 1977).

While it is assumed in the western countries that the father or mother is the primary caregiver, in many other communities, other family members often provide a considerable amount of

care during the first year of life (Engle, 1980, 1986). Even when the mother is present, she may primarily supervise older siblings or family member's care of younger children. In the urban area of the Dominician Republic, care of children by older siblings actually ranks as the most important type of non maternal child care, while in Sri lanka it ranks second. Also, in poor households in most countries, the older siblings especially girls devote time caring for the younger children, relieving the mother to carry out more "productive" work herself (Popkin, 1978; Myers and Indriso, 1987).

Few studies from developing countries have compared the effects of sibling and adult care on outcomes in children, regardless of the work status of the mother. However, Shah et al (1979) reported that the age of the caregiver was associated with the nutrition status of the children. In this study, the younger the caregiver, the more poorly the child performed. He found that 47% of the children from a rural area near Bombay were cared for primarily by older siblings mainly between 6 - 8 years. The study reports that the incidence of malnutrition was 55 5% when children were cared for by siblings 6 - 8 years old, compared to 21% under care of a grandmother, and 8.5% under care of a mother.

Literature suggests that in general, greater child care difficulties have existed in developing countries for women in towns and cities than in rural areas (Baud and Isa, 1987). This is mainly due to lower presence of extended family members, the greater need for women to take paid employment,and higher school enrolment rates in towns for children who would otherwise provide sibling care

2.9 AVAILABILITY AND CONTROL OF RESOURCES

Availability of resources (human, economic and organisational) is central to the growth, survival and development of children. However the low status of women in many cultures may mean that often, they do not have much control over the resources within the family, nor do they have much decision making power in the household. Control of resources may be greater if the woman earns the income although this is not always the case (Carr and Sandhu, 1987).

A few studies have shown that women who earn an income have more household decision making power than those who do not work (Acharya and Bennett, 1984). A number of studies have shown that income in the control of women is more likely to be allocated for the immediate benefit of children such as purchase of food, than income earned by men (Blumberg, 1988: Dwyer and Bruce, 1988: Engle, 1986).

It is however important to recognise that increasing women's control of income in itself is not sufficient to ensure good nutrition for the child. This is because without adequate resources, no amount of caregiving or resource control is sufficient by itself.

2.10 SUMMARY OF THE LITERATURE REVIEW

A review of the existing literature points to the fact that care giving is crucial to the growth survival and development of pre-school children. This is because small children are totally dependent upon a caregiver to meet their basic requirements for nutriture, protection and stimulation.

Among the factors that have been identified as determining the quality and quantitiy of care given to children are: Maternal knowledge and beliefs, Maternal workload, availability and control of resources, Maternal health and age of the substitute caregiver. Overall, the above factors can be viewed as intervening variables when looking at the effect of maternal and substitute care on nutrition status of the child as an outcome (Figure 1).

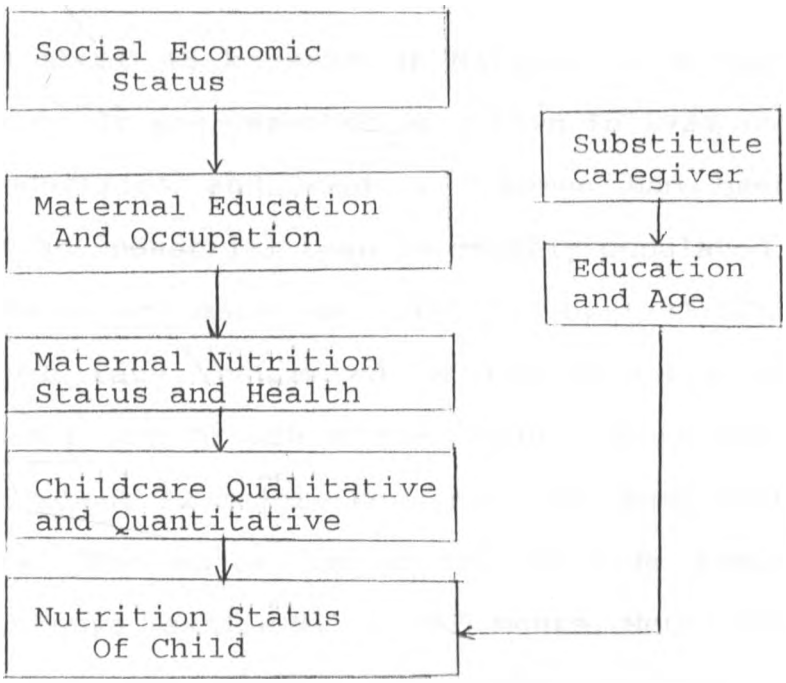
Various studies have tried to assess the care given to pre-school children, but most of these have utilised questionnaires, interviews and case histories to obtain the mother's knowledge and attitude. However, very few studies

have been done on measuring childcare in terms of actual caretaking actions performed by the mother or a substitute in the context in which care occurs.

The present study therefore determined the community's perception of what childcare entails, and counterchecked whether this had a bearing on the real situation as pertains to care of children 0 - 2 years old. To achieve the above, both interviews as well as direct observation with timing of the main childcare activities as they are performed by various caregivers were carried out within the sampled households on two separate days.

CONCEPTUAL FRAME WORK

Figure 1



CHAPTER 3

MATERIALS AND METHODS

3.1 STUDY SITE

3.1.1 KIAMBU DISTRICT

Kiambu district covers an area of 2451 square kilometres and is one of the five districts in the central province of Kenya. It borders Nairobi city to the South and is characterised by high agricultural productivity and high population density. The district is divided into 7 administrative divisions each, headed by a District officer. The population of Kiambu according to the 1979 population census was 686,292 with a projection to 1,202,233 by 1993 assuming a growth rate of 3.7% per annum (District Development Plan, 1989 - 1993).

3.1.2 THIKA DIVISION

Thika town, situated about 45 km east of Nairobi is a fast growing industrial town. It was gazetted as a town in 1924 and by 1948, several industries and housing schemes had been established. Thika as an industrial town is densely populated, with the population being estimated at 1,201,233 by 1993. The high population growth rate (estimated by the Ministry of Planning at 8%), is due to the growth of the industrial sector. At present, there are about 32 major industries and more than 100 minor industries. The major industries include Kenya vehicle manufactures, Kenya Textile Mills, Del Monte, Metal Box and United Textile Mills among others, while the smaller ones

include garages, godowns and furniture workshops.

Administratively, Thika is one of the 7 divisions of Kiambu district. The division is headed by a District Officer assisted by chiefs for each location and assistant-chiefs for the sub-locations. It is sub-divided into 4 locations namely Gatuanyaga, Juja, Ruiru and Thika locations. Thika location is further divided into 4 sub-locations or Wards. (Komu, Biashara, Kiriminu and Majengo). Makongeni estate where the study was conducted falls under Komu ward.

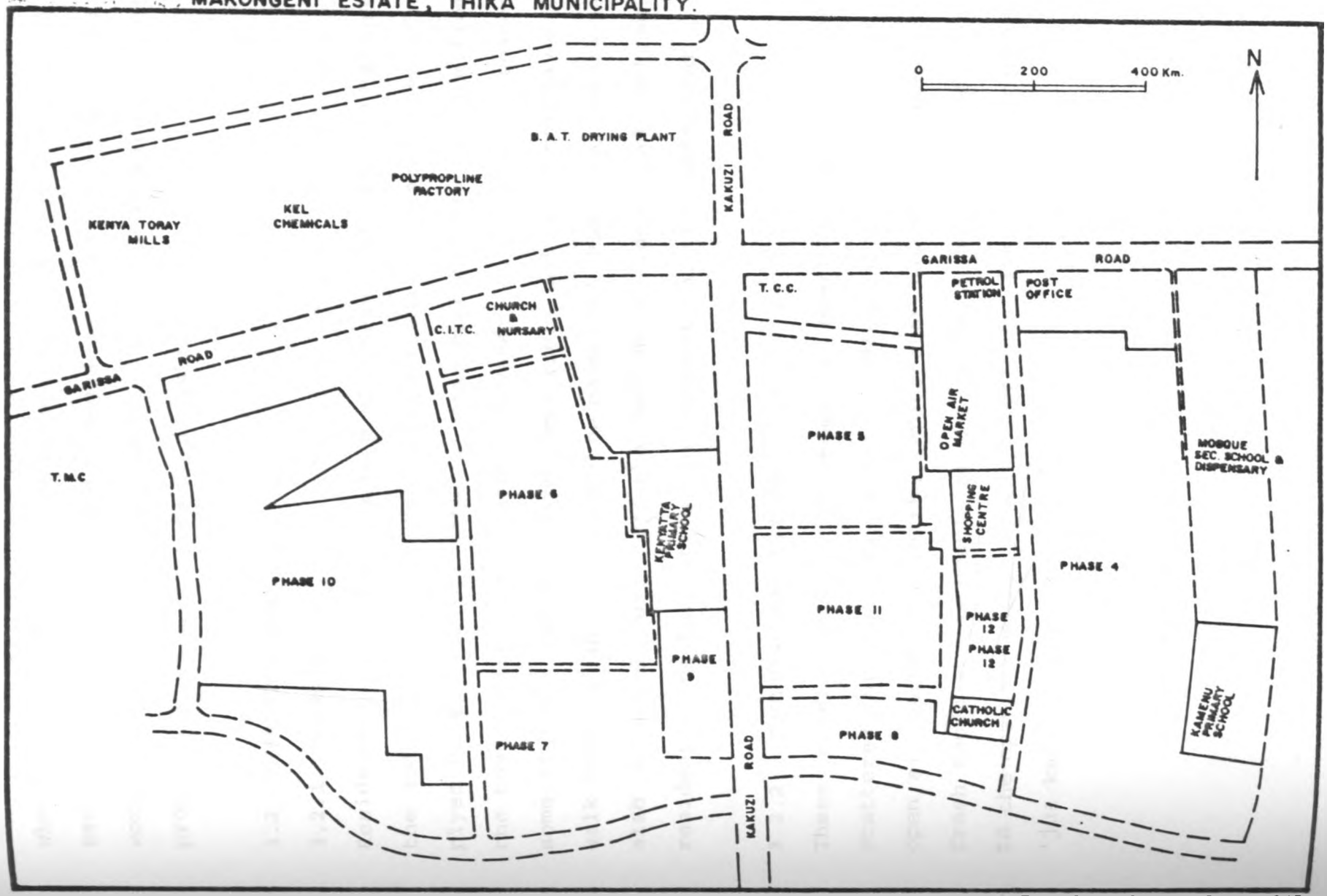
MAKONGENI ESTATE

3.1.3 LOCATION

Makongeni which falls under Komu ward is the largest housing estate in Thika. It is located to the east of Thika approximately 4km from the town centre. The estate houses people mainly from the middle and low income groups. It is divided into 12 phases with phases 9 - 12 being designated as the middle income sections by virtue of the type of housing and amount of rent payed (K.sh 1500 - 2000 per month). These are mainly 2 bedroom self-contained units (see map pp 23).

Phases 1 - 8 constitute the low income section of Makongeni. In this section, housing consists of single room units within blocks that are 'U' shaped. The sanitary facilities are communally shared and rent here ranges from K.sh 350-500/month.

