UTILIZATION OF HEALTH SERVICES BY SETTLED AND NOMADIC GROUPS IN WAJIR DISTRICT, KENYA

BY

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I56/9133/2000

A thesis submitted in partial fulfillment of the requirements for the award of the degree of Master of Public Health and Epidemiology in the School of Pure and Applied Sciences of Kenyatta University

OCTOBER, 2007
DECLARATION

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

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DEDICATION

I would like to dedicate this work to the many women of nomadic pastoral communities who live in not only extremely harsh conditions but are also charged with the responsibility of rearing children under very difficult circumstances.

I would also like to dedicate this work to my family whose support has made it possible for me to do this work despite the myriads of problems I encountered.
ACKNOWLEDGEMENTS

I would like to acknowledge the many people who helped me in making this work a reality. First and foremost I would like to recognize the input of my supervisors for the able mentorship: Dr Gicheru M. Michael, the Late Prof. Romanus Okelo formerly of Kenyatta University and Prof Dabar Abdi Maalim of World Health Organization (Kenya).

My thanks go also to the field assistants who helped me collect the data. The work involved perseverance, dedication and hard work, collecting data under difficult circumstances that required travelling by foot for days and going without food and water. Particularly, I want to thank Maalim Yunis Issak and Maalim Noor.

The entire team from Arid Land Development Fund (ALDEF) has a special place in my heart for their support in data collection and arranging for transportation in the Bullas where they work. The Director, field girls and office staffs have been of special assistance in the successful undertaking of this work.

The team working with OXFAM (UK) in Wajir was instrumental in carrying out the work in the outposts and nomadic communities where they strived to make a difference in the life of otherwise a forgotten people. I want to specifically thank the Head of the office in Wajir (Madam Raxa Amin, Muhlar Sheikh Ahmed and the field officers with whom I spent countless days/night in the bush). I cannot forget the team from the Ministry of Health particularly the District Public Health Nurse Mr. Abdikadir Ore for the support and encouragement.

Last but not least, I want to thank my wife (Amina Mohamed) who has been instrumental in providing both moral and financial support. She not only tolerated my absence and involvement with my work but also took good care of our children during this difficult period. I cannot forget my children (Abdulmajid, Muhyidin, Elyas, Ismahan and Muna) who persevered the long hours of absence and loss of paternal support and care.
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GLOSSARY OF ABBREVIATIONS

ALDEF: Arid Land Development Fund
AMREF: Africa Medical Research Foundation
BCG: Bacillus Calmette Gurrein
DPT: Diphtheria, Pertussis and Tetanus
DDP: District Development Plan
FGD: Focus Group Discussion
FP: Family Planning
GOK: Government of Kenya
IMR: Infant Mortality Rate
KDHS: Kenya Demographic Health Survey
MOH: Ministry of Health
OPV: Oral Polio Vaccine
OXFAM: Charitable Organization
NFD: Northern Frontier District
NGO: Non Governmental Organisation
PA: Pastoral Associations
PO 0: Birth Polio
PO 1: Oral Polio 1
PO 11: Oral Polio 11
PO 111: Oral Polio 111
PHC: Primary Health Care
WHO: World Health Organization
SPSS: Statistical Package for Social Sciences
TBA: Traditional birth Attendant
TT: Tetanus Toxoid
UNICEF: United Nations Children and Education Fund
ABSTRACT

Inequalities in health are more obvious than ever before throughout the world in the different levels of socio-economic development. While substantial improvement in health status the world over has been gained as evidenced by the declining mortality and improved child survival, there remain substantial inequalities in health between countries, regions, socio-economic groups and individuals. These differences are not attributable to genetic or biologically factors but that governments do not see inequality as an important health problem that they can address. Large portions of the world population are inaccessible to treatment and medical care. Studies suggest that nomads have been left out of national health planning. Thus a study was designed to understand utilization patterns of health services by a disadvantaged people such as Nomads of North Eastern Province of Kenya. A comparative cross sectional descriptive study involving 600 mothers with children using questionnaires was done in Wajir. The study was conducted in ten clusters (four for settled people and six nomadic hamlets) involving women between 15-49 years and their children between 12-23 months. Data was collected on antenatal, maternal and family planning use, while for children information on immunization and sickness was gathered. Cluster sampling was employed. In the settled clusters seventy-five mothers with children were studied in each of the four clusters, while fifty women were interviewed in each of the six nomadic clusters giving a total of six hundred mothers for both groups. SPSS (9.0) software package was used for processing. Fisher’s exact test, Z-score test, chi-square and Odd’s ratio were employed to test relationships between the variables and the coverage rates. Results of the study indicate that: Shelter: 80% of settled and 98% of nomadic mothers live in Somali hut. Illiteracy is high in both groups (16.3% and 1.3% respectively). Clinic attendance: 89.7% (settled) and 7.3% (nomads). Delivery in a health facility: 65% (settled) delivered in health facility, while 95% of nomadic women delivered at home. Attendance by a skilled worker: a skilled worker attended 65% of settled women, while 95% of nomadic women were delivered by Traditional Birth Attendant (TBA). Family Planning (FP) knowledge is low (37.3% settled and 1% nomads). F/P use is very low. 9.3% of settled women and 0.3% nomads. Card possession is 87.3% (settled women) compared to 23.7% of nomads. Immunization knowledge was high among the settled (96.3%) and low (9.7%) among the nomads. Immunization rates are low among nomads. Sickness: 84% (settled) and 94%(Nomadic) children had been ill. Source of immunization: 90% (nomads) got immunizations from mobile clinics while 91% (settled) got it at static facilities. Only 28% of health workers said their facility conducted outreach services. Shelter, radio ownership, education, awareness of clinic location and distance influenced the use of health services. Settled people had higher utilization rates compared to nomads (Z Test; P<.001). Nomads’ inaccessibility to health evidenced by low utilization rates should worry health planners. Innovative approaches such as targeting watering points, training pastoral associations in service delivery should be explored.
CHAPTER ONE: INTRODUCTION

1.0 BACKGROUND

During the last four decades a period when most African countries obtained independence they have also achieved remarkable success in health, yet Africans suffer from some of the worst health problems- highest fertility, mortality and morbidity rates are found in Africa (Challaraj et al., 2000).

Inequalities in health both within and between nations are a major Public Health concern that demands attention. The longstanding interest in health inequities has increased since the early 1980’s. Studies are essential for formulating effective policies with which governments will be able to reduce these inequalities. A concern for inequalities is a concern for the distribution of such attributes as income or health across individuals or groups. Inequalities in health mirror inequalities in socio-economic status (Braveman et al., 2003; Frenk et al., 1999).

North Eastern Kenya lags behind other provinces in its stage of socio-economic and demographic transition. Mortality, morbidity and fertility are higher than other provinces. (UNDP/GOK, 2001)

Human development index (HDI) which is a measure of a countries development ranks Nairobi, Central and Rift Valley as having a high HDI of 0.539 where countries like Tunisia, Mexico and Mauritius lie, while North Eastern Kenya has the lowest HDI where it is grouped with Ethiopia, Sudan and Togo. The main reason for this is thought to be disparities in economic opportunities leading to concentration of activities in certain areas.
In the past the government pursued policies biased towards high potential areas, and more recently industry. Others include security, socio-cultural traits and disease incidence (UNDP/GOK, 2001).

Poverty is high in the province (40%) as compared to the national average of 34.5% with Central Province having 30.7% meaning people here lead shorter lives, lack basic education and access to private and public resources. (UNDP/GOK, 2001). The province also has the lowest employment opportunities (less than 1%) while rift valley has 18%. The report noted ‘not only is the province marginalized in development investments it is often excluded from data collection’. The Kenya demographic health survey (KDHS) never used to include northern districts in the survey except for its two thousand and three report, however its report indicates that fertility declined by 30% from 6.7 (1989) to 4.7(1998) compared to eight or more for that province. Infant mortality rate (IMR) declined to 66/1000 while that of Wajir remained 128/1000 (DDP, 1997). Utilization of FP, maternal and child health services are lower.

The effect of community access to service contributes to the low usage rates and therefore merits special attention (Das et al; 2001). The problem of accessibility may be compounded by the presence of large nomadic populations. It is against this background that a study that focused on the Somali nomadic pastoralists of Wajir in Northern Kenya was conducted.

In Kenya nomadic peoples do not have adequate health care. (Omar 1992 and Maalim 1999) agree that nomadic populations have been left out of national health planning.
(Haraldson., 1973) could not have put it in a better way when he says ‘Nomadic groups tend to be neglected if they are considered within the broader category of rural populations. Considerations of both social justice and of wider public health demand that health services be provided to nomads as this population can act as reservoir for diseases eradicated elsewhere’.

(Farson., 1953) captured the neglect even better: ‘there is one half of Kenya about which the other half knows nothing, and seems to care even less. This is NFD (Northern Frontier District)’.

And to sum up the plight of nomads in the words of health/human rights advocates: “Concern for the health of the disadvantaged, which may be seen as reflecting the ethical principle of distributive justice, is also consonant with principles of human rights, including the right to freedom from discrimination and the right to the highest attainable state of health (which is indicated by the health status enjoyed by the most privileged social groups in society)” (Braveman et al., 2003)

1.1 STATEMENT OF THE PROBLEM

In any society the lack of homogeneity of populations is immediately appreciated and the social sciences will have an input into the hard to reach pockets such as nomadic groups and gypsies, refugees and aliens, urban dwellers and working mothers (Wright., 1995).
Pastoral nomads form almost 100 million around the world (Omar, 1992) and in Kenya account for almost five percent of the population (GOK/UNICEF, 1984). Disease control programmes cannot be successful if a large portion of the world is left out. The concept of health for all and social justice and equity as outlined in Alma Atta (1978) will be elusive and without merit. Therefore a study becomes necessary to find out the challenges that are posed by nomadic groups.

