CAUSES OF INFANT AND CHILD MORTALITY AMONG THE REFUGES

A CASE STUDY OF DADAAB REFUGEE CAMPS (1993-95)

BY

MUSAMBAI M. IMMACULATE

DEDICATION

This work is dedicated to my parents Mr. John Katumanga and the late Mrs Benedette Masitsa Katumanga whose vision about me has come to pass and to the children and mothers of Africa displaced by the bloodbath in their lands.

DECLARATION

This thesis is my original work and has not been presented for a degree in any other University to the best of my knowledge.

Signature _____ 18/10/99

Musambai M. Immaculate

This thesis has been submitted for examination with my approval as the University Supervisor.

Signature_____ 18/10/99

DR. ZIBEON MUGANZI

Population Studies and Research Institute
University of Nairobi
P.o. Box 30197
NAIROBI

ACKNOWLEDGEMENT

This thesis has been brought into fruition through both moral and technical aid from colleagues, experts, my parents and husband. The most central, meaningful and constant moral cum technical boast came from my Supervisors Dr. Z. Muganzi, Mr. Mwaniki and Mr. Agwanda. Their brotherly and yet stern advice always rendered my planning and implementation both timely and apt.

I am equally indebted to Prof. Oucho my lecturer for not only sensitizing but also interesting me in problems of refugees. To Musambayi Katumanga of IPAR for his criticism which I found rewarding in the entire exercise.

My Father, Mother and my Husband Ronald Ludeki were the greatest moral boost that I perhaps got. When things looked too rough, they reminded me of the long walk I had already undertaken and the need to do it if only for Laura, Michelle and John. The continued constructive criticism from my colleagues as I wrote my first drafts were also salient. I want to pass special thanks to the staff of PSRI for their continuous invaluable assistance.

Special thanks to UNHCR, MSF (Belgium/France) CARE for not only permitting me into the camps at Daadab but also facilitating this research and their kind staff.

I equally thank my brothers and sisters: Tom, Jane, Arthur, Rita, Felix, Martin, Noel and Mike for their continuous words of encouragement.

Last but not least, this work would not have seen light without Margaret Musambayi of University of Nairobi, Principals Office (College of Humanities and Social Sciences) tireless efforts I duely accord her thanks.

As always, we make our plans, but the final word lies with the Almighty God. Praise be unto Him for on the mountain of the Lord it has been provided.

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Swallow the children
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Knock the people down
And ignorance stands there
Like an elephant,

The war leaders
Are tightly locked in bloody feuds,
Eating each other's liver ...

Source Okot Bitek

Refugee Mother and Child: Victims of War

Source: Musambai 19--

ABSTRACT

This baseline study set out to investigate the high levels of infant and child mortality in Dadaab camps despite the presence of International Agencies and high levels of International Assistance. Our specific objectives in this study were:-

a. To establish whether there exists any relationship between the standards of living and infant and child mortality.

b. To establish the relationship between cultural beliefs/practices and infant and child mortality.

c. To establish the causes of infant and child mortality.

d. To make recommendations geared towards the reduction of mortality in the camp.

To achieve the above objectives, we established the relationship between household, Community and demographic factors using Jain's (1994) conceptual framework to find out the causes of infant and child mortality among the refugee children.

The data used in this thesis is drawn from a number of sources:- Death registers, hospitals' monthly records, surveys/questionnaire and indepth interviews. The primary and secondary data sources compliment each other in instances of respective insufficiencies. Several limitations were encountered in the course of this study: These include the short period within which the study was carried out, information distortion emerging out of language barrier (in the course of the interviews). This was enhanced by misconceptions, while improper coding and description of the diseases causing death lead to omissions and over-stating of the causes of death hence untallying total deaths between hospital monthly records and the death registers. The methods of analysis were Chi-square test, cross-tabulations, graphical presentations, proportional circles and descriptive statistics'.

The study revealed that the major causes of death among the refugee children were mainly from Exogenous causes being 18.7/1000 compared to endogenous causes of 9.3/1000. The major diseases responsible for illness and subsequent death in Dadaab refugee camp were:- Malaria, Diarrhoea, Pneumonia, Neo-natal causes and malnutrition. We also observe that, changes in weather conditions had a bearing on the distribution of diseases that caused death. Our findings indicate that the monthly deaths rates increased with an increase in rainfall and decreased with a decrease in rainfall. The highest deaths were registered during the two peak rainfall seasons namely April, and November, whilst the lowest deaths were in August and January.

The study also demonstrates clearly that unfavourable cultural practices and beliefs impinged on the perception and behaviour of the mother(s). These are transcended through poor hygiene and nutrition hence anaemic and under weight children who were susceptible to diseases. The mothers' inability to use the available health facilities in the camp resulted into inadequate medical coverage for the children who ultimately died from both preventive and curative causes of death due to mother's negligence.

The Chi-square test carried out demonstrates some significant statistical relationships (associations) between illiteracy, place of delivery, place of treatment and infant and child mortality. There is also a significant association between immunisation and the health status of the child. However, the study does not show any significant statistical association between SLI[1] and child death, family size and weight of the child, albeit the statistics (proportions) showed that those women with a low SLI had high child deaths proportions. That children from a large family of more than 6 people had weight above average compared to those from smaller families of less than 5 people.

The study, further shows that malnutrition is higher in females than males and also in children aged 2-12 months. This is attributed to sex preferences for boys and secondly, insufficient nutrition for those aged 2-12 months.

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[1] Standard of Living index

C.A.R.E's `food basket' was rather below the international standard of 2100 calories per person per day albeit acceptable than what other camps were receiving.

Banditry is also cited as an indirect contributory factor to diseases such as gastro-enteritis and other diarrhoeal diseases. This was truly observed in the fear women had in going to the bush to gather wood fuel. Respondents observed that bandits not only raped them, but also violently assaulted them causing other bodily harms. Hence the scarcity of wood fuel for cooking. Consequently children were compelled to eat raw food.

The hijacking of camp operational vehicles by the bandits also jeopardised the smooth running of the camps besides causing panic among the inhabitants. Otherwise U.N.H.C.R.[2] continued to provide the essential basic needs/facilities through the N.G.O's[3] and these were viewed as `acceptal levels' (satisfactory).

The study therefore recommended for a thorough system of death registration using appropriate terminologies and descriptions of the diseases causing death. It is argued that this will help generate reliable medical information on causes of death that would be used for policy recommendation analysis and evaluation. That M.S.F[4]. AND C.A.R.E should intensify their activities in the camp through mobile units to alleviate ignorance and step up coverage. Finally, there was need for a further research in the factors causing the child deaths using advanced demographic techniques

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[2] United Nations High Commission for Refugees
[3] Non-Governmental Organisations
[4] Medicins Sans frontier

CHAPTER ONE

BACKGROUND INFORMATION, STUDY OBJECTIVES AND PROBLEM STATEMENT

1.0 INTRODUCTION

The rapidly growing population vis-a-vis the skewed resource distribution has destabilized the political and social milieu in a number of African States including Mozambique 1980s, Ethiopia 1990, Somalia 1991, and Rwanda 1994, (U.N. 1994). Besides the misery and illness, thousands have fled their homes (500,000 refugees from the war torn horn of Africa crossed into Kenya in 1991 and 1.2 million Rwandese into Tanzania in 1994 (U.N. 1994). Many others have also perished e.g. 1/2 a million Rwandese in 1994 (Davis 1994).

More than one and a half million children have died in wars. Twelve million have lost their homes and over five million are confined in refugee camps, such as Dadaab, Benaco and Goma (U.N. 1994). This abrupt shift from one environment to the other impinges on the personal attitudes and behaviour, in the process facilitating emergence of diseases while constraining the ability of the victims to resist them. Of fundamental influence, are political, socio-cultural, socio-economic and migratory factors. These have over time affected infant and child mortality rates.

This study examines `The causes of infant and child mortality among the somali refugees in Dadaab refugee camps in Garrissa district in North-Eastern Kenya. With the records generating the necessary information, it is hoped that this would help curb infant and child mortality in the camps.

1.1.0 Background Information/profile to the Study Area.

The camps were established in 1991 by U.N.H.C.R, in a bid to accommodate the massive influx of refugees who had escaped the civil war in Somalia and the aftermath of the fall of Siad Barre's regime in 1991.

1.1.1 Location

The Ifo and Hagadera camps(herein referred to as Dadaab refugee camp) are located in Dadaab division of Garrissa district in North Eastern Province of Kenya (fig.1.1). Ifo and Hagadera lie 5km North and 8km South of Dadaab (which lies 110 km to the North-east of Garissa town) respectively. Hagadera was less than 80km West of the then Liboi camp (which was
situated close to the Kenya-Somali borders).

1.1.2 Administrative Units.

The camps are divided into blocks which are further sub-divided into sections fig. 1.2. The population within each section varied between 200 to over 400 refugees. Given the fact that there were refugees from Sudan, Ethiopia, somalia (differentiated into two communities of Bantus and None Bantus) these refugees were disagregated into community specific units as they arrived. Underlying this decision were several factors such as political and communal differences and the necessary focus on the specific needs peculiar to each community.

1.1.3 The Physical Milieu

The major factors were the relief, climate and shelter. These camps were constructed on the gently rolling Bilesha plains which lies 500m

above sea level on their western part and 200m on the Eastern zone. Temperatures here range between 20⁰c to 40⁰c. These camps experience torrential rains in between the months of April and June, October and November with a mean annual rainfall of less than 360mm.

The refugees live in Manyattas (locally referred to as 'Tuklus'). These were made up of mainly open sticks covered on the top by a polythene sheet. A very insignificant percentage live in semi-permanent structures initially set up as pilot structures by U.N.H.C.R. Notably those structures occasionally get flooded during rainy seasons. The camps are also served with strategically located pit latrines and tap water placed at specific points.
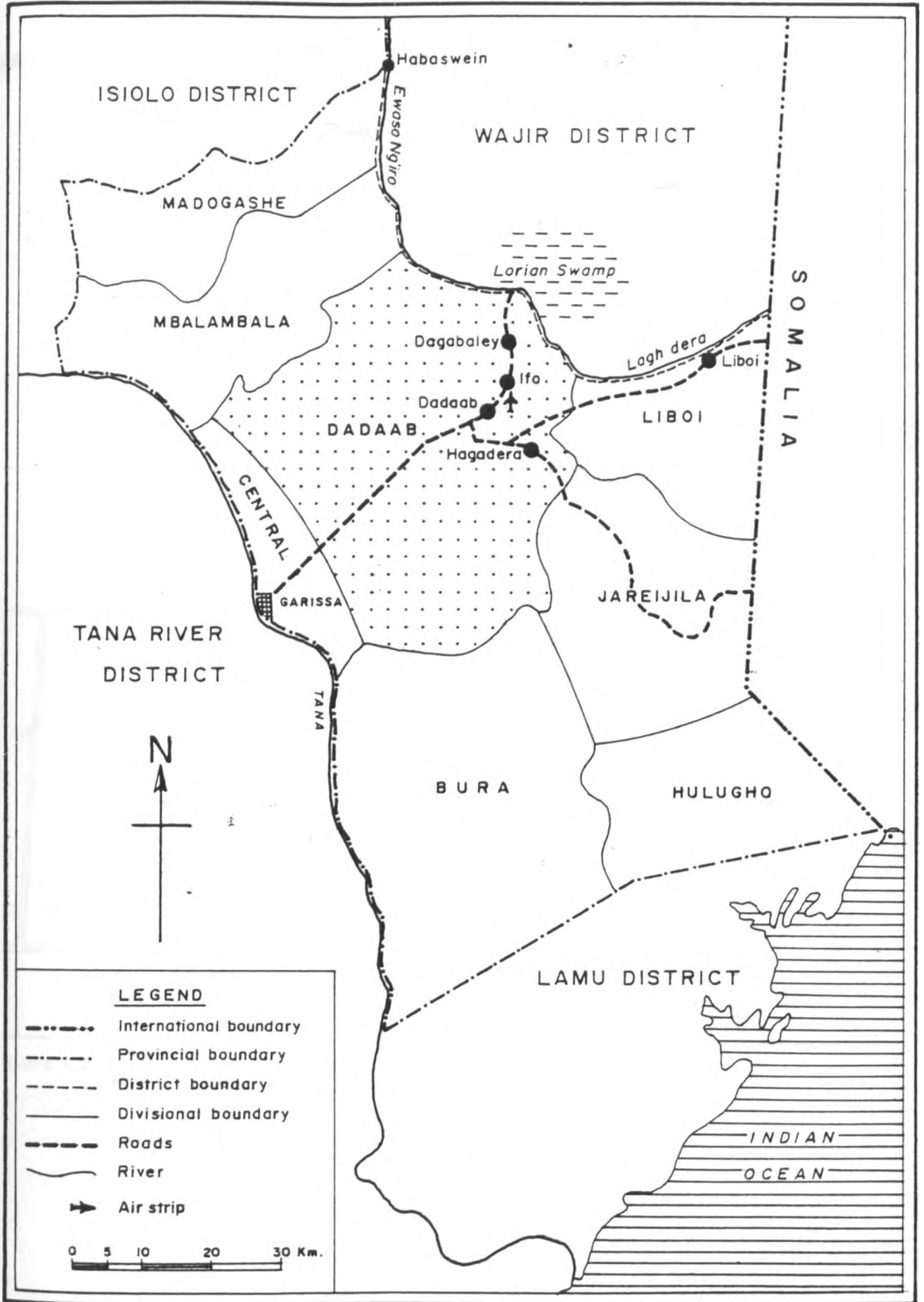
Figure 1.1 Refugee camps in Dadaab division, Garissa district (north eastern Kenya) Source: Adapted from Philips Atlas, 1991.
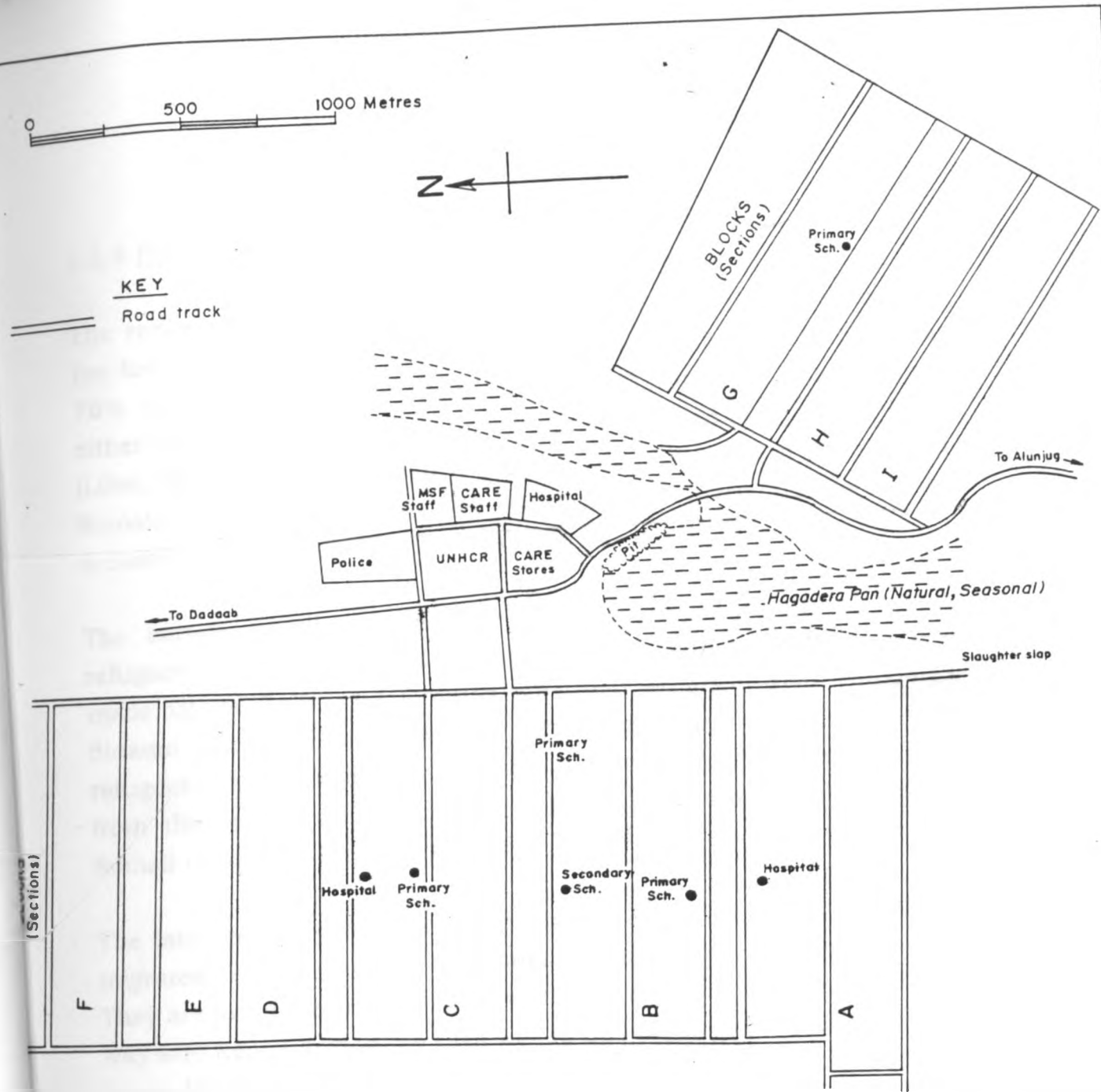
Figure 1.2 Hagadera Refugee Camp
Source: UNHCR may 1995

1.1.4 Population profile

The refugees were mainly nomadic pastoralists from Ogaden with a few low class city dwellers from Mogadishu and Kismayu in Somalia. 78% of the refugees were from Marehan Darot clan. The refugees either came directly from Somalia or were re-located from other camps (Liboi, Mandera, Utange etc). It is apparent that some of the Kenyan Somali pastoralist, moved into these camps given the ferventies accessible to refugees that the locals did not have.

The camps equally housed two other distinct groups of somali refugees to: the Abud and somali Bantus. While the former were made up of Galla and Oromos who had escaped from Ethiopia's Sidamo and Bale provinces in 1979 and moved into Somalia as refugees. These Abud from Ethiopia and the other original refugees from the republic of Somalia identified themselves as the Somali-Somali refugees. (Meaning the real).

The later group of refugee group was made of the Bantus who had migrated from Tanzania into Somalia during the German invasion. They are locally referred to as Somali-Bantus. Both groups found their way into Kenya during the Civil war in Somali in 1991/92. Given Ifo and Hagadera refugee camps here in called Dadaab refugee camp, it constituted: 96% Somali, 3% Ethiopians, 1% Sudanese, a total of 79,489 refugees (U.N.H.C.R/3/1995). Fig 1.4 displays the structure of the population in the camps using Hagadera as a proxy. Dadaab refugee camp had a youthful population of which 53.5% were below 14 years.

The population density was estimated to be 1510.2 persons/km^2 given a camp area of = 27km^2 for Hagadera. (This density was calculated from MSF Belgium population figure of 40775 as at April 1995).
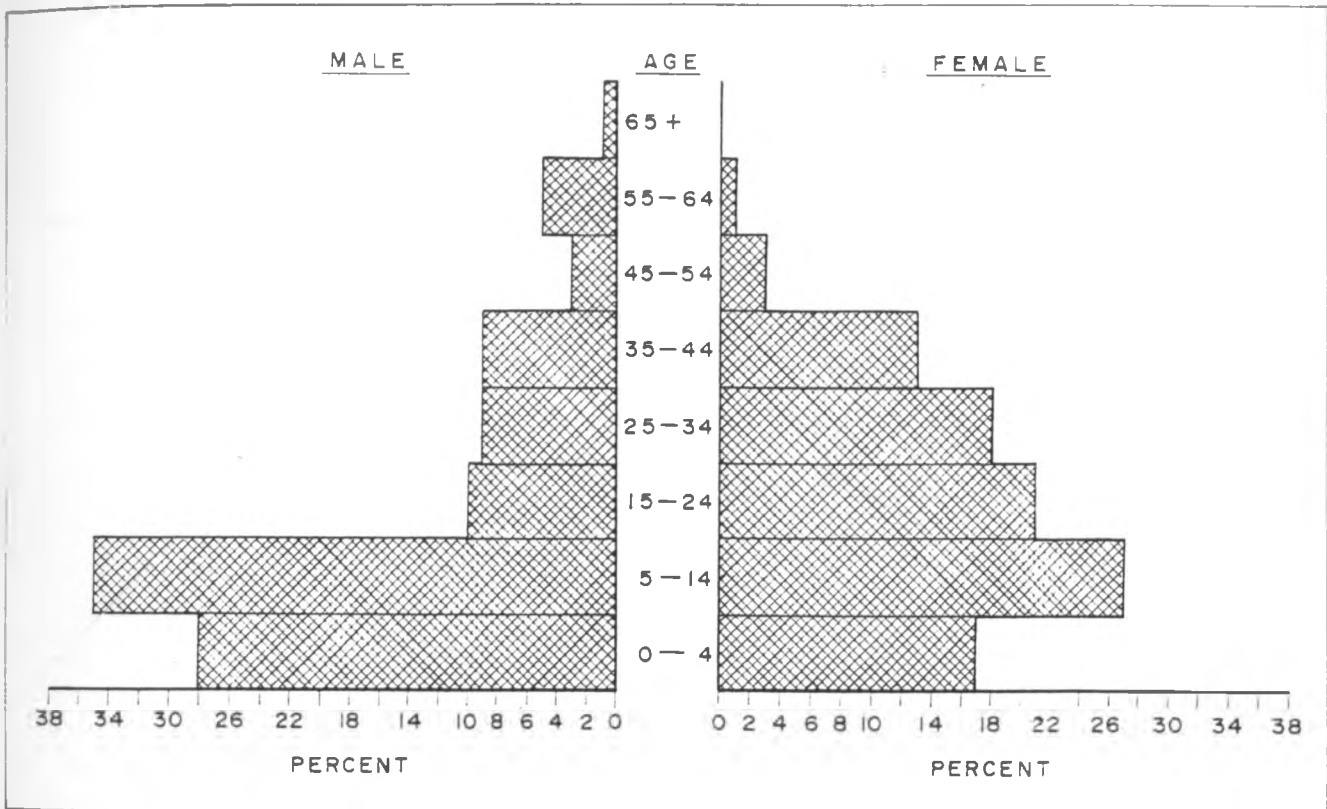
Figure I.4   Population structure for Dadaab Refugee Camp, May 1995.
Source: Field Survey by Musambai, 1995.

Inter-migration within the camps by the refugees was quite prevalent especially on discovery of relatives or adoption cases, besides the new arrivals being re-located from other camps that were closing down (Utange, Liboi and Thika etc).

External emigration occurred during repatriation either to country of origin or to a third country such as Canada. Most of the refugees who opted for the 3rd country were highly skilled e.g. doctors, lawyers, statisticians etc.

1.1.5 Socio-Cultural and Social-Economic characteristics of the Refugees.

This study confined itself to the Somali communities given the fact that they constituted 96% of the refugee population. They were mainly moslems who held tenaciously on their extremely rich ancient cultural background. Their strong belief in Religion and culture greatly influenced their belief systems (that engendered a unique character based on personal strength, integrity and honesty)

They had a strong sense of pride, hospitality, politeness and firmness in their dealings. They believed that the relief workers were their "slaves". Their strong religious orientation informed their perceptions and beliefs in fate and Allahs's (god) will. To them time was a continuous flow whose use was determined more by Allah's will than by man's manipulation.

Culturally, the women were supposed to cover all parts of their bodies including a hood on the head and face. This was particularly for the married women because their bodies were considered to belong to their husbands alone.

At the age of 13, the girls are married off. They also were not supposed to attend mixed institutions. Male chauvinism marginalised women to the periphery of viable economic activities. Illiteracy, coupled with poverty (as indicated by the standard living index) had

inhibited the community's participation in the identification and implementation of income generating projects. This subsequently perpetuated socio-cultural factors which impacted negatively on the self-help projects knowing that the camps were only temporary.

Some women engaged in weaving, whilst a few others carried out trade on the market and the border country of Somalia. A handful of other refugees inconjuction with a few Kenyan volunteers were/are engaged by various relief organizations running the camps as auxilliary staff in some of their sectors. Inturn they received some incentives as a compensation. This consequently improved the refugees purchasing power and subsequent socio-economic status as reflected in the standard of living index.

1.2.0 <u>ORGANISATIONS SUPPORTING THE CAMPS</u>: Ref. To fig 1.6
1.2.1 <u>U.N.H.C.R</u>

U.N.H.C.R has the main objective of maintaining the refugees until such a time when a durable solution (repatriation or resettlement) was found. The UNHCR's role is basically that of co-ordinating and evaluating the activities of the NGOs. It's mandates is to provide various services to the Refugees in abid to ensure that guidelines, policies and objectives agreed upon are adhered to and consequently achieved. The UNHCR is also directly responsible for issues pertaining to repatriation, resettlement and protection of the refugees as stipulated in the 1951 U.N convention "and the 1969 Organisation of African Unity Convention which states:

"That any person recognized as a refugee and in possession of appropriate documentation identifying himself shall be accorded basic human rights by the

Government of Kenya as provided for in the International
Instruments governing of refugee status U.N."

1.2.2 The Government of Kenya (G.O.K).

Government of Kenya is directly responsible for security. The
necessary permanent measures to restore and guarantee the needed
security and protection of refugees and humanitarian organisation in
the camp are weak. The refugees fear that some of the armed bandits
who frequently attacked resided in the refugee camps.

Dadaab and Hagadera towns were transit towns for traders en route to
somalia in the East or Ethiopia in the North, hence a risky zone where
ambushes were carried out frequently by various armed bandit groups
operating in this zone. Most of the warlords from Somalia also found
this region a safe ground for their acts of banditry, and carjacking of
NGO vehicles.

In response to rape cases and acts of banditry U.N.H.C.R had since
1993 implemented specific assistance programmes for the physically
assaulted refugees. Despite the above, scheduled armed police escorts
were mounted en-route to and from the camps in the morning,
afternoon and evening to the camp headquarters in Dadaab.

1.2.3 MSF Belgium

This organisation is incharge of both preventive and curative services
pertaining to health and nutrition of the refugees. It co-ordinates all
the hospital, health posts and the general medical services in the
camp. Complicated cases are normally referred to Garrissa or Nairobi
hospitals.

Within the camps are several health posts and each camp had a major hospital (eye clinic, paedriatic, maternity wards, cholera camp, T.B. isolation, labour/delivery room, minor surgery room, pharmacy, laboratory facilities and blood transfusion centre.

The out-patient department consists of consultation, dressing and injection rooms. There are both qualified expatriates and ministry of health medical staff who are assisted by refugee auxiliary nurses, community health workers and traditional birth attendants.

The primary health care programme which encompasses Immunisation, anti-natal care, and supplimentary (therapeutic) feeding is implemented by UNICEF[5] and KEPI[6]..

1.2.4. C.A.R.E

It's responsibility is confined to the distribution of social services, and food. It provids education, water, sanitation and co-ordinated self-help income generating projects. This is done with the assistance of the community development workers, who identify needy cases, unaccompanied minors, women at risk. It mobilizes and organizes refugees to participate in various camp activities. CARE is also responsible for the safe storage of food in large warehouses within the camps and at its headquarters in Dadaab.

1.2.5 Food Distribution

Food is regularly distributed every two weeks. Each individual (irrespective of age, sex, status etc) receives equal kilos of each type of food stuffs(corn soya bean (CSB), oil, sugar, beans, sorghum and

[5] United Nations Childrens' education fund
[6] Kenya Expanded Immunization programme.

wheatflour and sometimes salt and dates) Table 1.1 A food basket monitoring is carried out by MSF out-reach nurse to monitor the adequacy of the distribution. CARE's objective was to distribute 2000k cal/person/day. However, the figure varied due to constant reviews, albeit the actual amount given was lower than the expected.

Table 1.1 Food Basket

Type of food	Daily grams per person:
Wheat flour	250
Maize	300
Sugar	50
Beans	50
Cooking oil	25
Salt	25
Average K cal/per person	1922
Expected K cal per person	2000

1.2.6 TRANSPORTATION AND COMMUNICATION

Each NGO and UNHCR has it's own transport and communication network (vehicles, planes, radio communication - a VHF Network and Telephone) facilitated the recovery of hijacked vehicles, transference of patients from Dadaab to Garissa or Nairobi etc. Trucks are regularly dispatched from Nairobi to Dadaab with all materials. Flights are used for passengers (staff) or emergency items.