MAKONGENI ESTATE, THIKA MUNICIPALITY.



Source : Thika Town Planning Section, 1993

Makongeni estate borders the main industrial area of Thika, where most of the residents especially from the low income section of the estate are engaged as seasonal or low cadre workers. The industries include textile, chemical, fruit processing and motor vehicle industries.

3.2 INFRASTRUCTURE

3.2.1 TRANSPORT

Residents have good access to public transport. This is because the estate is cris-crossed by in-roads that are constantly plyed by a fleet of 'matatus' that specifically operate from the town centre to the estate. However, during the wet season some of the in-roads become impassable and residents have to walk some distance to get to the main road. Makongeni estate is also situated just off the Nairobi-Garissa road and so, residents also have access to transport on this main road.

3.2.2 SHOPPING FACILITIES

These consist mainly of numerous small kiosks that are scattered throughout the estate. Additionally, there is a big open air market within the estate that has a good supply of fresh foods at reasonable prices. An enclosed market adjacent to the open air market stocks foodstuffs, items of clothing and 'jua kali' products.

3.2.3 ELECTRICITY AND TELEPHONES

Although electricity is within easy reach, only a few landlords have installed electricity in their plots. Tenants enjoying this priveledge consequently have to pay higher rents than those who do not.

Telephone facilities are rather poor given the size of the estate. The whole estate is served by a meagre 2 telephone booths, located at the extremities of the estate. (phase 10 and at the post office).

3.2.4 SCHOOLS AND CHURCHES

In terms of the above, the estate is well served. There are two privately owned nursery schools and two primary schools (Kamenu and Kenyatta) that are centrally located. A muslim secondary school is also currently under construction adjacent to the mosque. Most of the children in the study area attend these due to their close proximity.

The estate also has a number of churches catering for the different religious affiliations. These are attended by people from within and without the estate. Altogether, there are 3 churches for protestants, a catholic church and a mosque that is under construction.

3.2.5 HEALTH FACILITIES

There are two private clinics one situated in phase 9 and the other in phase 11. The catholic mission is also putting up a health centre in phase 10. The nearest goverment health center is about 4km from the estate (Munyu health center). Residents also have access to the district hospital and a number of private clinics within the municipality.

3.2.6 WATER SUPPLY

The estate is well served with clean piped water which is supplied by the municipal council from Thika river. Plot owners apply for metered pipes for which they pay per volume of water consumed. There are between 2 - 4 taps in every plot. In most cases the tenants in a given plot pay for the water consumed on a monthly basis. In instances where the landlord pays for the water, a higher rent is demanded.

3.2.7 SEWERAGE

Toilet facilities within the estate are reasonably good. On average, 4 households share a flush toilet. The tenants share the duty of keeping these clean, although in most cases, the women, especially those with small children are left to do the cleaning. The sewerage works to cater for sewage refuse from the whole estate are located at the eastern most part of the estate behind phase 4.

3.2.8 REFUSE DISPOSAL

The municipal council offers refuse disposal services in Makongeni. Household waste is usually dumped outside the plot and then collected or burned by the council workers roughly once in 3-4 weeks. The mess that characterises many sections of the low income part of the estate is attributed to this. However, some residents also take the initiative of burning the refuse given the long spans between collection of the refuse by the council workers.

3.2.9 HOUSING

Makongeni is designated as a site and service scheme. The site on which the houses are built is privately owned but developed according to council specifications for each phase. Acquisition of plots is by application to the Commissioner of Lands through the Council when occasionally the Commission 'floats' plots to the public. Individuals who acquire plots are required to build according to council plans. Plots allocated are similar in size supporting 8 - 10 rooms in the Low Income Section (L.I.S), while those in the Middle Income Section (M.I.S) can support two self contained units. In the L.I.S, the 'U' shaped plan is the norm. Most of the units are single rooms while only a few are double with interconnecting doors. Rent ranges from K.sh 350 - 500 depending on availability of electricity and water, and also the duration that one has stayed in a room. In the M.I.S, most of the houses are self-contained with 2 bedrooms.

Rent here ranges 1500 - 2000 K.sh per month.

3.3 RESEARCH DESIGN AND METHODOLOGY

3.3.1 STUDY DESIGN

This was a cross-sectional descriptive survey conducted in Makongeni Thika, Spanning a duration of 10 weeks from November 1992 to January 1993. The investigator used a structured questionnaire to obtain relevant information, and anthropometric measurements to determine the nutritional status children aged 0-2 years. Two day (10 hour) observations to assess time allocation for the main child care activities were carried out.

3.3.2 SAMPLE SIZE CALCULATION

The minimum sample size for the study was computed using the estimated rate of malnutrition among the under 2 year old children in Thika division. This was assumed to be 50% since the prevalence of malnutrition in the area is not known. Since the study population (children < 2 year old) was less than 10,000 (i.e 210), then the formula below was used and a sample size of 135 children calculated. However, sampling was extended beyond the calculated minimum to ensure an adequate sample to cater for attrition or refusals. A sample of 155 children who were eligible and with consenting parents was thus enrolled.

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

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

Where

n = Sample size if population < 10,000

z = Level of certainty

p = % of children < 2 years who are malnourished in the division. (Estimated at 50% since level is not known)

q = % of children < 2 years not malnourished in the division.

d = Accepted range of error

nf = Required sample size since population is <10,000

N = Size of the study population. (210)

Using the above 2 formulas, the sample size was calculated:

$$n = 1.96\ (0.5 \times 0.5/0.05)$$

$$= 384$$

$$nf = 384/1+(384/210) = 135$$

Therefore, 135 was the minimum sample size that could be used for the study. For the second phase of the study, a sub-sample of 50 households was selected using equal proportions sampling method. This was to facillitate propotionate representation of the two main age groups (0-1 and 1-2 years) when drawing the sub-sample. The following formular was used:

$$n1 = (N1/N1+N2)xN$$

$$n2 = (N2/N1+N2)xN$$

and

$$N = n1 + n2$$

Where

N = Required sample size

n1 = Required sample size for first stratum

n2 = Required sample size for second stratum

N1 = The population size of first stratum

(0 - 1 year i.e 98 from which a sample of 32 was randomly drawn

N2 = The population size of second stratum

(1 - 2 years i.e 52 from which a sample of 18 was randomly drawn.

Sub sample calculated was

$n1 = (98/150) \times 50 = 32$

$n2 = (52/150) \times 50 = 18$

Therefore, $n = 32 + 18 = 50$

3.3.3 SAMPLING PROCEDURE

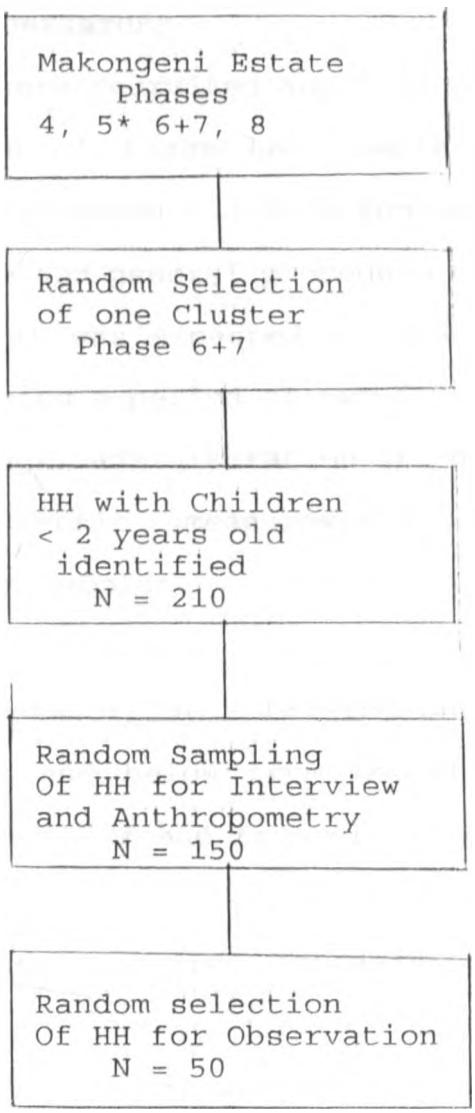
The study covered households in the low income section of the estate (phases 4 - 8). Only households with children < 2 years old and whose parents were living in the estate were included in the study. (Age was verified using immunization cards).

The sampling method used was multistage cluster sampling and the sampling frame was all the low income sections of Makongeni estate i.e (Phases 4, 5, 6, 7 and 8). Pre-testing of the

questionnaires was carried out in phase 5, leaving 3 clusters for the main study (Figure 1). Phase 6 and 7 were combined to form one cluster because the two are about equal in size to phase 4 (See Appendix 4).

Figure 2

SAMPLING PROCEDURE



* Cluster where Pilot study was conducted.

3.4 DATA COLLECTION PROCEDURE

3.4.1 PRE-PREPARATION

The investigator made a preliminary trip to the study area to familiarise herself with the general set up. During this time, relevant authorities were visited and informed of the intended research project. A research permit was also obtained.

3.4.2 TRAINING OF ENUMERATORS

Two field assistants were recruited and trained to assist with data collection. Both of these had completed 13 years of education and had a good command of both English and Kiswahili. Initially, the purpose and general procedure of the survey, as well as the duration it was expected to take were explained. Actual training, spanning a period of two days revolved around the sampling methodology, administration of the questionnaire, taking of anthropometric measurements and conducting observations within households.

On sampling, the enumerators were briefed on how to identify all children 2 years and below from households, both from information given by mothers and from clinic cards.

Pertaining to the questionnaire, emphasis was laid on the necessity of:

(i) Demonstrating courtesy when visiting households by introducing themselves and the purpose of

visiting.

(ii) Filling in the responses clearly and as per their order in the questionnaire.

(iii) Avoiding leading questions.

(iv) Calculating and entering the child's age correctly.

Although the questionnaire was written in English, it was to be administered in kiswahili. Time was therefore spent in translating the questionniare into Kiswahili and back into English to make sure the meaning was the same.

Training in anthropometric measurement involved demonstrating:

(i) How to use the infantometer. Correct positioning of the child was emphasised.

(ii) How to weigh a child correctly. Adjusting the scales to zero and taking two measurements were stressed.

(iii) Correct entry of the measurements.

3.4.3 PILOT STUDY

Following the training, 15 household's were visited to pre-test the tools of data collection. During the pilot study, the draft questionnaire was administered to 15 respondents to:

(i) Pretest clarity of the questions and comprehension by both the enumerators and the respondents.

(ii) Facilitate pre-coding of some questions.

(iii) Establish the main child care activities carried out.

(iv) Help in estimating the time that would be taken in administering a questionnaire in each household.

Two day observations were also carried out in 8 households to:

(i) Pretest acceptability of the method of data collection to the community.

(ii) Pre-test ability of the field assistants to correctly time and enter the information on the observation schedules.

(iii) Identify the main child care activities carried out.

At the end of the pilot study, appropriate modifications were made and then incorporated into the final questionnaire.

3.5 DATA COLLECTION

3.5.1 STUDY TOOLS

The following tools were used for data collection:

(i) Structured questionnaire

(ii) Anthropometry:

- a salter scale calibrated from 0-25kg with 100g divisions.
- A length board or infantometre
- Basin weighing scale with attachment for

hooking onto the salter scale.