In terms of access to service most Kenyans are within easy geographical access to health facility-90% of Kenyans are within a five kilometre radius of a health facility but not so for the sparsely populated areas (ROK/MOH., 1998). Nationwide coverage by health services is at a dismal 15-25% and studies in East Africa have shown that people use facilities that are within five kilometre radius of walking distance and eight kilometers of available road transport (Were., 1982). Health facility area ratio in Kenya ranges from fifty-five square kilometers in central province to thirty-three thousand square kilometers in North Eastern (Were., 1982).

1.2 RESEARCH QUESTIONS

a) What is the rate of health service coverage among Wajir nomads?

b) Do people use facilities that are located so far away?

1.3 HYPOTHESES

a) There is no difference in the utilization rates between nomads and settled people.

b) Distance to the facility does not affect the utilization of health services.
1.4 RESEARCH OBJECTIVES

1.4.1 GENERAL OBJECTIVE

This study aims to identify the health service utilisation patterns among the nomadic Somali of Wajir District and explore how best services can be delivered to them.

1.4.2 SPECIFIC OBJECTIVES

a) To determine the level of utilization of antenatal and family planning care, immunization and child care among nomads and settled people.

b) To establish some of the factors that influence access to health care and how services can be delivered to the nomads.

1.5 JUSTIFICATION

Utilization of health services is a complex behavioral problem, affected by a multitude of factors including availability, distance, cost and quality of care as well as personal attitudes and socio-economic characteristics. Outreach programmes such as home visits, mobile clinics and community-based distributions have all been used to increase accessibility and quality of care. Historically, improving access has been widely accepted as a primary strategy for increasing the utilization of contraceptives and health services in developing countries (Das et al., 2001). Access to such services outweighs such socio-economic factors as education. It is also argued that access helps determine whether a potential client makes a contact with a service provider in the first place, while quality of care influences decision concerning whether to accept or use the service or continue using it.
The effect of community access to service therefore merits special attention. In Wajir, which forms the focus of the study, 80% of the populations are pastoral nomads (Adams., 1998). The district lags behind other districts in terms of development and demographic patterns. Fertility, mortality and morbidity are high and health service utilization is low (GOK., 1997-2001). Infant Mortality Rate (IMR) is at 128/1000 attributable to limited access to health care and illiteracy among parents. Only 2% of births take place in a health facility while 12% of mothers receive Tetanus Toxoid (T.T) during pregnancy. Immunization coverage is at dismal 9% (Maalim., 1992) well below the national average. Long distances travelled to health facilities as well as lack of these facilities, discourages health seeking (Omar., 1992; Maalim., 1999).

1.6 STUDY LIMITATIONS

During the study several difficulties were experienced. In most centers the people thought that we had with drugs to treat the people and once they found out that we had no drugs some would decline to participate. However with the support of community gatekeepers we were able to reach our target. The second problem arose because nomadic people are generally very scattered and hard to locate them. We solved this by having to wait for the nomads in the small trading centers and accompany them.
CHAPTER TWO: LITERATURE REVIEW

2.1. Definition of a nomad

The term nomad is used to include any group that migrates regularly: - pastoralists, traveling, artisans, traders, transporters, gypsies, hunters and gatherers (Camila et al., 1990). For the purpose of this thesis discussion the usage of the term will be limited to pastoralists.

Nomads are found in many parts of the world like Africa, Middle East, Indian sub-continent, Central Asia and Europe. The Sami and Gypsies, the only nomadic peoples of Europe are found in Scandavian countries and their problems are similar to other nomadic groups in other parts of the world (Barrow., 1996).

Nomads in Africa consist of different ethnic groups but their respective cultures are dominated by similar attitudes, values and practices regarding livestock as economic basis for human life and happiness although some favour one animal over another depending on ecoclimatic zones (Hillman., 1980). In Kenya the nomadic groups include the Maasai, Turkana, Boran, Rendille, Gabra, Samburu, Sakuye, Pokot, Orma and Somali (Hillman., 1980). In Wajir nomadic pastoralists account for 80% of the population. Nomads have been seen as non-conformist wanderers and a hindrance to economic development. (Barrow., 1996; Hillman., 1980).

2.2. Health and Nutrition among Nomads

Camila et al (1990) observed that morbidity and mortality among nomads are similar to those of settled poor people, but their health is sometimes thought to be better than that of poor settled people.
This is attributed to the drier healthier environments in which they live. Somali nomads look down upon settled people and despise the pot bellied, thin legged children of settled communities. When they visit trading centers they are seen to hold their noses to protect themselves from stench coming from uncollected rubbish.

Camila et al (1990), claims that the Epidemiology of diseases affecting nomads is different from that of settled people. When measles epidemic strikes it wipes entire cohort of children leaving no room for immunity to gain foothold in the community, should it strike again another vulnerable cohort will be wiped out.

2.3.0 Factors affecting Nomadic health.
They suffer from zoonotic diseases more, the result of proximity to the animals. According to Camila (1990) the pattern of disease among nomads is affected by five main factors:-

a) Proximity to animals  Zoonotic diseases are common among them e.g hydatid among the Turkana, tuberculosis in northern Kenya and brucellosis. Proximity to animals may have its advantage in terms of warmth derivation or even mosquitoes may bite animals rather than humans.

b) High milk diet  A diet rich in milk is deficient of Vit C. and iron. This may explain the high rate of anaemia in pregnancy and in puerperium period. Somali nomads recognise anaemia and have a common word for it-loow. Though milk has little Vit C. in it few signs of deficiency are reported and wild fruits are thought to compensate.
c) **Mobility and dispersion.** Dispersion of nomads presents a problem especially in disease control programmes. Mobility plays a big role in disease transmission; it may move them away from vector breeding areas or bring them into contact with disease carrying vectors. Nighttime animal herding is associated with traumas, twisted ankles, snake or animal bites. Mobility and dispersion pose a challenge in getting treatment and follow-up. Tuberculosis (T.B) treatment is particularly one such a headache for health workers. The lack of effective health services for this mobile group poses also a challenge to immunization and other programmes as you can reverse success achieved among sedentary populations presence of large nomadic populations. Women and children are particularly difficult to reach, as it is these able bodied persons that are able to reach market centers or seek treatment. Animals unlike crops need continuous herding or care meaning that a sick person herding animals cannot leave to seek treatment unless some one else can hold for him.

d) **Environment**

Environmental factors peculiar to the way nomads live encourage some diseases while checking others. Examples include the hot dusty, dry, and hot environment with no water for washing, which encourages eye infections. Scanty clothing and inadequate shelter also lead to a rise in respiratory infections in the cold season. Low population density and frequent movement brings them to cleaner environments where water is less polluted. Guinea worm rarely affects nomads.
e) Socio-economic and cultural factors

Nomadic groups like others have complex beliefs about health and illness. For Somali nomads, 'health is strength, endurance and resistance to disease as well as absence of illness itself. Medicine is anything that cures illness or strengthens the body. These include nutrition supplements such as sheep tails fat or camel milk given as strength builders or modern vitamins.

Good health requires intestinal cleanliness achieved through regular purging. Indigenous laxatives including camel’s milk are regularly used.'

Among Somali nomads there exist traditional health practitioners that specialize in bleeding, burning, purging, stopping hemorrhage, bone setting, treating insect bites, injecting, female circumcision and child birth. In some cases of complex fractures traditional healers are considered even by urban people to be more competent than hospitals. Sheiks are among the most respected among the Somali as healers.

2.4. Historical Context

During the colonial period, Wajir was part of the larger Northern Frontier District (NFP), a ‘closed’ district. At this time elements of the traditional system were formalized and structured. Rigid, sometimes-arbitrary clan boundaries and grazing
Policies of the colonial administration and the events thereafter led to poor attitude towards the area, hence low investment in the area, for example NFD was a ‘closed’ district under emergency law that meant that persons moving in and out of the province required permit. This emergency law was only lifted after the advent of multi-partism in 1992.

Policies to restrict the movement and marketing of livestock were put in place to protect white settler farms and their livestock health and market. These laws remained in place to date thereby adversely affecting the economy of NFD (Wajir district included), which wholly rely on pastoralism. Tribal grazing areas were created where trespassers were penalized heavily (one animal for every ten), coupled with the appointment of tribal chiefs has set the stage for modern day clan conflicts. Restriction of movement has severely undermined centuries old coping strategy (nomadism) of utilizing marginal lands. Increasing droughts, ever increasing population and reducing land has put pastoralists in conflict with themselves, settles communities and various law enforcement arms of the government. The shifta insurgency of 1963 – 1969 was brutally suppressed with many Kenyan Somali nursing the trauma they suffered under the Kenyan armed forces. All these factors have impacted negatively on the NFD including Wajir. (Lewis., 1980)

2.5. Policy issues affecting health of nomads

Nomads have problems that are peculiar to them and grouping them with rural populations masks the whole issue. Settled people use facilities that are close to them even though health coverage in the rural areas is reported to be as low as 15-25% (Were., 1982).
Several factors explain why health service coverage is low: ‘Services are facility based; professional health worker centred and curative oriented coupled with an orientation to maintain the status quo. The efforts of a facility to provide for a large area are hindered by the fact that facilities are not used as a base for mobilizing people’s interest and efforts in health care. When lack of mobilizing efforts in basic preventive approaches add to this, a vicious cycle develops in which the facility is more and more bogged down with curative services without reducing the incidence of any given disease.