Fig. 1.6 Percent distribution of Donors supporting the Refugee camps (May 1995)

0% 4%

9%

12%

38%

18%

19%

- ☒ Canadian government
- ☒ Belgium government
- ☐ MSF (own funds)
- ☒ Others
- ☒ Dutch government
- ☒ UNCHR
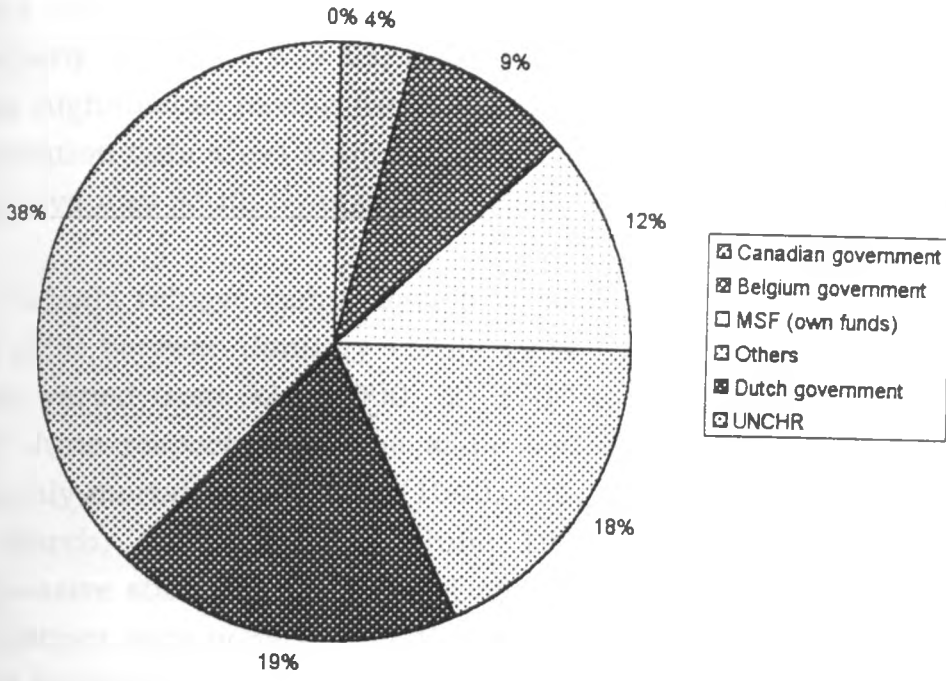
1.3. STATEMENT OF THE PROBLEM

According to UN's 1992 population report, 98% of the children in developing countries died before their fifth birthday, and that in every three children, one was malnourished. As at 1994, the world infant mortality rate (IMR) was 63/1000 (World population data sheet 1994). With Afghanistan having the highest IMR of 168/1000. In Kenya the population data sheet showed an IMR of 66/1000. The worst hit area in Kenya was South Nyanza with 186.6/1000 (KDHs 1993).

In Dadaab, refugee camp, Data from MSF Belgium showed an IMR of 70/1000 between January - July 1994. However, the MSF Belgium rates varied from 92.1/1000, 30/1000 to 119.5/1000 in April, May and June respectively. The same source of data (MSF) revealed a monthly mortality rate of 64/1000, 106/1000, 15/1000 and 57/1000 in March, April, May and June 1994 respectively. Despite the impressive statistics on IMR in Dadaab refugee camp, there were alot of distinct variations within the demographic sub-groups, that had been blurred by this trend. Given the fact that:

> "No one has made an all round death count the difficulty
> is in keeping statistics (because some relatives do not
> report the deaths of their relatives)". (UNHCR. 1992).

This figures could as well be higher than stated. Why were there distinct fluctuations in infant and child deaths among the refugees between July 1993 and February 1995? What explains these variations in the infant and child deaths (mortality rates)?.

If available evidence indicates that the causes of death in this early stage of life are preventable, (that is improvement in water, sanitation and related environmental conditions) can play a significant role in

further ameliorating the under five mortality. To what extend can we meaningfully argue that , these deaths among the refugee children in Dadaab refugee camp were a confirmation of unavailability of the above factors, given that this factors contributed significantly to Kenya's infant and child mortality decline from 101.8/1000 in 1978 to 93.2 in 1993 (KDHs 1993).

1.4. OBJECTIVES OF THE STUDY

The broad objective of this study was to investigate whether there is any relationship between the interaction of household level, community level and Demographic factors with the causes of child death among the refugees in Dadaab refugee camp.

More specifically, the aims of this study can be encapsulated in these statements.

1.4.1 Specific Objectives

a. To investigate and examine the extend of infant and child mortality rates for Dadaab refugee camp with the view to drawing out specific estimates.

b. To establish whether there exists any relationship between the standards of living and infant and child mortality among the refugees in Dadaab refugee camp.

c. To investigate whether there exists any relationship between the cultural beliefs/practices and infant and child mortality among the refugees in Dadaab refugee camp.

d. To establish the causes of Infant and child mortality and to

proffer recommendations geared towards the reduction of mortality in the camp.

1.5 JUSTIFICATION OF THE STUDY

Many a time when refugees are encamped in refugee sites the objective is usually geared towards facilitating the administration. The extent to which the assistance is administered in these refugee camps has its needs hampered by insufficient reliable data on various demographic indicators.

This essentially engenders difficulties in distribution of relief food, medicines and other necesities. Whereas a number of studies on infant and child mortality have been undertaken by many scholars (Anker and Knowles 1980, Meegama 1980, K'Oyugi 1982, Mosley 1984, Bunyasi 1984, Odada and Otieno 1990, Muganzi 1987, Khasakhala 1993) none has ever focussed on refugee camps.

Most of the studies carried out by UNHCR, UNICEF, MSF on mortality for under five children among the refugees do not delienate mortality causes. They rarely employed demographic procedures in their analysis of mortality in this unique society.

Thus there exists insufficient and unreliable data to undergirde evolution of policies and the implementation of specific programmes, relevant to the refugees in the camp. The study therefore is an attempt to evaluate indicators, available for effective medical and social services (socio-economic situation and quality of life). Despite the progress in achieving an impressive IMR, the challenge lay in the fact that some segments of the population manifested rates substantially higher than the refugee camps' "global" average, hence the need to explicate causes of mortality besides the need for a specific study on

refugees, whose purpose should be geared toward facilitating and understanding of infant mortality rate by delienating high risk;

An important aspect in all the studies was that education improved the mother's perception of the environment, child care nutritional habits, and essentially espoused and increased in the level of household income. Most of them have not observed the synergism between mother's education level and the influence of culture on the subsequent mortality rates of the children. Chen and D'souza (1984) noted sex preference in pre-natal care in Bangladesh that culminate in sex mortality differentials.

However, despite the above contribution to scientific knowledge and policy implementation, none of these studies addresses the issue of infant and child mortality in refugee camps in Kenya. Albeit the factors outlined above by other scholars may induce death in an "open society" (Siaya, Machakos and Kenya as a whole), their effect on a confined "closed society" such as the refugee camp was yet to be assessed. Hence the need for our study on Infant and Child mortality by cause among the refugees.

All basic facilities (food, sanitation, water, health care and shelter were provided for in the refugee camp, but we are left to grapple as to what causes the deaths in these camps. That is basically why this baseline study aims at investigating the causes of infant and child mortality among the refugees in Dadaab in Kenya, specifically addressing IFO and Hagadera refugee camps herein referred to as Dadaab refugee camp.

This study therefore addresses the issue as to why despite the intervention and assistance from the relief agencies, preventable and

curative causes of infant and child mortality continue to plague the refugee camp. It attempts to address such questions as:-

a.   What causes of infant and child mortality are significant for policy formulation and planning among the refugees?

b.   How does the prevalence of identifiable causes of death vary across the sub-groups within 0-5years among the refugees?

To engender proper planning, and the setting up of early warning and safety measures in abid to combat refugee emergencies such process would help emergency and relief organizations to:-

a.   Determine appropriate and essential health care programmes and services of disease control.

b.   Determine the administrative action needed to improve the provision of infra-structural facilities in order to plan for the relevant integration programmes.

c.   Determine the demographic structure of the refugee population in the camp and potential growth in order to determine their needs and amount of assistance to the camp.

d.   Fill the administrative and research needs of public health agencies, professional and commercial activities in relation to the development, operation and evaluation of refugee needs, subsequently equipping us with facts on how to deal with the refugee mortality in our nation.

1.6 SCOPE AND LIMITATIONS

The focus of this study is refugees in Dadaab refugee camp between July 1993 and February 1995. The camp is considered as our unit of study. The information does not apply to specific individuals but instead facilitates appropriate generalizations, consequently overcome the outlined limitations.

The questionnaire was administered to 106 females in the reproductive age group (15-49) years. The community development workers (CDWs) were also interviewed besides assisting in the administration of the questionnaire. The medical staff and other NGOs field staff were also interviewed to facilitate the indepth interviews.

In searching for the causes of infant and child mortality among the refugees, was also the problem of correlation between causes of death, for instance:-

The synergism between malnutrition and diarrhoea since diarrhoea increases the risk of dying. This made it difficult to identify the exact cause of death. Cultural practices/beliefs and standard of living, pre-dispose malnutrition and related diseases. It is difficult to separate these variables and their exact impact on cause of death of the child. We therefore used the MSF classification hence the assumption that each diseases had a direct impact on child mortality. We therefore looked at the ultimate disease that caused death e.g diarrhoea or malnutrition.

Much of the data may have been distorted due to language barrier especially during the interview because the CDWs[7] were of Somali origin. This was overcome by using CDW's who were literate in both English/kiswahili. The translation from Somali to either English/Kiswahili may have enhanced misconceptions in the information collected. This was overcome by indepth-interviews in order to establish the trend of the facts from both the refugees and the relief assistants working within the camps.

Finally, much of the relevant information may not have been collected because of limited time and funds. The study took four days. It required the researcher to have stayed in the community for some time in order to comprehensively design an appropriate questionnaire and collect more data. We thus modified the questionnaire especially the SLI so as to suit this unique environment.

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[7] Community development workers.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORKS:

LITERATURE REVIEW

2.0 INTRODUCTION

Attempts to collect and disseminate information on causes of death in Africa has been limited. Consequently, the use of statistics on causes of death has at best been in significant. Only Egypt and Mauritius were listed in the 1975 WHO's annual data on causes of mortality by age, sex (WHO 1998).

Still worse is the fact that, there is little literature on infant and child mortality by cause among the refugees. Faharat's report simply claims that the observed changes were real. That there was no difference in infant mortality levels between the refugee camps but variations in prevalence of diseases and nutrition. He found that IMR among the refugees was 28% lower than that of Pakistan as a nation.

2.1 Developing Countries

Studies carried out in this region show that medical information on the causes of death in developing countries is even more scarce than the mortality data. Much less is known about the causes of death than about mortality levels and trends due to unreliable national systems of vital registration. This was compounded by multiple causes of death, poor diagnosis exacerbated by inaccurate case histories, shortage of diagnostic facilities and low rate of autopsy besides the late arrival of patients at the hospital (Ewbank 1993).

Rajastan (1977) for example has observed that the lay health workers in India could not be very specific about the cause of death in every case.

Meegama (1980) postulated that under five mortality should take into account the ultimate cause of death and the complicated nature of

interaction between different diseases. He noted that it was difficult however, to distinguish between primary and secondary causes of death, especially in rural areas where medical practitioners were not available hence errors in classification of deaths by cause.

According Ewbanks (1993) even in the best hospitals of Europe and the United States, a number of deaths were assigned to incorrect causes.
In our study this was overcome by classifying the unknown causes of death as 'unknown' and 'others'.

In the less developed countries where so many children die from respiratory and diarhoeal infections, simple medical treatment could save many lives. As was observed by WHO:

> "A morbid case of cholera given proper intravenous rehydration should be quite comfortable in a few hours time, and recovery is complete with no sequence, a higher fatality is mostly due to delay in bringing the patient to treatment centres. It is relatively high in children below five years (20-30%) due to unavailability of re-hydration centres" (Dr. Candou M, Cr, Director General WHO 1971).

Meegama meaningfully echoed Candou's sentiments above that, many deaths in developing countries could be avoided by relatively simple measures such as, (changes in hygienic and breast-feeding practices and the avoidance of infections arising from environmental causes which can be accomplished at relatively low cost.

A survey carried out in Sudan's Blue nile, Kassala and Kordefan Provinces to determine mortality and morbidity in infancy and childhood found that infant mortality was quite low but child mortality was quite high in the second year of life. Most of the deaths in infancy and childhood could be attributed to the "preventable factors, environment, nutrition, and communicable diseases (Odhiambo 1991 pg. 23).

Studies carried out in Brazil by Puffer and Servano (1973) revealed a strong synergism between poor nutrition and environmental factors and concluded that children who were poorly nourished after birth were also more susceptible to infections associated with unsafe water, poor sanitation and inadequate housing. They argued that access to internal piped water in the household was likely to be most direct benefit in lowering child mortality by reducing exposure to water-borne diseases and particularly diarrhoea disorder. Albeit the links between water supply and such disorder were limited, literature suggested that increases in the amount of piped water used contributed to better hygiene essentially espousing the elimination of bacteriological contamination that consequently reduced the risk of infection through intake. Our study seeks to establish whether these 1973 causes of death are applicable in the 1995 society of Dadaab refugee camp.

Meegama (1980) observed that despite the decline in post-natal and child mortality across abroad range of diseases, these diseases were still the main causes of mortality accounting for over 66% and 62% as was in Sri-Lanka in 1967 and 1971 respectively. He noted that the factors which led to a decline in mortality in Sri-Lanka were improvements in quality of drinking water and sanitation. Better nutrition, improvement in sanitation and provision of uncontaminated water led to a decline in diarrhoeal diseases.

D'souza and Chen (1980) found that there was a higher male than female mortality shortly after birth in a rural area in Bangladesh. The higher mortality rates during neo-natal period were consistent with overwhelming evidence that male biological risks of death was higher than female. Albeit the biological explanation in sex mortality differential among infants was accepted in many quarters and fairly convincing; Cultural aspects could also be responsible for the sex differentials in infant and child mortality. In their later study carried out in 1984, they noted that some preferences in pre-natal care, feeding patterns, intra-family food distribution and treatment of illness favoured male children in Bangladesh and this could lead to sex differentials in mortality.

Data from Keneba in Gambia indicated that deaths peaked in the period between August and January, due to a combination of factors. It was observed that the increased prevalence of malaria coincided with the onset of rains, food shortages as the stocks from the previous years' crops became exhausted, pollution of the water supply arising from the rains, and the lowered standards of child care consequent upon the heavy agricultural work undertaken by women during the planting season (Rowland et al, 1981).

Blaker (1989) observed that there were many parts of Eastern Africa over 1000 metres above sea level where Malaria was a serious problem (e.g. around Lake Victoria), but it rarely reached the holoendemic levels in West Africa where the inland countries of the Sahel, lay at altitudes of under 500 metres. Our study aims at establishing why Malaria (one of the major causes of death in the camp has remained endemic despite the fact that Dadaab is below 500 metres above sea level.

UNICEF (1988) posited that many children in developing countries suffered from chronic anaemia caused by poor nutrition, compounded by acute respiratory infection (ARI), gastro-intestinal infections (GII), measles and were consequently sick more often. Subsequently, the smaller babies died earlier than those who grew in developed countries.

Following this observation, UNICEF'S 1991 World declaration on the Survival, Protection and development of children in 1990s, aimed at reducing infant and under five mortality rates by one third to 50 and 70/1000 live births respectively by the year 2000. The specific goals in the declaration included:-

a.   The elimination of neo-natal tetanus by 1995.

b   The reduction of measles death by 95%, diarrhoea by 50% and
      acute respiratory infection (ARI) by one third.

c.   Increasing their birth weights besides reducing the
      prevalence of malnutrition.

As UNICEF seemed pre-occupied with the status of the children, Ewbanks et al (1993) argued that the transmission of HIV/AIDS from the mother to the infant probably increased infant and child mortality by fewer than 5 deaths per 1000 live births. It's combination per se was still insignificant as pertains to Africa.

The above studies concentrate on mortality differential, determinants and not causes of Infant and child mortality among the refugees and the only study on refugees by Faharat, failed to justify what he claimed to be 'real observations' as being true. It is therefore not known what the real observations were. Secondly the above studies were carried out in the 1970s and 1980s, our study is recent (1990s) and will confirm the above facts or reveal new changes in the causes of Infant and Child mortality among the refugees of Dadaab refugee camp.

2.2 KENYA

Many studies in Kenya have concentrated on determinants, differentials, levels and trends of infant and child mortality (MOH 1979, Mosley 1983, Muganzi 1984, Odada and Otieno 1990, Khasakhala 1993). These studies have critically analysed the determinants of infant and child mortality in Kenya in general, and did not address refugee children as such.

Omondi-Odhiambo et al (1978) in their "Mortality by cause of death in a rural area of Machakos", analysed data on mortality by age, sex and cause of death. They argued that death rates from various causes were relatively low compared with other parts of the republic. They attributed this to favourable environment, greater availability of modern medical facilities, besides the favourable economic and social conditions. However, they used broad categories of mortality by cause through the whole population besides the inadequate information on trends in the causes of mortality. Our study confines to under five mortality and gives the monthly mortality trend with the specified period of study, so as to assess the causes in this trend for policy formulation.

K'Oyugi (1982) in his study on "mortality and morbidity situation in Siaya district" aimed at estimating mortality and morbidity rates by major causes. He found that the major diseases responsible for illness and death in Siaya district were; measles, tuberclosis, respiratory diseases, meningitis, diarrhoea and Malaria. He attributed this health problems to environmental conditions and inadequate coverage of health services. His study focused on the mortality conditions in the district and therefore did not confine to a specific population group in Siaya, despite unveiling and contributing to the knowledge/understanding of the causes of death in general, essentially laying a spring board for further research in specific information and population group. That is why our study attempts to apply his knowledge on causes of death on the under-five children of Dadaab refugee camp to verify the similarity/differences in causes of death.

Kichamu (1986) used Trussell's procedure to estimate child mortality using the 1969 and 1979 population census. He showed that there were socio-economic and environmental differentials in mortality in Kenya, and that Measles, diarrhoea and respiratory diseases were the major causes of death. Our study focuses on indepth-interviews and other direct methods of estimating mortality rates.

In his study on the "seasonality patterns of causes of death in Kenya", Bunyasi (1986) aimed at examining the trend/seasonal patterns of all causes of death combined at the National level. He posited that other variables remaining constant, climatic factors had some bearing on the distribution and cause of death. Bunyasi found that infectious and parasitic diseases, respiratory diseases and those of the `new born' despite their decline were still the major causes of death in infancy, and that the lowest number of deaths were recorded during the dry season. He argued that the diseases were common among the refugees and migrants in camps with poor sanitation. Our study will confirm this given that his findings were carried out nine years ago.

In the same study Bunyasi further referred to the migratory theory in attempting to explain the occurrence of some diseases in some communities.

For instance, diarrhoea was known to be common among refugees staying in camps due to poor sanitation. Despite his substantive contribution in understanding the seasonality and distribution of diseases and ultimate cause of death, he focused on the whole country, and did not deal with issues pertaining to morbidity/mortality in refugee camps per se and Dadaab camp in particular.

Ondimu (1987) used Trusell's technique to estimate child mortality levels and differentials in Kenya using the Kenya contraceptive prevalence survey data. He found that socio-economic and regional differentials exist in levels of child mortality in Kenya. He also showed that the attendance of mothers to maternity clinics was the most important factor explaining the variations in child mortality.

The cited studies deal with mortality in general, either at district or national level, none of them handles the issue among the refugees in Kenya, hence this study on infant and child mortality by cause among the refugees in Dadaab refugee camps. The above studies also concentrated on secondary data from population census or survey. Our study uses mainly primary data from questionnaires and indepth interviews and compliments it with the primary hospital records carried out by the researcher. Their findings are confined to the period before 1990(s) and therefore our study is recent and would confirm their findings or detect new findings. Their studies also concentrated on indirect methods of analysis while we used direct methods to lay bare the situation as it is in the camp.

2.3 Factors

A scientific study of mortality with a view to reducing it must include a thorough understanding of the various causes of mortality. Each individual cause must be analysed separately inorder to unravel the underlying factors which may not be too apparent when considering all causes taken as a whole (Ayani Olusola 1975).

Thus, according to Meegama (1980), the search for the causes of infant and child mortality should take into account not only variables describing the

conditions of the mother during pregnancy but also environmental conditions surrounding the mother and child, which consequently lead to spread of infections and subsequent death.

In an attempt to search for information related to our variables that could explain the relationship of causes of child death among the refugees, we classified the variables as follows: variables affecting the mother and child, Household factors mainly related to the individual mother where she had a direct influence and finally the demographic factors related to the sex and age of the child.

2.3.1 Community Factors

Much as mothers may be influential in their households they tend to succumb to the community in which they live. I.e the Community executed government policies, provision of infrastructure and other social-amenities. This ultimately determines her socio-economic status, cultural perception and subsequent household level standard.

Spangler (1977) argued that health, access to goods and services were positively associated with the level of income, and therefore were some of the conditions condusive to happiness.

This prompted Meegama's central thesis in 1980 that trained mid-wives and the hospitalization of mothers during delivery led to decline in mortality. He pointed out that preventive (absence of toilet facilities, contaminated water and untrained mid-wives), and curative (availability of transport and proximity to medical institutions) influenced the infant and child mortality, despite the importance of investment.

In such health care system and public utilities, there also had to be the political will to divert the ever scarce funds for such welfare needs. Therefore, where public health care systems were weak, the family's economic situation would determine whether it could afford private health care services, the sanitation, availability of uncontaminated water at community and household levels. (Meegama 1980, Jain 1984).

Besides the socio-economic conditions in the household, the government/community had a role to play in the intervening of the causes of child deaths. As Hennawi has argued below that:-

"Eradicating malaria which claims the lives of one million children every year, would cost $1 billion much less than half of one day's military spending" (El Hennawi 1986).

He points out that military spending, still claims more funds than health care in most of the worlds nations. "About 40% government spending in developing world is devoted to the military and the servicing of debts in some regions, this is twice as much as governments spend on health and education combined" (World debt tables UN 1989/90)

Hennawi was supported by Cornia (1988), who stated "that figures from Jamaica confirmed the connection between spending cuts forced by adjacent policies and deterioration in children health .... by 1984, when full effects of the adjustment policies were being felt the figures for malnutrition related admissions had doubled to almost 4%. Gastro-enteritis had tripled to nearly 5%". The financial crisis in the developing world also leaves little cash available for sustainable management of environmental resource base and public spending on children. Indeed the question to address is where will the resources be found to cope with this problem if the great economically stable nations are increasingly reducing their `handouts' to developing countries?

According to UNICEF (1989), the poor have least economic `fat' with which to absorb the blow of recession. Any cut in real incomes means going without some basic necessities. Consequently, the services that are most radically pruned with some honourable exceptions, have been the ones of most concern to the more powerful sectors of society. The most drastic spending cuts have instead come to expense services on which the poor are most dependent and which they have least opportunity to replace by any other means, (for instance cost sharing in health services). Indeed according to UNICEF:

"Average incomes have fallen by 10% during the 1980s in most of Latin America, and by 20% in Sub-Saharan Africa. In many Urban areas, real minimum wages have declined as much as 50%". (UNICEF 1990).

2.3.2 Household Factors

Numerous studies have examined infant mortality in Brazil in relation to Socio-Economic differentials. Yunes (1981) showed that the minimum wage index or household income was inversely related to infant mortality levels. Further studies by W.H.O. (1981) in Southern Sudan revealed that children from higher socio-economic groups were in a better state of nutrition than those from a lower status.

Mosley (1983) analysed mortality trends and differentials in Kenya and concluded that child survival was primarily determined by the Social and Economic resources in the child's family (maternal education). He similarly carried out the same analysis in India and demonstrated the importance of maternal education and poverty level in explaining regional differences in mortality differentials.

Maternal education has been said to disentangle traditional family raising practices. It has been associated with less fatalism about illness and effective child care besides medical alternatives. It consequently espoused better utilization of available foods from a national perspective, more personal and intensive attention by the mother with more of the family resources spent on the child (Anker and Knowles 1977, Brass 1970 and Caldwell 1977).

Illiteracy of mothers, culturally determined attitudes with respect to health problems, poverty and the inaccessibility of health facilities all contributed to the high mortality rates. According to UNICEF (1992) women's education and awareness of the importance of hygiene, use of technique such as Oral Rehydration therapy (ORT) and of the timely immunization can save millions of children lives each year.

"The lives of 3.2 million children a year are now being saved by the immunization efforts of the 1980s. It remains a great public health challenge of the 1990s that it is possible to prevent a further 2 million child deaths each year and to reduce the impact of vaccine preventable diseases as child malnutrition and disability. In Eastern and Southern Africa immunization coverage is only 60%". (UNICEF 1989) Will Unicef attain the 90% target by the year 2000?

Among expectant mothers in the developing countries, there was a low tetanus toxoid usage due to fear of injections, exacerbated by ignorance and traditional familial objectives. Dr. Nyamwaya (1987) found that women preferred to deliver at home due to special ceremony attached to umbilical cord, the baby and the mother which were difficult to execute in hospital.

Being a community integrating value, Religion in itself may not have an effect on infant and child death but affects the outlook of the mother on the child morbidity and mortality consequently, predisposing children to higher mortality. Religion according to Tabutin (1979) carried with it a certain number values and norms which governed the lives of believers on behavioural, physiological and psychic level. It reflected an openness to western civilization (for catholics and Protestants) or adherence to customs (for traditional worshippers and muslims).

Studies in Kenya, Ghana, Cameroon, Senegal, Lesotho have shown that Catholics and Protestants had a lower mortality rate for their children than muslims or traditional worshippers (Jeanne 1975).

Religion thus affected the attitudes towards sickness and death, use of health services, belief relative to the aetiology and treatment of disease, feeding and child care practices.

Omambia et al (1985) confirmed by positing that religion on the other hand was associated with low age at birth and subsequent high infant mortality because it was linked to a variety of differences in attitudes, statutes and

behaviour. They further observed that religious beliefs/practices affected age at marriage, divorced persons family size and stability, as well as education attainment.

Meegama (1980) perceived that cultural background was essential because much would depend on the status of the pregnant woman in the society, basically on her claim to some types of priority in the event of food shortage, since a perpetual shortage of food was an ever increasing prevalent condition. This factor he emphasized was not to be ignored in any nutritional effect on mortality. Analysis by Feyisetan (1988) on the effect of child and pre-natal maternal nutrition on infant and child mortality in Ife, Nigeria, found that: "the more the mothers ate protein foods during pregnancy, the higher the risk of death of their infants and children". Feyisetan however, failed to account for this unique finding. This is why our study aims at establishing the impact of cultural perception pertaining to food and child mortality among the refugees. According to Jeanne below:-

> "Because of its fundamental role in health and well being,-a world-wide attention is increasingly being given to good nutrition as the key to breaking into the downward spiral of malnutrition and disease". (Jeanne 1975).

2.3.3. Demographic factors

Jeanne's central thesis in her study on nutrition, disease and mortality in young children was that the synergism between malnutrition and infection appeared to rise sharply then remained level, rising again at various ages, reaching high level among infants between 18-24 months of age. She noted that at three years, the rate fell by a half. She argued that the high mortality between 18-24 months was due to breast-feeding several months before the child was weaned.

Many studies have revealed that sex differences in infant and child mortality was high in males than females. Studies in Egypt, Bangladesh, India, Pakistan, and Tunisia depicted excess female mortality in ages 1-4 years, contrary to what is known from other studies elsewhere. (visaria 1987, Britanni 1988 etc).

The vulnerability of male babies is attributed to birth hazards (pre-maturity, malformations, birth injury and infections resulting from some biological factors). For instance, it is known that male babies have a large head circumference than female babies, (American Public Health Association 1973), and this presented complications during child birth and there by endangered the lives of both mother and child. Other cases such as pyrolic stenosis had five times higher mortality in males. Generally, high sex ration at death among the children was due to unfavourable mortality conditions. The association between sex discrimination and higher mortality rates for girls had been encountered in countries such as Algeria, Bangladesh, Egypt, Northwest India and Pakistan (Waldron 1987). The common characteristic between the named countries was that they were all of muslim religion. This sex discrimination was not restricted to education. It sometimes extended to treatment of female infants. In some cases/regions, it ensued into less adequate nutrition and health care for girls essentially espousing higher rates of disease and death than in boys.

2.4 Morbidity

Deaths attributed to malnutrition constitute one of the three most important cause of death in children, albeit it is rarely cited as a cause of death in official vital statistics records. Lopez (1987) showed that in 1960 in Colombia, out of 90,000 children under five years who die each year, more than one third do so from malnutrition related causes.

Malnutrition is widespread in developing countries with estimates of 20-70% of the children under six years showing mild to severe protein calories malnutrition. Indeed, it has been emphasised that:-

"A malnourished child is more susceptible to infectious diseases and is less able to combat the infection successfully. A child suffering from infection often becomes malnourished because of increased nutritional requirements to combat the infection and due to loss of appetite/inability to assimilate the food consumed. Because of this, synergistic relationship, the growth

pattern of a child under six years may be taken as an indicator of both nutritional and health status". (Pan American health organization studies 1973).

A great importance of malnutrition is that these children grow up smaller than their potential, and are very susceptible to gastro-enteritis, diarrhoea and respiratory infections. Mild to moderate protein, calorie, malnutrition (PCM), is probably the major underlying reason why the one to four year mortality in developing countries can be 30 - 40 times higher than in developed countries. (Dr. Candou 1977).

About 40% of children in developing countries are underweight with 14% being in Africa. (Haaga et al 1985). The children with subclinical PCM can however be detected by their weight for age which is less than 80% of the international standard. According to Ebrahim (1985); WHO (1987); at any moment an estimated 10 million children are suffering severe malnutrition and a further 200 million are inadequately nourished. A changing climate would alter the ecosystem of the agents bacteria, parasites, insects or other animals. A warm climate, according to De Sylva (1988) may be favourable for the propagation of airborne and water borne communicable diseases. In areas where such diseases occur children suffer the highest death rates.