- Plastic pants with harness for supporting child when weighing.

(iii) Child Health Cards:

- For verifying the child's age
- To establish whether a child had received complete immunization for their age.
- To assess frequency of attending clinic for growth monitoring.

(iv) Observation:

- Pre-tested observation schedule
- 2 stop clocks to facilitate concurrent timing of childcare activities.

The following information was obtained using the different tools of data correction.

i) Socio-demographic characteristics of the study population.

ii) Breastfeeding patterns and health status of children 0-2 years.

iii) Maternal and child care activities.

iv) Characteristics of the different care gives.

v) Anthropometric measurements of height and weight.

vi) Time used for the various child care activities.

3.5.2 ADMINISTRATION OF THE QUESTIONNAIRE:

Following the selection and enrolment of children, the questionnaire (See Appendix 1), was administered to the mother in each household. Where the mother was not present during a visit, several other visits were made in the mornings, evenings and even weekends to ensure that every opportunity had been utilised to get responses from the sampled households.

3.5.3 PROCEDURE FOR TAKING ANTHROPOMETRIC MEASUREMENTS

Anthropometric measurements of height, weight and age were collected to allow for computation of the nutrition status indices namely weight-for-age, weight-for-height and height-for-age. The procedures followed for taking anthropometric measurements are as described below (United Nations, 1986).

The length of the infants was taken using a length board (infantometer) on which they were laid with the board flat on a surface. The children lay with the crown of the head against the fixed head board facing directly up so that the child's line of sight was perpendicular to the measuring board. The feet were pressed firmly against and perpendicular to the sliding footpiece. Readings were taken to the nearest 0.5 cm.

Weight for all the children was taken using a salter scale calibrated from 0-25 kgs with an accuracy of 0.1 kg. Children were weighed by being placed in a pair of plastic pants which

were then suspended by a hook on the weighing scale. Readings were taken to the nearest 0.1kg.

3.5.4 OBSERVATION PROCEDURE

Two day (10 hour) observations were carried out on a sub-sample of the study population (50 household), to establish time allocation for the various child care activities. The observations, which lasted 10 hours, were continously done between at 8.am and 6.pm. To avoid changes in activities due to prior expectations of the researcher, the actual day of the visit was not disclosed, but the consent was obtained in advance.

A checklist of child care activities that had already been pre-tested in the community during the pilot phase was used. (See Appendix 2). This provided the activities that are labled as child care in the community. Two stop clocks were utilised by each enumerator to facilitate concurrent timing of activities as they occurred. A brief description of each activity was also given. The caregiver's idle time was also timed and recorded. All activities performed by the caregiver, (including those not related to child care were also recorded but not timed). Attempt was also made to revisit a household where for any reason the observation could not be done e.g where a child was unwell.

3.5.5 VALIDATION OF DATA:

Close supervision of the enumerators allowed the investigator to check on the accuracy of the anthropometric measurements. All the weights were taken twice, and three times if the first two differed by 0.2 kg or more. Each instrument was counter checked before leaving a household. During the observation phase, the investigator acted as supervisor, overseeing the timing sessions and cross-checking the observation schedule.

3.5.6 DATA ENTRY AND ANALYSIS

Checking of the completed questionnaires was carried out simultaneously with the rest of data collection. Coding of the data was done and the data progressively entered into data entry sheets specially prepared to facilitate easy feeding of the information into the computer. The data on nutrition status, social demographic characteristics and care time was entered in the Dbase III programme under three different file names. Data cleaning was done by running the frequencies of all the variables to ensure that all the information had been correctly entered.

Anthropometric data was processed in the Anthro programme to obtain the indices that were used as indicators of the nutrition status of the study children. The cut-off point for weight-for-height, Weight-for-age and height-for-age was -2.s.d according to the NCHS reference figures. The three files were

then transferred and merged in SPSS (Statistical Package For Social Scientists). Frequencies of variables and Cross tabulations between important variables were undertaken in SPSS. Associations and significance tests were done using chi square. Categorization of important variables was done using the variable mean as the cut-off-point.

3.6 PROBLEMS ENCOUNTERED

Some of the problems that were encountered in the process of conducting this survey, and especially during the observation phase are as enumerated below:

(i) Several visits had to be made to get some of the mothers as the questionnaire had to be specifically administered to her in each household.

(ii) Observation sessions were re-scheduled to start at 8.am rather than 7.am as planned. Visits before 8.am proved intrusive since majority of the families live in single room units.

(iii) Following children around during the observation session proved tedious. This was especially so with children > 1 year because of their mobility.

(iv) Related to the above were incidences of the enumerators having to be turned away when a household had plans of being away which we could not predict. This made it difficult to stick to a systematic plan of observing the hh.

CHAPTER 4

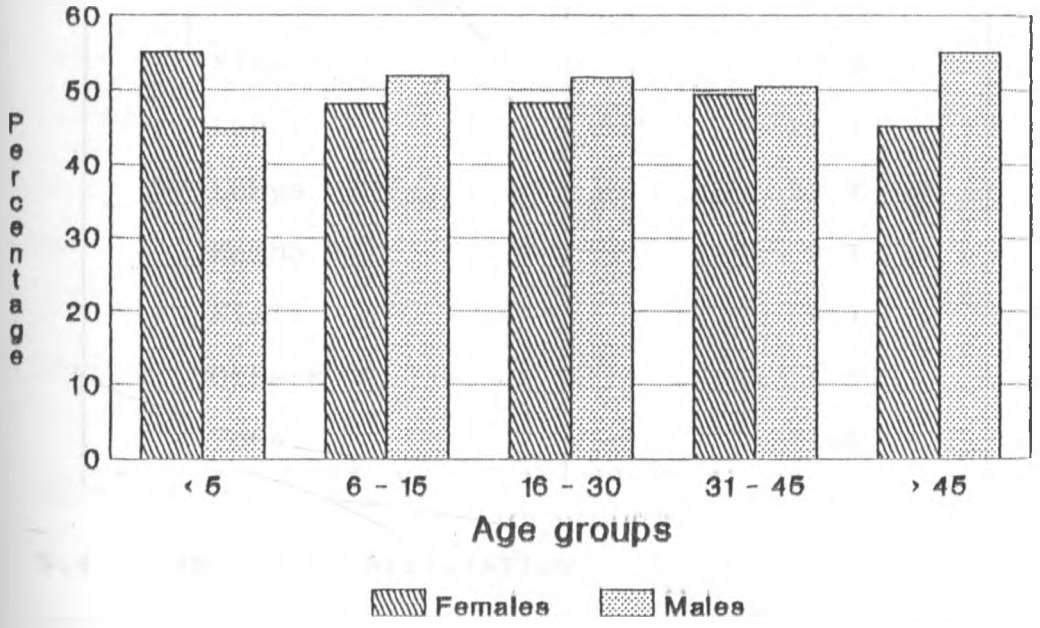
RESULTS

DEMOGRAPHIC CHARACTERISTICS

4.1 POPULATION SIZE AND STRUCTURE

A total of 150 households with a population of 697 persons were surveyed. The overall sex distribution was equal with a male to female ratio of almost 1:1. The population studied was generally young, with 83.7% being 30 years or younger while 54.9% were fifteen years and below (Fig. 3). See also Appendix 3.

FIG. 3: POPULATION DISTRIBUTION BY AGE AND SEX



4.2 DISTRIBUTION OF INDEX CHILDREN BY AGE AND SEX (N=150)

The 150 index children were in the age range 0 - 24 months with a mean age of 9.7 months and a S.D of 6.7. The male to female ratio was 1:1. Of these, 36.7 % were aged less than 6 months, 32.0 % were in the age range 6 - 11.99 months, while 31.3 % were aged 12 - 24 months.

5.3 DISTRIBUTION OF STUDY POPULATION BY ETHNICITY

The Kikuyu, Luo and Luhya comprise the main ethnic groups in Makongeni while other groups that are notably represented include the Kamba and Kisii (Table 1).

TABLE 1: DISTRIBUTION OF STUDY POPULATION BY ETHNICITY (N=150)

Ethnic Groups	%
Kikuyu	34.0
Luo	24.7
Luhya	22.7
Kamba	9.3
Kisii	5.3
Others	4.0
Total	100

5.4 RELIGIOUS AFFILIATION

The majority of people in Makongeni are christians, with muslims comprising just 2%. Among the christians, 37.3%

belonged to the catholic denomination while 61.3% were protestants.

5.5 HOUSEHOLD SIZE AND COMPOSITION

The number of household members ranged from 2 - 9 with a mean household size of 5 members and a S.D of 1.0. Of these, non-nuclear family members comprised 9.1%.

5.6 OCCUPATION OF HEADS OF HOUSEHOLDS AND MOTHERS

Of the 150 households that were surveyed, 92% were headed by males and 8% by females. Majority of the heads of household were employed (97.8%), as compared to the mothers (45.0%). (Table 2). The high number of employed mothers can be explained by the fact that Thika is an industrial town, with most of the industries located within walking distance from the study area. Most of the heads of households (75.2%) were employed in the lower candres as machine operators, storemen, spinners and material printers. The main industries employing them were Kenya Textile Mills (K.T.M), Thika Cloth Mills (T.C.M), Kenya Vehicle Manufacturers (K.V.M), Metal Box (M.B) and United Textile Industries (U.T.I).

Heads of households who were self-employed mainly carried out businesses such as running 'kiosks', sale of foodstuffs, carpenters and selling 'mitumba'. The professionals included accountants, teachers, librarians, drivers, laboratory

technicians and mechanics.

Mothers in the study population who were employed comprised 45%. The majority of those who were employed were engaged as seasonal workers, mainly at Del Monte and B.A.T. where they operated in shifts. Those who were not employed (55%) were mainly housewives.

TABLE 2: DISTRIBUTION OF HEADS OF HOUSEHOLDS AND MOTHERS BY OCCUPATION

OCCUPATION	% of Male HH/Heads N =138	% Of Mothers N = 150
Low candre work	72.5	23.3
Proffesionals	14.5	4.7
Self Employed	10.9	17.0
Unemployed	2.2	60.7
Total	100	100

5.7 AGES OF MOTHERS AND HOUSEHOLD HEADS

The mean age of the mothers in the study was 25 years with a range of 18 to 38 years. The majority of the mothers (80%) as well as heads of households (69.3%) were between 20 - 29 years old, while only a small proportion (6.7%) were above 40 years. Most of the mothers in this study were married (92%) while only a small proportion (8%) were either divorced or widowed.

5.8 HEAD OF HOUSEHOLDS AND MOTHER'S EDUCATION LEVEL

Most of the household heads (71.7%) had secondary school education (form 1 - 4), and 1.3% had attained only lower primary school education. The mean number of schooling years for the heads of households was 10 years, with a S.D of 1.9 and a range of 3 - 17 years (Table 3). Of the mothers who were interviewed, 50% had attained secondary school education i.e Form 1 - 4, while 43.3% had primary 5 - 7 level of education. The mean number of schooling years for the mothers was 9 years with a SD of 2.2 and a range of 3 - 16 years.