As if that is not bad enough most facilities are in urban areas as opposed to rural areas where most of the population live. Meagre allocation of resources to rural populations and to treatment at the expense of preventive measures is another problem. To achieve a greater coverage a different approach is needed to supplement and complement the services of the facility’.

Arguments in favour of how services are delivered to the nomads are practical ones. The government should redesign better health facilities and other services for equity reasons and because failure to do so undermines the success of mainstream service programmes in settled areas. This undermines the nomad economy and risks increasing political destabilisation, as peripheral nomad populations perceive themselves to be increasingly disadvantaged. Conventional approaches to service delivery are costly and ineffective in nomad areas (King., 2000; Aliou., 1992; Sani., 1992; Camila., 1990).
Governments believe that it is necessary to settle nomads to take services to them. But where nomad movement is a necessary part of economic production, nomads have to choose between movement and access to sedentary service, they have chosen movement and abandoned services except where their movement takes them nearby.

The task is now to design new models of service provision that caters for the low density and high mobility of nomads. Camila et al; (1990) suggests a new model that involves decentralising services with frontline workers as the flag bearers combined with fixed and mobile units that have a pastoral organization as their backbone.

The model involves:

a) **Use of frontline workers.** They may vary from salaried state employees with training to community volunteers depending on acceptability and common participation. Issues that arise here include requirement, recruitment, supervision, training, payment and the role of traditional healers. In Wajir some attempt has been made to use this model and the use of traditional healers, however the extent of success or failure is not known. According to the report on inter pastoral association workshop ten pastoral associations (PA) with support from OXFAM were involved in Primary Health Care (PHC) activities, peace building, livestock health, environmental monitoring, education and drought monitoring. Adams (1998), reported that OXFAM was scoring successes in pastoral development where governments and other NGOs have failed.

b) **Mobile and fixed units** Mobile services reach more people than fixed ones especially in areas of low density. Experiences from Mali show that it is possible to achieve 80% immunization coverage among nomadic groups through mobile services.
However the cost is ten times higher than settled people with petrol being responsible for the higher cost (King 2000., Aliou., 1992; Camila et al., 1990). Aliou., (1992) cites studies done in Niger in 1992 in the Agadez region, which used mobile clinics to reach nomadic populations. He reports a disappointment, which does not support the continuation of those activities, and the cost per immunization is eleven times that of fixed units. The health system in that country is organised in such away that there are dispensaries, medical posts and district hospitals. He contends that the first two levels have little impact on the health of communities. Scarcely more than ten consultations occur in a day, while fixed strategy immunization caters for the villages where these facilities are established.

Nomads consult mainly on market days and travel such long distances to reach dispensaries (30 or more kilometres). Aliou (1992) concludes that the resources here are under utilized and consequently health coverage is fragile and ineffective. While the fixed system has specialised facilities and logistical support they are accessible to only a minute fraction of the community especially those living close to them. The mobile units make single interventions that establish no relationship with the community; contacts are sporadic and desultory and the efforts made are tiny in comparison to the immensity of needs.

In Kenya and Wajir in particular the peripheral health units are in desolate state and are besieged by perennial problems of staff and drug shortage let alone extending services to nomads. Referral systems have long collapsed. Mobile and outreach services have long ground to a halt becoming Kenya’s first casualty of shrinking health resources.
Community approaches were tried in Kenya and elsewhere, which had a stated policy of going out to the people in such areas for immunization and health education (Were, 1982). The problem with such an approach is that it did not take into account, pre-existing perceptions of people hence little community participation. Alma Atta (1978) to which Kenya is a signatory underscores the place of community participation in health and development.

Since the beginning of man, the concept of pulling resources was evident in many areas of life such as weddings, funerals, land tilling and defence. In Kenya the harambee spirit has been instrumental in the overall development of communities. This manifests itself in the health field in the construction of health facilities. It is this pre-occupation with buildings that Were (1982) described as ‘pre-occupation with hospitals and disease rather than with health.’

Experiences can be drawn from community based health care project in western Kenya PHC project in 1979 that it is possible to improve health of communities by improving PHC coverage with community participation. AMREF through its Nomadic Health Unit tried to deliver services to the Maasai people. Though these services improved coverage, the sustainability of the programme was questionable due to cost (King., 2000). Similar activities were repeated in Gedo Somalia with similar results.

AMREF started working in partnership with the local communities such as the Entasopia to manage their own health.
The solution (King., 2000) says is to handover management of health to respective communities. The herders can better be reached where fixed and mobile units complement each other. Aliou (1992) is of the opinion that it is possible to redesign service delivery to nomads, and even reduce the cost since it is possible to predict the movement pattern of nomads and the watering points on which they congregate is known.

The cost may not be an issue especially if pastoral associations are encouraged to deliver services to their own people. By use of community participation, such things as fuel cost may be a thing of the past if pastoral associations are targeted for service delivery to nomads. The initiative by OXFAM (UK) in Wajir where PAs are carrying out immunization, treatment of common ailments, community pharmacy and animal health activities may just become an eye opener. This however lacks political will and commitment and their efforts may be a drop in the ocean.

**c) Pastoral organization.** The difficulties of providing services to disperse and mobile populations are compounded by lack of effective administrative structure.

This is not to say that nomads do not have their own leadership structure but these structures have either not been well understood or have been completely ignored. The Somali for example have a decentralised clan based structure, which influences all sectors of pastoral life. One need not change the leadership structure in order to deliver services to them. According to an inter-pastoral workshop held in Wajir in 1995 the PAs were actively engaged in health and nutrition, water, livestock health, economy, peace building and education. There are ten PAs in Wajir representing; Wajir bor, Riba, Korof harar, Kutulo, Hungai, Griftu, Arbajahaan, Leheley and Eladow.
Oxfam was involved in plans to have PAs in the whole of Wajir representing all locations and divisions that would converge at the district to form district wide pastoral association.

2.6. Contribution of Health Care Systems

The availability and accessibility of services, infrastructure and amenities, which have tended to be determined by the authorities, are important dimensions of well-being. In Kenya their distribution reflects and re-enforces disparities between regions and population sub-groups.

Though some quarters have attributed the current distribution patterns of health facilities to chance than by design, apparently there are three processes that seem to inter-play; -regional disparities established in the colonial times that concentrated services in the areas occupied by the settlers such as Nairobi, Mombassa and the white highlands; at independence proximity to Nairobi was an important deciding factor in where the services should go, besides people in peripheral areas were considered ‘less assertive in demanding their rights’, and finally local effort of communities contributed to the inequalities meaning that well to do communities were able to help themselves better.

No wonder thirty years ago Julian Tudor-Hart proposed the now well known ‘inverse care law’ which states that ‘availability of good medical care tends to vary inversely with the need for it in the population served (Mackintosh., 2000).'
Health care systems are social institutions built on the existing social structure and carry with them inequalities inherent in societies. Health sector reforms carried in this country also contributed to inequalities. Kenya which carried reforms in its health sector as evidenced by the policy papers of (GOK1994 and 1999) had three main elements; liberalization and privatisation; introduction of user fees and decentralization. These reforms were donor driven rather than politically initiated and therefore had little input from the local communities and their ministries of health. The result is that the reforms were un equalizing in both effect and content. Firstly formal charges caused legitimate exclusion and unequal access impacting most severely on the poor as evidenced by research.

Secondly models entrench un equalizing process with better off districts performing better than the less to do. Decentralization of management has not necessarily translated into better efficiency and better management but has only managed to create other centres of power with little community participation. Thirdly legitimising commercialism simply increases the un equalizing process (Mbabu et al., 1993).
CHAPTER THREE: MATERIALS AND METHODS

3.1 THE STUDY AREA

This chapter discusses the tools and processes that have been employed to collect data as well as selection of study subjects.

Wajir District is the largest district in North Eastern Province with an area of 56,501sq.km. It lies between latitudes 3°6N and 0° 2N and between longitudes 39° and 41°W. It borders the Somali Republic to the east, Garissa District to the south, Isiolo District to the southwest, Marsabit District to the west, Ethiopia to the north and Moyale District to the northwest.

Wajir District is divided into thirteen administrative divisions; seventy locations and ninety-two sub locations. The district has four constituencies:- Wajir east comprising of Wajir bor, Kutulow, and Tarbaj divisions; Wajir north covering Bute Buna and Gurar divisions; Wajir west covering Griftu, Hadado and Eldas divisions and Wajir south constituency covering central, Habaswein, Sabuli and Diff divisions.

Wajir District is a featureless plain prone to flooding during the rainy seasons making roads inaccessible, however, there are scattered hill masses along the Ethiopian border. The district lies in the Sahelian climatic region characterised by long dry spells and short rainy seasons. The district is categorised as Arid and Semi- Arid lands (ASAL) ZONE SEVEN (i.e.100%). Annual precipitation averages 280 mm with long rains occurring in March –May and short rains in October –December. (Adams., 1998)
According to the population census of 1999 Wajir has a total population of 321,000 with a growth rate of 1.2% compared to the national average of 3.3% but this exerts great pressure on the districts pastoralist based economy manifested by rising incidence of poverty and food insecurity.

3.1.2 The study population

The study was conducted in two areas: Wajir District headquarters (settled people) and Griftu, Tarbaj, Kutulo and Bor divisions (nomadic people). The study was a cross sectional one, which was both qualitative and quantitative, using questionnaires, observations and focal group discussions. The target population were women of childbearing age (15-49 years) and their children between 12-23 months. Health workers were interviewed. Data were gathered such issues as FP, maternal and antenatal care and child health. On FP, information was gathered on socio-demographic data, knowledge on FP and its use and the reasons for either using or not using.