He posits that hepatitis B, epidemic celebral meningitis, poliomyelitis, cholera, bacillary, dysentery flourish in hot humid weather and children are the most vulnerable to these diseases. Malaria is endemic in 102 countries. In Africa, malaria infects about half of all children under the age of three killing an estimated one million each year. (WHO 1985).

About four million of the fifteen million children under five who die each year succumb to ARI. More than 90% of these deaths occur in developing countries. These include tuberculosis, diphtheria, pertussis (whooping cough), measles, upper respiratory tract disease, acute bronchitis, pneumonia, influenza and pleurisy (Leowski, 1986). That bacterial pathogens play a far greater role as primary or secondary causes of severe low respiratory tract disease. Bacterial infection might be favoured by

impairment of immunity in malnourished children, poor environmental conditions and the lack of appropriate health care.

In Papua New Guinea, children exposed to open fires had higher rates of impaired lung function and chronic respiratory symptoms (WHO 1984, Smith 1986). UNICEF 1990 poses that about four million children under five years of age die of diarrhoea in developing countries, basically each with three severe attacks. Repeated attacks of diarrhoea tend to cause or aggravate malnutrition, consequently stunting their physical and mental growth. Diarrhoea diseases are mostly the result of water borne viral and bacterial infections. Acute diarrhoea may kill rapidly through dehydration.

Kurzel and Centrulo (1981) Kalter and Warkary (1983) argue that birth defects occur in 2-3% of all births. Of these, 25% have underlying genetic causes, males being more vulnerable than females, 5-10% result from radiation, viruses, drugs, and chemicals. 65-70% stem from unknown causes but may follow from an interplay of several environmental agents with genetic factors.

Approximately 51% of pregnant women in the world suffer from nutritional anaemia, being 59% in developing countries. (De maeyer and Adiels - Tegman, 1985). The foetus may receive inadequate nutrients from a mother who is underfed, overworked or in poor health. Therefore, an infants birth weight is the single most important determinant of its chances of survival and development. So birth weight depends on the health and nutritional status of the mother.

Thus, if a child is less than 2.5 kg (5.5 pounds), at birth, it is underweight. In USA, about 7% of all live births are premature. (Shyrock 1985). Mortality for the premature children he says is about 17%. Pre-maturity is associated with poor nutrition, chronic infections, fatigue, poor hygiene, numerous pregnancies in rapid succession, multiple births and young mothers of less than 20 years.

Meegama's operational framework (1980) on factors affecting infant and child mortality in estates in Sri-Lanka focused mainly on environmental and socio-economic factors. This was suitable for the study of Estate mortality

which had its own pattern and had to be analysed separately. We perceived it as inadequate in analysing the causes of infant and child mortality among the refugees as they were subjected to the same environment and dependent on international relief unlike the estate workers who had another source of livelihood.

In analysing mortality data collected in Gujarat (India, Gandotra and Das (1980) used an analytical framework of ten factors divided into five groups (demographic, socio-economic, environmental, nutritional and medical care). Their framework did not distinguish between proximate and non-proximate factors. We were therefore not sure of its role as an analytical tool in our study in identifying the relative importance of factors that affected infant mortality directly.

Mosley and Chen's (1984) widely used frame integrates research methods employed by both social and medical scientists. They argue that socio-economic determinants of child mortality necessarily operated through a common set of biological mechanisms to exert an impact on mortality. However, the framework does not incorporate socio-cultural variables. They failed to realize that maternal factors may not only affect the child directly but through quality of child care. The framework represents an important step towards a better understanding of determinants of child mortality through five factors (maternal factors, environmental contamination, nutrient deficiency, injury and personal illness control).

Jain (1984) proposed a distinction between factors operating at the village, household and individual levels. His framework sought separate forces (influences) operating through the biological mother and determined the outcome of pregnancy and consequent chances of child survival and subsequent post natal factors. It was therefore useful for policy formulation and for designing an action programme. Its inability lies in non-availability of data at household level hence difficulties in executing full scale empirical demonstration of this approach especially when employing secondary data hence the need for primary data - indepth interviews/surveys.

2.5 SUMMARY OF THE LITERATURE REVIEW

From the foregoing review, it is evident that, environmentally based causes were more prevalent and that infant and child mortality causes of death could be prevented as revealed in the Sri-Lanka study. Since these deaths were largely due to factors associated with under development given that many countries were diverting a greater share of income to military services at the expenses of community health facilities etc, hence espousing wars and consequently increasing the number of refugees and associated problems ref to synoptic photograph on page xi.

The review points out that classification of causes of death is still an issue compounded by the paucity of mortality data on causes of death. This requires greater emphasis so as to `beef' up the mortality data by cause if specific policies have to be drawn from them with a view to reduce mortality levels.

Most studies in Kenya have employed the Mosley and Chen framework, and indirect methods of estimating mortality. Being a baseline study, we have used direct methods of estimating mortality rates and identified the causes of death in relation to the proportions of each cause as they are depicted so as to lay foundation for further research.

2.6.0 Theoretical framework of the study

One common feature emanating from the frameworks employed in mortality studies is that despite the variations in the classification of proximate variables, they remained basically the same. For the purpose of our study, we integrated the relevant variables from a number of frameworks and adapted Jain and Meegama's frameworks. This was essential in a homogenous society like a refugee camp where differences in mortality causes could easily be explained and analyzed focusing on the impact of community factors on the household through which the individual child was affected. Meegama's operational framework has been adopted because it

was applied to a confined society (estates) which were similar to a refugee camp.

Any framework intended for serious consideration must be more than an exhaustive list of variables that may have some link with infant and child mortality, show the mode of interaction and direction of relationship to facilitate both our understanding and further empirical work. Indeed Meegama argues that:-

> "A framework for analysis of infant and child mortality must take into account several factors (demographic, economic, and political, environmental, cultural and geographical, medical and health care, which influence and determine the level of mortality". (Meegama 1980)

Paucity of studies on determinants of mortality compared to fertility was a relative lack of an adequate conceptual framework. Our framework did not include genetic constitution of the infant as suggested by Gondotra et al (1980) because congenital malformations represent morbidity (along with child mortality). We therefore conceptualized the factors affecting infant and child mortality in the camp to be:- demographic (sex and age of child), environmental (sanitation, treatment of water, injuries), health (immunization, place of delivery and place of treatment of illnesses), socio-economic (standard of living - i.e housing conditions and mother's level of education), socio-cultural (beliefs and practices in relation to nutrition, perception of illnesses and religious affiliations in relation to the personal and services provided), and Administrative/organisational will.

To achieve our objectives, we integrated some variables from Mosley and Chen, Jain and Meegama.

From:-

Mosley and Chen: (1984) Environmental-contamination, nutrient deficiency, injury and personal illness control.

Jain (1984) : Socio-economic, availability of facilities, standards of living index, infant and child care.

Meegama(1980) :   Insanitary environment, nutritional habits, ante-natal and post-
natal care, stability (political), herein referred to as administrative
will, adequacy of food supplies and exposure to diseases.

We therefore adapted a modified Jain's conceptual model for this study. On
it we added socio-cultural, demographic and morbidity factors to facilitate
our intergrated framework.

FIG. 2.1
MODEL: CONCEPTUAL FRAME-WORK FOR INFANT AND CHILD MORTALITY AMONG THE REFUGEES

DEMOGRAPHIC FACTORS	COMMUNITY FACTORS	HOUSEHOLD FACTORS	INFANT AND CHILD-CARE FACTORS
Sex and age of the child	- Inadequate/lack of social amenities. - Unfavourable Socio-Cultural beliefs & practices. - Administrative/ Organisational will	- Poor/low levels (SLI) - Low literacy level of the mother	1. Lack of inadequate:- - Immunisation - Nutrition - Personal hygiene - Place of delivery - Control of illness (Place of treatment) 2. Contamination and Insanitary environment

INFANT ANDCHILDHOOD MORBIDITY AND

MORTALITY

Adapted from A. Jain 1994

Fig. 2.1conceptual Model for Infant and child mortality among the
refugees in Dadaab refugee camp.

2.7 Conceptual hypothesis:-

From the literature review we derived the conceptual hypothesis that:-

"THERE IS NO LIKELY RELATIONSHIP BETWEEN THE
INTERACTION OF CHILD CARE, HOUSEHOLD, COMMUNITY,
AND DEMOGRAPHIC FACTORS AND THE CAUSES OF INFANT
AND CHILD MORTALITY AMONG THE REFUGEES".

2.8 Operational Framework

In our study, we adopted Jain's conceptual model (1994). The central thesis
to this model was to identify the proximate factors that influence morbidity
and mortality of the children. In this model, the community, household and
demographic factors operate through infant and childhood care to culminate
into infant and childhood morbidity and mortality.

Our intermediate variables were therefore: 1. inadequate/lack of:-

1.   Immunisation
i.   Nutrition
ii.   Personal hygiene
iii. Control of illness
2.   Contaminated and insanitary environment.

As mentioned earlier, Jain's model distinguished factors operating at
community, household and individual levels. It essentially sought separate
forces (influences) operating through the biological mother and determined
the outcome of pregnancy, and consequent chances of the survival of the
child besides the subsequent post-natal factors.

It's advantage therefore lies in policy formulation and for designing an action
programme. The demerit of this frame work was the non-availability of data
at household levels. This prevented the maximum empirical demonstration
of its approval. This was over-come by application of indepth interviews and
living standard index SLI.

Both secondary and primary sources of data were used to ascertain how the intermediate variables operate to initiate infant and child morbidity and mortality at both community and household levels.

From fig. 2.1 of (Conceptual framework) we derived the operational framework for the study as shown in fig 2.2.

FIG. 2.2

OPERATIONAL FRAMWORK FOR INFANT AND CHILD MORTALITY AMONG THE REFUGEES (DAAAB - KENYA).

Unfavourble Culture beliefs/Practices:-
a.   Lack of/inadequate personal illness control through:-

■   Inadequate Immunisation
■   Place of child treatment
■   Place of delivery

b.   Inadequate Nutrition:-
■   Food preference during pregnancy
■   Child Nutrition

c.   Sex Preference for a child/age of child

d.   Low literacy level of the mother

Administrative/Organisational will:-
- Inadequate/lack of social amenities and personnel

- Unstable/Inadequate food, medical supplies and educational facilities.

- Insanitary environment

- Contaminated H_2O
- Insect vectors.

- Unhygienic/poor feeding Practices

- Poor Infant and Child Health care

- Infant and child Morbidity and Mortality

Standard of Living Index (SLI)
■   Poor/low standards of living
■   Large family size (Unmanagable)

From the operational model, it is evident that the community determines the household environment which inturn impinges on the mode of infant and child care. For instance, unfavourable cultural practices such as restriction on type of food during pregnancy or drugs is likely to espouse malnutrition and anaemia in the mother. This consequently results into an underweight and a malnourished infant that is susceptible to diseases and is likely to die in the first days after delivery.

We could also assess the effect of administrative will, i.e. administration can provide social amenities/facilities such as Education. This would affect the mothers perception of certain cultural norms and her ultimate behaviour as far as child care and the household environment is concerned. Her behaviour whether positive or negative would determine the survival chances of her children.

Generally we can also deduce that where educational facilities/health facilities were lacking and if compounded by cultural restrictions such as females not going to school, would encourage ignorance of basic hygienic, nutritional concepts. This could subsequently enhance a contaminated/insanitary milieu full of insect vectors that transmit diseases that cause child death. The sex of the child determines cultural behaviour, which as cited in the review is reflected in sex preference.

2.9 Operational hypotheses:-

In our study we employed both qualitative and quantitative data inorder to test the following hypothesis:-

a.   Mothers' literacy level is not associated with the choice of food during pregnancy and child death.

b.   The place of delivery is not associated with infant and child death.

c.   Place of treatment of children is not associated with infant and child death.

d.   Immunisation of the child is not associated with the health status of the child.

e.   Sex preference for boys is not associated with child death.

f.   Insanitary/contaminated environment is not associated with infant and child death.

g.   Administrative `will' is not associated with infant and child death.

h.   The standard of living Index is not associated with infant and child death.

Hypotheses, a,b,c,d, and h were to be tested using quantitative method (X^2), whilst hypothesis e,f,and g were to be tested using quanlitative methods (indepth interviews and observations).

2.10 The selected independent factors in this study were:-

Factors/variables

a. Immunisation of mother during
   pregnancy.
b. Immunisation of the child after birth.
c. Place of delivery by the mother.
d. Place of treatment of the sick child.
e. Nutrition: 1. food preference during pregnancy.
             2. child nutrition.

f. Sex preference for a child.

g. Mothers' literacy level.

h. Availability of medical supplies/food supplies.

i. Availability of personnel.
j. The standard of living index (SLI).

k. Family size.

All these factors determine the death of the child through morbidity.

2.11 Definition of key concepts and Measurement of major factors:-

In our study, the uniqueness of the society under inquiry (being subjected to uniform conditions),determined our extra-ordinary classification and definition of key concepts and independent factors. In most studies: Odhiambo 1991 etc. Immunisation, place of delivery, treatment etc were classified under health. They have been analysed under socio-cultural factors despite being classified as health factors

in the conceptual model. This was to facilitate the interdependence between culture and health and their significance in child death.

Socio-Cultural factors:-

The way of life of a people or community and its set norms vary from one society to the other. This may affect one aspect of an individual's life or quite a number of issues which may ultimately affect the offsprings of this given community by determining their chances of survival.

In our study cultural factors seemed to impinge on a number of issues. Therefore the factors to be considered here will be cultural effect on: immunisation, place of treatment of the sick child, place of delivery by the mother, mother's literacy level and sex preference of a child besides nutrition during pregnancy.

The classification was based upon the fact that the above factors depend on the mothers' perception, attitude and willingness to not to execute the cited factors so as to save her child. But if she holds tenaciously on to what culture stipulates then the child's chances of survival were also affected.

Administrative/organisational will (factors)

These were factors that affected the survival chances of the child and were influenced by the administrators of this unique society since they provided the basic facilities to the residents. They include: provision of toilets, shelter, piped water, food, transport, medical supplies, educational and other social amenities (recreational facilities) besides the personnel that distributes and runs them. They in actual fact constituted the community factors. They also determined the

standards of living of the community member and her households' ability to survive. It's the withdrawal of the basic supplies that would compound the living conditions and reduce survival rates.

Refugees:-

This referred to any migrant who had moved from his native country for fear of persecution/insecurity, and had been accorded asylum in Kenya and lived in the refugee camp.

Infant and child mortality:-

These were deaths of live births between 0 - 5 years.
This was to facilitate the computation of mortality rates.

Causes of death:-

This was the immediate cause (disease) that terminated the life of the infant/child. This enabled us calculate the cause specific death rate among the infants/children. The classification was based on the U.N's & M.S.F classification. We added dehydration to this classification as there were many deaths resulting from it in the death register. Data used was from both death register and hospital monthly records. The causes were categorised as exogenic and endogenic.

Mothers' literacy level:-

This was based on the mothers' ability to read or write in any language. We classified this as:-
  1. illiterate
  2. literate

Standards of living:-

A standard of living Index (SLI) was used to measure the economic conditions of the household. This was compiled on the basis of various modern items owned by the household. (See appendix I) as adapted from Tara & Murthy 1980 - 83. This value ranges from 0 - 30 as follows:-

1. 0 - 10 = low
2. 11- 20 = Average (medium)
3. 21 - 30 = High

The data used was from the questionnaire and indepth interviews.

Availability of social amenities:-

This was included so as to determine the regularity and adequacy of the services rendered to the refugees. The data was based on indepth - interviews and observation. Therefore we set out to establish the reliability and adequacy of:-

Service/facility	Category

a. Personnel i.   Social worker/CDW
          ii.   Health personnel/
               CHW[1]
          iii. Teachers
	1. Adequate
	2. Inadequate

b. Means of Transport
          i.   Air
          ii. road
	1. Accessible
	2. Inaccessible
	
	1. Regular
	2. Irregular

c. Regularity of supplies (food, drugs etc)	1. regular 2. Irregular
d. Health facilities/Clinics	1. Adequate 2. Inadequate

e. School:- classified as
 	
          i.   Pre-primary
          ii.   Primary
          iii. Secondary
          iv. Adult education
          v.   Polytechnic
	1. Adequate
	2. Inadequate

---

[1] CHW – Community Health Workers.

Immunisation

a. We established the immunization of the mother against tetanus toxoid (TT) during pregnancy using the 1st T.T. as a proxy to full immunisation. All the live births were

classified as:-

1. None
2. Some

b. To determine whether the child was immunised or not we used BCG as a proxy for the total post-natal care. Therefore all live births were categorised as:-

1. None
2. Some

Infant and childhood injuries:-

These were classified as accidents. These accidents as causes of death included attack by snakes and burns.

Cultural beliefs and practices:-

Data was from indepth interviews with the refugees camp administrators besides observation and the questionnaire.

We categorised as:-

1. Cultural preferences (yes): Those who were restricted by cultural practices/beliefs.

2. No cultural preferences (No):Those who were not restricted by
cultural practices and beliefs.

2.12 Data sources.

In this study, data used was drawn from a variety of sources namely:
nutritional health survey carried out by M.S.F. in the camp, survey
(questionnaire) carried out in the camp by the researcher in May
1995. Data from hospital monthly records and death registers
between July 1993 and July 1994, February 1994 to March 1995 and
data from indepth - interviews with the N.G.O(s) running the camp,
the refugees and finally data by observation.

Indepth interviews and observation were used to determine the major
factors associated with the causes of infant and child death. The
other sources of data facilitated the calculation of various
incidences/rates of death and identification of major diseases that
cause death. They also enabled us test the hypothesis statistically
using the X^2 technique to determine the association of the identified
factors with the death of the children under five years.

CHAPTER THREE
DATA AND METHODOLOGY:
TYPES OF DATA

3.0 INTRODUCTION:-

In the search for the most important variable for explaining infant and child mortality, relations among variables should be studied in accordance with a well defined conceptual framework constructed to show with the relations existing in specific societies or settings.

To be able to understand the process of health, disease, death requires an integration of already existing methodologies and approaches. In mortality and morbidity research, the problem is not just to measure differential by occupation, income or education but to understand why in a particular society, or setting the differentials behave as they do. Essentially, this espouses on integration of various methods and disciplines in order to put into place the jigsaw puzzle concerning infant and child deaths.

Study area

The refugee camps were a sprawling net of huts (tuklus) constructed of closely knit sticks and covered with polythene sheet on top. They were divided in blocks and sections to facilitate administration. Within the blocks were toilets, watering points(taps), health posts strategically placed for the refugees easy access and use.

The population under study were the Somali women aged 15-49 and displaced the desired characteristics for the study.

Our units of study were the refugee children below or aged 5 years.

3.1.1 Hospital Monthly Records

Data in the monthly reports constituted hospital activities during the month such as:- death of under five and adults by cause, out and in patient attendance, morbidity, mother and child immunization, antenatal and postnatal care, malnutrition as indicated by (PEM), statistics on cholera and T.B, and the food basket for the month.

Deaths by cause in the monthly reports were derived from the death registers. This data was used to complement and supplement the death registers. The data for 1993 was not available therefore, we collected data from 1994 March to 1995 February, making up one year for ease in calculation of annual mortality rates. The vital registration data consisted of all under five deaths by cause within the specified period above, excluding still births and abortions. This data was collected on 3rd, 4th, 9th and 10th May, 1995.

3.1.2 DATA COLLECTION PROCEDURES:
   Sampling procedures and size.

a.   Survey/questionnaire:

Data was collected from the nutritional survey carried out in November, 1994. "Rapid Nutritional Survey among populations in emergency populations". They used a two stage cluster sampling. The clusters were randomly selected using a computer program which ensured good randomization (Tereza 1994). There were 30 clusters of 26 children each, totalling 780 children. The indicators in this survey were age, sex, family size, weight, height, oedema and immunization. (BCG, and Measles card or scar) and the block/section of the child.

Given the time limit of our study, from the above survey of 780 children we systematically sampled every fifth child and had a total of 161 children. This data was included so as to justify the differentials in nutritional status. To supplement the above information, a

questionnaire Appendix IV was formulated and included the following schedules:-

a. The Background characteristics of household members.
b. The Standards of Living index (Appendix I) based on the housing conditions and assets available in the house of the refugee.

c. The Reproductivity of the women aged 15 - 49 years
d. Sex preference for children by the women.
e. Child and maternal health care (Immunization, illness of the child to determine the health status of the children.

f. Suggestions on how the camp status can be improved. This was included to enable us identify other factors causing deaths among the under five year old children in the camp.

Sampling Procedure:

Since this was complimentary information of the female population in Hagadera and Ifo we selected - a sample size of 106 women. We used a two-stage cluster sampling so as to operate within the available time. We clustered the three refugee camps in Dadaab and randomly selected Hagadera and Ifo. Out of the 5 blocks in the Ifo Camp 3 were randomly selected as below:

A - Urban (refugees who originated from Urban centres in Somalia)

B - Pastrolists (refugees who originated from rural in Somalia)

C – Pastoralists.

Where as in Hagadera , we randomly balloted 5 blocks namely, A,C,I,D,F.

In the second stage all sections within the selected blocks were sampled. From each section one female respondent aged between 15 and 49 was randomly selected. We noted with appreciation that this resulted into some bias on the choice of the respondent who in this case was not just aged 15-49 but must have ever had a child. The execution of the questionnaire took four days from (5th to 8th May, 1995). It was executed by enumerators (community development workers i.e.- Somali refugees). Each one had five questionnaires for two and a half days.

The first day was the selection and training of Community Development Workers who were of Somali origin, spoke English/Kiswahili and were able to read/write. During the training exercise, some of the questions on the standard of living index were modified to suit the refugee camp community since the questionnaire schedule was prepared prior to visiting the camp. The questionnaires were collected on the fourth day.

3.1.3 Indepth Interviews

Many scholars (Kibet 1982, Brittain 1988, Koeng et al 1990) have tended to restrict themselves to secondary data. This could be attributed to the ease with which data is collected. Khan 1980, Anker and Knowles 1980, Nag et al 1982 and Khasakhala 1993 used indepth case studies that entailed detailed probing on various issues

pertaining to mortality.

Roth (1985), used random stratified scheme and restricted himself to women aged 15 - 34 from 450 households. He investigated child mortality levels and survival patterns in Southern Sudan. Since modern medical measures and approaches were not adequate in both preventive and curative aspects, he posited that there was need for knowledge of the socio-cultural interaction because what people believed, and did was not what they recorded during the surveys.

Caldwell (1986) observed that little indepth study of the processes of morbidity and mortality had been made, particularly as regards the behavioural aspects of child care. Feyisetan (1988) gave examples of inconsistencies in survey data on the effect of child and pre-natal maternal nutrition on Infant and Child morbidity and mortality in Ife, Nigeria as examples where indepth demographic studies could help to clear the inconsistencies. He noted that:-

> "The more mothers eat protein food during pregnancy, the
> higher the risk of death is to their infants".

We also employed indepth interviews in our study to essentially understand "toto" phenomena, particularly of a social, cultural and attitudinal nature of the Somali refugees in Dadaab. This method was applied in mortality following the realization that modern medical measures and approaches were not sufficient/adequate in both preventive and curative aspects.

> "We need to understand what people say they ought to do
> - the rules. What people say they do - the norms. What

people actually do - the reality". Editer UNPF Readings in population research & methodology vol.2. 1993.

Rendall meaningfully argues that to understand the relationship between rules and reality, it cannot be obtained rapidly or through questionnaires, hence the frequent response of the anthropologists to demographers as below:-

"No, you cannot ask that, you will never get any data that means anything that way".

In indepth interviews, there are open ended questions (questionnaires) set to keep the conversation on track and to ensure that all points intended are covered. In our study probing questions were asked either when the response was not clear or when the respondent talked about new interesting information pertaining to the general subject matter of the study.

It was used because it lays bare the real situation besides its superiority in collecting attitudinal and social science data and thereof, interpretative capability. It facilitates the interpretation of the quantitative data from the vital registration and questionnaire/ surveys, in attempting to explain the "whys". The advantage of this method lies in the fact that the researcher does not need to be a trained anthropologist to use the method (given that it is a quasi - anthropologist/ethnological technique). One can easily gauge to what extent the respondent gives correct and accurate information, subsequently act as a pilot study for formal surveys.

In executing indepth interviews, we had one-two hourly discussion sessions with seven refugees, three relief officers, and six medical staff on different dates running from 4th to 10th May, 1995. This provided

an essential insight into the social, emotional and psychological aspects of the refugees. Description of what was observed was executed pertaining to the daily events in the camps.

3.2.0 QUALITY AND RELIABILITY OF DATA

Mortality statistics in many developing countries suffer from serious problems of under-reporting due to selective recall and reference period errors.

Despite the considerable progress in the uniform classification of causes of death, there are still not qualified personnel to apply the classification scheme, and the proportion of poorly defined causes is great. These inconsistencies are perhaps due to changing definitional criteria, idiosyncrasies in the interpretation of symptoms, nostological concepts and coding systems (as perceived by the relatives of the deceased and the personnel recording the incident). Jeanne 1975.

This could also be attributed to the inadequate supervision in field registration, compounded by biased medical personnel towards the most prevailing diseases in the area/season. These problems result into age misreporting, omissions, especially in infant deaths and displacement of causes of death in vital registration, consequently making it impossible to adjust and compute for the mortality rates. Thus the rates computed are subject to errors as revealed in our study.

We found out that, the monthly hospital records were derived from the death registers. According to the 1994 death register, from April to July, the under five deaths were 17, 12, 12, and 4 respectively, compared to 12, 21, 17 and 16 respectively for the same months/year as recorded in the monthly hospital records.

From the same hospital records, there were no under five deaths due to malnutrition, whilst the death register depicts 6 deaths from the same cause (malnutrition) between April and July, 1994. How do we account for these inconsistencies. Can we meaningfully formulate our policies on the irregularities in this vital data?

Both sets of data were to be used so as to facilitate the general trend of the causes of death. The monthly death rates were adjusted (see monthly death rate) so as to minimize the effect of seasonality/epidemic seasons in the causes of death. So were the cause specific death rates.

Language barrier was evident between the researcher and the refugees (Somalis). This required an interpreter hence a likely loss of important information.

The study required a prior stay in the camp to facilitate adequate observation into the cultural norms of the refugees for a week wasn't sufficient. Given the above observations, the study should be perceived as baseline, requiring future research on specific factors underlying the causes of death.

Despite the above limitations, the data was used to estimate different mortality rates namely:- cause specific mortality rates, endogenic and exogenic death rates. The data also depicted the monthly distribution of deaths by cause, and since the camp was our unit of measurement, we used the aggregate, making it difficult to estimate the rates/levels of mortality by blocks.

It also portrayed the distribution and nutritional status of the children and the immunization coverage throughout 1994.

3.4.0 METHODS OF DATA ANALYSIS

3.4.1 THE CHI-SQUARE TEST X²

This is a general test used to evaluate whether or not frequencies which have been empirically obtained differ significantly from those which would be expected under a certain set of theoretical assumptions. It measures the hypothesis that two variables are independent of each other.

This test is applied when testing the discrepancies between observed and expected frequencies. This is to say, in those cases where the researcher wants to find out whether the differences between the observed and expected frequencies arises due to chance or from inadequacy of theory to fit the observed facts. In this study it has been employed to display row and column percentages to show the distribution of women response in various categories of factors under study in relation to child dead/children surviving.

It can also be used to test the goodness of fit. (X² is the most important of all tests used to find out closeness of fit). Finally, it can be applied in determining association between two or more attributes.

Certain preconditions are observed in the application of the X² test. The number of observations must be sufficiently large, otherwise differences between the actual and observed frequencies would not be normally distributed. As an arbitrary figure of N not being less than 30 should be reasonable.

No theoretical frequency should be small. According to Yule and Kendall, 5 should be regarded as minimum. When the theoretical frequencies are less than 10 adjoining classes should be merged together. In case of a 2 x 2 contingency table, the use of Yates' correction should be made.

Since some of our theoretical frequencies were less than the desired minimum of 5, the adjoining classes were merged and Yates' correction applied.

Yates' correction was applied so as to adjust the calculated values to facilitate the application of the table X^2 values, otherwise, they would be inaccurate, especially where the degree of freedom (this measures the number of variables that can be freely or arbitrarily chosen under some overall constraints) is only one.

This error is negligible when the degrees of freedom exceed three. In adjusting the calculated X^2 values to be comparable to the table values, Yates' correction involves adding 0.5 to the observed frequencies which are less than 10 and subtracting 0.5 to those observed frequencies above 10.

Secondly the experimental data must be independent of each other. The data must be drawn from the same target population. Data must be expressed in absolute numbers.

To compute the X^2, the formula below was employed. Sample should have atleast 50 observations "- no cell should have 'O'.

$$X^2 = \frac{\sum (O - E)^2}{E}$$

Where $\sum$ = Summation

O = Observed Frequencies

E = Expected Frequencies

In it's application, the calculated X^2 is compared to the critical points (values) of the theoretical X^2 distributed so as to facilitate the statement of the likely relationship if the calculated value of the two variables are independent.

The association tested in the study were:- based on the assumption that:-

H_0 : There is no likely relationship between the two variables being tested.

H_1 · There is a likely relationship between the two variables being tested.

Given the significance level of 5% percent, if the calculated X^2 value is greater than the critical (theoretical) X^2 value, then the null hypothesis (H_0) is rejected and alternative (H_1)hypothesis is accepted. If on the other hand at 5% percent significance level the calculated X^2 value is less than the critical X^2 value, then the H_1 is rejected and H_0 accepted.