TABLE 3: DISTRIBUTION OF HEADS OF HOUSEHOLDS AND MOTHERS BY EDUCATION LEVEL

Education Level	% Male HH/heads N = 138	% of Mothers N = 150
Primary 1 - 4	1.3	2.7
Primary 5 - 7	16.1	43.3
Form 1 - 4	71.1	50.0
Form 5 - 6	8.7	2.0
College & Univ.	2.2	2.0
Total	100	100

5.9 DURATION OF BREASTFEEDING

Majority of the mother's interviewed (81%) were still breastfeeding the index child. Out of the number of mothers who had stopped to breastfeed, 51.7% did so when the child was 12-

18 Months, 3.6% when child was <12 Months, and 39.3% when child was 18-24 Months.

5.10 WEANING AND WEANING DIET

Most (58.3%) of the mother's interviewed indicated that they had weaned the index child at the age between 2 - 4 months. 24.2% weaned the children when they were 0 - 1 month old, 14.4% when they were 5 - 6 months old, and 3.0% when the children were more than 6 months old. The main weaning foods used ranked in order of usage were mashed fruits (mainly pawpaws and bananas) maize meal uji and mashed vegetables (potatoes, spinach, bananas).

5.11 GROWTH MONITORING (GM) AND IMMUNIZATION

The children in this area had a high immunization coverage with (90%) of the index children having received complete immunization for their age. The immunization schedule for the study area is unique, comprising of 12 vaccinations while the ordinary one has 9. The 3 additional antigens are for hepatitis which is on trial in Kiambu district.

Children (54.7%) whose Growth Monitoring (GM) cards indicated regular attendance were all below one year old. Those who were found to have sometimes attended the clinic comprised 37.3 %, while 8% of the index children had not attended since they were less than 1 month old and therefore not eligible. .

5.12 NUTRITION STATUS OF THE STUDY CHILDREN (N = 150)

The nutrition status of the study children was assessed using the indicators weight-for-age, weight-for height and height-for-age with -2 S.D as the cut off point according to the NCHS reference standard. The study children falling below -2 S.D of the above indicators were considered as malnourished and above -2 S.D as well nourished.

The results in Table 4 show the number and percentages of malnourished children who fit the definition of malnutrition of (WHO, 1983).

TABLE 4: DISTRIBUTION OF STUDY CHILDREN BY NUTRITION STATUS (N = 150)

Index	N	%
Stunted	21	14
Wasted	1	0.7
Underweight	11	7.3
Normal	117	78

* Using Z-scores: Below -2 s.d height-for-age, weight-for-height and weight-for-age is considered stunted, wasted and underweight respectively

The results show that stunting was more prevalent among the 13 - 24 months old children compared to the 0 - 12 month old children. The same pattern was observed for weight-for- age.

4.13 DESCRIPTIVE RESULTS

4.13.1 MATERNAL ACTIVITIES

Maternal activities reported by mothers are presented in Table 5. Food preparation, washing dishes and cleaning the house were the most commonly reported activities while breastfeeding was the least reported of the activities.

TABLE 5: DISTRIBUTION OF HOUSEHOLDS BY REPORTED MATERNAL ACTIVITIES AND CHILDREN'S AGE (N =150)

Maternal Activities	All Ages		0 - 12m	13 - 24m
	N	%	%	%
Food Preparation	148	98.7	68.9	31.1
Cleaning House	138	91.3	69.5	30.5
Feeding Child	108	72.0	69.4	30.6
Washing clothes	119	79.3	68.2	31.8
Washing dishes	125	83.3	70.4	29.6
Bathing child	119	79.3	70.5	29.5
Breastfeeding	21	14	85.7	14.3
Mother resting	48	32	75.0	25.0

4.13.2 CHILD CARE ACTIVITIES AS PERCEIVED BY THE MOTHERS

The respondents were asked to state the maternal activities that they considered as child care. Table 6 presents the activities that the mothers considered as child care activities ranked in order of importance.

Food preparation, washing child's clothes, bathing and feeding the child were reported as the most important child care activities. Only a small number of mothers (16%) reported breastfeeding as a child care task. When probed, the mothers also mentioned mending of clothes and taking a child to the clinic or hospital as aspects of child care. These later activities were however not performed on a daily basis.

TABLE 6: DISTRIBUTION OF HOUSEHOLDS BY REPORTED CHILD CARE ACTIVITIES BY AGE OF CHILD (N = 150)

Child care Activities	All Ages		0 - 12m	13 - 24m
	N	%	%	%
Food Preparation	146	96.7	67.8	32.2
Bathing child	119	79.3	66.4	33.6
Feeding child	106	70.7	67.9	32.1
Washing clothes	92	138	68.1	31.9
Take to hospital	74	49.3	71.6	28.4
Mending clothes	47	31.1	61.7	38.3
Breastfeeding	24	16.0	87.5	12.5

4.13.3 CHILD CARE ACTIVITIES OBSERVED

Two day observations were carried out on a sub-sample of 50 HH, to obtain the actual time taken to perform the main child care activities. (All the activities included were supervised by a caregiver). At the same time, maternal activities were observed to compare with what had been reported. A checklist with 13 items of child care which had already been pretested in the

in the community was used (See Appendix 2). Actual timing was done as each activity was carried out from beginning to end, and an average of the time for the two days was then computed. The observation lasted 10 hours per day, from 8.am to 6.pm. A distribution of the activities that were observed is given in Table 7 below. Food preparation, feeding the child, bathing and washing the child's clothes emerged as the most frequently performed child care activities. Teaching/ training the child ranked as the least performed task among the households observed.

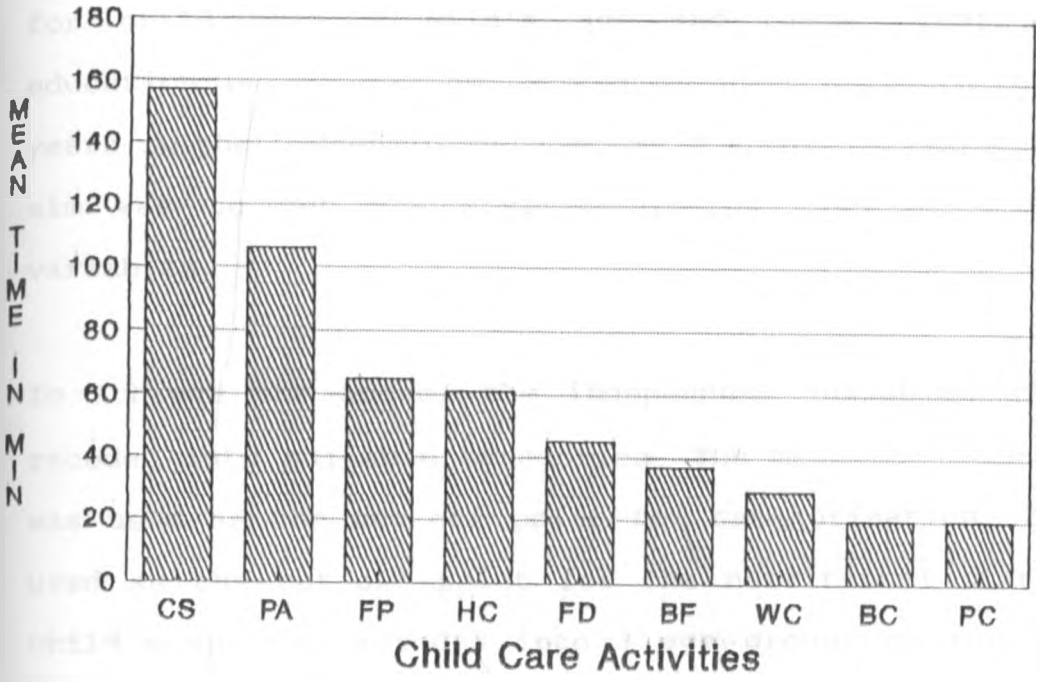
TABLE 7: DISTRIBUTION OF HOUSEHOLDS BY CHILD CARE ACTIVITIES OBSERVED (N = 50)

ACTIVITY	FREQ (HH)	%
Food preparation	50	100
Feeding child	50	100
Child resting	50	100
Bathing child	49	98
Washing clothes	48	96
Changing child	48	98
Holding child	46	92
Playing alone	42	84
Breastfeeding	41	82
Playing w. child	39	78
comforting child	29	58
Discourage e. dirt	28	56
Teaching child	15	30

The time in minutes that was recorded for the different activities is as tabulated in Figure 4. The activities have been ranked in order of the time taken, from the longest to the shortest. Resting/sleeping which consumed the most time recorded a mean time of 157 minutes. Play recorded a mean time

of 107 minutes. Among the activities performed for the child, food preparation, holding/carrying the child, feeding, breastfeeding and washing the child's clothes emerged as the most time consuming child care activities. Caressing/fondling the child, teaching/training and discouraging the child from eating dirt took the least time. (See also Appendix 3).

FIG. 4: DISTRIBUTION OF CHILDCARE ACTIVITIES OBSERVED BY TIME TAKEN



Key:

cs	= Child sleeping	Bf	= Breastfeeding
Pa	= Playing alone	wc	= Washing clothes
FP	= Food preparation	Bc	= Bathing child
Hc	= Holding Child	Pc	= Playing with child
Fd	= Feeding child		

4.14 CHILD CARE TIME AND SELECTED INDEPENDENT VARIABLES

The mean time for what emerged as the most time consuming activities was further analysed against the variables that were considered as likely to influence the amount of time allocated for child care. (Child's age and birth order, mother's education and occupation, number of other children less than 5 years in the household and the child's nutritional status. The aim was to get the distribution of time by the various variables.

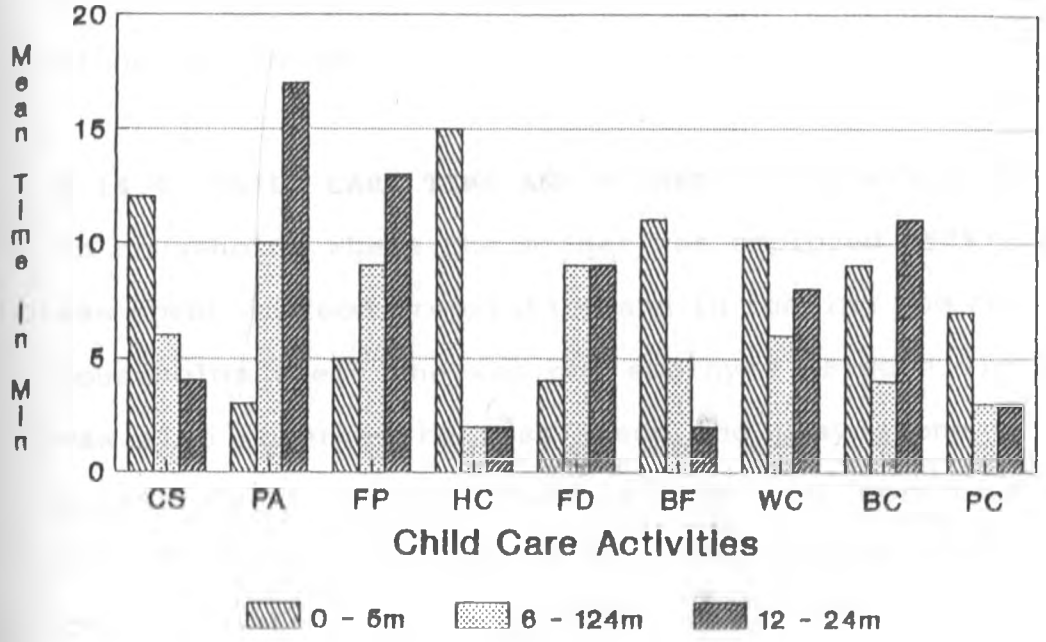
To achieve the above, the independent variables were first recoded into suitable categories. The mean for each variable was used as the cut-off point for categorisation. 2 s.d was used as the cut-off point for the nutritional status. The child's age was recoded into 3 age groups as recommeded by Waterloo (1977), i.e, when n <100.