Regarding antenatal and maternal care data were gathered on ante-natal attendance; tetanus toxoid given in pregnancy; delivery in a health facility; attendance by trained health worker.

To obtain information on use of child health services data were collected on episodes of illness within the last one month; whether treatment was sought for the illness; reasons for not seeking treatment and immunization status of the child. The health workers in the district were interviewed on whether they have any ideas as to whether nomads pose any challenge in terms of delivering services to them; what problems are encountered in delivering services to nomads and their suggestions for improving service delivery to nomads.
3.2 SAMPLING METHOD AND SAMPLE SIZE DETERMINATION

3.2.1 Sampling Method

Cluster sampling was used and in total ten clusters was studied (four settled and six nomadic). The mode of selection was simple random sampling where Bullas (settlements) receiving support from ALDEF were listed and four selected (Bulla Barwako, Jogoo, Hodhan and Ali Maow) in the settled category. The hamlets in Wajir West and Wajir East were listed and six were randomly selected among the nomadic category. Four field assistants were trained to collect data from settled mothers. (Bulla Barwako; Bulla Jogoo; Bulla Hodhan and Bulla Ali Maow). In each Bulla we interviewed seventy-five mothers and their children below two years of age. Tossing a pen and moving to the direction where the tip of the pen is pointing determined the starting point. Then the interviewees moved to the next house until we got the number we required. If the household did not have the target of interest, then we moved to the next house. On average twenty interviews were be conducted daily.

For the nomadic category the study group was divided into two equal proportions (150 from Wajir West constituency and 150 from Wajir East constituency). In Wajir West we conducted house-to-house interview in Ganyure, Shanta Abaq and Athi Bohol where we interviewed fifty mothers with children in each of the three centres.

In Wajir East we did the same for Hungai, Qarsaa and Argane where we got a total of 150 mothers and their children. Six group interviews comprising of ten nomadic women between the ages of 35-49 years with similar characteristics were conducted (Polit and Hangler., 1993).
Four field assistants were trained to help in data collection. The training took five days. The research assistants were trained teachers working in Wajir. They were trained on the study objectives and how to gather data. Pre testing was done in a small trading centre in Wajir called Ganyure.

3.2.2 Sample size determination

Fisher et al (1998) was used separately for children and mothers to determine the size of the sample to be studied.

\[ N = \frac{z^2pqD}{d^2} \]

- \( z \) is the confidence level (95%)
- \( p \) is the level of coverage (0.1)
- \( q \) is \( 1 - 0.1 = 0.9 \)
- \( D \) is design effect (2)
- \( d = 0.05 \)

\[ N = \frac{1.96^2 \times 0.1 \times 0.9 \times 2}{0.05^2} \]

\[ = 276 \]

N was rounded to 300

N = 300 mothers and 300 children

Needed to work in the Family

N = 1200

Nomads (300 mothers +300 children)

Maalim (1992) in his study found levels of immunization as low as 9% in Wajir, therefore estimate coverage of 10% is taken as the value for \( p \).

3.3 INCLUSION CRITERIA

One must have been a resident of rural area for at least one year to qualify to be included in the study and vice versa for urban people.
Women between 15-49 years and their children between 12-23 months of age were considered for the interview. Among women from settled communities those with a similar level of income as the nomads were selected. Three hundred women and their children who had recently lost their livestock and had settled in Bulas and were receiving support from ALDEF (NGO) were studied. A total of fifty health workers (Clinical officers, nurses and public health technicians) were interviewed.

3.4 EXCLUSION CRITERIA

Being resident of urban area will exclude one from being considered for the study in a rural area and vice versa. Women outside the reproductive age bracket were not studied. Health workers other than clinical officers, public health technicians and nurses were not interviewed.

3.5 ETHICAL CONSIDERATIONS

Client confidentiality was assured and maintained. Clients were educated on what the study entails however they were not required any consent.

Sexuality and FP issues are a taboo among the Somali. The language used in the inerter view was made polite and less embarrassing where possible.

Female interviewers were used. Permission to carry out the study was obtained from Kenyatta University (Board of PostGraduate Studies), Research and Ethics Committee of the Ministry of Education, Science and Technology and Ministry of Health Wajir District.

3.6 THE STUDY DESIGN

The study was a descriptive cross sectional one that used both quantitative and qualitative measures.
3.7 DATA COLLECTION METHODS

Four research assistants were trained on how to administer an interviewer schedule. Pre-
testing was done in Shanta Abaq and any errors were rectified. Observations were also
used to gather information on FP, Maternal and Ante-natal care and child health
services and entered accordingly like observing whether a child has a BCG scar on the
left forearm or not and focus group discussions were used to collect information.

3.8 DATA MANAGEMENT

The data was processed using SPSS. Chi-square tests and Fishers exact test were used
to assess relationship between variables. Z-score test and Odd’s ratio were used to
compare the utilization rates for the different groups. Graphs were also used to present
data.
CHAPTER FOUR: RESULTS

The following chapter discusses the results of a cross sectional survey that was carried out among nomadic and settled groups in Wajir. Those interviewed were women in the reproductive age group with children between twelve to twenty three months. Variables that were assessed included use of ante natal, delivery, postnatal, F/P, immunization and child healthcare services. Results reported here are those of six hundred mothers with children that were studied using interviews, direct observation and focus group discussions in Wajir. The results have been arranged into three categories: data generated based on interview with women, data based on focus group discussion and data based on interview with health workers.

4.1 Data generated based on the interview with women

a) Age of the respondents.

Women from nomadic communities were begetting children earlier than their counterparts in settled villages (Table 1). Fifty percent of nomadic women are below 25 years of age as opposed to less than 25% for the settled counterparts. In both groups Islamic religion was the more predominant faith (99.3% among the settled and 100% among nomads.)
Table 1: Age of the respondents

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Settled%</th>
<th>Nomads%</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 - 19</td>
<td>8 (24)</td>
<td>26.3 (79)</td>
</tr>
<tr>
<td>20 - 24</td>
<td>14.7(44)</td>
<td>24.3 (73)</td>
</tr>
<tr>
<td>25 - 29</td>
<td>31(93)</td>
<td>25.7 (77)</td>
</tr>
<tr>
<td>30 - 34</td>
<td>30.3 (91)</td>
<td>16.4 (49)</td>
</tr>
<tr>
<td>35 - 39</td>
<td>14.3(43)</td>
<td>7 (21)</td>
</tr>
<tr>
<td>40 - 44</td>
<td>1.7(5)</td>
<td>0.3 (1)</td>
</tr>
</tbody>
</table>

Age was collapsed into two dichotomas categories so that mothers could fit into one category of either below thirty years or more than thirty years. Age was not an important factor in clinic attendance, uptake of TT among pregnant mothers and FP utilization in both groups ($x^2=1.83$, df 299; $P>0.05$). However age influenced immunization uptake negatively with two hundred fifteen mothers below thirty years out of two hundred seventy seven who did not take their children for immunization. Two hundred and four mothers below thirty years out of a total of two hundred fifty nine did not seek treatment for their children. ($P<0.05$, table2).
Table 2: Age Influence on utilization rates

<table>
<thead>
<tr>
<th>NOMADS</th>
<th>SETTLED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td><strong>Variable</strong></td>
</tr>
<tr>
<td>Clinic attendance</td>
<td>$X^2 = 3.7$</td>
</tr>
<tr>
<td>T T coverage</td>
<td>$X^2 = 3.72$</td>
</tr>
<tr>
<td>Delivery place</td>
<td>$X^2 = 4.4$</td>
</tr>
<tr>
<td>Re-visit</td>
<td>Fisher’s exact test =1.0</td>
</tr>
<tr>
<td>F/p</td>
<td>Fisher’s exact test =1.0</td>
</tr>
<tr>
<td>Immunization</td>
<td>Fisher’s exact test =1.0</td>
</tr>
<tr>
<td>Treatment</td>
<td>$X^2 = 9.8$</td>
</tr>
</tbody>
</table>

**b) Type of shelter**

Type of shelter in both groups is similar reflecting more the level of income in both groups. However this may be a reflection of the lifestyle of the Somali nomads since this kind of shelter is easy to assemble and dismantle. The Somali hut is a kind of makeshift structure, which does not cost much in terms of construction. In this study the type of house has been used as a measure of income since the nomads are poor people without any access to requirements for basic livelihood. When livestock is lost during droughts most settle in urban slums and erect their makeshift structures as well. Figure 1 shows more than 80% of settled people living in Somali hut while 98% of nomads use it as shelter.
The type of dwelling was chosen as a measure of income and analysed to see if it influenced utilization of these services. Shelter was collapsed into two categories (Somali hut, which is common among poor and displaced persons and doesn’t cost much to make, and thatched hut, which costs slightly more). The type of shelter influenced clinic attendance (Fisher’s exact test, 0.045; P＜0.05), TT coverage (Fisher's exact test, 0.003; P＜0.005) and seeking treatment among the nomadic categories (X²=23.3, P＜0.005), whereas it had no influence on the place of delivery (Fisher’s exact test = 0.228, P＞0.05) return to the clinic (Fisher’s exact test = 0.983, P＞0.05); use of FP (Fisher’s exact test = 0.983, P＞0.05) and immunization services (Fisher’s exact test =0.331, P＞0.05). Results from the settled category show that the type of shelter did not influence clinic attendance (Fisher’s exact test = 0.096, P＞0.05) and TT coverage (Fisher’s exact test = 0.188, P＞0.05), while it was an important factor in whether a mother returned to the clinic (Fisher’s exact test = 0.005, P＜0.005); FP use (Fisher’s exact test = 0.007, P＜0.05); immunization (Fisher’s exact test = 0.005, P＜0.05) and treatment (X² = 6.109, df 299; P＜0.05., Table 3)
Table 3: Influence of shelter on nomadic and settled groups’ services use