One disadvantage with the X^2 method is that it is not specific in the association it displays whether the association is positive or negative. For instance there may be a relationship between immunisation and child death but X^2 does not specify whether increase or decrease in immunisation increases or decreases child death.

Secondly not every statistically significant relationship between the variables imply that the results in the table automatically espouse the

researchers' empirical hypothesis. It only justifies that the results did not occur by chance. For example, many studies (Chen et al 1984) have show that improved Socio-Economic status or standards of living reduce mortality. Therefore the association between standard of living and child death may not be statistically significant albeit there is some association.

We note that the greater the variation between the observed and the expected frequencies the greater the X^2 value and the higher the chance of a statistically significant relationship between the variables being tested.

DEGREES OF FREEDOM

The validity of the X^2 values depends on the degrees of freedom (df). Degree of freedom is simply the number of cells of the table that can be arbitrarily filled when rows and column totals (marginals) are filled. It is determined by the number of rows and columns in the table that show the variables being tested. For instance immunisation and health status of the child.

To compute the number of df to be used at a given significant level on the X^2 table, we take the total number of row subtract one multiplied by total number of columns subtract one as below:-

df= (R-I) (C-I)

3.4.2 CROSS-TABULATIONS:-

This is a method that displays row and column percentages of the categories of variables under study in a table. It shows the association and distribution of two variables or more under study.

For example a cross-table between causes of death and sex of the child or weight of the child and sex of the child. Since cross-tabulation is inadequate in testing the relationship between two variables the X^2 test is then employed to find out whether there is any association or not.

However, it is effective in facilitating comparison between the categories of the variables under study besides being easy and simple to compute. In our study the grand totals were used to compute the 'cell' percentages for easy comparison, since we were not analysing individual characteristics but the whole subjects of the camp as one unit of measurement, and to enable us make meaningful generalisations.

3.4.3 GRAPHICAL REPRESENTATION

Graphs show the quantitative relationship between two variables in drawing the graph, the independent variables is put on the X-axis while the dependent variable is put on y-axis. In our study we employed multi-line graph and comparative bar graphs.

Multi-line graph

It involves drawing more than one line graph on one graph with each line representing an independent variables. It is a useful method for representing continuous data such as trend of population growth. Their advantage lies in their clear vision showing the changes of a given variable with time and the relationship between the two variables. They show the comparison between more independent variables in relation to one dependent variable.

Their disadvantage is that they fail to give a clear vision impression on the quantity of the data. They also assume some details of change and may give false impression on the continuity of some data.

Comparative bar graph:

A bar graph is a two dimensional diagram which shows the relationship between two variables. It was used because of it's effectiveness in representing discrete data because they give a clear visual impression of the definite quantities of the data. They also show clearly the individual amounts and clear comparisons of different quantities. They however are not useful in showing continuity of data, rates of change and the fluctuations in data values.

Pie-Charts: (divided Circles)

These are circles drawn and sub-divided to represent statistical data. Each segment of the circle represents a given component of data. The line of the segment is equivalent to the quantity of value of the component. The larger the component the larger the circle segment representing it. They are simple to construct and give clear visual impressions of individual components or variable. They can be used to represent a wide range of statistical data. Despite the above, it's difficult to determine the absolute or exact value of the independent variable and does not show the continuity of any data.

3.4.1 Proportions/percentages:

This were employed to 'standardize' the various observations/responses in each cell and to alleviate the difficulties in using various base totals and absolute figures.

The qualitative information derived from the indepth interviews/questionnaires was calculated into proportions, where:-

$$\frac{SR}{NR} \times 100 = \%$$

where:-
SR = Specific response either yes or no, for a particular question (variable).

NR = Total number of respondents (grand totals)
These were then used to fill the cells in the cross-tabulation.

CHAPTER FOUR

RESULTS:-

4.0 EFFECTS OF SOCIO-ECONOMIC FACTORS ON INFANT AND CHILD MORTALITY AMONG THE REFUGEES.

4.1.0 The Death Incidence:-

This section of the study concentrated on finding various incidences of death among the refugee camps. The objectives were to establish the monthly death rates, and cause specific death rate. Secondly the study aimed at establishing the major causes of death and factors responsible for these deaths, how they interact to cause death. - Data used in computing the rates/ratios was derived from both the hospital records and death registers. The proportions were calculated from the Grand total as the denominator.

The rates calculated were:-

4.1.1 Monthly Death rates (MDR):-

This rate was computed to show mortality variation over short periods. I.e. less than a year. It was adjusted by taking the monthly death figures and converting them to an annual basis. This was done by inflating the number of deaths for a given month multiplying by the number of days in a given year divided by the number of days in a particular month. The corresponding rate was then divided by the population for the month multiplied by 1000:-

Formula:-

$$MDR = \frac{\frac{365 \times DM}{nm}}{pm} \times 1000$$

where: 365 - number of days in a year.

DM - number of deaths in a given month.
nm - number of days in a month.
pm - population for the month.

The adjustment was done so as to eliminate the differences in the number of days in a month, consequently facilitating monthly comparisons.

Table 4.1 <u>Monthly Death Rate for under 5 year old</u>
         <u>(March 94-Feb 1995).</u>

MONTH	IFO	HAGADERA	BOTH
MARCH	93	26	64
APRIL	164	32	106
MAY	81	53	70
JUNE	28	31	29
JULY	27	28	28
AUGUST	17	12	15
SEPTEMBER	28	10	19
OCTOBER	73	19	49
NOVEMBER	63	51	57
DECEMBER	42	47	45
JANUARY	25	24	25
FEBRUARY	51	17	32

source: Hospital monthly records: May 1995 (MSF.B. Dadaab)

The table (4.1) showed two distinct peaks when mortality was high.
These were March to May (64, 106, 70 per 1000 respectively) the
highest being April 106/1000. We had a peak also in October to
December (49, 57 and 45/1000) with the highest peak in November
(57/1000).

A graphical representation of this MDR (fig4.1) depicted an open `M'
formation for both camps (total) with low deaths at the beginning of
March, high in April, lowest in August with 15/1000 and high in
November and low in January with 25/1000.

The peaks correspond greatly to the rain seasons in the country in
general and Garrissa in particular. Looking at table 4.2 showing the

Fig 4.1: Distribution of MDR for under 5 yr children in Dadaab Refugee Camp (March 94 - Feb 1995)
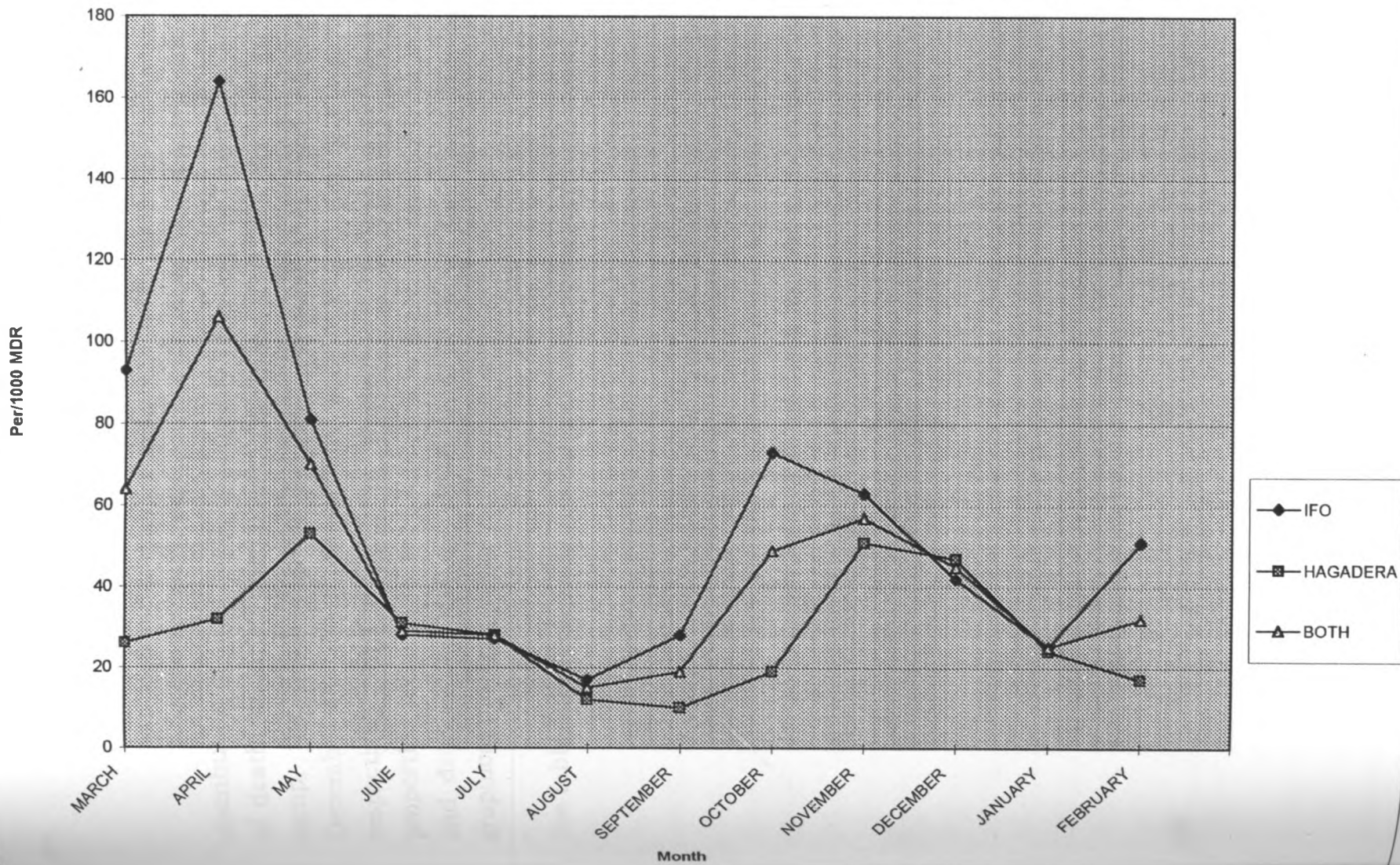
distribution of child death by monthly variations in four major causes of death (malaria, pneumonia, Diarrhoea and Dehydration) for this camp, the death register in 1993 revealed that from August to December the death proportions were 4.2, 5.5, 6.0, 8.7 and 7.9% respectively with a peak in November. In February 1994 the proportion reduced to 3.9% and rose in March to reach 24.1% in April and dropped in May to 13.4% and in July, displaying the same graphical pattern.

See table below:-

Table 4.2

Percent distribution of monthly child deaths in four major environmental causes of death July 1993 - July 1994

Months	Causes of Death					
	Malaria	Pneumonia	Diarrhoea	Dehydration	All causes of death	Total %
1993						
July	0.5	0.5	0.3	0	8	(2.1)
August	0	0.5	1.3	0.3	16	(4.2)
September	1.3	0.3	1.8	0.8	21	(5.5)
October	1.6	0	2.1	0	23	(6.0)
November	1.6	0.3	4.2	0.3	33	(8.7)
December	0.8	0.5	1.8	1.3	30	(7.9)
1994						
January	1.0	0.5	0.5	0.3	17	(4.5)
February	0.3	0.5	1.0	0	15	(3.9)
March	4.3	1.8	1.3	0.5	41	(10.8)
April	6.6	1.6	1.6	1.6	92	(24.1)
May	3.1	2.6	0.8	0	51	(13.4)
June	0	0.5	0	0.8	21	(5.5)
July	0.3	1.0	0.3	0	13	(3.4)
Total	81	41	65	22	381	
%	(21.3%)	(10.8%)	(17.1%)	(5.8%)	(100.0%)	

Source:- Death register Ifo and Hagadera May 1995(Musambai 1995)

From this table the major cause of death in April was Malaria claiming 6.6% of all deaths in the camps in this particular month and 21.3% annually. In November, diarrhoea had the highest proportion of deaths claiming 8.7% of all deaths in that month and 10.8% of death

in the year. The onset of dry weather (high temperatures) for instance in August, September, and December contributed to high death proportions in dehydration which were exacerbated by diarrhoea.

Generally table 4.2 shows the higher the proportions of death due to diarrhoea the higher the proportions of death due to dehydration too.

Deaths in the first half of year are higher and fall in second half of year. An investigation as to why we had the cited peaks in death revealed that: during the rains, most toilets collapsed and given the (5.7%) that used the bush instead of the latrine, there were high chances that the sewage overspilled espousing contamination of the environment/water. For instance in November 1994 there were floods for over 10 days during which both latrines and houses collapsed: (MSF France report Nov. 1994). This consequently initiated and sustained diarrhoeal diseases. The flooding of the Lorian swamp, was consequently abreeding ground for mosquitoes which transmitted malaria as shown above. From the MSF France Report of November 1994, C.A.R.E had stopped spraying and supplying soap.

Observations showed that the houses (tuklus) were built of sticks and the top covered by polythene paper. This meant that the refugees were exposed to extreme weather conditions besides the varied insects:- mosquitoes, crickets, flies etc. Therefore when the houses flooded during the rains the refugees stayed in dump areas hence an increase in Pneumonia too. The dry spell exacerbated ARI[1] due to dust.

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[1] Acute Respiratory Infections

4.1.2 Cause Specific Death rates (C.S.D.R).

This rate was computed because it takes care of the population exposed to the risk of death from a particular cause or group of causes. It also permits comparison between different areas of the relative frequency of a particular cause of death "adjusted for the size" of the population in each area.

A large constant (K) is usually applied in this rate because there are relatively few deaths from many of the causes e.g. accidents, meningitis.

The formula employed was:-

$$\frac{DC}{P} \times 100,000$$

Where DC = death from a particular cause e.g malaria

P = mid year population.

table 4.3 <u>Cause Specific Death rates for</u>
<u>under 5 year old children (March 1994 - Feb 1995)</u>

CAUSE	IFO	HAGADERA	BOTH
Malaria	1438.8	469.4	991.1
Pneumonia	518.0	536.5	526.5
Measles	0.0	0.0	0.0
Diarrhoea	877.7	536.5	720.1
Malnutrition	71.9	50.3	61.9
Meningitis	43.2	0.0	23.2
Hepatitis	14.4	0.0	7.7
Neo-natal	561.2	217.9	402.6
Cholera	0.0	33.5	15.5
Accidents	14.4	0.0	7.7
Others	1841.7	1022.6	1463.4
TOTAL	5381.3	2866.7	4219.9

Source: Monthly hospital records for Ifo and Hagadera May 1995.
(MSF.B.Dadaab)

Fig 4.3: Distribution of cause specific death rates for under 5 children Dadaab refugee camp March 1994 - Feb 1995.

Pie chart values: 991.1, 526.5, 0, 720.1, 61.9, 23.3, 402.6, 7.7, 15.5, 1463.4, 4219.9

Legend:
- Malaria
- Pneumonia
- Measles
- Diarrhoea
- Malnutrition
- Meningitis
- Hepatitis
- Neo-Natal
- Cholera
- Accidents
- Others
- Total
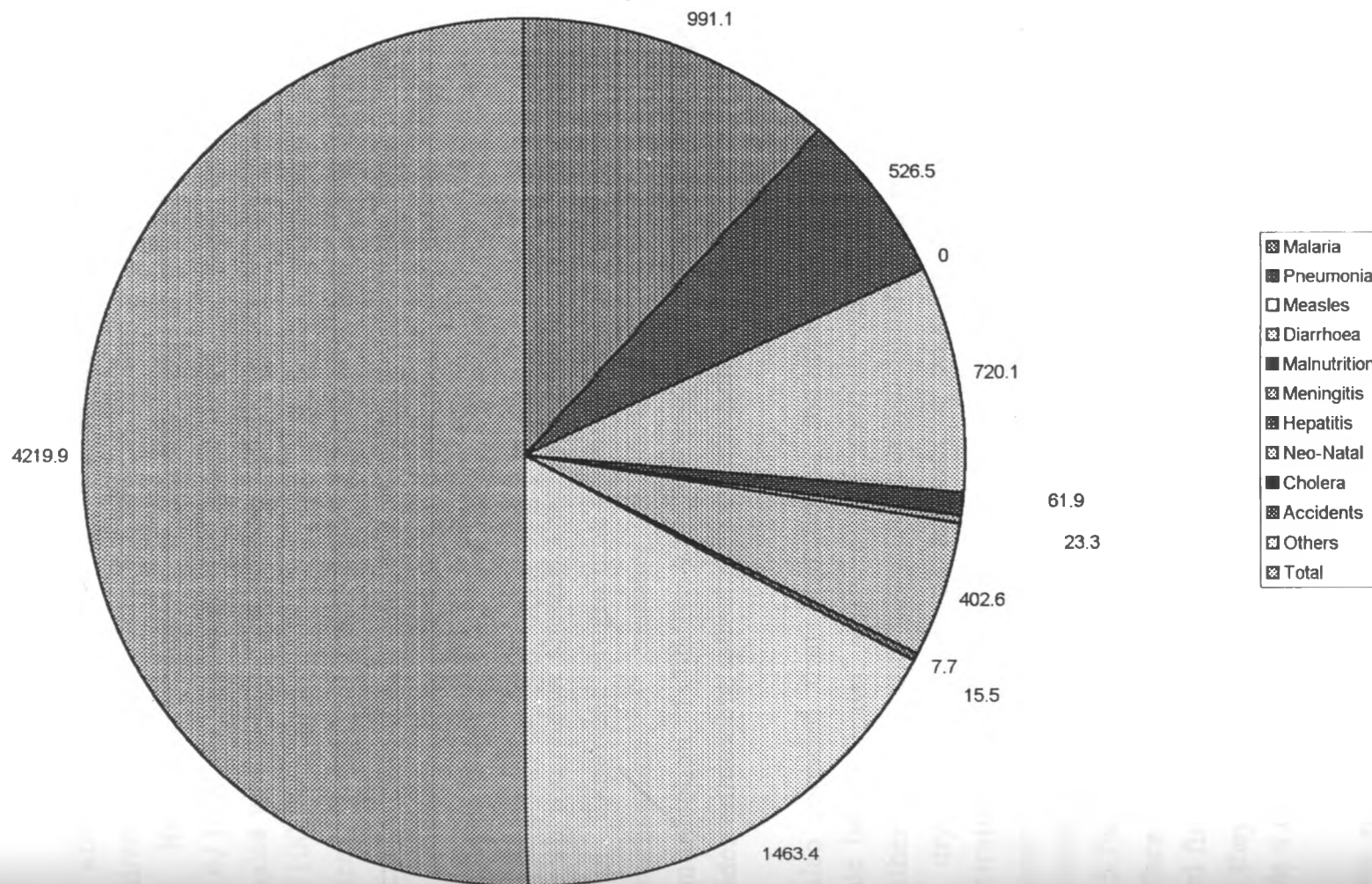
The above table (4.3) and fig. 4.3 shows that a large proportion of children were exposed to the risk of Malaria, Diarrhoea, Pneumonia and Neo-natal causes of death (991.1, 720.1, 526.5 and 402.6/100,000 respectively). None of the children were exposed to measles whilst hepatitis and accidents registered the lowest risk with 7.7/100,000 each. Within the low risk group were:- accidents, cholera, hepatitis malnutrition and measles. Malnutrition was distinct with 61.9/100,000 whilst the others were less than 25/100,000. This trend was explained by information from indepth interviews below.

Indepth interviews showed that measles had been controlled in the camp. Expanded Programme of Immunisation (E.P.I) had stepped up immunisation of measles to cover the <u>missed opportunities</u> (immunisation of children who had passed their immunisation period) besides enhancing refreshment workshops.

It also revealed that Pneumonia, malaria and diarrhoeal diseases could be attributed to the environmental conditions compounded by weather pattern and `negative' cultural beliefs and practices. During the dry season such as August, it was dusty hence numerous respiratory diseases, whilst during the wet season, it was dump, with stagnant water espousing breading of mosquitoes that initiate malaria, bilharzia and other diarrhoeal diseases due to insanitary environment as 5.7% of the interviewed use the bush for latrines and 1.9% use surface water instead of the tap water. We appreciate the 25.5% who used fire wood for lighting and 98.1% who used wood fuel for cooking for they significantly contributed to the respiratory diseases. (see table 4.6 on SLI).

Many neo-natal deaths were mainly attributed to genetic disorders and mother's behaviour/cultural practices. In this case, impaired

nutritional status of the mother during pregnancy greatly determined the development and survival chances of the foetus. Our study found out that (Table 5.6) 69.8% of the women had restricted themselves from eating mutton, liver, eggs, honey, fish due to cultural belief that this could harm the baby, remove the baby's hair and consequently cause the foetus to be quite big and pose difficulties during delivery. This belief resulted in anaemic women and subsequent under weight children who were susceptible to infections and ended up dying before one month. This was also exacerbated by lack of T.T[2] and the refusal to take the iron tablets. The belief was that these drugs would burn the foetus besides causing the mother to fall sick. For instance in June 1994 in Hagadera, out of the 33 women admitted for ANC (antenatal clinic), 55% suffered from malaria, 39% anaemia and 6% from pre-eclampsia.

4.1.3 Endogenous Death-Rate

These were deaths presumed to arise from the genetic make up of the individual and from the circumstances of pre-natal life and birth process. According to the editor of UNFP, "Readings in Population Research Methodology", vol.2. 1993. In countries where causes of death are not available, infant and under one month old are taken as endogenous whilst death from one to eleven months old are taken as exogenous. To calculate endogenous death rate, we used:-

$$\frac{D}{P} \times 1000$$

where:- D - Deaths due to endogenous cause.

P - Mid year population.

---

[2] Tetanus Toxoid

4.1.4. <u>Exogenous Death Rate</u>:-

These deaths were presumed to arise from purely environmental or external causes. They clearly indicated that the behaviour and practices of the expectant mother, besides after delivery, and the surrounding environment played a vital role in the health and subsequent survival of the child. To compute exogenous death rate:-

$$\frac{D}{P} \times 1000$$

where:- D - deaths from exogenous cause

P - mid year population

N/B We should note the fact that endogenous causes of death have a bearing on Exogenous deaths hence excluded from Exogenous death rate computation.

Table 4.4 <u>Endogenous and Exogenous death rates among the children of   Dadaab Refugee Camp July 1993 - July 1994.</u>

Type of causes of death	Hagadera	Ifo	Both
Endogenous	10.9/1000	7.7/1000	9.3/1000
Exogenous	11.5/1000	15.8/1000	18.7/1000

Source: Death registers May 1995. (Ifo and Hagadera).

From the above table 4.4, and in fig 4.4 more deaths were due to exogenous causes 18.7/1000 than endogenous 9.3/1000. Using the complimentary data from indepth interviews and observation, we can meaningfully deduce that exogenous deaths being environmentally oriented were mainly due to changes in weather patterns as already

Fig. 4.4 Endogenous and Exogenous death rates among the children of Dadaab Refugee Camp July 1993 - July 1994
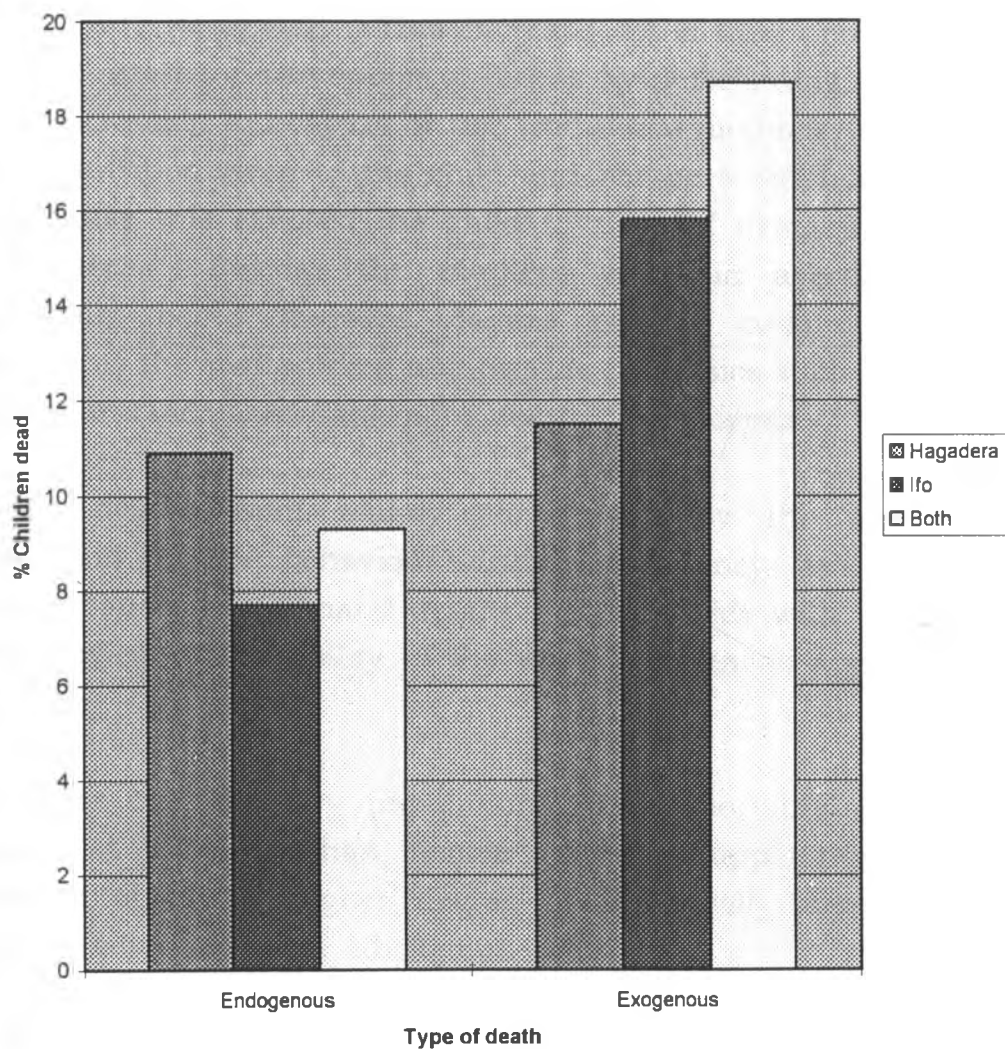
Source: Death registers May 1995 (Ifo and Hagadera)

discussed.   During the rains diarrhoea, malaria and pneumonia increased greatly (table 4.2).   This increase could also perhaps be attributed to:- mothers' perception of illness by determining whether to take the sick child to hospital or use traditional methods/or none; the type of nutrition given to the child and her personal/household hygiene because this exposed the child to risks of dying from the named diseases.   Besides the mothers effort in averting the environmentally based diseases, failure of the community to constantly spray the environment and provide the basics such as soap compounded and increased Exogenous deaths in the camp.

Endogenous deaths were mainly contributed by the mothers nutritional and health behaviour during pregnancy as already discussed in causes of neo-natal deaths. Side by side with this act was the biological susceptibility of the male children as argued by heligman that:

> "In most contemporary populations, male mortality is higher at all ages than female mortality apparently because of males' higher degree of biologically-based susceptibility to disease...(heligman 1983).