4.14.2 CHILD CARE TIME AND CHILD'S AGE (N = 50)

The results indicate that in households with index children who were less than 5 months, a large proportion of the time was allocated to resting/sleeping, holding, playing, breastfeeding and changing the child when wet (Figure 5). The above activities were negatively correlated with the child's age and were significant ($P < 0.05$).

Households with children 6 - 12 months were noted to spend more time in food preparation and in feeding the child than those with children who were less than 5 months. Children in this age group also spent more time playing alone than children in any of the other age groups. In households with children 11 - 24 months, most of the time went into food preparation and washing the child.

FIG. 5: DISTRIBUTION OF CHILDCARE ACTIVITIES BY TIME AND CHILD'S AGE



Key:

Cs	= Child resting	Bf	= Breastfeeding
Pa	= Playing alone	Wc	= Washing clothes
Fp	= Food preparation	Bc	= Bathing child
Hc	= Holding child	Pc	= Playing with child
Fc	= Feeding child		

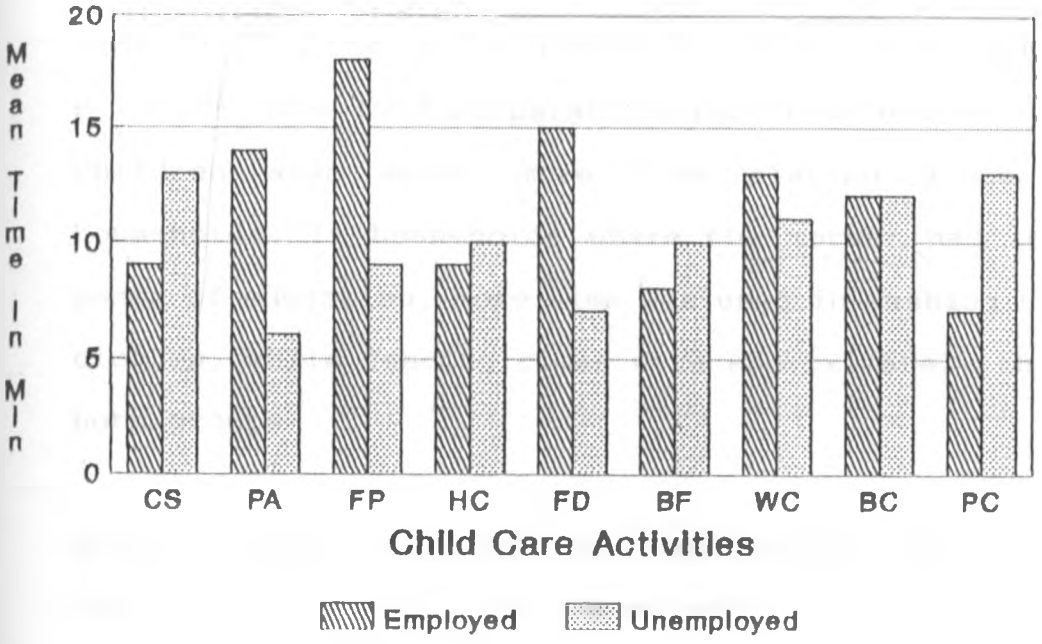
4.14.3 CHILD CARE TIME AND CHILD'S BIRTH ORDER (N=50)

The results showed that in households where the child was a first born (26 %), more time was spent in playing with the child, breastfeeding, feeding the child and in food preparation than in households where the index child was of a higher birth order.

4.14.4 CHILD CARE TIME AND MOTHER'S OCCUPATION (N = 50)

In households where the mother was employed (52%), more time was spent in food preparation and in feeding the child than in households where she was not employed (Figure 6). The child was also observed to rest/sleep and play alone more in the former. Where the mother was not employed, more time was spent in holding/carrying the child, playing with and bathing the child. Breastfeeding and washing the child's clothes consumed the same amount of time for both groups. These findigs were however not statistically significant.

FIG.6: DISTRIBUTION OF CARE ACTIVITIES BY TIME AND MOTHERS OCCUPATION



Key:

Cs	= Child resting	Bf	= Breastfeeding
Pa	= Playing alone	Wc	= Washing clothes
Fp	= Food Preparation	Bc	= Bathing child
Hc	= Holding child	Pc	= Playing with child
Fd	= Feeding child		

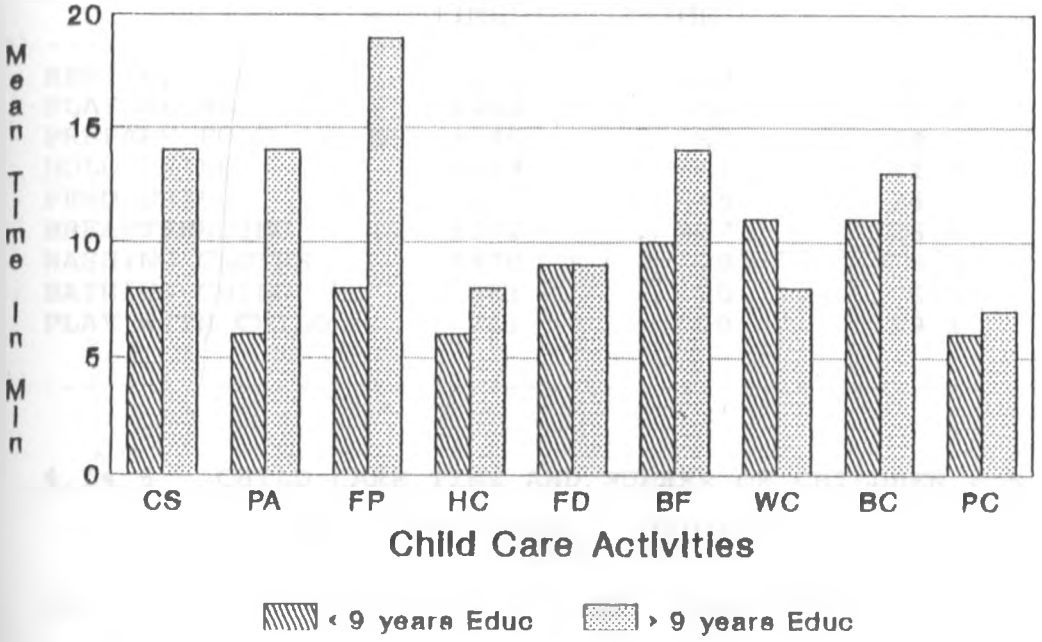
4.14.4 CHILD CARE TIME AND MOTHER'S EDUCATION LEVEL (N = 50)

The results showed that in households where the mother had completed more than 9 years of education, more time was spent in food preparation, holding, bathing, breastfeeding and playing with the child (Figure 7). This was significant at $p < 0.05$ (for food preparation and breasfeeding the child). Children also spent more time playing alone in these households. In households where the mother had less than 9 years of education, more time was used in washing the child's clothes, while feeding times were approximately the same for both groups

4.14.5 CHILD CARE TIME AND NUTRITION STATUS

Comparatively, less time was spent in food preparation, breastfeeding, holding and playing with the index children who were stunted (14%) than those who were not. The results also showed that children who were well nourished spent more time resting and playing alone. Time used for feeding was approximately equal for both groups. However, a cross tabulation of the child's nutrition status as indicated by level of stunting by individual childcare activities indicated that there was no significant association between time spent in specific care acitvities, and the child's nutritional status (Table 8 pp 57).

FIG.7: DISTRIBUTION OF CARE ACTIVITIES BY TIME AND MOTHER'S EDUCATION



Key:

CS	= Child sleeping	Bf	= Breastfeeding
Pa	= Playing alone	Wc	= Washing clothes
Fp	= Food preparation	Bc	= Bathing child
Hc	= Holding child	Pc	= Playing with child
Fd	= Feeding child		

Table 8: DISTRIBUTION OF CHILD CARE ACTIVITIES PERFORMED BY DURATION AND NUTRITION STATUS

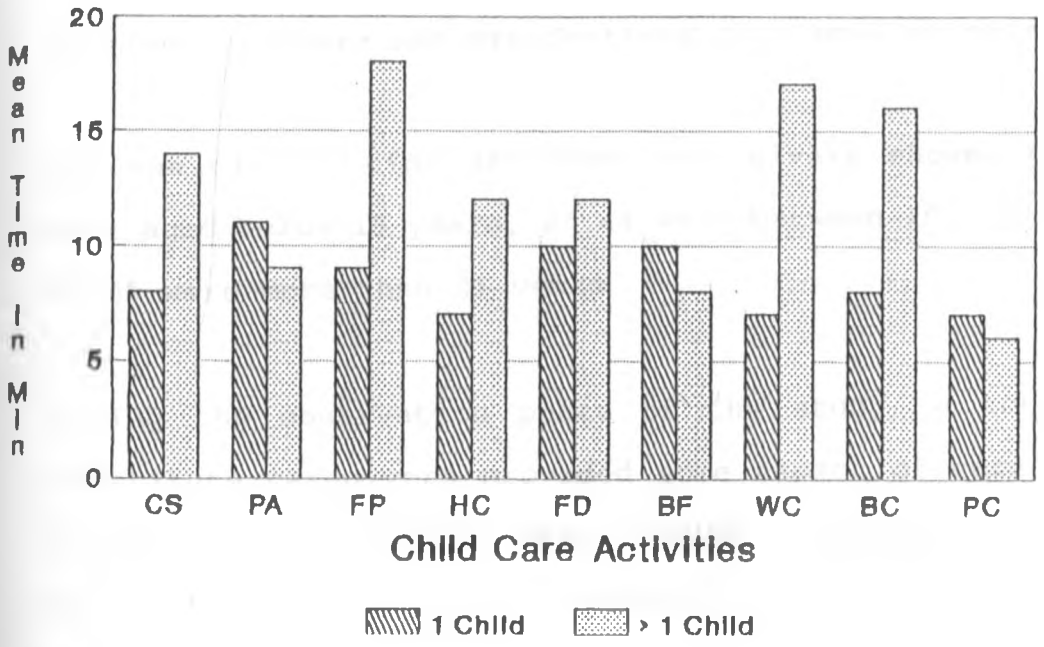
N = 50

ACTIVITY	TOTAL TIME	MEAN TIME	SD	P - Value
RESTING	7672	153	66.3	.5577
PLAY ALONE	4464	106	51.7	.4202
PREPARE FOOD	3245	65	34.5	.9843
HOLD CHILD	2817	61	41.9	.7641
FEED CHILD	2227	45	24.0	.9471
BREASTFEEDING	1502	37	26.6	.0574
WASHING CLOTHS	1370	29	8.3	.1678
BATHING CHILD	981	20	6.9	.6407
PLAY WITH CHILD	761	20	19.1	.9912

4.14.6 CHILD CARE TIME AND NUMBER OF CHILDREN < 5 YEARS IN THE HOUSEHOLD: (N = 50)

The findings indicated that in households where there were other under five year old children besides the index child, more time was used for washing child's clothes, holding and feeding the child than in those where there were no other children. However the children were observed to play alone, breastfeed and play with the care giver more when there were no other under five year old children in a household. Food preparation also consumed more time where there was only one child. No statistical association was however found between time taken in specific care activities and number of other children who were less than 5 years in a household (Figure 8).