<table>
<thead>
<tr>
<th>House type</th>
<th>Variable</th>
<th>Test</th>
<th>P value</th>
<th>Settled</th>
<th>Test</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clinic attendance</td>
<td>Fisher's exact test = 0.045</td>
<td>P &lt; 0.05</td>
<td>.096</td>
<td>P &gt; 0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TT coverage</td>
<td>Fisher's exact test = 0.003</td>
<td>P &lt; 0.005</td>
<td>.188</td>
<td>P &gt; 0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delivery place</td>
<td>Fisher's exact test = 0.228</td>
<td>P &gt; 0.05</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Re-visit</td>
<td>Fisher’s exact test = 0.983</td>
<td>P &gt; 0.05</td>
<td>.005</td>
<td>P &lt; 0.005</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F/p</td>
<td>Fisher’s exact test = 0.983</td>
<td>P &gt; 0.05</td>
<td>.007</td>
<td>P &lt; 0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Immunization</td>
<td>Fishers exact test = 0.331</td>
<td>P &gt; 0.05</td>
<td>.005</td>
<td>P &lt; 0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Treatment</td>
<td>$X^2$ = 23.3</td>
<td>P &lt; 0.005</td>
<td>$X^2$ = 6.109</td>
<td>P &lt; 0.05</td>
<td></td>
</tr>
</tbody>
</table>
c) Radio Ownership

Access to information has an important bearing on health. Figure 2 above shows the percentage of both groups that have access to information including those on health. Eighty nine (267 mothers) percent of nomadic people say they do not possess radio while eighty percent of settled people do have access to such information. As for television, not even one household had it among the nomads while less than two percent of the settled category had television. This was used to assess the extent of knowledge about childhood and maternal immunization, maternal health and FP services. Somalis use the radio so much to keep abreast with events surrounding them particularly political events which led to the British government to introduce Somali service of the British Broadcasting Co-operation (BBC).

The radio had a significant influence for both groups for all variables except FP for both groups and return to clinic (nomads only). In the nomadic category, the following utilization rates were influenced: Clinic attendance ($X^2 = 121.6$, df 299; $P<0.005$); TT coverage ($X^2 = 121.6$, df 299; $P<0.005$); Delivery place ($X^2 = 109.3$, df 299; $P<0.005$); Immunization ($X^2 = 100.7$, df 299; $P<0.005$) and treatment ($X^2 = 169.9$, df 299; $P<0.005$). Return to the clinic and FP utilization was not at all influenced (Fisher’s exact test, $P>0.05$). For the settled people clinic attendance ($X^2 = 14.223$, df 299; $P<0.005$), TT coverage ($X^2 = 11.8$, df 299; $P<0.005$), delivery place ($X^2 = 32.25$, df 299; $P<0.005$), immunization ($X^2 = 5.29$, df 299; $P<0.005$) and treatment ($X^2 = 23.72$, df 299; $P<0.005$), Table 4) were all influenced.
Table 4: Radio and its relationship with service utilization by both groups

<table>
<thead>
<tr>
<th>Radio Variable</th>
<th>Tests</th>
<th>Nomad</th>
<th>Tests</th>
<th>Settled</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic attendance</td>
<td>$X^2 = 121.6$</td>
<td>$P &lt; 0.005$</td>
<td>$X^2 = 14.22$</td>
<td>$P &lt; 0.005$</td>
<td>8.5</td>
</tr>
<tr>
<td>TT coverage</td>
<td>$X^2 = 121.6$</td>
<td>$P &lt; 0.005$</td>
<td>$X^2 = 11.81$</td>
<td>$P &lt; 0.005$</td>
<td>10.3</td>
</tr>
<tr>
<td>Delivery place</td>
<td>$X^2 = 109.3$</td>
<td>$P &lt; 0.005$</td>
<td>$X^2 = 32.25$</td>
<td>$P &lt; 0.005$</td>
<td>3.4</td>
</tr>
<tr>
<td>Re-visit</td>
<td>Fisher's exact</td>
<td>$P &gt; 0.05$</td>
<td>Fisher's exact</td>
<td>$P &lt; 0.05$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>test = 0.110</td>
<td></td>
<td></td>
<td>= 0.020</td>
<td></td>
</tr>
<tr>
<td>F/p</td>
<td>Fisher's exact</td>
<td>$P &gt; 0.05$</td>
<td>Fisher's exact</td>
<td>$P &gt; 0.05$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>test = 0.110</td>
<td></td>
<td></td>
<td>= 0.515</td>
<td></td>
</tr>
<tr>
<td>Immunization</td>
<td>$X^2 = 100.7$</td>
<td>$P &lt; 0.005$</td>
<td>$X^2 = 5.29$</td>
<td>$P &lt; 0.05$</td>
<td>19.03</td>
</tr>
<tr>
<td>Treatment</td>
<td>$X^2 = 169$</td>
<td>$P &lt; 0.005$</td>
<td>$X^2 = 23.72$</td>
<td>$P &lt; 0.005$</td>
<td>7.12</td>
</tr>
</tbody>
</table>
Figure 2: Radio ownership
c) Education

Both groups were asked whether they had ever attended school. About 16.3% reported attending school in the settled category while around 1.3% of nomads responded yes as shown in figure 3a. The respondents were further asked the level of schooling they attained, 11.3% of the settled had primary education as opposed 1.3% (4 women only) of nomads. Five percent of settled people attained secondary education or higher while none made it to secondary among nomads.

Respondents were further asked as to why they did not go to school and early marriage seems to be the major reason in both groups (84 % or 252 women for settled and 99% or 297 for nomads as seen in figure 3.)

![Figure 3a: Education](image)
Figure 3b: Level of education

Figure 3c: Reason for not attending school
Mothers were asked if they had attained any formal schooling even up to primary level and the results obtained were cross-tabulated against the various utilization rates. Among the settled people schooling did not influence clinic attendance, TT coverage, delivery place, immunization and treatment (Fisher’s exact test, P>0.05) while it influenced return to clinic (Fisher’s exact test, P<0.0001) and use of FP services (Fisher’s exact test, P<0.005). In the nomadic people clinic attendance, (Fisher’s exact test, P<0.005) TT coverage (Fisher’s exact test, P<0.005), place of delivery (Fisher’s exact test, P<0.05), FP use (Fisher’s exact test, P<0.05) and immunizations (Fisher’s exact test, P< 0.05., Table 5) were influenced.

Table 5: Influence of education on settled and nomadic user rates

<table>
<thead>
<tr>
<th>Education Variable</th>
<th>Test</th>
<th>Settled</th>
<th>Nomads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic attendance</td>
<td>Fisher’s exact test</td>
<td>0.98</td>
<td>0.98</td>
</tr>
<tr>
<td>TT coverage</td>
<td>Fisher’s exact test</td>
<td>0.78</td>
<td>0.78</td>
</tr>
<tr>
<td>Place of delivery</td>
<td>Fisher’s exact test</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Revisit</td>
<td>Fisher’s exact test</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>F/p use</td>
<td>Fisher’s exact test</td>
<td>0.002</td>
<td>0.002</td>
</tr>
<tr>
<td>Immunizations</td>
<td>Fisher’s exact test</td>
<td>0.135</td>
<td>0.135</td>
</tr>
<tr>
<td>Treatment</td>
<td>Fisher’s exact test</td>
<td>0.19</td>
<td>xxxxx</td>
</tr>
</tbody>
</table>
The level of education was analysed further and it had a significant influence on clinic attendance (Fisher’s exact test = 0.001; P<0.005); TT coverage (Fisher’s exact test = 0.001; P<0.00); place of delivery (Fisher’s exact test = 0.013; P<0.005); FP (Fisher’s exact test = 0.013; P<0.05) and immunization (Fisher’s exact test = 0.031; P<0.05) in the nomad group except clinic revisits (Fisher’s exact test = 1.0; P>0.05). Among the settled it influenced FP services (Fisher’s exact test = 0.002; P<0.05); and clinic revisits among the settled (Fisher’s exact test = 0.001; P<0.005., Table 6).

Table 6: Relationship between level of education and service utilization

<table>
<thead>
<tr>
<th>Education level</th>
<th>Variable</th>
<th>Test</th>
<th>Nomads Test value</th>
<th>Settled Test value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clinic attendance</td>
<td>Fisher’s exact test</td>
<td>P&lt;0.005 0.001</td>
<td>P&gt;0.05 0.63</td>
</tr>
<tr>
<td></td>
<td>TT coverage</td>
<td>Fisher’s exact test</td>
<td>P&lt;0.005 0.001</td>
<td>P&gt;0.05 0.862</td>
</tr>
<tr>
<td></td>
<td>Delivery place</td>
<td>Fisher’s exact test</td>
<td>P&lt;0.05 0.013</td>
<td>P&gt;0.05 0.769</td>
</tr>
<tr>
<td></td>
<td>Re-visit</td>
<td>Fisher’s exact test</td>
<td>P&gt;0.05 1.0</td>
<td>P&lt;0.0001 0.001</td>
</tr>
<tr>
<td></td>
<td>F/p</td>
<td>Fisher’s exact test</td>
<td>P&lt;0.05 0.013</td>
<td>P&lt;0.05 0.002</td>
</tr>
<tr>
<td></td>
<td>Immunization</td>
<td>Fisher’s exact test</td>
<td>P&lt;0.05 0.031</td>
<td>P&gt;0.05 0.135</td>
</tr>
<tr>
<td></td>
<td>Treatment</td>
<td>xxx</td>
<td>xxxxxx ----</td>
<td>P&gt;0.05 0.296</td>
</tr>
</tbody>
</table>
4.2. Level of utilization of antenatal, delivery and family planning care.