In our study, 5.8% male children died from neo-natal causes compared to 4.7% female children as in table 4.5 and fig. 4.5below :-

Table 4.5 <u>Percent distribution of children by cause of death by sex</u>
       <u>(March 1994 - February 1995</u>

Cause of death	Males	Females	Both
Malaria	11.0	10.2	81 (21.3%)
Pneumonia	6.3	4.5	41 (10.8%)
Diarrhoea	8.1	8.9	65 (17.1%)
Malnutrition	3.4	4.2	29 (7.6%)
Meningitis	0.5	0	02 (0.5%)
Neo-natal	5.8	4.7	40 (10.5%)
Dehydration	3.8	2.1	22 (5.8%)
Accidents/Burns/snak	0.3	1.0	05 (2.3%)
e bites	7.9	7.6	59 (15.5%)
Unknown	5.5	4.2	37 (9.7%)
Others			
Total	200	181	381
	(52.5%)	(47.5%)	(100.1%)

Source: Death register. Dadaab refugee Camp May 1995

Fig. 4.5 Percent distribution of Children by cause of death by sex (March 1994 - February 1995).
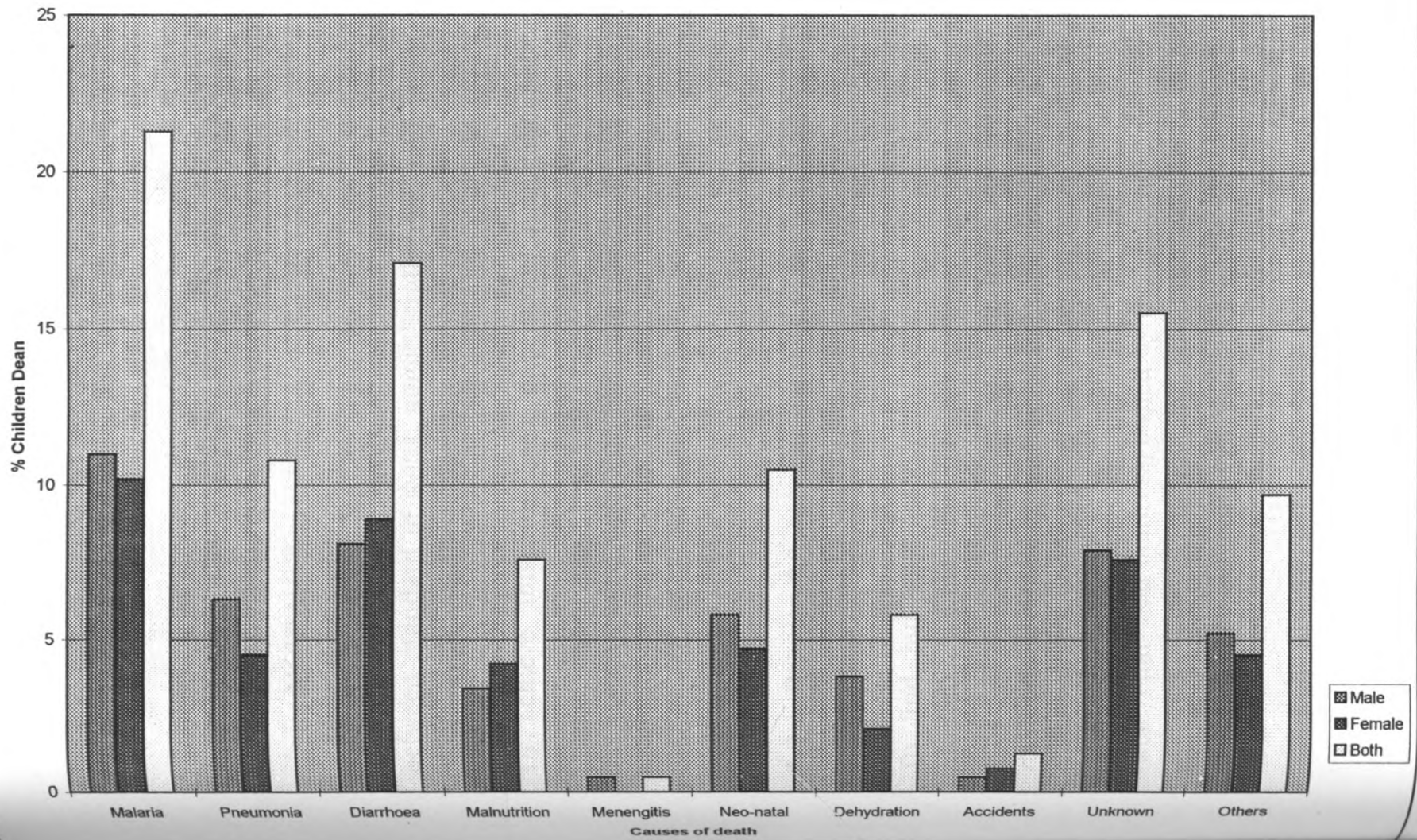
4.2.0 RELATIONSHIP BETWEEN STANDARDS OF LIVING, ADMINISTRATIVE WILL AND INFANT AND CHILD MORTALITY.

In this section our study aimed at establishing the relationship between standard of living, administrative will and infant and child mortality among the refugees in Dadaab camp.

To achieve this, we used data from a questionnaire schedule administered to the refugees, nutritional survey and indepth interviews besides observation. The first sector of this chapter attempts to find out the relationship between standard of living and infant and child mortality. The second section focuses on the relationship between Administration and infant and child mortality.

4.2.1 Relationship between standard of living and under five mortality:-

To find out any association between Standard Living (S.L) and mortality, we used the SLI adopted from Tara and Murthy (1980-83). This index was categorised as 1-10 being low standard, 11-20 as moderate (average) and 21-30 as high standard. The index measured the economic conditions of the household based on the availability of modern items (bicycle, watch/clock, radio, sewing machine, table/chair and mattress) owned by the household members. SLI also took into account the housing amenities (source of drinking water, toilet facilities, fuel for cooking, lighting, type of house etc). Tara's SLI was adjusted for the refugee camp. The data used here was collected using the questionnaire. (appendix IV).

Table 4.6 <u>Percent distribution of SLI and underfive children for Dadaab refugee camp May 1995.</u>

NW	State of Children		Total Children
	C.D.%	C.S%	
0 - 10	70(66.0%)	14.4%	51.3%	361(65.6)
11 - 20	36(34.0%)	5.3%	29.1%	189(34.4)
21 - 30	0	0	0	0
TOTAL:	106(100.0)	108(19.6)	442(80.4)	550(100.0)

The above table 4.6 revealed that a large proportion 66% of children were from low standards of living and only 34% were from the middle class, with none in the high class. Out of the 20% children who died in the camp, 14.4% were from the low class and 5.3% from middle class and none in the high class. The proportions suggested that the higher the SLI the lower the child deaths.

A X^2 computed to test this trend/relationship between SLI and child death showed that at 1degree of freedom, the critical X^2 was 3.841 while the computed X^2 was 3.3.6 lower than the critical X^2. This showed that there was no statistically significant relationship between SLI and child death. Therefore we rejected the H_1 hypothesis that "there was a relationship between SLI and child death and accepted the H_0 hypothesis that there was no relationship SLI and child death.

Where as many studies have justified that the higher the SLI the lower the deaths, our study fails to espouse this. Perhaps this could be attributed to the fact that the refugees were both subjected to same living conditions as they were provided for by U.N.H.C.R. The slight variation in SLI as displayed in table 4.6 by the 34% in the moderate level of SLI could be explained by the fact that a few of the refugees were traders at the local markets whilst others had been employed by

the NGOs running the camp as auxiliary staff hence earned an extra income to suppliment what U.N.H.C.R supplied them with.

A critical look at the housing conditions below in table 4.20 revealed the effect of SLI on child mortality.

Table 4.7 **Percent Distribution of housing condition for Dadaab Refugee camp May 1995.**

Housing Conditions	Ifo	Hagadera	both %
Type of house 1. Semi-permanent	13.2	3.8	18(17.0)
2. Tent/tuklus	38.7	44.3	88(83.0)
Lighting Fuel 1. Paraffin	34.9	39.6	79(74.5)
2. Firewood (others)	17.0	8.5	27(25.5)
Drinking water 1. Tap water	50.0	48.1	104(98.1)
2. Surface water	1.9	0	2(1.9)
Cooking fuel 1. Paraffin	0	0.9	1(0.9)
2. Woodfuel	50.9	47.2	104(98.1)
3. Dung	0.9	0	1(0.9)
Type of latrine 1. Pit latrine	50.0	44.3	100(94.3)
2. Bush	1.9	3.8	6(5.7)
TOTAL	55(51.9)	51(48.1)	106(100.0)

From the above table (4.7), it is shown that a large proportion, 83%, of refugees lived in `tuklus`. The tuklus (huts) were constructed of sticks and covered with polythene paper. These tuklus exposed the inhabitants to extreme weather conditions and spread of diseases e.g. malaria, diarrhoea, pneumonia. For instance during the rains some of

them collapsed and others flooded. "Rain, while bringing good prospects for agriculture can bring serious short term problems. These include diseases..... anyone of these can kill normal healthy people who are weakened by malnutrition or dehydration especially those under 5 years and the elderly" (Standard newspaper 19/6/95). During the drought, all the dust also made way into these tuklus and all insects circulated easily through them. Following the rapid inflows of refugees from other camps, the shelter provided by U.N.H.C.R. was insufficient (MSF hospital monthly records Nov. 1994).

Where as a large proportion (74.5%) used paraffin and 25.5% used firewood for lighting, these fuels emitted a lot of smoke and once inhaled by the children caused respiratory diseases. Almost everyone (98.1%) used chlorinated tap water for drinking albeit 1.9% insisted on using surface water which most likely was contaminated given that 5.7% refugees used the bush as a latrine. The ones who used surface water were exposed to waterborne disease.

It's worth appreciating the fact that the use of pit-latrine and tap water by 94.3% and 98.1% respectively contributed significantly in raising the SLI. The two conditions (pit latrines and tap water) had reduced the exposure to water borne diseases by eliminating bacteriological contamination hence low risk of infection and child morbidity and subsequent deaths.

In our study we looked at the effect of SLI on child death by examining the mothers's behaviour in the household and the community's contribution to SLI where the refugees lived as determined by the NGO running the camp.

The NGO's herein referred to as the community provided all the essential basics:- shelter, clothing, food, water, pit-latrine, and health facilities. The community offered all these, but we however wondered why 5.7%, 1.9% persistently used the bush instead of the latrine and surface water instead of tap water. Why the 59.4% would not go to hospital instead of the traditional healer and Sheikh for prayers. Yet they didn't need to spend money on transport to hospital?

Data from complimentary sources (indepth interviews, observations etc. revealed that the community through C.A.R.E had overcome the emergency stage in which the refugees were in 1991/92, and had embarked on the development phase. Within this phase the refugees were encouraged to engage themselves in small scale income generating projects such as:- carpentry, basket weaving and .small demonstration farms within the camp. The aim was to elevate their living standards.

However, this positive move was deterred by the many inflows of both refugees and local residents posing as refugees too. They said, "It is good here than home. I would rather die here than home". This practice had been detrimental to the repatriation process. Despite the fact that the camps were only transitional points, they were now becoming resettlement zones.

The demonstration farms had been faced with a great rift from U.N.H.C.R. This was due to the fact that the refugees used the clean tap water to irrigate their farms instead of the dirty flowing water. In some instances the taps were left running - thus threatening the depletion of this resource given that the area was arid and water was scarce. We continue to grapple as to whether the community should stop the development phase (which in actual fact improved the SLI as observed by the researcher) or should they encourage it, an aspect

that would reduce the chances of repatriation essentially espousing permanent settlement. This was being monitored and guarded against by U.N.H.C.R as stated below:-

> "There is inadequate response to the world's growing refugee crisis:- The old system of protecting refugees has come dangerously close to break down". (UN\UNHCR. 1993).

According to EI Hennawi (1986), military spending still claimed more funds than health care in most of the world's nations. He posited that:-

> "Eradicating malaria which claims the lives of one million children every year, would cost $1 billion much less than half of one day's military spending".

In Dadaab refugee camp, the soap provision and spraying of the environment that used to be undertaken by C.A.R.E had been terminated and was occasionally done in case of an outbreak of an epidemic. This consequently increased insect vectors (mosquitoes, flies, crickets etc). Therefore there was a likely occurrence of contaminated water, hands, utensils as well as food. ("Where will the resources be found to cop with this problem if the great economically stable nations are increasingly reducing their `handouts' to developing countries?" echoes Hennawi).

As already mentioned in the literature review, many scholars (Brass 1970, Caldwell 1977, UNICEF 1992 etc) believe in general that illiteracy of mothers, culturally determined attitudes with respect to health and medical care, lack of basic knowledge and awareness of health problems, poverty and the inaccessibility of health facilities all contributed to the high mortality rates. This statement suggested that

the mothers' ability to improve the living standards in her household were likely to be reflected through her awareness and manipulation of the immediate milieu in which she lived.

Data from our study showed that 59.4% of the women interviewed were totally illiterate, whilst the indepth interview and observation revealed that, most of the nursing mothers hardly washed their clothes (lessos). Their bodies had a thick layer of dirt, were oily and full of sweat. Their hands were used as handkerchiefs, they spat all over the environment, used dry sand as a toilet tissue, the children had thick layers of mucus of all seasons. Occasionally they fought the ceaseless swam of flies or chose to ignore them. This behaviour basically was likely to enhance the flies and transmission of associated diseases such as typhoid, T.B.and cholera/diarrhoeal - being the second major killer disease constituting to 17.1% of all deaths in the camp.(Table 4.5).

Despite the chlorinated water and pit latrines, 2.0% women had persistently used surface water for drinking and 5.7% used the bush instead of the latrine (table 4.7). We can meaningfully conclude that these women determined or rather contributed to the infant and child deaths in the camps by neglecting the household and community hygiene, subsequently lowering the Standards of living.

From the above findings, it appeared all the basic facilities had been provided by the community. The refugees needed no transport or money to go to the health post, had basic food, water and sanitation. The issue requiring further research is why the causes of infant and child mortality continue to plague the camp yet they were preventable. From our study the answer tentatively lied in the ethno-geography of the refugees as potrayed by cultural perception and behaviour.

4.2.2. <u>Administrative will and infant and child mortality:-</u>

In this part, we attempt to find out whether there was any relationship between child deaths and Administrative will. To achieve this we used qualitative data from indepth interviews, observation, and complimentary data from nutritional survey and hospital reports.

We noted in the literature review that besides the Socio-Economic conditions in the household, the government/community had a role to play in intervening in the causes of child deaths. In our study, we found out that the community (administration) mainly run by NGOs provided all the essential basic needs (shelter, food, sanitation, health, clothing, security) to the refugees. The refugees had to succumb to this community in relation to the policies, provision of infrastructure and the social amenities. This consequently determined the refugees' economic status, cultural perception and subsequent SLI.

Information from observation and indepth interviews revealed that within each camp were health posts evenly distributed within the blocks, a hospital with special treatment rooms such as injection, dressing, operating theatres, maternity, T.B, cholera and Paediatric ward etc (fig 1.2). There was a maternal and child health care Clinic run by UNICEF, the hospitals were adequately stocked with all vital drugs. There were efficient medical staff (Community health workers (C.H.W), Ministry of Health Workers (M.O.H, expatriate medical doctors and nurses) and refugee auxillary staff.

The above sources of information revealed that the refugees demanded for drugs (specifically capsules), which they later sold or gave to their livestock for treatment instead of administering them to the desired patients. This created conflict and dissatisfaction between them and

the administrators. There was a likelihood that many deaths were espoused by the lack of medication as the drugs had been sold or diverted elsewhere. Despite the hospitals and medical staff, facilitated by the community, 36% women preferred to deliver alone at home than go to hospital. Chances were that a large proportion of both the infants and the mothers died in the process as many women could not effectively handle the complexities during child birth.

In the camps, C.A.R.E was responsible for food distribution. The staple food was mainly maize and beans. From the data already discussed, 7.6% of the children had died of malnutrition (the fifth major killer `disease')as noted below.

> "It will be necessary to respect usual international standards for the general food distribution, with 2100 calories per person per day. The quantity of blended foods actually provided to the individual of a ration of 25gm per person per day, should be at least doubled to reach acceptable standards". (MSF Nutritional Survey March 1995).

The above quotation revealed that the official ration of 2100 calories per person daily was not achieved. It also suggested that the diet did not ensure the minimum requirements in vitamin C. This consequently resulted into the scurvy epidemic that occurred in 1994 besides the deterioration of the nutritional status of the children and subsequent malnutrition and death

As we went through the camp we grappled as to why some families had so many children below 5 years and besides the adults who didn't seem

to be from one couple. The issue was, doesn't this large numbers reduce the ration hence accelerate malnutrition?

We therefore used the data from Hagadera Nutritional Survey to establish the family size and the effect of this family size on the Nutritional Status of the children as below:-

Table 4.8 % Distribution of children's weight by family size.

Family size	Weight of Children			Total %
	Above average %	Average %	Below Average %	
Less than 5 people	3.7	26.7	16.8	76 (47.2)
More than 6 people	4.3	36.0	12.4	85 (52.8)
Total	13(8.1%)	101(62.7)	47(29.2)	161 (100.0%)

From the above table 4.8 we found that children from small families of less than 5 people had a higher proportion of 16.8% below average and a low proportion of 3.7%. Above average and 26.7% average, compared to the high proportion of 4.3% above average, 36.0% average and low proportion of 12.4% below average. Generally there were more large families 52.8% compared to small families 47.2%.

It is worth appreciating the general misconception that the public and indeed even intellectual scholars and governments have that small families are the key to a healthy nation and faster development because they facilitate high investments and purchasing power compared to large

families that are merely consumers and retard development by straining the economy of a country.

Well, where as this may be true in some cases (open/normal societies), our study disagrees with the above concept and depicts that large families are better than small families as shown in the proportion in table 4.8. Indepth interviews with the refugees revealed that "when they is big big (i.e large), futu is many, and sell to Marrkeet for Miliki for te children" said one CDW.

According to the refugees, the more the number of people in a more the more the ration as it is distributed equally irrespective of age and sex. Such that the childrens' ration is sold to the market and they can inturn buy other essentials (milk, meat, soap, clothes, paraffin etc) that is not frequently supplied by C.A.R.E. Besides this, the adults have atleast enough food if they merge their rations besides the variety of foods too.

Given their explanation, many families have adopted children or live with extended families. We believe this family units besides facilitating stable cultural/foster homes for those who lost their next of kin during the war, they also enhance individual security and a sense of 'belonging' as the saying goes "the poorest person on the face of the earth is one without a friend".

During the study it was found that:-

"If we take into account the 10% extra population (those not officially registered) of refugees (estimated by MSF France March 1995), definitely this reduces the general

food distribution to 1831 calories daily for each person". Besides the inflows of new and repatriated refugees who later returned to the camp after exhausting their packages. Some of the 10% above were likely to be Kenyan Somalis masquerading as refugees. This act most likely exacerbated the nutritional status and espoused subsequent malnutrition and deaths among the children in the camp. It also made the provision of services difficult". MSF Nutritional Survey March 1995.

According to the standard newspaper dated 4th May 1994, relief food destined for the famine stricken resident and the refugees was sold openly at the Garrissa open air market at 700/- a bag. The paper further quoted that:-

"People came with letters from the district office authorising the depot Manager to release yellow maize".

There were also traces of relief food on Hagadera market being sold by the refugees so as to be able to supplement the basic facilities that the community provided. (For instance food - milk). If the relief food was fairly and justly distributed to the famine victims, the 10% self imposed refugees would not flood the refugee camps to interfere with/reduce the "food basket" distribution. The March 1994 nutritional report (IFO) stated that the supplementary feeding centres had been closed down. Unless these centres were re-opened, the nutritional situation of the children remained critical because the current ration of maize and beans did not benefit those below 60 months as they could not eat, instead was sold on the market. The paucity of nutritious food for the children espoused 'global'

malnutrition and subsequent deaths as explained through the pathology of malnutrition in the previous sections.

Banditry by Somali shiftas had caused panic among the administrators and the refugees (camp community). According to indepth interviews with the refugees and the administrators, they feared that some shiftas put up in the camps, raped the women/girls whilst in the fields where they searched for firewood.

The traumatic experience of rape caused the women/girls to withdraw from the search for woodfuel consequently culminating in serving raw food due to the paucity of the cooking fuel. Many a time the administrators "vehicles were hijacked en route to/from the camps. It was believed that the vehicles were taken and used in civil war in Somali. The hijackers derailed the efficient operation of the services in the camps.

Information from indepth interview with the CARE showed that during the rains the roads were impassable as they became muddy and flooded. This perhaps inconvenienced the smooth operation of the camps when it came to movement of personnel and goods from the Headquarters in Dadaab to the camps, besides movement of patients from the camps to the referral hospitals. However, this was not a major draw back that could greatly affect infant deaths because the authorities had build warehouses within the camp hence facilitating smooth supply of goods. They had also the ground staff within the camp site and only a small managerial staff put up in Dadaab. This also ensured smooth servicing of the camps.

CHAPTER 5

THE EFFECT OF CULTURAL FACTORS ON INFANT AND CHILD MORTALITY AMONG THE REFUGEES

5.0 Introduction

Many studies carried out on infant and child mortality (as cited in the literature review), tend to overlook the influence of cultural values and practices on the ultimate death in a given society. This could be attributed to the unexploited methods of study to analyse such a variable that entails individual perception and attitudes. This was true given that what many people perceived and believed in is not usually what they do, either for fear of persecution, victimisation or ridicule.

Being a way of life and exhibiting the ethno-geography of a people, cultural practices and beliefs pose a challenge to many scholars besides it being a study variable. This is because it impinges on all aspects of life.

In this first section, we aim at investigating whether there existed any association between cultural beliefs and practices and infant and child mortality among the refugees of Dadaab refugee camp. To achieve this, we categorised various intervening variables through which culture may have a strong bearing in determining the perception, attitude and final action of an individual. These were:-

a.   Nutrition of the mother during pregnancy and subsequent post-natal feeding of the children with special reference to sex preference of the child and malnutrition.

b.   Treatment of children when sick and the place of delivery by the pregnant women.

c.   Immunization of the mother during pregnancy and of the child after delivery.

d.   Relationship between culture and the Administrative will of the NGO (i.e. policies).

Data from various sources (questionnaire, hospital records, Nutritional Survey and indepth interviews) was computed to test the following hypothesis:

"There existed no relationship between cultural beliefs and practices and infant and child mortality among the refugees".

In this broad hypothesis, several sub-hypotheses pertaining to each of the above intervening variables were tested using the Chi-square test after cross-tabulating the absolute observations in each cell/category as below:-

5.1.0 Relationship between Cultural beliefs/practices and Nutrition.

5.1.1 Effect of mother's nutrition during pregnancy on Infant and child mortality.

To find out this relationship, a questionnaire was administered to 106 women. We asked them to identify the type of foods they ate during pregnancy and whether

they were culturally not allowed certain foods while pregnant. These were categorised as:-

1. Yes for culturally restricted.
2. No for not restricted.

As in table 5.1below:

Table 5.1Percent Distribution of children dead by mothers' literacy level and cultural belief/practices as far as food is concerned (May 1995).

Cultural/belief/ Practice	Level of Education						Total		
	Some			None					
Beliefs on food	N.W	C.D	C.S	N.W	C.D	C.S	N.W	C.D	C.S
1. Restricted	28.3	14.8	37.6	41.5	63.9	23.8	(74) 69.8%	(85) 78.7%	(271) 61.3%
2. Not Restricted	12.3	8.3	22.2	17.9	13.0	16.5	(32) 30.2%	(23) 21.3%	(171) 36.7%
TOTAL	(43)	(25)	(264)	(63)	(83)	(178)	(106)	(108)	(442)
% Total	40.6	23.1	59.7	59.4	76.9	40.3	100.0	100.0	100.0

Source: Questionnaire/survey May 1995: (Musambai)

According to the results in the above table 5.1 69.8% of the women sampled believed in cultural restriction of certain foods (proteins) during pregnancy and had 78.7% of their children dead and only 61.3% survived. The remaining 30.2% of the women who did not restrict themselves had 21.3% children dead and 36.7% survived.

40.6% of the sampled women had some education. They had 23.1% dead children and 59.7% survived, compared to 59.4% women without

Fig. 5.1 Percent Distribution of children dead by mothers' literacy level and cultural belief/practices as far as food is concerned (May 1995)
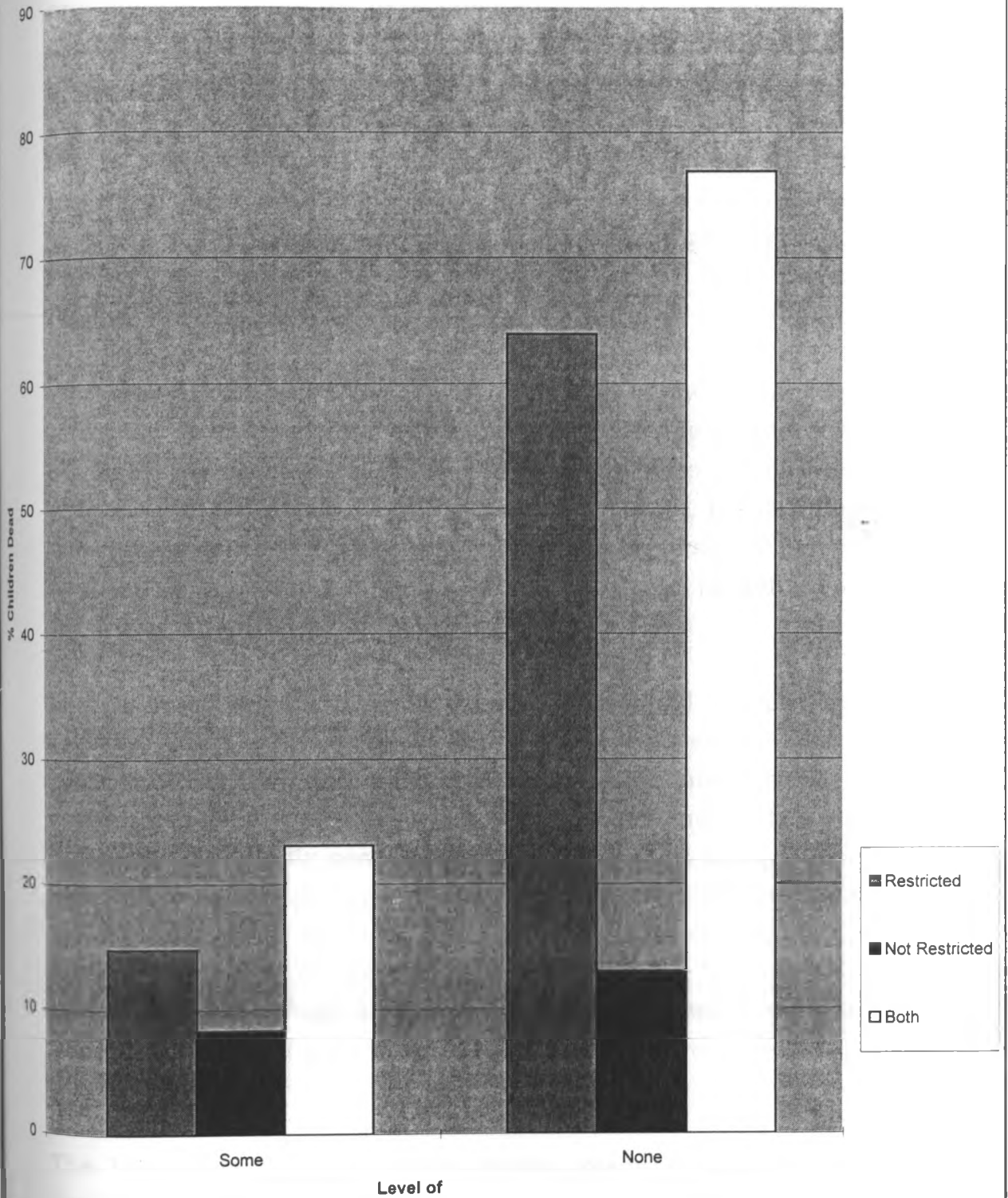
any literacy, with 76.9% dead children and 40.3% survivors. Out of the 40.6 literate women, 28.3% had restricted themselves on the type of food during pregnancy and had 14.8% children dead, compared to the 12.3% in the same literacy category who had not restricted themselves and had lost 8.3% children. The proportions are higher for those women without any literacy. 41.5% of them who had restricted themselves from eating certain foods during pregnancy had 63.9% children dead and those not restricted (17.9%) had 13.0% dead children as shown in fig 5.1.

The proportions above showed that the higher the literacy level the lower the death proportions. Secondly, that the higher the proportion of restricted women the higher the death ratio of the children. According to Feyistan's study in Ife Nigeria, (1988), the more mothers who ate protein food during pregnancy, the higher were the risks of death to their infants and their children. However, he did not account for the irregularity.

In our study results from the questionnaire and indepth interview revealed that, the women were not supposed to eat: eggs, meat/mutton, liver, cow's milk, honey and also drugs during pregnancy. The women argued that these foods made the foetus too big and consequently posed problems during child birth. This per-se inflicted fear in these women. They also argued that honey destroyed the child's hair, the drugs made the mother sick (nauseated). The iron tablets were therefore not taken by these women, an act that result into a high percentage of anaemic women/children. For instance in June 1994, 39% of ante-natal cases admitted were anaemic. (MSF-B 1994).

The lack of sufficient nutrition during pregnancy exacerbated the mother and child's health making them weak, sickly and subsequent

under-weight children who died pre-maturely as indicated by the (9.3/1000 endogenous deaths and the , 10.5% of neo-natal deaths - the fourth major cause of death in Dadaab) (See tables 4.4 and 4.5).

To find out whether there was any relationship between literacy level, child death and cultural restriction on food during pregnancy, we computed a series of Chi-square (X^2) tests as below.

a.   To test whether literacy level was associated with choice of food and child death.

To achieve this, we computed data on children dead for mothers who had been restricted to certain foods during pregnancy and those who did not vis-a-vis their literacy level as some and none. We tested the null hypotheses that:

HO (null hypothesis): Literacy level did not influence food preference during pregnancy and subsequent child death.

At one degree of freedom and at 5% significance level, the computed X^2 was 5.2 higher than the critical X^2 of 3.841. We therefore rejected the HO hypothesis because there was some statistically significant relationship and accepted the H^1 (alternative) that "literacy level did influence food preference during pregnancy and subsequent child death. In our table 4.6 and figure4.6, the women who were literate and had no restrictions on type of food had fewer child deaths 8.3% compared to those who were illiterate and had restricted themselves on type of food hence lost 63.9% children.

b. We also tested for the relationship between food preference and no preference, of literate women only by computing children dead and children surviving. At 5% significant at 1 degree of freedom, the critical X^2 was 0.0008. From this finding there was no statistically significant relationship between food preference and children dead/surviving for literate women. We therefore rejected the H^1 and accepted Ho that there was no relationship.

What this suggested was that once literate, the basic concepts and perceptions about health, hygiene, nutrition remained basically the same for the mothers hence no variations. The same test carried out on illiterate women showed a X^2 of 8484 higher than the critical X^2 of 3.841 at 1 degree of freedom and at 5% significant level. In this instance, we accepted the H^1 hypothesis that there existed a statistically significant relationship between food preference, illiteracy and subsequent child death.

If it is true that maternal education or literacy detached traditional family raising practices, and espoused better utilization of available foods from a national perspective as posited by Brass 1970 and Caldwell 1977, then to some extent our study justified this by depicting low deaths for the literate women (fig. 4.6) But how do we account for the 14.8% dead children whose mothers were literate but still held tenaciously on the cultural beliefs pertaining to choice of food during pregnancy?