FIG. 8: DISTRIBUTION OF CARE ACTIVITIES BY TIME AND OTHER CHILDREN < 5 YEAR



Key:

CS = Child sleeping

Pa = Playing alone

Fp = Food preparation

Hc = Holding child

Fd = Feeding child

Bf = Breastfeeding

Wc = Washing clothes

Bc = Bathing child

Pc = Playing with child

4.14.7 SUBSTITUTE CARE GIVERS

The mothers were asked to state who mainly took care of the index child in their absence. Alternate caregivers mentioned included housegirls (26.5%), neighbours (24.0%), fathers (16.8%), sisters (14.4%), and aunts (9.6.%). Others included cousins, brothers and grandmothers to a smaller extent.

The age distribution of these care givers showed that 32.2% were aged below 15 years, 24.4% were between 16 - 20 years and 43.0% were more than 21 years.

During the observation phase of the study, a total of 289 substitute caregivers provided some aspect of care in the 50 households observed. Of these, maids comprised 30.1% followed by neighbours (19.1%). Sisters and fathers were also involved in the caregiving, making up 15.6% and 13.5% respectively. Aunts were 9.7%, cousins.6.5% brothers 4.8% and grandmothers 0.6%.

Most of the caregivers observed to provide care were 16 years old or more (61.3%), while only 19.3% were children less than 15 years (Table 8).

TABLE 8: DISTRIBUTION OF CAREGIVERS BY AGE (N = 289)

CAREGIVERS AGE	FREQ	%
0 - 5	16	5.5
6 - 10	40	13.8
11 - 15	56	19.3
16 - 20	71	24.6
> 21	106	36.7

Mean number of years of education for the substitute caregivers was 7 years with a s.d of 3.1 and a range of 1 to 16 years. 48.8% had 5 - 8 years of education, 30.0% had 9 - 12 years, 3.9% had > 12 years, while Only 8.1% had 1 - 4 years

CHAPTER 5

DISCUSSION

5.1 GENERAL CHARACTERISTICS

Like most other parts of the country, and in most patrilineal societies, the predominant head of household is the male. In the study area, only 8% of the households were headed by females and this occurred where there was divorce or death of the husband. This is in agreement with the 1969 census which noted that less than 10% of the total female headed households were located in urban areas (ROK, 1978).

Majority of the heads of households in the study population were below 30 years of age depicting a relatively young population. This is mainly so beacause households selected for the study were those with under 2 year old children. These findings are also similar to those of the metropolitan household survey (1989) conducted among low income site and service schemes in Nairobi, where they found that 73% of the heads of households were aged 20-29 years. In the above study, only 4% of the household heads were more than 40 years old while in the study area, only 6.7% were above 40 years.

The situation above can be explained by the fact that Makongeni which is a site and service scheme is relatively new, with the main construction having commenced in 1975. Most of the household heads are therefore young tenants who have migrated

from the rural areas in search of jobs and are employed in the industrial sector.

Average household size was 5 members with a s.d of 1.0. This is similar to the findings of the infant feeding study conducted among low income households in Nairobi (1981), where the average household size was found to be 5.5 persons. This rather large household size could possibly be due to the fact that most of the families in the study area are young with an average of 2 under 5 year old children.

5.1.1 MATERNAL AND HEAD OF HOUSEHOLD'S EDUCATION

This being an urban and also industrial section, it is not surprising that average formal education levels are high. The majority (71.7%) of the heads of households and (50%) of the mothers) have had secondary level education. The metropolitan study carried out in Nairobi (1981) on site and service schemes however recorded fairy lower education levels. Only 47% of the residents in these areas had secondary level education. The high level of education of the mothers with near equality with the men in the study area may suggest that the mothers are bearing greater responsibility in decision making, as compared to a situation where the difference in education level of the heads of households and mothers is significantly different. The high education level of the mothers could also be associated with the management of available resources, e.g, to provide a

with the management of available resources, e.g, to provide a balanced diet or maintain cleanliness and hygiene. The education level could also be a possible indicator of the household's level of knowledge about childcare.

5.1.2 MOTHER'S AND HEAD OF HOUSEHOLD'S OCCUPATIONS

The proportion of mothers who are employed (45%) is higher than that noted for females in Kenya's urban areas which is 36.6% (ROK Economic Survey, 1981). This could possibly be explained by the fact that the study area is situated in a fast growing industrial town right next to the industrial area. The number of mothers who are self employed (17%) is just slightly lower than that established in the above survey (18.0%). The number of heads of households who are self employed (10.9%) also rates slightly lower than that observed (12.9%). The high number of mothers earning some income could possibly imply that women in the study area contribute to household resources.

It has been postulated that the consequences of maternal employment on the welfare of small children depends on the social economic circumstances and the social context. The results of a study conducted among low income families in the U.S by Sonalde (1983), indicated that while maternal employment and alternate care arrangements have a negative effect on children's verbal abilities, in low income families, this impact is compensated to a large extent by the positive impact

of maternal income. Kumar (1977), in a study carried out in India, found that income from mother's work had a net positive effect on children's nutrition status and that increments in income were translated into improved nutrition status more readily than non wage earning women. Tucker, in a study carried out in Panama in 1979, also reported a positive relationship between maternal income and the child's diet.

In this study, the relatively good nutrition status of the index children may therefore be partly attributed to the fact that majority of the heads of households (97.8%) and a good proportion of the mothers (45%) had some form of employment. The above observation/outcome could be a function of availability of extra income to purchase better quality foods.

In summary, it can be seen that the study population is quite young with most of the households being headed by males. The employment levels of both the household heads and mothers are quite high due to the fact that the study area lies adjacent to an industrial area.

5.2 NUTRITION STATUS OF THE STUDY CHILDREN

Acute malnutrition measured by weight-for-height was virtually absent in the study children indicating a good supply of food prior to and during the study period. This is also in line with

the low national level of wasting which stands at 2.5% (Republic Of Kenya, 1987).

Chronic malnutrition or stunting reflecting long term inadequacies affected 14% of the children most of who were in the 13-24 months age group. This is also well below the national level of stunting (Rural child nutrition survey,1987). The above survey also recorded very low rates of stunting (12.8%) and wasting (1.5%) for children in the central province of Kenya.

The fairly good nutrition status of children can possibly be explained by the fact that most of the children were less than 1 year, still breastfeeding and under the care of their mothers most of the time. The fact that majority of the households had a source of income either from the head of household or mothers employment could also have contributed. The level of education, possibly pointing to the mother's knowledge about childcare could also have played a part in the observed nutrition outcome.

5.3 MATERNAL ACTIVITIES

The activities that mothers reported undertaking while at home basically related to housework and included food preparation, cleaning the house and dishes, washing clothes, and feeding the children. This suggests that women carry out all the household

tasks even when employed outside the home. This is consistent with studies carried out elsewhere. Carr and Sandhu (1987) have said that women on average work more hours in the home and in economic production than the men in their families. What the mothers reported was confirmed when observations were carried out. Basically, the maternal activities that were reported were the same recorded as being performed in majority of the households by various caregivers. For mothers who were not employed, the housework took up much of the morning section and most just rested in the afternoon. Caregivers were idle for an average of 3.5 hours per day.

5.4 PERCEIVED CHILDCARE ACTIVITIES

Majority of the mother's considered food preparation, bathing feeding and washing the child's clothes as the care activities performed on a daily basis, and mending and taking the child to hospital as occasional care activities. Breastfeeding and holding the child although observed to consume considerable amounts of time were not regarded as 'work' by most of the mothers. This could be explained by the fact that most childcare activities are performed concurrently with other maternal activities and consequently viewed by most women as being more of leisure than work. This observation also agrees with the findings of a study carried out in Guatemala among rural and urban women by Engle (1989), where the women reported doing childcare all day, even when involved in income earning

activities.

It is worthwhile noting that most of the activities perceived by the mothers as childcare relate to activities geared to sustaining or returning the child to a previously accepted state of health (compensatory care). This is as opposed to activities that serve to enhance further development (enhancement care) e.g teaching/training, and conversing with the child. This possibly shows that the care that a mother gives to the child may have more to do with her understanding of what activities are important for childcare than with time availability in this community. This is especially so given the fact that caregivers were observed to be idle for an average of 3.5 out of 10 hours during the observation period. This is in agreement with the contention (Zeitlin et. al, 1989) that if parents do not value enhancement childcare, extra time may be spent in other activities deemed to have a higher value e.g income generation, rather than childcare. It is therefore apparent that the amount and type of care that a child receives is influenced by the mothers perception and beliefs about what activities constitute good care.

5.5 TIME USED FOR CHILD CARE

The activities reported by mothers as pertaining to childcare were also observed to be the most frequently performed, irrespective of caregiver. Major components of the total care

provided included food preparation, holding/carrying the child, feeding, breastfeeding, washing clothes and bathing the child, ranked in that order. It becomes apparent that some activities not perceived as 'work' by the mothers are actually quite time consuming e.g breastfeeding and holding the child. These findings are consistent with those of the CRSP (1987) study carried out in Embu, Kenya, where the observation results revealed that holding the child was a major component of the total care provided by mothers to their children. Generally, compensatory care emerges as more valued compared to enhancement care, by virtue of the time taken to perform activities in the two categories. Stimulation related activities e.g teaching, training or playing with the child ranked quite low. This may suggest that these are not regarded as important as, physical, nutrition or health related aspects of care.

5.5.1 CHILDCARE TIME AND MOTHERS OCCUPATION

It would be expected that maternal employment would take up some of the time that could be devoted to childcare. However, in this study, childcare time was not affected by the mother's employment status. Although the difference was not statistically significant, it appeared that in households where the mother was employed, more time was spent in childcare.

The above could be attributed to the nature of the mothers

employment. Majority of those who were employed were either self employed or seasonal workers working in shifts in the nearby industrial area. This enabled them to care for the child at least part of the day. Most of those who were self employed were based around the estate, and this enabled them to care or supervise care for their children reasonably closely for most of the day. Furthermore, it was observed that mothers who were employed compensated for the time when they were away by giving alot of attention to their children while they were at home. This was especially in food preparation, feeding and bathing the index child. On the other hand, time for breastfeeding, holding and playing with the child was more in households where the mother was unemployed. This is because most of these were housewives without too much to do around the house. Consequently, they sat around the plot most of the day and had ample time with their children.