4.2.1 Awareness, location and benefits of clinics

Mothers were asked if they were aware of the existence of clinics that are attended by expectant mothers. As can be seen that in figure 4a, 98.3% of settled mothers (295 women) and 61.3% (184 of nomadic mothers) knew such clinics existed.

Figure 4a: Clinic awareness
Respondents were asked to say where these clinics are located. 98% of settled mothers (294 women) said that the clinics are found in urban centres while 60% of nomadic mothers (192 women) reported that the clinics are located in rural centres. This can be seen in figure 4b below. Mothers were asked to state if there were any benefits for attending the antenatal clinic. All nomadic mothers said they did not know of any benefits for attending these clinics as opposed to 64% (192) of settled mothers who said yes there were benefits for attending the clinic, 60.7% of settled mothers knew their health and that of the baby could be monitored.

Figure 4b: Location of the clinic.
4.2.2 Clinic attendance

Mothers were asked if they had visited the clinic during their last pregnancy. Approximately 89.7% (269) of those ladies coming from settled people said that they attended clinic unlike the nomads with only 7.3% (22 women) responding in the affirmative, and 92.7% saying they did not attend (Figure 5a). To find out why nomadic mothers did not attend clinic they were asked for any reasons that prevented them from doing so. This can be seen in Figure 5b where 84% (252) of mothers said that the distance to these clinics were too far as opposed to around 6% of mothers in the settled category. Only 8.3% and 7% of nomadic mothers said that they did not know its benefits and lack of time respectively. The implication of this is that most women know the importance of attending the clinic during pregnancy. The reason given by nomadic women for non attendance is distance constraint as seen in figure 5b
Figure 5a: Clinic attendance
Figure 5b: Reason for not attending clinic
Knowledge regarding clinic location was cross tabulated against clinic attendance; TT coverage; place of delivery; return to clinic; FP use; immunization and treatment. Awareness had significantly influenced clinic attendance (Fisher’s exact test = 0.003; P<0.005); TT coverage (Fisher’s exact test = 0.012; P<0.05); place of delivery (Fisher’s exact test = 0.001; P<0.005); and immunization (Fisher’s exact test = 0.043; P<0.05) whereas it did not influence return to the clinic (Fisher’s exact test = 1.0; P>0.05) and FP use (Fisher’s exact test = 1.0; P>0.05) among nomads. In the settled category awareness had influenced clinic attendance (Fisher’s exact test = 0.000; P<0.00001); TT coverage (Fisher’s exact test = 0.000; P<0.00001) and place of delivery (Fisher’s exact test = 0.005; P<0.0005) while did not influence the rest (P>0.05., Table 7).
Table 7: Relationship between service utilization and awareness

<table>
<thead>
<tr>
<th>Awareness Variable</th>
<th>Test</th>
<th>Nomads</th>
<th>Settled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic attendance</td>
<td>Fishers exact test</td>
<td>P&lt;0.005</td>
<td>P&lt;0.00001</td>
</tr>
<tr>
<td>TT coverage</td>
<td>Fishers exact test</td>
<td>P&lt;0.05</td>
<td>P&lt;0.00001</td>
</tr>
<tr>
<td>Delivery place</td>
<td>Fishers exact test</td>
<td>P&lt;0.005</td>
<td>P&lt;0.0005</td>
</tr>
<tr>
<td>Re-visit</td>
<td>Fishers exact test</td>
<td>P&gt;0.05</td>
<td>P&gt;0.05</td>
</tr>
<tr>
<td>F/p</td>
<td>Fishers exact test</td>
<td>P&gt;0.05</td>
<td>P&gt;0.05</td>
</tr>
<tr>
<td>Immunization</td>
<td>Fishers exact test</td>
<td>P&lt;0.05</td>
<td>P&gt;0.05</td>
</tr>
<tr>
<td>Treatment</td>
<td>Fishers exact test</td>
<td>P&lt;0.05</td>
<td>P&gt;0.05</td>
</tr>
</tbody>
</table>
The place where the clinic is located influenced clinic attendance ($X^2 = 8.75; \text{df} 299; P<0.05$); TT coverage ($X^2 = 6.27; \text{df} 299; P<0.05$); delivery place ($X^2 = 9.95; \text{df} 299; P<0.005$); immunization ($X^2 = 4.75; \text{df} 299; P<0.05$) and treatment seeking ($X^2 = 8.75; \text{df} 299; P<0.05$) while not affecting FP use (Fishers exact test = 1.0; $P>0.05$) and revisit to the clinic (Fishers exact test = 1.0; $P>0.05$) among nomad groups. However in the settled category clinic location influenced clinic attendance; ($X^2 = 26.7; \text{df} 299; P<0.05$) TT coverage ($X^2 = 27.8; \text{df} 299; P<0.05$) and place of delivery ($X^2 = 15.6; \text{df} 299; P<0.05$) while not affecting re-visit (Fishers exact test = 0.654; $P>0.05$); FP use (Fishers exact test = 0.497; $P>0.05$) immunization ($X^2 = 0.07; \text{df} 299; P>0.05$) and treatment ($X^2 = 0.15; \text{df} 299; P<0.05$., Table 8).
Table 8: Relationship between location of clinic and service use

<table>
<thead>
<tr>
<th>Location</th>
<th>NOMADS</th>
<th>SETTLED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic attendance</td>
<td>$X^2=8.75$</td>
<td>$X^2=26.7$</td>
</tr>
<tr>
<td></td>
<td>$P&lt;0.005$</td>
<td>$P&lt;0.05$</td>
</tr>
<tr>
<td>TT coverage</td>
<td>$X^2=6.27$</td>
<td>$X^2=27.8$</td>
</tr>
<tr>
<td></td>
<td>$P&lt;0.05$</td>
<td>$P&lt;0.05$</td>
</tr>
<tr>
<td>Delivery place</td>
<td>$X^2=9.95$</td>
<td>$X^2=15.6$</td>
</tr>
<tr>
<td></td>
<td>$P&lt;0.05$</td>
<td>$P&lt;0.05$</td>
</tr>
<tr>
<td>Re-visit</td>
<td>Fishers exact test $p&gt;0.05$</td>
<td>Fishers exact test $P&gt;0.05$</td>
</tr>
<tr>
<td></td>
<td>$=1.0$</td>
<td>test $=0.654$</td>
</tr>
<tr>
<td>F/p</td>
<td>Fishers exact test $P&gt;0.05$</td>
<td>Fishers exact test $P&gt;0.05$</td>
</tr>
<tr>
<td></td>
<td>$=1.0$</td>
<td>test $=0.497$</td>
</tr>
<tr>
<td>Immunization</td>
<td>$X^2=4.75$</td>
<td>$X^2=0.07$</td>
</tr>
<tr>
<td></td>
<td>$P&lt;0.05$</td>
<td>$P&gt;0.05$</td>
</tr>
<tr>
<td>Treatment</td>
<td>$X^2=8.75$</td>
<td>$X^2=0.15$</td>
</tr>
<tr>
<td></td>
<td>$P&lt;0.05$</td>
<td>$P&gt;0.05$</td>
</tr>
</tbody>
</table>
4.2.3 Tetanus coverage

As Figure 6 shows mothers were asked if they had received one or more injections into the arm during pregnancy. Ninety percent of mothers (270) among the settled people reported to have received at least one injection into the arm as compared to 7.3% (22 women) among nomads with around 92.7%(278) unimmunized. Out of the 90% (270) immunized among the settled 43%(129) had received one vaccination, a further 23%(69) had two antigens and 24%(72) were not so sure of the number of times immunized. Of the 7% (21) in the nomad category 2.4% had a single dose, 1.3 % had received two doses, and 3.3% were not so sure have the number of doses.

Figure 6: Number of mothers immunized against tetanus
4.3 Delivery services

4.3.1 Place of delivery

Sixty four percent (192) of settled mothers delivered in the health facility, thirty five percent in their homes and one percent on the way to a health facility, unlike nomadic women ninety five percent (285) of whom delivered at home and only five percent delivered in health facility (Fig. 7)

![Diagram showing places where delivery was conducted]

Figure 7: Places where delivery was conducted
4.3.2 Delivery by a skilled person.

Mothers in both groups were asked about the level of skill of the person who attended to them during delivery. Only one percent of mothers in the settled group said they were attended by a doctor, another 64%(192) said they were attended by a nurse, 5% were attended by trained birth attendants and 30% were assisted by untrained birth attendants. For mothers in the nomadic category none were attended by a doctor, 5% were attended by a nurse and 95%(285) were seen by untrained birth attendants.

![Figure 8: Type of skilled attendants supervising delivery](image)
4.3.3 Problems during delivery

To find out the need for delivery services mothers were asked to state the kind of problem they experienced during the delivery process. 61.3%(184) of settled women had experienced prolonged labour while 38.7%(116) did not experience prolonged labour, whereas only 6.3%(19) had prolonged labour 93.7%(281) did not experience it. 57.3%(172) of settled women had excessive bleeding as opposed to 42.7%(122) who did not have the problem, while in the nomadic category 6.3%(19) had excessive bleeding and 93.7%(281) did not have it. Fever during delivery was also assessed, 16.3%(49) of settled had fever and 83.7%(251) said they did not have, while only 4.7%(14) of nomadic mothers experienced fever as opposed to 95.3%(286) who did not.