It was only logical therefore to recommend a further inquiry into the Synergism between culture and it's bearing on literacy level in relation to maternal perception, attitudinal and consequent behavioural practices on child care. This was only true if we assume that the

nutritional behaviour of the mother during pregnancy impacted on the child's health even after delivery by making the baby anaemic, malnourished and therefore susceptible to illnesses that culminate into child death.

5.2.0 EFFECT OF AGE, SEX PREFERENCE ON CHILD NUTRITION AND DEATH

Another aspect of nutrition depicted in the data in table 5.2 showing causes of death by age and sex. In this table malnutrition was the fifth major cause of death among the known cases after Malaria, diarrhoea, pneumonia and Neo-natal causes claiming 7.6% of all deaths in the camp. Out of the 7.6%, 1.3% were from ages 0 - 1 month, 2.8% from age 13-60 months and age 2 -12 months displaying the highest death proportions of 3.4% from this cause. These statistics showed that nutritional status of the child deteriorated with an increase in age or rather malnutrition increased with age from 0 - 12 months as the nutritional requirements of the child increased too especially in the females displaying 0.8%, 1.6% and 1.8% from age 0-1, 2-12 and 13-60 respectively.

Table 5.2 Percent distribution of children cause of death by age and sex (March 1994 - February 1995.)

	MALE				FEMALE				GRAND TOTAL
	AGE IN MONTHS				AGE IN MONTHS				
	0-1	2-12	13-60	TOTAL	0-1	2-12	13-60	TOTAL	
Malaria	2.4	6.3	2.4	42(11.0)	1.3	5.8	3.1	39(10.2)	81(21.3)
Pneumonia	1.0	4.5	0.8	24(6.3)	1.3	2.1	1.0	17(4.5)	41(10.8)
Diarrhoea	1.0	4.1	2.9	31(8.1)	1.4	5.2	2.4	34(8.9)	65(17.1)
Malnutrition	0.5	1.8	1.0	13(3.4)	0.8	1.6	1.8	16(4.2)	29(7.6)
Menengitis	0	0.5	0	02(0.5)	0	0	0	0(0)	02(0.5)
Neo-natal	5.0	0.8	0	22(5.8)	4.7	0	0	18(4.7)	40(10.5)
Dehydration	0	3.8	0	14(3.8)	0.8	0.8	0.5	8(2.1)	22(5.8)
Accidents	0	0.3	0.3	02(0.5)	0.3	0.3	0.3	3 (0.8)	05(1.3)
Unknown	1.8	4.7	1.3	30(7.9)	1.0	4.7	1.8	29(7.6)	59(15.5)
Others	1.3	2.9	1.0	20(5.2)	1.3	2.1	1.0	17 (4.5)	37(9.7)
TOTAL	50	113	37	200	49	86	46	181	381
%	13.1	29.7	9.7	52.5	12.9	22.6	12.1	47.5	100

Source: Death register Dadaab refugee camp May 1995.

To be able to account for this disparity, we analysed data from the Nutritional Survey carried out in Hagadera in November 1994 as a proxy. To achieve this, we classified weight for age of the children sampled basing on the standard W.H.O[1] Immunisation card (Appendix III). This would enable us establish whether the children were overweight, average or underweight. The W.H.O assumes that the

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[1] World Heath Organisation

Fig. 5.2 Percent Distribution of Children Cause of Death by age and sex (March 94 - February 1995)
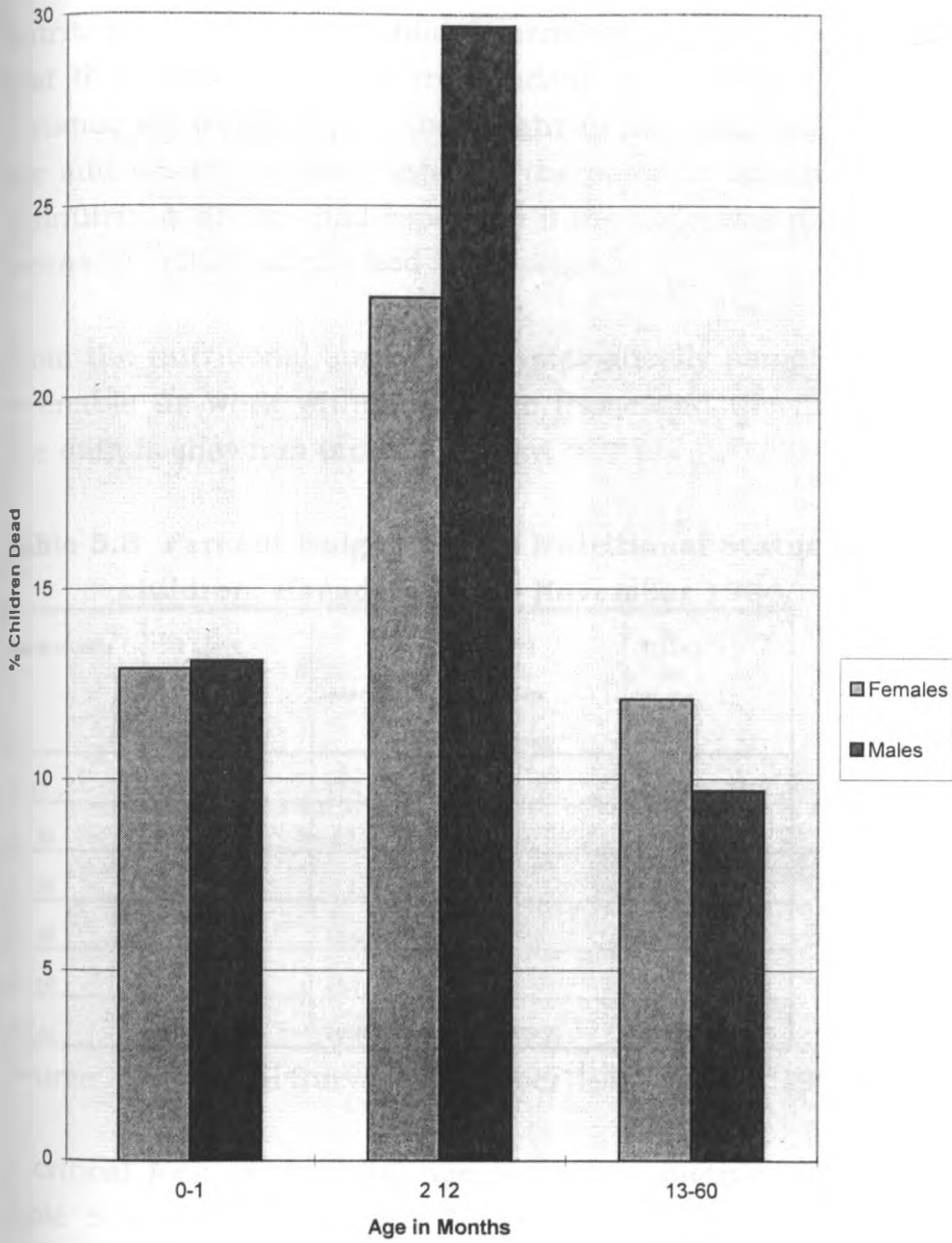
nutritional status of the child determines the weight of the child and that this was positively correspondent to the age of the child. For instance we would expect the weight to increase with an increase in age and where this was negative, the possible explanation lay in the malnutrition of the child especially if the child was not ill, and if ill it means the child did not feed appropriately.

From the nutritional survey, we systematically sampled 161 children to enable us work within our time frame and the finance available. The data is shown in table 5.3 below:

Table 5.3 Percent weight for age Nutritional Status for children: Hagadera Camp November 1994.

Age in months	1 above average	2 Average	3 Below average	TOTAL
0 - 12	2.5	17.4	9.3	47(29.2)
13 – 24	2.5	8.7	5.6	27(16.8)
25 – 36	1.2	7.5	6.2	24(14.9)
37 – 48	1.9	13.0	3.7	30(18.6)
49 – 60	0.0	16.1	4.3	33(20.5)
TOTAL	13(8.1)%	101(62.7)	47(29.2)	161(100.0)

Source: Nutritional Survey. November 1994 (MSFB. 1994)

A critical look at the total age for weight distribution in fig5.3 and table 5.3 showed an open 'V' pattern. This implied that weight declined with an increase in age from ages 0 - 36 months after which it increased from 37 to 60 months for the children who were average and below. There was a general decline in weight as the age increased for the above and below average children as shown in fig 5.3.

Fig 5.3 Percent weight for age Nutritional Status for children: Hagadera Camp November 1994

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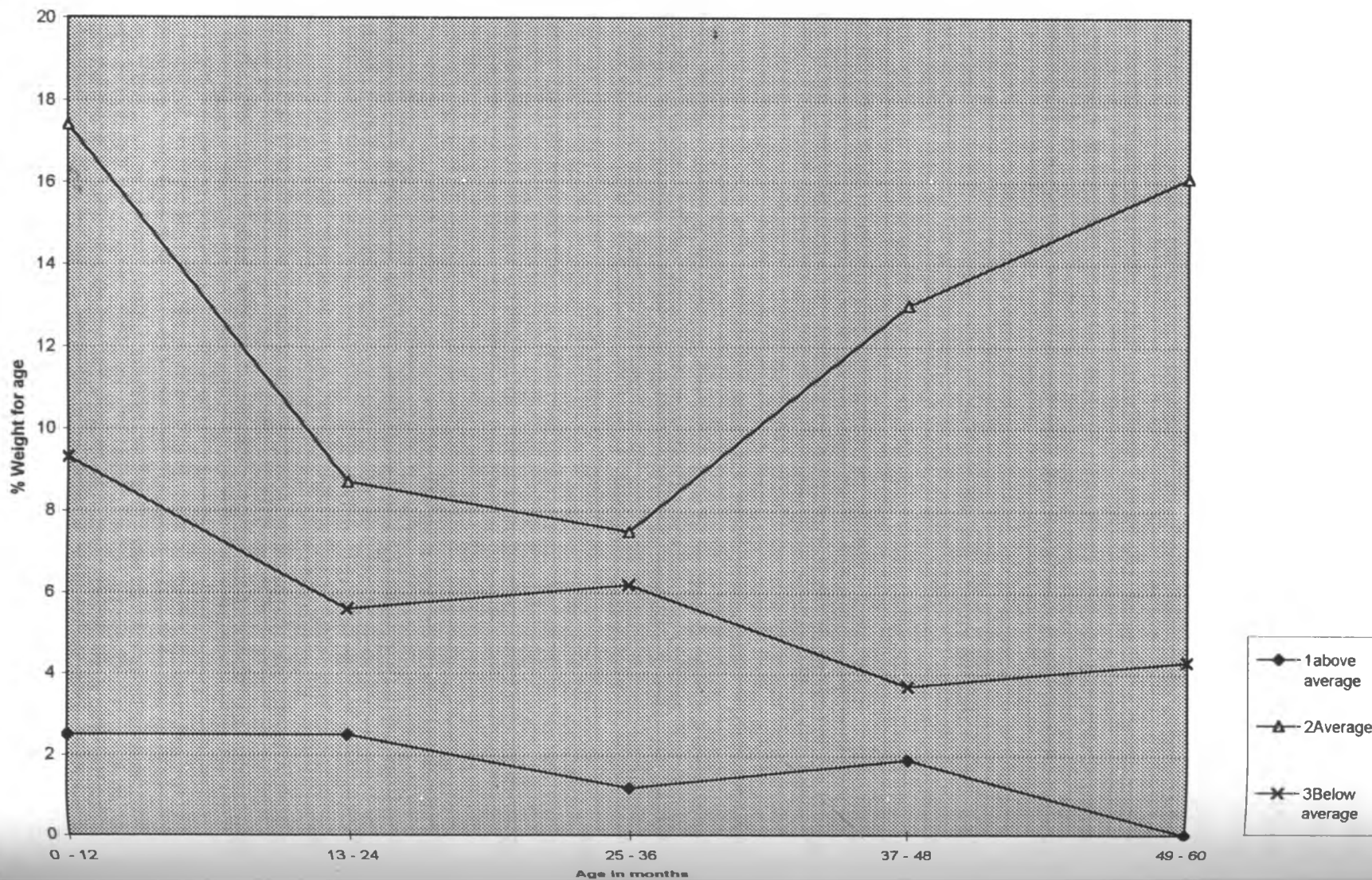
The high proportion of 9.3% below average weight in age 0 - 12 months could be attributed to endogenic effects affecting the child as determined by the mother's behaviour during pregnancy. This behaviour appertains to her poor feeding habits compounded by anaemia. All this contributed to under weight children susceptible to illnesses and subsequent death.

Assuming the fact that breast milk constitutes all the nutrients for an infant as advocated by Health-personnel, we can meaningfully deduce that it accounted for the high proportion of 2.5% children above average in ages 0-24. It's effect in age 0-24 probably increased the weight of the children consequently reduced the below average proportions from 9.3% to 5.6% besides decreased proportions in the average group to 8.7% in ages 13 - 24 months.

When children stop breastfeeding to rely on 'environmental' food, their weight fell. This was a likely explanation for the increased proportion of the below average from 5.6% to 6.2%, a reduction in the above average and the average proportions from 2.5% to 1.2% and 8.7% to 7.5% respectively in age 25-36 months.

The increased total weight after age 49 months could be attributed to the adaptability of the children to the type of nutrition offered, the supplmentary feeding by MSF Belgium and the mothers' other food supplements such as beef and milk from the sold ration that children could not feed on. However, the poor nutritional status (High malnutrition) in ages 49-60 in table 5.8 has been blurred by the total trend of weight for age. Data showed that from age 37-60 months the proportion below average increased from 3.7 to 4.3% whilst the above average declined from 1.9 to 0.

Results from the indepth interviews with the refugees revealed that the kind of ration distributed in the camp (mainly maize and beans) had a bearing on the high percentage of malnutrition. From the interviews, many of the children in the age cohort 2 - 36 could not be sufficiently sustained on their mothers' scarce breast milk (as the mothers' nutrition was also poor), neither were they able to feed on the tough ration provided by the camp administration irrespective of age and sex. This ration was therefore openely sold on the market and the money used to buy other types of foods (milk, meat) inorder to supplement the diet.

Malnutrition was exacerbated by the paucity of cooking fuel such that, the frequent rape cases in the field whilst in search of woodfuel had scared many women so the food was never cooked soft enough to facilitate the chewing by the weak jaws of the malnourished children. The children therefore swallowed raw food especially beans, an act that engedered gastro-entritis and other diarrhoeal diseases. An interview with one MSF Belgium doctor revealed that corn-soya-bean (CBS) blend was no longer being distributed because it was quite expensive and not locally available.

As MSF continued to peddle with the deteriorating health status of the children and to reduce the death rates to minimal levels, it concentrated on the EPI programmes and reduction of malnutrition. We continue to grapple as to how it expects to achieve this if the monthly hospital records for Ifo and Hagadera show that a number of supplementary feeding centres had been closed down, besides the reduction in the `food basket' (with care providing 1922kcal/person less than the expected 2000kcal/person), and the stoppage of dry ratio for pregnant and lactating mother. The second issue was how MSF would achieve this minimal levels if the supplementary milk meant for the sick children in hospital, was diverted and given to

visiting relatives (husband) by the nursing mother?. (as revealed from indepth interviews/observation with the medical staff in hospitals).

The above had espoused malnutrition and related diseases such as diarrhoea and subsequent child death as depicted in October 1994 hospital records when malnutrition was highest. If the Pan American Health Organisation studies in 1973 explanation is anything to go by, then we presently agree with it's findings that:-

"5% deaths in children is due to malnutrition per se and 55% as a secondary factor. Unfortunately the common difficulty in disassociating diarrhoea from malnutrition in a sick child increases uncertainty in assessing the role of malnutrition... a malnourished child is more susceptible to infectious diseases and is less able to combat the infection successfully. A child suffering from infection often becomes malnourished because of increased nutritional requirements to combat the infection and due to loss of appetite and inability to assimilate the food consumed"(P.A.H.O 1973)[2]

A study carried out in Ifo camp by Lucia a nutritionist in the camp in 1994 on pathophysiology of Protein Energy Malnutrition (PEM) revealed that:

"Lack of main food nutrients resulted into growth failure which affected the immune system of the body, such that the defence mechanisms do not work properly against infections. Secondly, if the protein concentration in the blood becomes very low, hyproteinemic oedema results

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P.A.H.O. (Pan American Health Organisation)

due to the decreased colloid osmotic pressure. The metabolic process run at slow rate. Glucose and temperature regulation are not properly controlled. Chronic malnutrition disturbs the bowels and leads to malabsorption. This may cause severe diarrhoea due to intolerance of sugar". (Lucia 1994).

Albeit perceived as insignificant, <u>control of malnutrition through improved nutrition</u> would perhaps reverse the health status of the refugee children besides a positive trend towards `acceptable levels' being fought for by the MSF.

The most fundamental factor that this study is emphasising after various indepth interview with the medical practitioners is that nutritional disorders may arise due to poverty, prejudice, ignorance or poor housekeeping after caused by poor housing and that the most affected are usually the children.

Secondly, that under nutrition is basically due to a myriad of problems such as: lack of sufficient food, severe disease of the digestive tract preventing the absorption of nutrients, presence of toxaemia which prevents normal metabolism of nutrients by tissues often with anorexia and finally severe and long continued (chronic) infections.

Other pre-disposing factors include:- rapid succession of pregnancies, early or abrupt weaning, dirty artificial feeding, dilute milk or inadequate milk, unsatisfactory home conditions that espouse the preparation of contaminated feeds especially the environment is dirty and fosters the breeding of a variety of insect vectors such as cockroaches, flies, animals

like rats etc besides this is prolonged breastfeeding, when the child is weaned on to a traditional family diet which is low in protein, and customs sometimes, reinforced by taboos determines that limited supply of animal foods, is given to men in the family, or the small amount of high protein food is in a source, which is made with hot pepper or spices and is therefore unsuitable for young children.

Given all the above conditions, malnourished child is therefore vulnerable to diseases such as:- Gastro entestinal, upsets, diarrhoea, vomiting, tuberculosis, retarded growth and weight loss, such that the child's weight is usually well below standard for his age (see the W.H.O. Immunisation Card. Appendix III), frequent dehydration as a consequence of gastro-intestinal infection.

From the indepth interviews with the nutritionists, the treatment can be achieved by giving easily digested diet which provides adequate amounts of protein, mineral and vitamins not forgetting milk. In our case study, we would emphasise the re-opening or instifying the nutritional rehabilitation centre and finally albeit long term, it's to empower women socio-economically such that they have the relevant education especially pertaining to hygiene and proper nutritional methods so as to alleviate ignorance. Secondly education would enable them to be economically enterprising and be able to earn better income to stem up their purchasing power hence minimising poverty

Data on causes of death by sex (table 5.2) also revealed that 4.2% girls died of malnutrition compared to 3.4% boys. To find out this disparity, we analysed data from the 1994 Nutritional Survey carried out in Hagadera as below:-

Table 5.4 Percent Distribution of children by weight for sex
nutritional status (Hagadera November 1994.

Weight	Male	Female	Total
Above average	5.6	2.5	13(8.1%)
Average	33.5	29.2	101(62.7%)
Below average	14.9	14.3	47(29.2%)
Total	87 (54.0)	74(46.0)	161(100.0)

Source: Nutritional Survey Hagadera November 1994.

Fig. 5.4: Percent Distribution of Children by weight for sex Nutritional status (Hag...
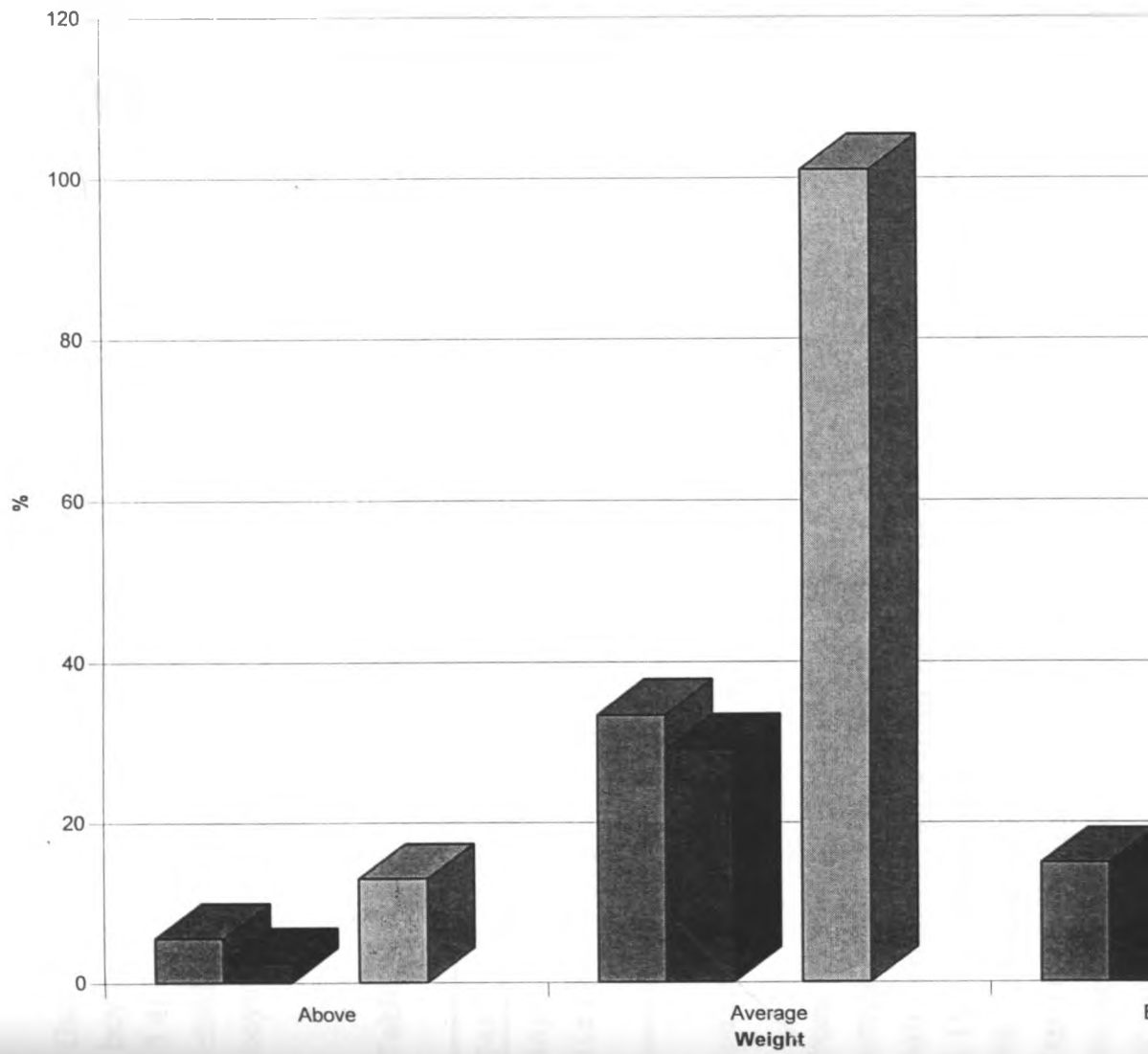
Out of the 8.1% children above average, only 2.5% were girls and 5.6% boys. More boys 33.5% were average compared to 29.2% girls (see fig 5.4). The MSF analysis of the same data showed that for those children with severe malnutrition of 70% weight for height, 0.2% were boys and 0.5.% girls as shown in table 5.10 below:-

Table 5.5: Percent weight for height for severe Malnutrition in Hagadera refugee camp November 1994

Sex	≤= 70%	70 - 80%	Total
Boys	0.2	4.9	410(52.7%)
Girls	0.5	4.9	368(47.3%)

Source: Nutritional Survey Hagadera Nov. 1994.

From the above statistics it is evident that there is a disparity in sex nutrition among the children. The question is why was there a higher malnutrition in girls than boys? Other studies elsewhere by (Chen et al 1981, Miller 1981, Chen and Gupta 1983, Bhatia 1983, Das Gupta 1987, Basu 1989, Freed and Freed 1989), showed that such disparities as above were due to preferential treatment by family members for sons. They noted that after the neo-natal period, environmental factors that were under control of the family such as nutritional intake, exposure to disease, breast feeding, parental time and attention, and use of health-care services become pre-dominant.

In our study we attempted to answer this puzzle by asking the mothers whether there was any special preference for a particular sex of a child at birth. The results are shown in table 5.6 below.

Table 5.6   Percent distribution of children by mothers'
            literacy level and cultural practise/belief on
            sex preference: Dadaab refugee camp 1995.

Sex Preference	Level of Education						Total		
	LITERACY LEVEL								
	Some			None					
	N.W	C.D	C.S	N.W	C.D	C.S	N.W	C.D	C.S
1. Yes(for boys)	24.5	18.5	41.0	34.0	45.4	25.8	62 (58.5)	69 (63.9)	295 (66.7)
2. None	16.0	4.6	18.8	15.5	31.5	14.5	44 (41.5)	39 (36.1)	147 (33.3)
Total %	(40.6)	(23.1)	(59.7)	(59.4)	(76.9)	(40.3)	100.0	100.0	100.0
	43	25	264	63	83	178	106	108	442

Source: Survey May 1995(Musambai 1995).

Table 5.6 showed that the 40.6% women who had some literacy had a
small proportion of 23.1% dead children compared to the 59.4%
women who had no literacy and had 76.9% of their children dead.
Women with some literacy had fewer child deaths and more survivors
than those who did not have any literacy. The women who showed
preference for the male children whether illiterate or not showed a
high proportion of child death than those who had no preference. For
instance out of 58.5% women who preferred boys had lost 63.9% of
their children compared to the 41.5% who did not show any
preference and had 36.1% children dead see
fig 5.6.

Fig. 5.6 Percent distribution of children by mothers' literacy
level and cultural practise/belief on sex preference: Dadaab
refugee camp. 1995
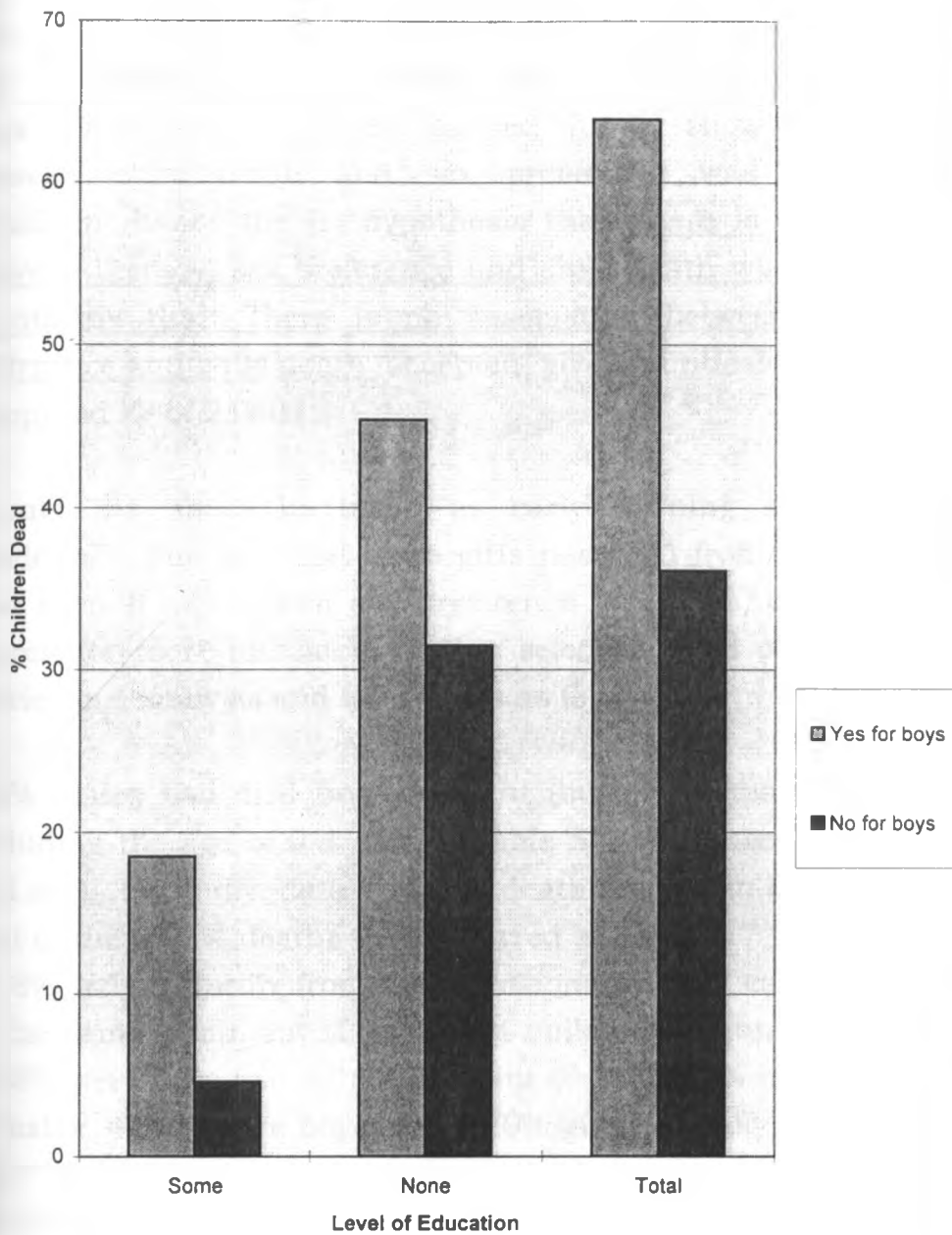
The important question to address here is:- if 24.5% of the women who preferred males were literate what role does education/literacy play in disentangling one from negative cultural practices such as the ones discussed? A X^2 test carried out to show any relationship between child death and sex preference was not statistically significant hence the H_1 hypothesis that: there is some association between literacy, sex preference and child death was rejected and H_0 hypothesis that: There is no association between literacy , sex, preference and child death accepted, given a critical X^2 of 3.841 and a computed X^2 of 2.9401.