Several studies have showed that the effects of maternal employment on children's welfare are determined to some extent by the quality of the alternate caregiver (Leslie,1988). Some evidence suggests that alternate care by adults does not have negative effects on the child's growth and development (Engle,1991). Most of the mothers who were employed and had engaged hired labour had housegirls who were more than 17 years. This may further explain the higher times recorded for care of the child in households where the mother had some form

of employment. In most cases, the housegirl's or other caregivers main concern in the absence of the mother was the youngest child in the household. The index child consequently received intense attention especially as pertains to feeding (most likely on the mothers instructions). This probably shows that alternate caregivers in this community are somewhat adequate, and may be the reason for the reasonably good nutrition status of the children.

5.5.2 CHILDCARE TIME AND MOTHERS EDUCATION

There was no significant association between time spent in specific childcare activities and mothers level of education. It is however interesting to note that childcare time in almost all the activities observed was more for children whose mother's had more than 9 years of education than those who had less. Virtually all empirical studies have found a consistent and strong relationship between maternal education and all measures of childcare (Candwell, 1979; Ohara, 1982). Levine (1980) in a study carried out in Mexico found out that mothers with more education interacted more verbally with their children than those with less education. The educated mothers, according to Levine also take a more active role in the education and stimulation of their children than the less educated. This trend was also observed in the study. Most of the stimulation activities performed, though taking a small proportion of time overall, were noted to be in households

where the mothers had more than 9 years of education.

5.5.3 CHILDCARE TIME AND CHILD'S AGE

The findings, as expected, indicated that more time was spent in breastfeeding, holding and changing babies who were less than 6 months old, while for the 6-12 months old children, time was mainly spent in food preparation and feeding the child.

These observations are consistent with those of the CRSP (1987) study where it was shown that there was a significant ($p < 0.001$) decline in proportion of physical care given and increase in a child's age. The findings also agree with Engle's view (UNICEF,1992) that in most cultures, mothers devote considerable time to infants, particulary in the first 9 months of the child's life. Developmentally, this is also the period when the child is totally dependent upon a caregiver to meet all his needs.

5.4 CHILDCARE TIME AND NUTRITION STATUS OF STUDY CHILDREN

The findings indicated that comparatively, children who were stunted had less mean times devoted to them for breastfeeding, food preparation, feeding and being held than those who were not. This is in agreement with findings of other studies relating amount of care to nutrition status as an outcome in children. For example, Kielmann et. al (1976) by measuring the

amount of maternal care a child received by number of hours the child was in contact with the mother, showed that amount of care was positively associated with the nutritional status of the child.

These findings agree with Zeitlin's (1991) summary of several studies comparing well and poorly nourished children. She reports that specific caring practices associated with better nutrition status of 1 and 2 year old children include a caregivers active role in feeding, frequent physical contact and showing affection to the child. In this study however, there was no significant association between time spent in specific childcare activities and the child's nutritional status.

5.5.5 CHILDCARE TIME AND NUMBER OF OTHER UNDER 5 YEAR OLD CHILDREN IN THE HOUSEHOLD

Presence of other under 5 year old siblings in a household was found to be of no statistical significance to the amount of care given to an index child. However, the findings show that in a household where there were other under 5 year old siblings, more time was recorded for practically all the activities except breastfeeding and playing with the child. This probably reflects the fact that in the study community, other under 5 year old siblings were actively involved in caregiving especially holding, feeding and playing with the

child. On the other hand, absence of other siblings appears to facillitate greater attention of the caregiver to the index child in important aspects of care namely, breastfeeding and stimulation.

A study carried out in Nairobi (Nairobi City Commission Urban II study, 1989) found that a child had a significantly higher risk of being malnourished when there were other under 5 year old children in the household. This may be an indication that very close birth intervals tend to reduce the amount of attention and care given to the youngest child. Findings of the present study differ with this.

5.5.6 CHILDCARE TIME AND CHILD'S BIRTH ORDER

First born children were noted to fare better nutritionally than other birth order children. The mothers were noted to spend more time in activities such as breastfeeding, food preparation, and playing with the child where the index child was the first born even when there was another sibling. This factor may probably explain their better nutritional status.

Birth order has been found to have a significant association with nutrition status of children. Cherian et al (1984), found that there was increased prevalence of malnutrition among children of higher birth order (birth order greater than 4).

5.6 SUBSTITUTE CAREGIVERS

Although mothers were the principal caregivers in this community, the responsibility of caregiving was shared with other household members as well as with neighbours. These findings are similar to those obtained from a comparative study of low income women from 6 developing countries, which found that the women mainly met their childcare needs within the households (OEF, 1979).

The fact that most of the substitute caregivers had completed an average of 7 years of education with the majority being aged more than 16 years may imply that by and large, they were adequate substitutes to the mother. However, the findings also reveal that siblings as young as 3 years who actually require care themselves were involved in caregiving. This agrees with the contention that in most developing countries, children at age 3 or 4 are usually not really cared for, but are caregivers themselves to the younger siblings (Engle and Patricia, 1992).

The high level of involvement of the mothers in childcare is possibly because most of those who were employed were engaged as seasonal workers operating in shifts at the nearby industrial area. Those who were self employed mainly run small businesses around the estate, with most selling wares in the estate market. This enabled most of the mothers to be with the child some portion of the day.

In this study, the use of hired labour (housegirls) as substitute caregivers was quite common. This is possibly due to the high enrolment of children in schools as early as 4 years, coupled with absence of extended family members. Reciprocal exchange of childcare among members of the study community (neighbours) without financial compensation was also common (Joekes et al,1989). This mostly involved households with children who were more than 1 year old and whose mothers were employed or worked in shifts and had nobody to leave the child with. This could reflect financial constraints facing the concerned families.

Participation of fathers in care giving was limited to playing with the child, putting the child to sleep or feeding the child with food which was usually pre-prepared by the mother. This agrees with the findings of most other studies which have reported low participation of fathers in caregiving. In the six country comparative study (OEF, 1979), adult male household members played a minimal role in childcare giving.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

The present study set out to determine which of the routine activities performed by the mothers are specifically regarded as childcare activities, and to assess the time taken to perform each activity. The characteristics of the caregivers in the community were also to be described and the nutritional status of the children assessed.

The results show that in this community, mothers have a somewhat common perception of what comprises childcare. The mother's perception regarding care influences the care given to children. The findings further indicate that the type of care valued most in the community is 'compensatory' as opposed to 'enhancement care',judging from the amount of time allocated to activities in the 2 categories. Although there was generally no significant difference in time expenditure, the time taken to perform the various activities was found to vary with the child's age and birth order, number of children less than five years in the household, the mother's level of education and whether a mother had some form of employment or not. Although the mother was the principal caregiver, the task of caring for children was shared not only by household members but also with neighbours as well. The nutrition status of the children 0-2 year old was relatively good.

These observations led to the conclusion that in this community, the type and amount of care that a child receives is determined by among other factors, the mother and caregivers's knowledge and rating of specific care activities. This is in agreement with studies in other parts of the world which show that maternal knowledge pertaining to care of children as gauged through education level to be a key determinant in the care given to children.

RECOMMENDATIONS

1. There seems to be a strong focus on physical care compared to psychosocial aspects of care. There is therefore a need to raise the level of awareness on the importance of 'enhancement care' for early child growth and development among mothers. Therefore, education on aspects of cognitive and psychosocial care should be integrated into the existing health and nutrition packages for mothers.

2. To enhance the overall welfare of children, women in low income urban areas should be assisted in setting up income generating projects through credit facilities. This would enable them to procure the needed income which is more likely to benefit the children.

3. Since housegirls are the commonest form of alternate caregivers for working mothers, it may be worthwhile setting up

training centres to equip them with the necessary knowledge and skills pertaining to childcare.

4. Further research should be carried out on maternal childcare activities and child develpoment with the aim of developing a tool for assesing the quality of care given to children.

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APPENDIX 1: QUESTIONNAIRE

NAME OF INTERVIEWER _____

DATE OF INTERVIEW ☐☐☐☐☐☐

CLUSTER NUMBER/PLOT ☐☐ ☐☐☐

HOUSEHOLD NUMBER ☐☐

Ask the Mother the following questions and fill in appropriately

PART A (DEMOGRAPHIC DATA)

1. Name of Respondent _____

2. Age of Respondent and hh. R ☐☐ hh ☐☐

3. Number of Household Members M ☐☐ F ☐☐

4. Number of adults > 18 years and their ages.
   M ☐☐ F ☐☐

5. Number of HH members 6-18 yrs and their ages.
   M ☐☐ F ☐☐

6. Number of Children less than 5 years
   M ☐☐ F ☐☐

7. Non nuclear family members. ☐☐

8. Marital status of the respondent.
   1. Married
   2. Single
   3. Separated
   4. Divorced
   5. Widowed
   6. Living together (Not married)
   7. Other (specify) ☐

9. Religion _____

10. Ethnic Background
    1. Kamba
    2. Kikuyu
    3. Luo
    4. Kisii
    5. Luhya
    6. Others (Specify)

11. Level of education of respondent and hh.
    (Actual years in School for formal education)

    1. Formal education
    2. Non-Formal education
    3. Adult education

    R ☐☐

    HH ☐☐

12. Occupation of respondent and HH head
    (specify in each)

    1. Unemployed
    2. Small business
    3. Semi-skilled
    4. Professional
    5. Other (specify)

    R ☐

    hh Head ☐

13. Name of Index Child _____

14. Age of Index Child ☐☐ Months

15. Sex " " "

    1. Female
    2. Male

    ☐☐

16. Birth Order of Index Child ☐☐

17. Birth Spacing with Next Child ☐☐

18. How log have you lived in this place?

    1. less than 1 year
    2. 1-5 years
    3. Over 5 years

    ☐

19. What is your source of water?

1. Tap in house
2. Tap in compound
3. Others (specify) [ ]

20. How do you dispose off the rubbish?

1. Burn
2. Collected
3. Dumped outside plot [ ]
4. Others (Specify)

21. How many households share a toilet? _____

22. Who usually cleans the toilet? _____
23. How often is the toilet cleaned? _____

24. Do you own or rent this house?

1. owned
2. rented
3. others (specify) [ ]

PART B BREASTFEEDING AND HEALTH INFORMATION

25. Are you breatfeeding Index child now?

1. Yes
2. No [ ]

NB if YES go to questions 21

26. How long did you breatfeed him then?

1. less than 12 months
2. 12-18 months
3. 18-24 months
4. > 24 months [ ]

27. Why did you stop breastfeeding?

1. to resume work
2. next pregnancy
3. child refused
4. mother sick
5. to wean [ ]
6. others (specify)

28. Have you started giving your child any other food apart from breastmilk?

1. Yes
2. No [ ]

29. At what age did you start giving her something else apart from breastmilk?

[ ][ ] Months

30. What are the main food/drinks that you first gave to your child?

1.
2.
3.
4.