4.4 Use of post natal services

4.4.1 Return to clinic after delivery

From Table 10 below it can be seen that returning to the clinic for utilization of postnatal as well as child health services was low. Only 13.7% of settled mothers returned to the clinic after delivery while 86.3% did not go back there. Ninety nine percent of nomadic mothers did not revisit the clinic.

Table 9: Clinic revisits

<table>
<thead>
<tr>
<th></th>
<th>Settled (%)</th>
<th>Nomads (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>13.7(41)</td>
<td>0.3(9)</td>
<td>14(50)</td>
</tr>
<tr>
<td>No</td>
<td>86.3(259)</td>
<td>99.7(291)</td>
<td>186(550)</td>
</tr>
<tr>
<td>Total</td>
<td>100(300)</td>
<td>100(300)</td>
<td>200(600)</td>
</tr>
</tbody>
</table>
4.4.2 Prevention of pregnancy

Clients were asked whether they would like to avoid getting pregnant, and as can be seen from table 11 the proportion of mothers in both groups who did not want to avoid pregnancy is high (84.7% and 99.3% for settled and nomads respectively). Further, mothers were asked for how long they would like to delay conception as shown in figure 9, with most nomadic mothers (99.3%) saying they did not want to delay conception compared to 84% of the settled category who also did not want to delay pregnancy. Eight percent of the settled women wanted to delay pregnancy for two to three years and a further 7.7% wanted to stop conceiving completely.

Table 10: Prevention of Pregnancy

<table>
<thead>
<tr>
<th></th>
<th>Settled (%)</th>
<th>Nomad (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>15.3(46)</td>
<td>0.7(2)</td>
<td>16(48)</td>
</tr>
<tr>
<td>No</td>
<td>84.7(254)</td>
<td>99.3(298)</td>
<td>184(552)</td>
</tr>
<tr>
<td>Total</td>
<td>100(300)</td>
<td>100(300)</td>
<td>200(600)</td>
</tr>
</tbody>
</table>
Fig 9: Length of period mothers would like to delay conception

4.4.3 Family planning knowledge

To test mother's knowledge of family planning they were asked if they knew of something they could use to delay conception. Results in table 12 show that 37.3% (112) from settled knew something that could delay pregnancy and a further 62.7% (185) did not know of it while only 1% (3) of nomad mothers responded in the affirmative. Asked further to list the things that can be used to delay pregnancy 62.7% (188) were not able to mention a particular method, while 25.7% (77) mentioned natural method as away of delaying onset of pregnancy, another 4.3% (13) said the oral pill could be used to delay contraception, 2.7% (8) mentioned condoms and another 4.6% (14) were able to say more than one method.
Table 11: Mothers knowledge of contraception

<table>
<thead>
<tr>
<th></th>
<th>Settled (%)</th>
<th>Nomads (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>37.3(112)</td>
<td>1(3)</td>
<td>38.3(115)</td>
</tr>
<tr>
<td>No</td>
<td>62.7(188)</td>
<td>99(297)</td>
<td>161.7(485)</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>200(600)</td>
</tr>
</tbody>
</table>

4.4.4 Family planning user rate.

Less than 9.3% (28) of settled mothers were using any F/P method compared to less than 0.3% (1) of nomadic mothers. Both groups had low usage rates, 90.7% for settled and almost 99.7 for nomads as can be seen in Figure 10 below.

![Figure 10: F/P use](image-url)
4.4.5 Comparison of the different coverage rates

The coverage proportions for nomads and settled were compared using Z-score tests. The results show that there is significant difference in the two coverage proportions (z test; \( P<0.001 \)), meaning that the settled people have higher coverage rates compared to their nomad counterparts. Table 13 shows this comparison.

Table 12: Settled/nomad utilization rates

<table>
<thead>
<tr>
<th></th>
<th>Settled (%)</th>
<th>Nomad (%)</th>
<th>( P &lt; 0.001 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic attendance</td>
<td>89.7(86.2-93.17)</td>
<td>7.3(3.8-10.8)</td>
<td></td>
</tr>
<tr>
<td>TT coverage</td>
<td>90(86.5-93.47)</td>
<td>7.3(3.8-10.76)</td>
<td>( P &lt; 0.001 )</td>
</tr>
<tr>
<td>TT (2 doses)</td>
<td>43(37-49)</td>
<td>2.4(0.4-4.4)</td>
<td>( P &lt; 0.001 )</td>
</tr>
<tr>
<td>Hospital</td>
<td>64(58.3-69.7)</td>
<td>5(2.2-7.8)</td>
<td>( P &lt; 0.001 )</td>
</tr>
<tr>
<td>Delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home delivery</td>
<td>35(29.3-40.7)</td>
<td>95(92.2-97.8)</td>
<td>( P &lt; 0.001 )</td>
</tr>
<tr>
<td>Skilled delivery</td>
<td>64(58.3-69.7)</td>
<td>5(2.2-7.8)</td>
<td>( P &lt; 0.001 )</td>
</tr>
<tr>
<td>Return to clinic</td>
<td>13.7(9.7-17.7)</td>
<td>0.3</td>
<td>( P &lt; 0.001 )</td>
</tr>
<tr>
<td>FP use</td>
<td>9.3(5.8-12.8)</td>
<td>0.3</td>
<td>( P &lt; 0.001 )</td>
</tr>
<tr>
<td>Card possession</td>
<td>87.3(83.3-91.3)</td>
<td>23.7(18.1-29.3)</td>
<td>( P &lt; 0.001 )</td>
</tr>
<tr>
<td>Immunization knowledge</td>
<td>96.3(93.5-99.1)</td>
<td>19.7(14.8-24.6)</td>
<td>( P &lt; 0.001 )</td>
</tr>
<tr>
<td>Treatment</td>
<td>70(64.7-75.3)</td>
<td>20(15.1-24.9)</td>
<td>( P &lt; 0.001 )</td>
</tr>
</tbody>
</table>
4.5 Level of utilization of immunization and child health care services among nomads and settled people.

4.5.1 Card possession and knowledge on immunization

Mothers were asked if they had immunization card for their children. Most mothers in the settled category said ‘yes’ (87.3% or 262) while only 12.7% (38) said they did not have card, as for the other group only 23.7% (71) said they had cards and 76.3% (229) said they did not have. To confirm that they had cards mothers were asked to show them, only 39.3% (118) could produce them, while 60.7% (182) of the settled could not produce them. Only 2.3% (7) of nomadic mothers showed their cards when asked to do so. Mothers are not very careful in keeping the records well, especially the nomadic ones. To assess the immunization knowledge, mothers were asked if they had heard about immunizations (talaal in the local language). Almost all mothers in the settled category have heard about it (96.3% or 289 compared to 3.7% (11) who have not), while only 19.7% (59) of nomadic mothers have heard about immunization and 80.3% (241) have not (Table 14).

Table 13: Card possession and knowledge on immunization

<table>
<thead>
<tr>
<th></th>
<th>Settled (%)</th>
<th>Nomad (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Immunization card</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has card</td>
<td>87.3(262)</td>
<td>23.7(71)</td>
</tr>
<tr>
<td>No card</td>
<td>12.7(38)</td>
<td>76.3(229)</td>
</tr>
<tr>
<td><strong>Card checked</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seen</td>
<td>39.3(118)</td>
<td>2.3(7)</td>
</tr>
<tr>
<td>Not seen</td>
<td>60.7(182)</td>
<td>97.7(293)</td>
</tr>
<tr>
<td><strong>Immunization</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>96.3(289)</td>
<td>19.7(59)</td>
</tr>
<tr>
<td><strong>Knowledge</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>3.7(11)</td>
<td>80.3(241)</td>
</tr>
</tbody>
</table>
4.5.2 Sources of knowledge

In order to find out the source of this knowledge mothers were asked to say where they heard immunizations. The health worker was the source of information for 43%(129) of settled and 11.7%(35) for nomads, friend or relative (27.7% and 4.7% respectively for settled and nomads) and radio (22% settled, 2.7% nomads, Figure 11).

Figure 11: Sources of knowledge
4.5.3 Immunization status

Immunization status was assessed by two methods: one, both groups of mothers were asked to produce immunization cards for their children which was then entered as immunized or not immunized against the given antigen, and the other was the memory of the mother where she was asked about the route and frequency of the antigen. Both methods were further verified by physically examining for the presence or absence of a scar especially for BCG. Table 16,17 and 18 show the results that were obtained. Overall polio immunization among the settled as shown in table 7 is birth polio (44.4%), polio 1(44.15%), polio11 (43.85%) and polio111 (42.7%) while the nomad category had birth polio (7.7%), polio1 (6.5%), polio11 (4.8%) and polio111 (4%). DPT1 in the settled category managed (44.35%), DPT11 (43.15%) and DPT111 (42.35%) while the nomads scored 7.5%, 5.3% and 3.8% respectively. BCG levels were 45% and 2% respectively for settled and nomads whereas measles scored 44.5% (settled) and 6.35% (nomads). The proportion of fully immunized is 25% for the settled category and 1% for nomads. Tables 14,15,16 and 17 show the different proportions achieved by the two categories. Results show there is significant difference in the immunized proportions of the two groups (Z test, p<0.001). Nomads have lower immunization rates than their settled counterparts.
Table 14: Immunization according to card