Should the above be taken as early warning signs of selective childcare? The fact that more girls had died from malnutrition and that women had shown sex preference for males, demanded for the search for more indicators of this selective child care. We therefore carried out analysis and the results as follows:-

0.3% males had died from accident (burns) compared to 1.0% girls including the age of 0-1 month (table 5.2 on causes of death by sex and age). Secondly, data from the death register in Hagadera revealed that of the 37.7% deaths that occurred at home, 17.9% were boys and 19.8% girls. Thirdly from the Nutritional Survey carried out in 1994 in the same camp, out of the 85.1% children immunized against BCG, 47.8% were boys and 37.3% girls out of the 78.3% immunized against measles, 42.9% were boys and 36.0% girls. Finally indepth interview with a CARE administrator indicated that at primary school level 57.6% were male and 18.0% female. At secondary level, 2.0% were male and 0% female. Special education had 0.2% male and 0% female. As for the adult literacy, 8.9% were male and 3.2% female. So within the camps, only 25.4% females had some education compared to 74.6% males. (See reference table Appendix II).

If the above quotations should be a proxy to indicators of sex preference, our focus was on why this preferential treatment for the males?

Our indepth interview with the refugees revealed that males were preferred right from birth, where special ceremonies/celebrations were held for them.   As for a girl, it was somewhat embarrassing, down heartening and no one bothered "much more like a funeral", one mother retorted that girls were unnecessarily expensive when growing up because of their material needs and got married at 13 years before they could benefit from them.   The boys took care of them (mothers) until when they died, protected them during war. `Girls can not fight'.

This perhaps explains why the female enrolment in schools was so poor besides the basic treatment (Nutrition intake, Immunization etc.). According to Chain et al 1979, Miller 1981, Moore 1983 and Das Gupta 1985, the common explanation for preferential treatment of sons is that in the very strong patriarchal system as noted below:-

"Sons maintain and extend the family's lineage and existing social ties, farm the family land, inherit property, act as a hedge against financial disaster, and provide support for parents in old age. Daughters on the other hand are liabilities, they marry early and outside their villages, contribute little to household income and provide no support to their families of origin after marriage. Furthermore, they can bring disgrace to their families by violation of modesty and property before marriage, or by being shown to be inadequate wives after marriage. Further research revealed that women, as the primary caretakers of children, have considerable incentive to bear

sons and maintain them in good health, because they themselves were entirely dependent on sons".

Secondly, ratios of male to female nutrient intake varied with girls receiving somewhat less food than boys. (Gupta 1980).

According to our data on causes of death table 4.5, 8.1% boys died of diarrhoea compared to 8.9% girls. Perhaps the only explanation now would be that boys are twice likely to receive treatment for an episode of diarrhoea, albeit the treatment and transport to the health centres were freely provided by MSF. Due to sex preference, boys perhaps received medical attention earlier during their terminal illness than girls (30% boys died in hospital compared to 25% girls).

However, in our study, care should be executed in making these generalisations because, out of the 44.4% children who died at home, 21.8% were girls and 22.6% boys we can meaningfully attribute this to the males' higher degree of biologically based vulnerability to disease besides the prevalence of poor health care habits by the mother in the initial years of life (less than 5 years) hence 5.8% Neo-natal deaths for males more than 4.7% for females as in table 4.5.

The possible explanation would be that for the love of their sons, the mothers abandon treatment in hospital and take their sons to the Sheikh for prayers during the desperate moments when there is no significant improvement in their health especially when they see others die while in hospital. From our study, (table 5.8) of the 31.1% women who took their children to Sheikh for prayers 48.1% of the children died.

5.3.0 Relationship between culture and personal illness
control and Infant child mortality:-

In 1982 UNICEF posited that womens' education and awareness of the importance of hygiene, use of techniques (oral rehydration therapy) and timely immunisation could save millions of childrens' lives each year.

This is to say a mother can determine the survival chances of her child depending on her attitude and behaviour towards the child. In our study, we attempted to find out whether there was any relationship between cultural beliefs, practices and personal illness control of the mother and the child and the ultimate child death.

Personal illness control was viewed from three aspects namely place of delivery by the mother, place of treatment of the sick child and Immunisation of both mother and child, and subsequent health status of the child after immunisation. To achieve this, we analysed data from the questionnaires.

5.3.1 Effect of Culture and place of delivery by the mother on Infant
and child mortality:-

According to data from the hospital records in the camp between March 1994 and February 1995, there were a total of 3703 deliveries categorised as: Home alone 35.6%, Home with T.B.A (Traditional Birth Attendant) 44.3%, and in hospital with a physician 20.1% respectively. Data from our questionnaire showed the distribution as shown below in table 5.72 and fig 5.7 respectively.

Table 5.7 <u>Distribution of mothers'by place of delivery</u>
<u>and children dead/children surviving.</u>

Place of delivery	% N.W	% C.D	% C.S	TOTAL CHILDRE N
Home alone	(31.3%)33	(8.2%)45	(20.5%)113	158
Home with T.B.A	(45.3%)48	(6.7%)37	(37.5%)206	243
Hospital	(23.6%)25	(4.7%)26	(22.4%)123	149
Total	(100.0)106	(19.6)108	(80.4) 442	550

Source: survey May 1995.(Musambai 1995).

The table (5.7) reveals a high proportion of child death 8.2% at home and few deaths 4.7 in hospital. Consequently there were fewer survivors 20.5% born at home alone compared to 22.4% in hospital and 37.5% with T.B.A.

We continued to grapple as to why a society like Dadaab where all international assistance was directed through UNHCR, had all the drugs, medical supplies/facilities, besides the staff (both national and international), had continued to be plagued with high child deaths, and secondly, the issue as to why the women preferred to deliver at home while alone than go to hospital which in this case was within the camp with no transport costs involved.

Results from indepth interviews with the refugees revealed that it was easy for the women to carry out their traditional ceremonies/celebrations after birth, which would not be possible in hospitals. This finding echoes Dr. Nyamwaya's (1987) that women preferred to deliver at home due to special ceremony attached to the umbilical cord of the baby.... which were difficult to execute in hospital.

Secondly, the women feared to go to hospital especially when others died from there. The high proportion of those who went to a T.B.A was due to the fact that the T.B.A executed their cultural values as well as integrating a few aspects of modern child birth which to some extent alleviated some of the complexities of child birth unlike being alone. There was therefore a probable high risk and uncertainty resulting into high rates of neo-natal deaths and (10.5%) and deaths from unknown causes (2.8%) in ages 0-1 month as in table 4.5-. We should bear in mind that the complexities of child birth do not depend on literacy level albeit literacy level would enhance the decision on where to go for delivery whether hospital or at home.

We computed a X^2 test to find out if there was any relationship between place of delivery and child death. The computed X^2 at 5% significance level and at 2 degrees of freedom was 11.2787 higher than the critical X^2 of 5.991.

We agreed that there was some relationship between place of delivery and child death hence accepted the H_1 hypotheses and rejected H_0 that there was no relationship between place of birth and child death. We can tentatively justify that, if a small proportion of mothers seek medical help during child birth, we expect high death proportions from the many who do not and prefer to deliver alone yet don't have the knack to deal with neo-natal diseases, breech births etc. Hence high neo-natal causes of death (Table 4.5 and maternal deaths. We therefore concur with Meegama below that:-

> "Trained midwives and the hospitalisation of mothers during delivery led to the decline in mortality" Meegama (1980).

5.3.2 Effect of Culture and place of treatment of the sick child on Infant and child mortality:-

In an attempt to find out why many children died from curative causes despite all the medical facilities available in the camp, we analysed our data from the questionnaire to show where the dead children had been taken for treatment as below in table 5.8.

Table 5.8 Percent distribution of childrens' death by mothers' literacy level and place of treatment - Dadaab refugee camp May 1995.

Place of treatment	Literacy level						TOTAL		
	some			None					
	NW	CD	CS	NW	CD	CS	NW	CD	CS
Hospital	28.3	4.6	30.8	12.3	9.3	17.4	43(40.6)	15(13.9)	213(48.2)
Traditional	6.6	7.4	15.4	21.7	30.5	12.0	30(28.3)	41(38.0)	121(27.4)
Sheikh	5.7	11.1	13.6	25.5	37.6	10.9	33(31.1)	52(48.1)	108(24.4)
Total	43	25	264	63	83	178	106	108	442
%	40.6	23.1	59.7	59.4	76.9	40.3	100.0	100.0	100.0

Source: Survey May 1995 (Musambai 1995).

The table depicted high death proportions for children taken to Sheikh for prayers (48.1%) and Traditional treatment (burning and use of herbs) (38.0%) respectively compared to those taken to hospital (13.9%). The table revealed that irrespective of the literacy level, child death increased with a deterioration in level of treatment for instance 13.9% hospital, 38.0% traditional and 48.1% Sheikh. For literate women, 4.6% hospital, 7.4% traditional and 11.1% Sheikh etc.

Generally the literate women had fewer child deaths 23.1% compared to 76.9% for illiterate women.

We computed a series of X^2 tests to find out whether there existed any relationship between place of treatment and child death vis-a-vis mothers' literacy level.

First X^2 test:-

To test the hypothesis that "there is no relationship between child's death/survival and place of treatment".

We took data on number of children dead vs the children surviving and classified them according to place of treatment either in hospital, traditional or sheikh. At 2df and 5% significance level. The critical X^2 was 5.991 below the computed X^2 of 44.0. We therefore rejected the above hypothesis and accepted that there was some statistically significant relationship between child death and place of treatment.

Perhaps severe diarrhoea, pneumonia and malaria could be curbed/controlled much better and faster in hospital by use of systematic oral rehydration, intravenous injection etc than use of herbs or burns. "A morbid case of cholera given proper intravenous rehydration should be quite comfortable in a few hours time.... a higher fatality is mostly due to delay in bringing the patient to treatment centres.." (Dr. Candou M. WHO 1971).

2nd X² test.

To test the hypothesis that: "There was no relationship between literacy level of the mother, place of treatment and child death/survival".

To achieve this, we took data on number of dead children vs those surviving for only literate mothers and categorised them according to place of treatment above (in the first test). At 5% significance level and 2df, the computed X^2 was 10.8422 higher than the critical X^2 of 5.991. We therefore rejected the above hypothesis and accepted (H_1) that there was a statistically significant relationship between literacy level and place of treatment.

The assumption here was that the literate mother was able to detect irregularities in the health of the child (detect symptoms of illnesses) early enough and take the child to an appropriate physician or even administer first aid than take the child to the traditional healer or the Sheikh.

3rd X² test:-

To test the hypothesis that: There was no relationship between illiteracy level of the mother, place of treatment and child death/or survival".

We classified data as in the 2nd X^2 test but for illiterate mothers only. At 5% significant level and 2df, the computed X^2 was 25.818 higher than the critical X^2 of 5.9991. We therefore rejected the above H_0 hypothesis and accepted H_1 hypothesis that there was some statistically significant relationship between illiteracy of mother and child death/survival.

From the above tests, illiterate women exhibited a higher X^2 25.818 compared to literate women's 10.8422. An assumption that risks of death are twice higher among the illiterate women's children.

Perhaps this could be explained by the findings from the indepth interviews with both the medical staff and the refugee mothers. According to the refugee mother, Allah was the ultimate decision maker and if he demands the child why should man manipulate his (Allah's) creation with unnatural courses of events by torturing the baby with a series of injections and drugs? It was therefore with this kind of mentality that the women blocked the children's air passages (respiratory passages - Nose/mouth) an act that hastened the child's death. This was prevalent during convulsions. Why? Because Allah was anxiously waiting for the baby's soul.

According to nurses in the camp hospital, the children were brought to hospital in the dying moments such that a few took long to respond to the serious medication given. This was compounded by inadequate administration of the prescribed drugs especially where the medical staff was not involved. In this instance the mothers took the drugs and gave them to their visiting relatives for sale.

This act delayed the child's response to treatment and at times the child died while undergoing treatment. The fear of seeing other children die prompted the women to escape from hospital and resort to taking the child to the traditional healers or the Sheikh. This could therefore account for the high deaths that occurred in hospitals 55.6% compared to the 44.4% that died at home (death register May 1995).

As for those who were taken to the traditional healers, the major forms of treatment were use of herbs and burning with fire on the sick spot. This inflicted deep burns that often resulted into deep wounds and

ultimate death. The distribution of children's death by cause (Table 4.5 showed that 1.3% children had died from burns/accidents, snakes bits. Out of this 0.8% were injuries from burns. According to the medical staff, most illiterate mothers sought the traditional treatment first before getting to the hospital.

A question that emanates from the above statistics is why did the 12.3% literate women insist on taking their children to a traditional healer/Sheikh instead of hospital? If literacy determines one's behaviour and perception besides disentangling negative cultural affiliations, how would we account for the other 12.3% illiterate women who took their children to hospital?

We can tentatively argue that the literacy emphasized was foreign and only a few people had access to it in a society while culture was ethnocentric and deeply rooted as one ages. Therefore to inculcate new norms over the rooted cultural norms was a gradual process that depended on one's perception, acceptance and assimilation of this new norms into their rooted culture and to avoid conflicts within and the the society.

Therefore, the literate women who took their children to the traditional healer/Sheikh still held on to their cultural norms and religion tenaciously. The 12.3% illiterate mothers who took their children to hospital displayed a positive attitude/assimilation towards change and being able to detach themselves from the chains of culture and religion for the love of their children.

At this stage we can only recommend for further indepth study on the effect of culture and religion on the literacy and behaviour of these women in relation to childcare.

5.3.3 EFFECT OF CULTURE ON IMMUNIZATION AND HEALTH STATUS OF THE CHILD ON CHILD DEATH.

Introduction

Does culture impact on the mother and child health care (MCH)? In our study, we were perplexed to find that among the other causes of death were diseases such as tetanus and anaemia besides the high percentage of neo-natal deaths.

According to UNICEF's 1991 declaration on the survival, protection and development of children in 1990(s), it aimed at reducing infant and under five mortality rates by one third to 50\1000 and 70\1000 respectively. One goal of achieving this was through the elimination of neo-natal tetanus by 1995.

In this schedule, we set out to investigate the health status of the child in relation to the mothers health care and practices and its impact on children's death. To achieve this, we asked the women whether they had received any Tetanus Toxoid (TT) injection while pregnant. We categorised all the live birth as per the response of the interviewed women as fully or not fully immunised basing on at least one TT as below in table 4.15.

Table 5.9   Percent Tetanus Toxoid for mothers aged 15-49
            years.

T.T. (Women)	IFO		HAGADERA		BOTH	
	NW	CD	NW	CD	NW	CD
Fully immunised	33.0	20.4	35.8	17.6	73(68.9)	41(38.0)
Not immunised	18.9	31.5	12.3	30.6	33(31.1)	67(62.0)
Total	55	56	51	52	106	108
%	(51.9)	(51.9)	(48.1)	(48.1)	(100.0)	(100.0)

Source: Survey May 1995 (Musambai 1995).

The above table 5.9 showed that 68.9% women immunized against TT
had a small proportion of children dead (38%) compared to the 31.1%
women who were not immunised at all and had a high proportion
(62%) of children dead. We drew our attention to the women who were
not immunised to find out why they had not been immunised yet the
service was available in the camp. The results are displayed in Table
5.10 and fig 5.10 below:-

Table 5.10 Percent distribution of women by Reasons for
            not Receiving T.T.

Reason for no T.T	IFO	HAGADERA	BOTH
Mother sick	1.9	2.8	5(4.7%)
Mother not aware	7.5	2.8	11(10.4%)
Mother does not believe in medicine.	6.6	4.7	12(11.3%)
Mother was/is a nomad	2.8	1.9	5(4.7%)
Total	20	13	33
%	(18.9)	(12.3)	(31.1)

Source: Survey May 1995. (Musambai 1995)

Fig. 5.10 Distribution of women by reason for not receiving TT Dadaab refugee camp (May 1995)

15%   15%

37%   33%
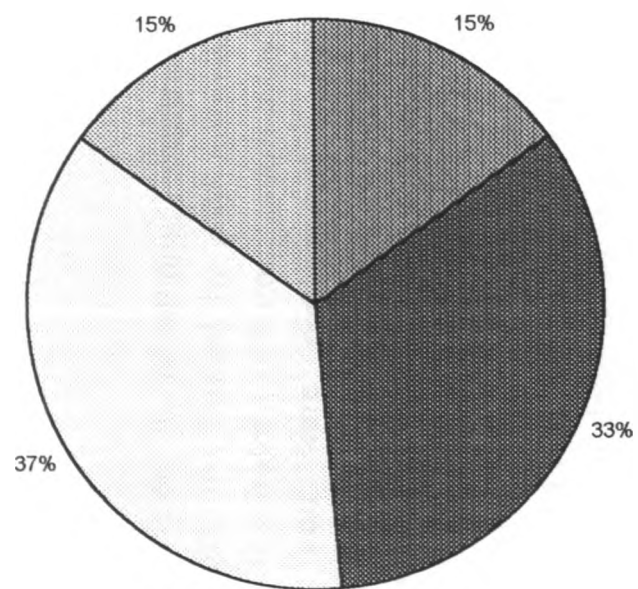
- ⊠ Mother sick
- ▦ Mother not aware
- ☐ Mother does not believe in medicine
- ⊠ other was/is a nomad

From table 5.10, out of the 31.1% women not given the T.T. antigen, 11.3% did not believe in medicine.   There was therefore a greater probability that they did not take the iron tablets given to them at antenatal clinic, neither did they take their children for immunisation. Lack of iron tablets espoused anaemia (39% ante-natal admissions were anaemic June 1994).   An anaemic person was usually susceptible to a number of illnesses and for an expectant mother the child was likely to be anaemic, sickly as argued by UNICEF (1988)that:-

"Many children in developing countries suffered from chronic anaemia caused by poor nutrition, compounded by acute respiratory infection, gastro-intestinal infections, measles and were consequently sick more often. Subsequently, the smaller babies died earlier than those who grew in developed countries". (UNICEF 1988).

The women argued that the drugs made them nauseated and destroyed the child's hair. This was by a cohort of women who clung on culture and showed defiance to change, as revealed by the 4.7% women who were still nomads within the camp and the 11.3% who did not believe in medicine. 10.4% of the not immunised women were not aware. This was an element of lack of interest/care. The question one posits is how they can not be aware of immunisation yet there were numerous community health workers patrolling the blocks daily? 4.7% were sick and therefore could not be immunised. This could be attributed to their poor nutritional status.

The study found out that 69.8% women (Table 5.1) did not eat a balanced diet because of cultural restrictions/taboos.   So they avoided proteins because the foetus would be big and complicate delivery. Secondly the paucity of a balanced diet exposed them to a

high risk of anaemia as they fed constantly on a mixture of maize and beans. This was compounded by the closing down of supplementary feeding centres for the malnourished children and pregnant/lactating mothers. Data from the nutritional survey 1995 (table 5.3) showed that the highest proportion of 9.3% under-weight children were from 0-12 months, compared to 5.6, 6.2, 3.7 and 4.3 in ages 13-24, 25-36, 37-48, and 49-60 months respectively.

An indepth. interview with Sister A. Ingosi of Jordan Clinic (Nairobi), revealed that T.T. was vital as it protected the mother and child against infections especially during delivery. She argued that in traditional societies, poor T.T. coverage and cultural taboos increased neo-natal deaths. This is probable in this refugee camp as was observed, the women used soil/sand as a toilet paper after which the hands were wiped on their lessos. A few used water but still didn't use soap for cleaning their hands. This study therefore recommends for a search into cultural taboos that inhibit immunisation especially T.T.

5.3.4 Child Immunisation in Dadaab refugee camp:-

UNICEF (1989) observe that "the lives of 3.2 million children a year were now being saved by immunisation efforts of the 1980s.... It is possible to prevent another 2 million child deaths each year and to reduce the impact of vaccine preventable diseases. Unicef aims at increasing the 60% coverage in Eastern Africa to 90% by the year 2000.

To find out the impact of child immunisation on the health status and subsequent death of the child in our study, the same women were asked to state whether they took their children for immunisation or

not. We took B.C.G and measles as a proxy to full immunisation as some had only 1 or 2 of DPT antigen. See table below (5.11):-

Table 5.11 **Percent Distribution of children immunization 5yrs for Dadaab refugee Camp May 1995.**

Immunisation of Children	IFO		HAGADERA		BOTH	
	NW	CHILDREN	NW	CHILDREN	NW	CHILDREN
Fully immunized	33.0	31.6	35.8	28.9	73(68.9)	333(60.5)
Not immunized	18.9	26.0	12.3	13.5	33(31.1)	217(39.5)
Total/%	55(51.9)	317(57.6)	51(48.1)	233(42.4)	106(100.0)	550(100.0)

source: Survey May 1995 (Musambai 1995)

From the foregoing table (5.11), 60.5% of the children were fully immunized. The mothers were further probed why they did not take their children for immunization and their responses were distributed as in table 5.12 below and fig 5.12:-

Table 5.12 Percent Distribution of women's reason for
Not immunising the children; Dadaab refugee
camp: May 1995.

Reason for no BCG/MSL	IFO	HAGADERA	BOTH
The child died	6.2	6.0	67(12.2)
Mother was sick	1.6	0.9	14(2.5)
Mother not aware	8.4	3.8	67(12.2)
Mother does not believe in medicine	7.6	2.0	53(9.6)
Child less than 9 months for (MSL)	0.5	0.2	4(0.7)
Mother was/is a nomad	1.6	0.5	12(2.2)
Total %	143(26.0)	74(13.5)	217(39.5)

Source: Survey May 1995: (Musambai 1995)

Fig 5.12: Percent Distribution of women's reason for not immunising the children; Dadaab refugee camp: May 1995

2%   5%   29%   23%   11%   30%

Legend:
- ⊠ The child died
- ■ Mother was sick
- ☐ Mother not aware
- ⊠ Mother does not believe in medicine
- ■ Child less than 9 months for (MSL)
- ⊠ Mother was/is a nomad
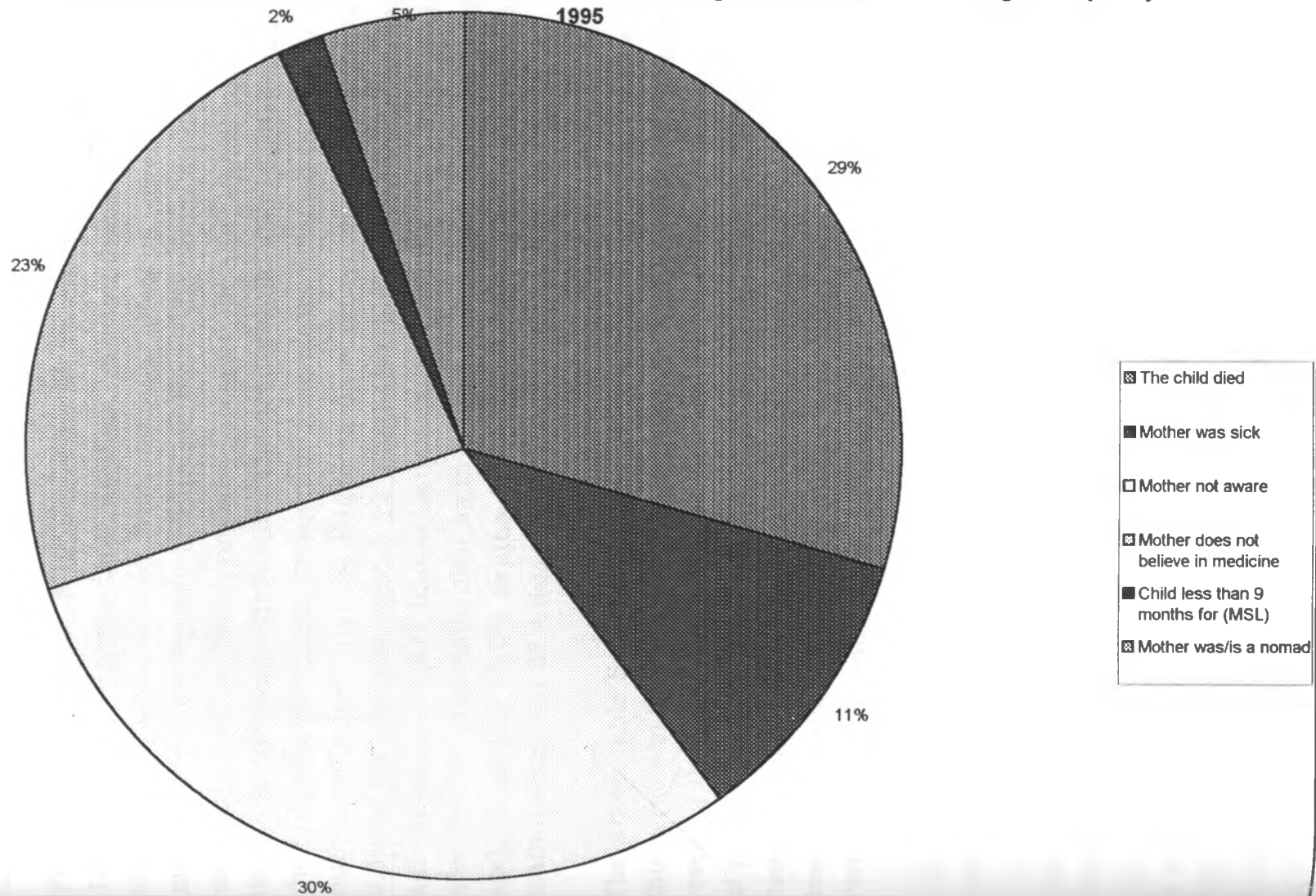
From the above table 5.12, out of the 39.5% children not immunized, 12.2% had died before immunisation. We could possibly argue that the deaths were derived from tetanus infection given that their mothers were not equally immunised hence died from diseases of the new born. This could probably account for the 10.4% neo-natal deaths in the camp (table 4.5). The deaths could also be attributed to the children being under-weight or anaemic as reflected in Data from nutritional survey (taking Hagadera as a proxy) which showed that 9.3% of the children aged 0-12 months were under-weight than their age based on W.H.O Immunization card (Appendix III). They could also be due to malnutrition as in table 4.5. (from causes of death by age), of all the 26.0% deaths in age 0-1 months, 5.1% were due to malnutrition and 37.4 due to neo-natal.

The above table 5.12 showed that 12.2% mothers were not aware of this service in the camp. However, indepth interview with the refugees revealed that the mother was supposed to stay in-doors until 40 days of post-delivery were over. Therefore for those who had delivered at home, this act was likely to espouse the proportion of not immunised, essentially enhancing associated diseases such as (D.P.T) Diphtheria Pertussis and Tetanus.

Table 5.12 revealed that 9.6% children were not immunized because their mothers did not believe in medicine. This was compounded by the 2.2% whose mothers were nomads. This depicted an aspect of cultural tenacity on the part of the mothers, compounded with the low literacy level (25.4% C.A.R.E Education Programme March 1995). This consequently reduced the immunization coverage of the children in the camp. Asked why they did not believe in medicine the mothers argued that immunization made the child weak and sick. We further categorized the children immunized and those not immunized so as to

determine any relationship between immunization and their health status as shown in table 5.13 below:-

Table 5.13 percent Distribution of health status of the child and Immunization Dadaab refugee camp May 1995.

Health Status of Children	State of Immunization				TOTAL	
	Fully Immunized		Not Immunized			
	NW	Children	NW	Children	NW	Children
Alive and well	80.8	69.7	21.2	13.4	66(62.3)	261(47.5)
Alive and sickly	11.0	18.0	51.5	55.8	25(23.6)	181(32.9)
Dead	8.2	12.3	27.3	30.9	15(14.2)	108(19.6)
Total	73	333	33	217	106	550
%	100.0	100.0	100.0	100.0	(100.0)	(100.0)

Source: Survey May 1995: (Musambai)

From the above table 5.13, it was shown that a large proportion of (69.7%) children fully immunized were alive and well compared to 13.4% not fully immunized. 55.8% of not immunized were alive and sickly compared to the 18.0% fully immunized. Many of the 30.9% dead children had not been immunized compared to 12.3% dead children who had been immunized (fig, 5.13).