31. Where do you usually take your child to when sick or for clinic? (Tick as many as apply)

1. Government hospital
2. Health centre
3. Private practitioners
4. Dispensaries
5. Others (specify)

32. Why?

1. Nearness
2. Cheaper
3. Drugs available
4. Efficiency of personnel
5. Others (Specify)

33. What Immunization has the child received so far (confirm with clinic card)

1. Complete for age
2. Incomplete for age
3. non at all

34. Do you take the child to the clinic for weighing (confirm with growth monitoring card)

1. Sometimes
2. Always
3. Never

[ ]

PART C CHILD CARE ACTIVITIES

35. What activities do you perform while at home?

1.
2.
3.
4.
5.
6.
7.

36. Which of these do you consider as childcare activities

1.
2.
3.
4.
5.

37. Are there any other childcare activities that you do not perform on a daily basis?

1.
2.
3.
4.

38. Who takes care of the child most of the time?

1. Mother
2. Other(specify) [ ]

39. Who takes care of the child when you are away?

Relation to child	Sex	Age
1.	1. M	[ ]
2.	2. F	
3.		

ANTHROPOMETRIC MEASUREMENTS

Name of child ---------- sex M/F age [ ][ ]

Weight (kg) 1st -------- 2nd ---------- Av. -----

Tolerance (0.5 k.g)

Height/length (cm) 1st -------- 2nd ---------- Av. -----

Tolerance (0.1cm)-

APPENDIX 2: OBSERVATION SCHEDULE

CLUSTER NO. ☐☐

PLOT NO./HHD ☐☐ ☐☐☐

DATE OF OBSV. ☐☐☐☐☐☐☐☐

NAME OF OBSV. _____

NAME OF INDEX CHILD ----------

Sex F/M Age ☐☐ Months

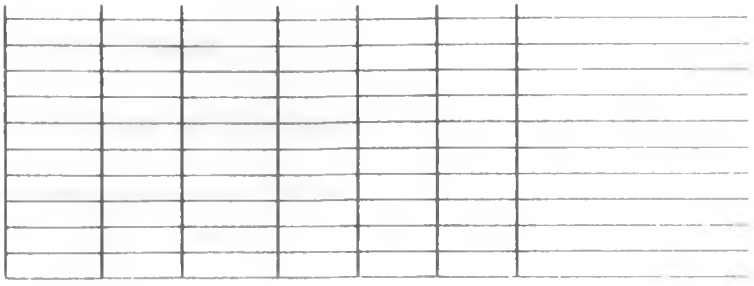
PART I

Observe and time each child care activity as it is carried out from beginning to end and enter the time (min) in the table below and give a brief description. Do not observe a child who is sick.

CHILD CARE ACTIVITIES	CARETAKER			TIME			DESCRIPTION
	CODE	AGE	EDC.	D1	D2	AV.	
1. FOOD PREPARATION							
2. FEEDING CHILD							
3. BREAST-FEEDING							

CHILD CARE ACTIVITIES	CARETAKER			TIME			DESCRIPTION
	CODE	AGE	EDC.	D1	D2	AV.	
4. WASHING CHILD							
5. WASHING CHILD'S CLOTHES							
6. CHANGING CHILD WHEN WET							
7. DISCOURAGED FROM EATING DIRT							
8. PLAYING WITH CHILD							
9. TEACHES CHIL TO WALK, SIT ETC.							
10. FONDLING & CARESSING CHILD							
11. HOLDING CHILD							
12. PLAYING ALONE							
13. PLAYING WITH OTHERS							

CARETAKER
RESTING/
IDLE



CARE GIVERS
CODE

01.Mother	04.Brother	07. Maid
02.Father	05.Cousin	08. Grandmother
03.Sister	06.Aunt	09. Neighbours
		10. Others(specify)

EDUCATION

1. Formal
2. Non Formal
3. Adult education

OBSERVATION

Observe and describe as accurately as possible the physical appearance of the child and his playing environment.
(Tick as appropriate)

Physical appearance

1. Clothes dirty
2. Nose unwiped
3. Face unwashed
4. Hair unkept
5. Others (Specify)

Describe his playing environment (Clean or dirty)

_____

_____

_____

APPENDIX 3: RESULT TABLES

TABLE 1: DISTRIBUTION OF THE STUDY POPULATION BY AGE AND SEX

N = 697

AGE IN YEARS	MALE		FEMALE		TOTAL	
	N	%	N	%	N	%
0 - 5	111	44.7	137	55.2	248	35.6
6 - 15	70	51.8	65	48.1	135	19.3
16 - 30	104	51.7	97	48.2	201	28.8
31 - 45	47	50.5	46	49.4	93	13.3
> 45	11	55.0	9	45.0	20	2.8
TOTAL	343	49.2	354	50.7	697	100

DURATION OF OBSERVATION: 10 HOURS/DAY FOR 2 DAYS
DISTRIBUTION OF CHILD CARE ACTIVITIES PERFORMED BY DURATION

N = 50

ACTIVITY	FREQ	TOTAL TIME	MEAN TIME	SD
RESTING	50	7672	153	66.3
PLAY ALONE	42	4464	106	51.7
PREPARE FOOD	50	3245	65	34.5
HOLD CHILD	46	2817	61	41.9
FEED CHILD	50	2227	45	24.0
BREASTFEEDING	41	1502	37	26.6
WASHING CLOTHS	48	1370	29	8.3
BATHING CHILD	49	981	20	6.9
PLAY WITH CHILD	39	761	20	19.1
CHANGE CHILD	48	510	11	5.6
CARESS CHILD	29	173	6	2.7
TEACH CHILD	15	48	3	2.0
DIS.DIRT	28	51	2	1.1

APPENDIX 4: HOW TO TAKE WEIGHT AND LENGTH MEASUREMENTS

Children should be measured after all the questionnaires have been administered to the mother or guardian with first weight and then length being taken. This approach will give the enumerators time to get to know the family as well as the children. If there is more than one eligible children in a household, it is better to begin with the oldest child and complete all the measurements of one child at a time before taking measurements of any other child. This avoids the confusion that could result if all the children are measured at the same time, since measurements become mixed up and the wrong values put down for the wrong children. It is also not advisable to weigh a measure children if they appear to be sick or upset, or if the mother refuses, or if the child has a deformity that could invalid date the measurement especially length (e.g. rickets, polio, etc).

WEIGHT:

A portable hanging scale with a maximum capacity of 25 kilograms and demarcations at every 100 gms is the preffered instrument for weighing children in field surveys as it is easy to carry, durable and accurate. In addition, most can be adjusted to zero with a screw knob.

The hanging scale should be suspended at eye level with a rope from either a beam, a low branch of a tree, a specially made weighing tripod, or a crossbar held by 2 people. Alternatively, the scale can be held manually by one enumerator if it cannot be hanged. If the scale is held manually, the child should be lifted with as much vertical take off as possible, and the final position of the scale should be parallel to the enumerator at eye level.

As described below, each enumerator should independently read the child's weight to the nearest tenth of a kilogram. The two values should not differ by more than 0.5 kilogram. If they differ by more than this amount, further measurements should be taken to determine the closest pair of weight values that can then be recorded on the questionnaire. Later during the processing of the data, the average value of the two weight measurements will be used.

PROCEDURE TO MEASURE WEIGHT:

1. **Enumerator A:** Hang the scale from a tree branch or ceiling beam with a piece of rope. Make sure that the scale is at eye level. Enumerator B should undress the child with the mother's help.

2. **Enumerator A:** Attach a pair of empty weighing pants to the hook of the scale and adjust the scale to "zero" then remove from the scale. Small infants can be weighed in a piece of tied cloth.

3. **Enumerator A:** Have Enumerator B hold the child. Enumerator A puts his arms through the leg holes of the pants **(arrow 1)** and grasps the child's feet to pull them through the leg holes **(allow 2)**. Make certain that the strap of the pants is in front of the child.

4. **Enumerator A:** Hold the child and attach the strap of the pants to the hook of the scale. Do not carry the child by the strap only. Gently lower the child and allow the child to hang freely **(arrow 3)**.

5. **Enumerator A:** Check the child's position by making sure the child is hanging freely and not touching anything. repeat any steps as necessary.

6. **Enumerator A:** Hold the scale and once the needle has stopped moving read the weight measurement silently to the nearest 0.1 kilogram. Immediately record the measurement on the questionnaire to the nearest 0.1 kilogram. **Enumerator B** should not see the measurement.

7. **Enumerators A and B should switch positions. enumerator b now reads the weight value out loud.** if the measurements differ by more than 0.5 kilogram, they should be repeated until the two values are within 0.5 kilogram of each other. The final two values should be recorded on the questionnaire.

LENGTH:

After a child is weighed, the enumerators should immediately measure the child's length. The mother may be required to assist more actively in taking this measurement to comfort the child and to lap hold it down on the length board if the child resists. Some children are very uneasy about having their length measurements taken, and in such cases, the enumerators must help to calm the child and reassure the mother. Dispelling these types of anxieties will help ensure a successful interview. In addition, enumerators who are confident and take measurements with self-assurance and swiftness are more likely to be successful than in measuring distressed children.

As described below, each enumerator should take independent readings of length measurements to the nearest tenth of a centimetre. The two readings should not differ by more than 0.5 centimetre. If the readings do differ by more than this amount, the child's length should be measured again to determine the closest pain of length values, which should then be recorded on the questionnaire. Later during the processing of the data, the average value of the two length measurement will be used.

PROCEDURE TO MEASURE LENGTH

1. **Enumerator A:** Place the measuring board on a hard flat surface. Put pencil or pen with the clipboard and questionnaire on the ground within reach.

2. **Enumerator B:** Kneel with both knees behind the head plank of the board (**arrow 2**).

3. **Enumerator A:** Kneel on the right side of the child to easily read the tape measure as well as hold sliding foot piece with the right hand (**arrow 3**).

4. **Enumerator A and Enumerator B:** With the mother's help the child should be lowered onto the board during the following:

   Enumerator B: Support the back of the child's head and gradually lower the child onto the board.

   Enumerator A: Support the child at the trunk of the body.

5. **Enumerator B:** Cup hands over the child's ears (**arrow 4**) with arms comfortably straight (**arrow 5**), place the child's head against the base of the head plank so that the child's looking straight up. Bulky hair needs to be compressed to that top of the child's head is touching the head plank. The child's tine of sight should be perpendicular to the ground (**arrow 6**). **Enumerator B's** head should be straight over the child's head looking directly into the child's eyes.

6. **Enumerator A:** Make sure the child is lying flat and in the centre of the board (**arrow 7**). If the child's is very distressed, have the mother help to hold the child's hands down as well as hold the trunk of the child flat and straight on the length board. Check that **Enumerator's** holding the child's head in the correct position.

7. **Enumerator A:** When the child is in the correct position, **Enumerator A** should place his left hand on the child's shins (above and ankles) or on the knees (**arrow B**) and press them firmly down against the board. With his right hand, he should push the foot piece firmly against the child's heels (**arrow**).

8. **Enumerator A:** When the foot piece is firmly pressed flat against the child's heels, **Enumerator A** should silently read the measurement to the nearest 0.1 centimetre and immediately record it on the questionnaire without letting **Enumerator B** see it.

9. **Enumerator A and B** should switch positions and repeat the above procedure (steps 1 through 9). This time **Enumerator B** should read the length measurement out loud and if it differs by more than 0.5 centimetre of the first measurement, the procedure should be repeated until the two values are within 0.5 centimetre of each other. Both values should be recorded on the questionnaire.