Fig. 5.13 Percent Distribution of health status of the child and Immunization Dadaab refugee camp May 1995
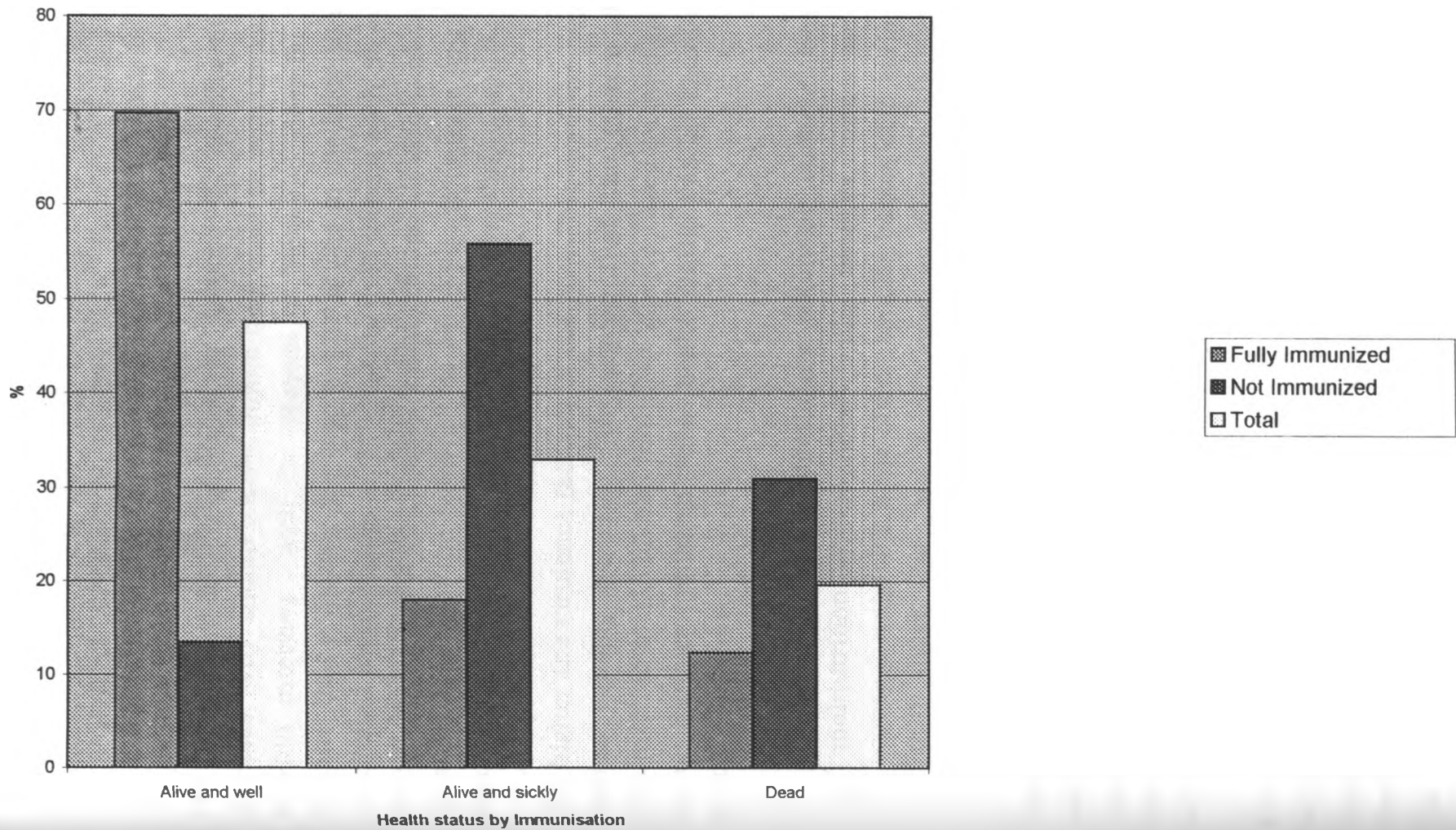
The issue here is if immunization reduces the fatality of certain illnesses, why should 18.0% immunized children remain sickly? An indepth interview with Dr. Mayabi of Memorial Hospital Nairobi, revealed that a vaccine was a germ introduced in the body so that the vaccinated person fights it. It caused a mild disease with no symptom so that it acts as a barrier against that disease. It also stimulated the Immune system of the person. "so when you immunize you actually introduce the disease in the body", said Dr. Mayabi.

The higher the virulence (activity of the germ/bacteria) the higher the disease causing bacteria. He argued that the current dosages administered to all children in the world were based on studies carried out on European children whose health status was far above average as echoed below:-

"Many children in developing countries suffered from malnutrition...compounded with measles and were consequently sick more often...smaller babies died earlier than those who grew in developed countries". UNICEF (1988).

Thus to administer the same dosage of antigens to malnourished/ under-weight children like the ones in the refugee camps was equivalent to introducing a disease more fatal than they could fight so they ended up dying. The dosage should be moderated to suit each set of children in a given milieu concluded Dr. Mayabi

We computed a X^2 test to find out whether there was any relationship between immunization and health status of the child as shown in table 4.13. At 95% significance level 2df the critical X^2 was 5.991 lower than the computed 165.70063. We rejected the null hypothesis that there was no relationship between immunisation and health

status of the child and accepted H_1 that there was some statistically significant relationship between immunization and health status of the child.

From the above findings, we can deduce that immunization contributed significantly to the good health status of the children by minimising the fatal effect of some environmentally oriented diseases (whooping cough, Pertussis etc) that could otherwise have killed them.

5.3.5 Summary of this section:-

In this section we observed the relationship between various cultural variables and infant and child mortality, using complimentary data sources such as indepth interviews, questionnaires and hospital records. In certain aspects where quantitative data was available, a X^2 was computed and proportions also used. In qualitative data, indepth interviews were used.

We found that the higher the literacy level the lower the number of deaths as shown in the distribution of the proportions and X^2 association.

Many women had poor nutrition as they avoided quality (balanced diet) food for fear of problems during child births. This poor nutrition therefore resulted into their children being anaemic, malnourished, low birth weights and subsequent deaths of this children.

There was an element of preferential treatment for boys compared to girls as depicted in causes of death where more girls were malnourished, died of accidents, were under immunised and died at home.

There was a significant relationship between place of delivery and child death as many preferred to deliver at home where they could engage in their traditional ceremonies/rituals.

The findings showed that the women preferred traditional treatment for their children as well as taking to the Sheikh for prayers since other children died in hospital, besides the medical staff being strict on the administration of treatment.

Immunisation coverage for both T.T. and children was low as many were ignorant, feared the injection and did not believe in medicine at all.

Generally, these findings impinge on the mother and child care perception and behaviour which is greatly compounded by the deeply rooted cultural practices and beliefs on which they so hold tenaciously.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This was a baseline study attempting to unveil the causes of infant and child mortality among the refugees in Dadaab refugee camp. Its complexity lay in linking of all the causes of death to the identified factors/variables into a jigsaw mesh that could adequately and meaningfully illustrate the pathology of all causes of death. It was not possible to explain a single factor discretely without repeating/simultaneously mentioning the other.

This study was undertaken so as to identify the major causes of death despite the interventions by international NGOs. Secondly it aimed at generating relevant information to facilitate decision making of significant policy formulation to ameliorate causes of infant and child mortality besides laying a base (foundation) for further research needs of public health agencies and administrative organisations. To achieve this the main objectives of the study were:-

a. To find out if there existed any association between the standards of living and infant and child mortality among the refugees in Dadaab refugee camp.

b. Investigate whether there existed any association between cultural beliefs and practices and infant and child mortality among the refugees in Dadaab refugee camp.

c. To estimate various infant and child mortality rates (monthly death rates, Endogenous/Exogenous death rates and cause specific death rate) for Dadaab refugee camp.

As already mentioned, the study may not have adequately/critically achieved its objectives given limitations such as:- insufficient data to compute some mortality rates (annual death rates), improper classification of causes of deaths hence a high percentage of unknown

causes of deaths (as in table 4.5). Incomplete response from the respondents e.g. 14 questionnaires were not analysed.

We cannot overrule irregularities in false response. Time was also limited as the study required time to stay with the refugees and observe/take part in their activities in-order to understand their cultural practices/beliefs. However, the use of indepth interviews facilitated the probing of information and capturing of attitudinal perception of cultural behaviour of the refugees which would not have been possible from the quantitative data kept by the administration. The study was therefore more of a narrative due to this qualitative methods.

In chapter one, we had the statement and justification of the problem of study.

In chapter two we had literature review and the framework of study.

In chapter three data and methodology.

In chapter four, we presented the various death incidence of the infant and child mortality among the refugees. We found that deaths increased during the rainy seasons (April and November) major diseases being diarrhoea and malaria. The cause specific death rate was 4219.9/100,000 with a high population being exposed to the risk of malaria, diarrhoea, pneumonia and NCO-natal cause (991.1/100,000, 720.1/100,000, 526.5/100,000 and 402.6/100,000 respectively). None of the children was exposed to the risk of measles whilst hepatitis and accidents registered the lowest risk of 7.7/100,000 each respectively.

We also found that most of the deaths were mainly from external/environmental causes (Exogenous) constituting 18.7/1000 compared to 9.3/1000 deaths from biological causes (endogenous): Major causes of death were: Malaria 21.3%, diarrhoea 17.1%,

pneumonia 10.8% Neo-natal 10.5% and malnutrition 7.6% of all deaths in the camp.

In the same chapter four, we discussed the effect of socio-economic factors on infant and child mortality among the refugees. Data from both quantitative and qualitative sources revealed that women who were literate had fewer child deaths compared to illiterate women. The study revealed that more girls were malnourished than boys. For instance, 4.2% girls had died from malnutrition and 3.4% boys from the same cause especially for those between 2 – 12 months.

Indepth interviews showed that all the basic facilities were provided for by the community but the ration despite being average it was below the acceptable level of 2400kc/person daily. Some of the ration was also sold on the market. The shelter provided was inadequate and unacceptable for it did not protect the children especially during the wet season.

There was no relationship between SLI and child deaths as depicted in X^2. However, despite this, three quarters of the refugees lived in sheer poverty and had 73.1% of their children dead as portrayed by the proportions. None had a high SLI. In chapter five we discussed the effect of cultural factors on infant and child mortality. The study revealed that many women preferred to deliver at home because they were able to carry out their cultural rituals than in hospitals. They also preferred to take their children to a Sheikh for prayers and traditional healers than hospital for treatment, Sheikhs represented Allah who was supreme and that man had no power to manipulate lives. Burns were administered to sick parts hence causing sceptice wounds which resulted into deaths. On the other hand, there was poor administration of medicine as it was sold or given to livestock.

We also found that immunisation coverage was 60%. This was rather low given the availability of facilities. From the computed cross-tabulations immunisation showed a high association with the health status of the child with a X^2 of 165.7006. Illiteracy also showed a

close association with child death followed by place of treatment and delivery respectively.

Summary of the Chi-Square tests:

There was some statistically significant relationship between:-

Variable	Computed X^2	Critical X^2
a. Immunisation of child and its health status	X^2 165.7006	5.991
b. Place of delivery and child death	X^2 11.2787	5.991
c. Place of treatment and child death	X^2 44.0381	5.991
d. Illiteracy, choice of food and child death	X^2 14.92	3.841
Not statistically significant relationships were:-		
a. Sex preference and child death.	x^2 2.9401	3.841
b. SLI and child deaths.	x^2 3.36	3.841

CONCLUSION

According to Jeanne (1995), young children in Tropical countries tend to suffer from several diseases at one time. Evidently, this generally emanated from poverty, inadequate food supplies, poor environmental sanitation, lack of education and information, inadequate health care. This also accounted for high levels of infant and child mortality in Dadaab refugee camp as revealed in our study.

From our study, it was clear that the community (Administration) had provided all the basic/essential facilities and services. This, according to international standards of such refugee camps were above average compared to other camps. The study revealed that there was availability of medicine, medical personnel, and medical centres in the camp.

The perturbing issues are:- Why then did the mothers take their children to a traditional healer and the Sheikh for treatment? Why did they adamantly deliver at home, alone when there was the hospital, and also the T.B.As? Why didn't they take their children for immunisation yet it was freely provided in the camp? Why were there more females malnourished than the males yet they were all fed on the same ration? Why was there an insignificant percentage of female enrolment compared to males in schools in the camp? Despite the paucity of protein foods such as liver, milk, mutton, eggs etc and honey, if available why would the women fear eating this food because these foods would enlarge the foetus and therefore pose problems during birth?

If the women did not utilize the available free facilities and services provided for in the camp who do we blame for the continued plague of child deaths in the camps? We can meaningfully posit that the camp has continued to be plagued with fluctuations of infant and child deaths because of the mothers clinging tenaciously/on negative cultural beliefs and practices as executed in their perception and behaviour.

These findings are therefore in line with our general hypothesis that:-
CULTURAL BELIEFS AND PRACTICES HAVE GREATLY
COMPOUNDED AND CONTINUED TO ESPOUSE INFANT AND CHILD
MORTALITY AMONG THE REFUGEES IN DADAAB REFUGEE CAMP.
Despite the international assistance to this camp, as long as these
negative cultural traits are not disentangled we expect higher death
rates especially with the ever dwindling assistance from donor
countries.

POLICY RECOMMENDATIONS.

If it is true that infant and child mortality is a measure of a society's
living standards, then such studies of specific causes of death would
lead to an understanding of disease processes which indirectly lead to
mortality from such causes.

statistics of mortality by cause can indicate pre-disposing factors such
as the unsatisfactory or inadequate medical facilities, type of milieu,
socio-cultural or economic characteristics. This would be essential in
the development of effective remedial programmes to combat the
effects of the identified hazards. We found out that there were
irregularities in the recording of this data in the camp. There is need
for improving on the methods of recording the data and if possible
enhance the recordings with complimentary information such as:- age
of mother, birth order of the child, economical characteristics of the
parents, educational level of the parents etc, so as to facilitate
demographic analysis of infant and child mortality.

This would mean that one must be able to describe and record
accurately any pathological condition of a given case history of a
disease. He should be able to summarize the aggregate information
using the correct terminologies and classification. This was a problem
with the records in the death register hence many unknown causes of
death.

There is need to step up the control of Diarrhoea, Neo-natal causes of death, malaria and malnutrition by executing an inter-sectoral and integrated comprehensive primary health care. For instance dissemination of information about improved agricultural techniques for increasing food production, intensify female literacy in Nutrition, hygiene standards, safe motherhood by making them aware of dangers of self-delivery at home, superior food/breastfeeding besides its immunological qualities and its value in preventing gastro-enteritis and respiratory tract infections.

Since most women had phobia for hospital, there was need for mobile clinics to take care of baby immunisation as the women would be indoors for 40 days after delivery and also for general treatment of mild ailments etc. If possible the traditional healers and Sheikhs should be incorporated in re-awakening the refugees to essential basics in nutrition, hygiene, health treatment - by making them C.H.Ws and C.D.W. The C.H.W and T.B.As should be equipped with modern skills in first aid and delivery respectively through regular workshops that are practical oriented.

The M.S.F. medics should establish the causes of pre-maturity and Neo-natal deaths in relation to Genetic factors in diseases pre-disposing them and, the synergistic effect of infection and malnutrition. C.A.R.E should intensify female enrolment in schools and adult classes as most of them were not aware of many basics in hygiene, nutrition and facilities within the camp.

Finally there was need for regular surveys on the effectiveness of Health and educational programmes besides indepth interviews on socio-cultural preferences, beliefs and their effects on the remedial programmes. The data oncauses of death would be appropriate in analysing and evaluating their effectiveness, and would basically lead to further research to understand critically the interaction which exists between them.

Further research:-

Owing to the mentioned limitations, we recommend that:-

1. A thorough demographic investigation on determinants of infant and child mortality among the refugees using indepth and indirect scientific methods be mounted.

2. A study to find out the synergism between culture, religion, education and M.C.H. (Maternal and Child Health)be carried out.

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Appendix I

The Standard Living Index: (SLI)

The index is constructed by summing up the scores of variables obtained from the household schedule. The index takes the values from 0-30 and is based on the following scoring system:-

VARIABLE	CATEGORY	SCORE
1. Type of house	1. Mud	3
	2. Tuklu/tent/paper	1
2. Source of lighting	1. Paraffin	3
	2. Others	1
3. Source of drinking water	1. Running tap/hand pump	3
	2. Surface well/river	2
	3. Others	1
4. Toilet facilities	1. Bucket/pit latrine	3
	2. Bush/others	1
5. Ownership of modern objects	1. Bicycle/radio/watch/clock	2
	2. Sewing machine	2
	3. Mattress/mat	2
6. Possession of any draught animal	1. Cow/calf	3
	2. goat/sheep	3
	3. camel/donkey	3
7. Cooking fuel	1. Paraffin	3
	2. Wood	2
	3. Others	1
		30

Classification

0 - 10 low

11 - 20 average

21 - 30 high

APPENDIX II

1 EDUCATION STATUS FOR DADAAB REFUGEE CAMP 1995.

LEVEL OF SCHOOL	LEARNERS				TEACHERS				RATION
	IFO	HAG	BOTH		IFO	HAG	BOTH		BOTH
	%	%	No.	%	%	%	No.	%	%
Pre-School									
Male	3.9	2.0	604	5.9	0.0	0.8	02	0.8	
Female	2.9	1.1	416	4.0	6.3	2.9	22	9.2	43.1
Primary									
Male	23.7	33.9	5933	57.6	27.6	25.9	128	53.6	
Female	6.9	11.1	1855	18.0	4.6	7.1	28	11.7	50.1
Secondary									
Male	0.7	1.3	208	2.0	5.9	5.0	26	10.9	
Female	0.8	0.1	07	0.1	0.0	0.8	02	0.8	8.1
Special Ed.									
Male	0.1	0.1	19	0.2	2.1	2.1	10	4.2	
Female	0.2	0.0	03	0.0	0.4	0.8	03	1.3	2.1
Adult literacy									
Male	5.5	3.3	914	8.9	4.2	3.3	18	7.5	
Female	1.4	1.8	333	3.2	0.0	0.0	0.0	0.0	69.1
TOTAL									
Male	33.9	40.7	7678	74.6	39.7	39.2	184	77.0	
Female	11.3	14.1	2614	25.4	11.3	11.7	55	23.0	
GRAND TOTAL	4650	5642	10,292		122	117	239		43.1
	45.2%	54.8%	100.0%		51%	49%	100%		

No. of Educational Facilities (Schools)

TYPE	IFO	HAGADERA	BOTH
Pre-School	*	*	*
Primary	7	5	12
Secondary	1	1	2
Adult Lit. classes	1	**	1

N/B

- Pre-School units are attached to primary schools.
- 2 centres attached to secondary and one primary school.

Source: CARE, Education program March 1995

NOTES

Date	Symptoms	Treatment

NOTES

Date	Symptoms	Treatment

EVERY MONTH

EVERY CHILD MUST HAVE A BIRTH CERTIFICATE

CHILD HEALTH CARD

MINISTRY OF HEALTH, KENYA

H FACILITY NAME	
S NAME	SEX
UNIC NO.	DATE FIRST SEEN
F BIRTH	BIRTH ORDER
'S NAME	
R'S NAME	
T	
ON	
CATION/VILLAGE	

SIBLINGS

(BROTHERS & SISTERS)

NAME	YEAR OF BIRTH	SEX	ALIVE/DIED

W THIS CARD ON EVERY VISIT

IMMUNISATION

PROTECT YOUR CHIL

Sign when fully immunized

TUBERCULOSIS (BCG – VACCINE) at birth	DATE GIVEN	
BCG – SCAR	DATE CHECKED	PRESENT ABSENT

DIPTHERIA/WHOOPING COUGH/ TETANUS (DPT VACCINE)		ENTER NEXT
DOSE	DATE GIVEN	
1st dose at 6 weeks		
2nd dose		
3rd dose		

POLIOMYELITIS (ORAL POLIO VACCINE)	
DOSE	DATE GIVEN
Birth dose (before 6 weeks)	.
1st dose after 6 weeks	
2nd dose	
3rd dose	

MEASLES VACCINE	DATE GIVEN
give at 9 months	

HAVE YOUR CHILD WEIGHED EVERY MC

APPENDIX IV

UNIVERSITY OF NAIROBI	CONFIDENTIAL
POPULATION STUDIES AND RESEARCH INSTITUTE	Data used for research purposes only by: MUSAMBAI MARY IMMACULATE
"INFANT AND CHILD MORTALITY BY CAUSE AMONG REFUGEES IN KENYA"	REG. NO. Q50/7698/93

MAT 00: IDENTIFICATION

REFUGEE CAMP:

NAME OF HOUSEHOLD HEAD .... REGISTRATION NO: ....

TOTAL NO. OF WOMEN AGED 15 - 50 YEARS IN THE HOUSEHOLD ....

TOTAL NO. OF CHILDREN AGED 0 - 5 YEARS IN THE HOUSEHOLD ....

1.   Completed

2.   Incomplete

Language of Questionnaire: ENGLISH

USED INTERPRETER: 1. YES

                           2. NO

                           7. Others

MAT 01: HOUSEHOLD

We would like some information about the people who usually live in your household/or who are staying with you

Give names of all persons who usually live in this household	what is the relationship to the head of the house 1. head 2. Spouse 3. son/ daughter 4. adopted child 5. sister/ brother 6. relative 7. others	does usually here?	Sex of ___ 1 Male 2 Female	How old is ___ Age in month and year	marital status of ___ single married divorced widowed separated N/A	month and year of marriage	where was ___ born? Here in the camp elsewhere in Kenya My country (give country code)	when did to this camp? (State month or year)	has ever attended school? (State Yes no	if yes is still attending schol? Yes no	what was the highest level attended Primary secondary College/ University	what was the highest class attended? (state the class)	state ___'s religion catholic protestant muslim tradition others	is ___ natural mother alive? yes no	is nat ural father alive? yes no	circle the line no of all women aged 15-50 years	circle the line no of all children aged 0-5 years

Line No.

1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
01																		
02																		
03																		
04																		
05																		
06																		
07																		
08																		
09																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		

Q9Kenya code 01- Somalia, 02-Sudan, 03-Ethiopia, 04-Uganda, 05-Rwanda, 06-Others

MAT 02. HOUSING ASSETS, AMENITIES AND SOCIAL SERVICES
(Respondent: Adult female aged 15 - 50 years of the household)

A Standard of Living Index:

Variable:	Category:	Indicate No. of category - if yes:

2.1 Type of house of your household 1. Semi-permanent (mud)
                                         2. Tent

2.2 What is the source of lighting in your
     (paraffin) household?   1. Kerosene
                                    2. Others

2.3. Does anyone in this household own
     a………..   1. Bicycle
                                    2. Radio
                                    3. Watch/clock
                                    4. Sewing machine
                                    5. Table
                                    6. Chair

2.4. Does anyone in this household posses
     any draught animal?   1. Cow/calf
                                    2. Goat
                                    3. Sheep
                                    4. Chicken, Turkey
                                    5. Donkey/camel

2.5. What is the source of cooking fuel?
                                    1. Gas
                                    2. Woodfuel

*NB: No. 7 can be used instead of No.2
Variables refer to what the respondents has now not what he left at home

2.8.2. Can you read a letter or a Newspaper in any language?

MAT 03: REPRODUCTIVITY

3.10 How many children have you ever given birth to and are living in this household?

1. Male

2. Female

3.11 How many children have you ever given birth to and are living elsewhere?

1. Male

2. Female

3.12 Of the children you gave birth to, has any one died?

1. Yes

2. No

3.13. If yes, how many children have died?

1. Male

2. Female

CULTURAL BELIEFS AND PRACTICES

3.20 In your society, what food is a pregnant woman allowed to eat?
....
....
....

3.21 What food is a pregnant woman not allowed to eat?
....
....
....

3.22 Why is she not allowed to eat the food?
....
....
....

3.23 In your society, what is done when a baby girl is born?

....

....

....

3.24 In your society, what is done when a baby boy is born?

....

....

....

3.25 What do you do when a child dies?

....

....

....

	Last Birth (Born)	2nd last Born Next to last birth - 2	3rd Last Born Second from last birth - 3	4th Last born 3rd from last birth - 4
4.0 Identification of child (indicate line No. of the child on page 01)				
4.1 Sex of child 1. Male 2. Female				
4.11 Date of birth of child (month/year)				
4.13 How old was…..when you became pregnant? (Indicate age in months)				
Immunisation				

4.2.1 When you were pregnant with ….. were you given an injection in the arm?
 	
  1.   Yes
  2.   No
  If no give reasons
	....
	....
		....
		....
			....
			....
				....
				....

4.21 When you were pregnant with …. Did you attend your Antenatal care?
 	
  1.   Regularly?
  2.   Irregularly
  If not give reasons
	....
	....
		....
		....
			....
			....
				....
				....

4.23 Whom did you see for ante-natal				

4.24 Where did you give birth to ……?
 	
  1.   Health centre/Hospital
  2.   At home
  3.   On the way
  4. Elsewhere (specify)				

	1	2
4.25 Who assisted you with the delivery of.....? 1. Doctor/Nurse 2. Traditional birth attendant 3. Relative/friend 4. No one		
4.26 Was....born on time or prematurely? (earlier) 1. On time 2. Prematurely (earlier)		
4.28 Was....weighed at birth? 1. Yes 2. No If yes, state the kilograms.		
4.29.0 Has... received an injection in the left arm that made a scar (BCG)? 1. Yes 2. No - Give reasons	....	....
4.29.1 Has.... Received drops in the mouth? (Polio vaccine) 1. Yes 2. No - Give reasons	....	....
4.29.2 Has......received an injection against measles (at 9 months)? i.e. in the top part of the right arm? 1. yes 2. No - Give reasons	....	....
	....	....

NUTRITION	1	2	3	4
4.30 Do you wash your hands before preparing/feeding the baby? 1. yes 2. No 4.31 Was/Is.... Breastfed? 1. Yes 2. No 4.32 If no, what was/is the reason? 1. Mother ill/weak 2. Child ill/weak 3. Mother died 4. Breast problem 5. Insufficient milk 6. Child refused 7. Mother working 4.33 Are you still breast-feeding? 1. Yes 2. No If no, why did you stop breast-feeding? 1. Mother ill 2. Child ill 3. Mother died 4. Breast problem 5. Insufficient milk 6. weaning age 7. Became pregnant 8. Started using contraceptives 9. Mother working.	....	....	....	....

	1	2	3	4
4.34 For how long did…. Breastfeed? (state the time in months)				
4.35 Was…..ever given water or anything else to drink/eat other than breast milk?				
4.36 How many months old was……… 1. Formula or milk other than breastmilk? 2. Plain water 3. Other liquids (fruits) etc. 4. Porridge (uji) 5. Any solid (mushy food) e.g. ugali, beans, potatoes, etc.				

Illness	1	2	3	4	Action taken

5.10 Has......been ill in the (in the last 2 weeks) with:-
 	
1. Diarrhoea/vomiting
2. Fever/malaria
3. Cough/cold/running nose
4. Bites (Snakes)
5. Skin rash
6. Sore eyes
7. Measles
8. Burns/wounds
9. Others
 	
State 1. Yes
      2. Non(against each disease)
 	
5.11 What action did you take when.......was sick with?
 	
1. Diarrhoea/vomiting
2. Fever/malaria
3. Cough/cold/running nose
4. Bites (Snakes)
5. Skin rash
6. Sore eyes
7. Measles
8. Burns/wounds
9. Others
 	
If no action was taken, give reasons.
					Action taken
					
					a. No treatment
					b. Home remedy
					c. Traditional Healer/herbs
					d. Took to hospital
					
					State 1. Yes
					      2. No

	1	2	3	4

5.12 What is the health status of the child?
 	
  1. Alive and well
  2. Alive but sickly
  3. Dead
 	
5.13 If dead, when did……die? (state months/year)
 	
5.14 Where did …….die?
 	
  1. In the house/home
  2. On the way
  3. In the clinic/hospital
 	
5.15 What was thought to have caused the death
    of….by?
 	
  1. Yourself?
  2. Doctor/Nurse
  3. Other people in the community?
 	
5.16 Who did you report ……..'s death to?
 	
  1. No one
  2. Elder
  3. Authority (Social Worker)
 	
5.17 If you did not report, state reasons why you did
    not.
	…………………
	…………………
		…………………
		…………………
			…………………
			…………………
				…………………
				…………………

THE INDEPTH INTERVIEW SCHEDULE:-

The schedule below was used to probe the refugees and camp administrators on various issues so as to attempt an explanation of the quantitative data.

TO THE REFUGEES

1. You said that when a male baby is born, you celebrate than if it is a female child. Why do you have this special celebrations for the male baby?

2. The hospital statistics show that many of you women prefer to deliver at home tan go to hospital where there is good assistance by the doctors. Why is this so?

3. Why do you take your children out of hospital to the Sheikhs/Traditional healers?

4. I have seen many of the refugees with dark spots on the forehead, limbs, stomach etc. What are they, and who puts them and for what purpose?

5. What comment can you give pertaining to food/ration provided by the C.A.R.E?

6. I have seen some of the Relief food in Hagadera market, why do you sell this food instead of feeding on it?

7. Many of you stay with children or people who are not your relatives or stay with extended family members, why do you volunteer to look after such large families?

TO C.A.R.E

1. In what stage of development is your camp currently in?

2. What problems do you encounter when providing services to the refugees and executing your programmes?

3. In your opinion do you have adequate manpower?
4. Kindly furnish us with the structure of your organisation and the personnel.

TO M.S.F BELGIUM

1. Your hospital data shows that there are no Measles cases, what do you attribute this to?
2. Why do we have many cases of pneumonia, malaria, diarrhoeal and Neo-natal diseases?

3. What effect does Tetanus Toxoid have on pregnant mothers and the foetus?

4. Is there any relationship between Immunisation, health status and weight of the child?

5. Do you experience any difficulties when administering treatment to the refugees?

TO U.N.H.C.R

1. What problems do you experience when executing and co-ordinating camp activities/policies?