<table>
<thead>
<tr>
<th></th>
<th>SETTLED</th>
<th>NOMADS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%Immunized</td>
<td>%Immunized</td>
</tr>
<tr>
<td>POLIO 0</td>
<td>35.7(107)</td>
<td>2.7(8)</td>
</tr>
<tr>
<td>POLIO1</td>
<td>36.3(109)</td>
<td>1.7(5)</td>
</tr>
<tr>
<td>POLIO 11</td>
<td>35.7(107)</td>
<td>1.3(4)</td>
</tr>
<tr>
<td>POLIO 111</td>
<td>34.7(104)</td>
<td>1.3(4)</td>
</tr>
<tr>
<td>DPT 1</td>
<td>37(111)</td>
<td>2.3(7)</td>
</tr>
<tr>
<td>DPT 2</td>
<td>35.3(106)</td>
<td>1.3(4)</td>
</tr>
<tr>
<td>DPT 3</td>
<td>34(102)</td>
<td>1.3(4)</td>
</tr>
<tr>
<td>BCG</td>
<td>36.7(110)</td>
<td>2(6)</td>
</tr>
<tr>
<td>MEASLES</td>
<td>35(105)</td>
<td>2(6)</td>
</tr>
</tbody>
</table>
Table 15: Immunization according to history

<table>
<thead>
<tr>
<th></th>
<th>SETTLED</th>
<th></th>
<th>NOMAD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Immunized</td>
<td></td>
<td>Immunized</td>
</tr>
<tr>
<td>POLIO 0</td>
<td>52.7 (158)</td>
<td></td>
<td>12.7 (38)</td>
</tr>
<tr>
<td>POLIO1</td>
<td>52 (156)</td>
<td></td>
<td>11.3 (34)</td>
</tr>
<tr>
<td>POLIO 11</td>
<td>52 (156)</td>
<td></td>
<td>8.3 (25)</td>
</tr>
<tr>
<td>POLIO 111</td>
<td>50.7 (152)</td>
<td></td>
<td>6.7 (20)</td>
</tr>
<tr>
<td>DPT 1</td>
<td>51.7 (155)</td>
<td></td>
<td>12.7 (38)</td>
</tr>
<tr>
<td>DPT 2</td>
<td>51 (153)</td>
<td></td>
<td>9.3 (28)</td>
</tr>
<tr>
<td>DPT 3</td>
<td>50.7 (152)</td>
<td></td>
<td>6.3 (19)</td>
</tr>
<tr>
<td>BCG</td>
<td>53.3 (160)</td>
<td></td>
<td>2 (6)</td>
</tr>
<tr>
<td>MEASLES</td>
<td>54 (162)</td>
<td></td>
<td>10.7 (32)</td>
</tr>
<tr>
<td></td>
<td>SETTLED (%)</td>
<td>NOMADS (%)</td>
<td>P</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
<td>------------</td>
<td>---------</td>
</tr>
<tr>
<td>Polio 0</td>
<td>35.7(30-41.4)</td>
<td>2.7(0.7-4.7)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Polio I</td>
<td>36.3(30.6-42)</td>
<td>1.7(-0.3-3.7)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Polio II</td>
<td>35.7-(30-41.4)</td>
<td>1.3(-0.7-3.3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Polio III</td>
<td>34.7(29-40.4)</td>
<td>1.3(-0.7-3.3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>DPT I</td>
<td>37(31.3-42.7)</td>
<td>2.3(0.3-4.3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>DPT II</td>
<td>35.3(29.6-41)</td>
<td>1.3(-0.7-3.3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>DPT III</td>
<td>34(28.3-39.7)</td>
<td>1.3(-0.7-3.3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>BCG</td>
<td>36.7(31-42.4)</td>
<td>2(0-4)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Measles</td>
<td>35(29.3-40.7)</td>
<td>2(0-4)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Table 17: Comparison of immunization rates according to history

<table>
<thead>
<tr>
<th></th>
<th>SETTLED (%)</th>
<th>NOMADS (%)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polio 0</td>
<td>52.7(46.7-58.7)</td>
<td>12.7(8.7-16.7)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Polio I</td>
<td>52(46-58)</td>
<td>11.3(7.3-15.3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Polio II</td>
<td>52(46-58)</td>
<td>8.3(4.8-11.8)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Polio III</td>
<td>50.7(44.7-56.7)</td>
<td>6.7(3.9-9.5)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>DPT I</td>
<td>51.7(45.757.7)</td>
<td>12.7(8.7-16.7)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>DPT II</td>
<td>51(45-57)</td>
<td>9.3(5.8-12.8)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>DPT III</td>
<td>50.7(44.7-56.7)</td>
<td>6.3(3.47-9.1)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>BCG</td>
<td>53.3(47.3-59.3)</td>
<td>2(0-4)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Measles</td>
<td>54(48-60)</td>
<td>10.7(6.7-14.7)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
4.5.4 Seeking treatment

To find out the need for child health services other than immunization, mothers were asked if their children got sick within the last one month. Eighty four percent (252) of mothers in the settled category said their children had fallen sick while ninety four percent (282) of the nomadic mothers said yes. Fever and respiratory symptoms were the most common type of sickness reported by mothers (figure 12 and 13).

![Figure 12: Child illness in the last one month](image)
Figure 13: Types of illness

4.5.5 Nature of treatment.
Mothers were asked if they sought treatment for their sick children, and seventy percent (210) of the settled category said they sought for treatment unlike the nomad category where eighty six percent (258) did not take their children for treatment. Figure 14 shows this information. Further, mothers were questioned to state where they took these children for treatment and only less than one percent (3) of both groups said they went to see a herbalist. The clinic seemed to be the place of preference for these mothers since seven percent of the nomads and seventy percent (210) of settled mothers preferred to take their children to the clinic (figure 15).
Figure 14: Seeking treatment

Figure 15: Place where treatment was sought
4.6 Factors that influence access to health care for the nomadic Somali in Kenya.

4.6.1 Source of immunization

To find out how mothers got immunization services they were asked to state whether their children were vaccinated at static facilities or mobile ones. In almost ninety percent of the cases nomadic mothers cited the mobile clinic as the most common source of immunization with only around ten percent saying static facilities provided immunization to them. Ninety one percent (273) of settled mothers got these services at static facilities with only nine percent saying their children were immunized at mobile clinics. Figure 16 below shows this.

![Figure 16: Type of immunizing facility.](image-url)
4.6.2 Distance to the clinic.

Mothers were asked how long they took to reach the nearest clinic. Almost eighty five percent (255) of settled mothers take less than an hour's walk to reach the clinic, nine percent take between two to three hours walk, five percent walk four to six hours and one percent said they may take a whole day. For the nomadic category around eleven percent (33) of mothers walk less than one hour, two percent (6) walk two to three hours, thirty nine percent (117) take four to six hours and for a round forty eight percent of them it takes more than a day to reach there as can be seen from figure 17 below.

Distance had a highly significant influence on clinic attendance ($X^2 = 135.5$ df 299; $P<0.001$) TT coverage ($X^2 = 135.5$ df 299; $P<0.001$); delivery place ($X^2 = 95.81$ df 299; $P<0.001$); immunization ($X^2 = 143.67$ df 299; $P<0.001$) and treatment seeking ($X^2 = 180.9$ df 299; $P<0.001$) among the nomadic peoples, but did not influence the rest. Among the settled distance influenced clinic attendance ($X^2 = 35.5$ df 299; $P<0.05$); TT coverage ($X^2 = 19.46$ df 299; $P<0.05$); delivery place ($X^2 = 17.77$ df 299; $P<0.05$) and immunization ($X^2 = 5.23$ df 299; $P<0.05$), Table 9
### Table 18: How distance influenced utilization rates

<table>
<thead>
<tr>
<th>Distance</th>
<th>Clinic attendance</th>
<th>NOMADS</th>
<th>P &lt; 0.001</th>
<th>SETTLED</th>
<th>P &lt; 0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$X^2=135.5$</td>
<td>P &lt; 0.001</td>
<td>$X^2=35.3$</td>
<td>P &lt; 0.05</td>
</tr>
<tr>
<td>TT coverage</td>
<td></td>
<td>$X^2=135.5$</td>
<td>P &lt; 0.001</td>
<td>$X^2=19.46$</td>
<td>P &lt; 0.05</td>
</tr>
<tr>
<td>Delivery place</td>
<td></td>
<td>$X^2=95.81$</td>
<td>P &lt; 0.001</td>
<td>$X^2=17.77$</td>
<td>P &lt; 0.05</td>
</tr>
<tr>
<td>Re-visit</td>
<td>Fishers exact test</td>
<td>P &gt; 0.05</td>
<td>Fishers exact test</td>
<td>P &gt; 0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>test = 1.0</td>
<td></td>
<td>test = 0.484</td>
<td></td>
</tr>
<tr>
<td>F/p</td>
<td>Fishers exact test</td>
<td>P &gt; 0.05</td>
<td>Fishers exact test</td>
<td>P &gt; 0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>test = 0.123</td>
<td></td>
<td>test = 0.204</td>
<td></td>
</tr>
<tr>
<td>Immunization</td>
<td></td>
<td>$X^2=143.67$</td>
<td>P &lt; 0.001</td>
<td>$X^2=5.23$</td>
<td>P &lt; 0.05</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td>$X^2=180.9$</td>
<td>P &lt; 0.001</td>
<td>xxxx</td>
<td>xxxxx</td>
</tr>
</tbody>
</table>


Results from the focus group discussion indicate that 95% of them report that there are no clinics nearby and that transport is far in between. In the words of one nomadic mother 'a mother cannot take her child for immunization/treatment or seek treatment herself if this treatment is located so far away as to deprive the other siblings of her care'. A participant from Qarsa area. Ninety nine percent of the participants said they are not able to utilize health services because of distance, some ten percent cited the attitude of health workers who they said did not understand the fact that they have to travel long hours to reach there and often leave the facility without getting help.

To find out the factors that come into play, mothers were asked to say some of the reasons why they did not attend antenatal clinics. 5% of settled mothers cited distance as a constraint while a further 3% said they did not know the benefit of attending the clinic. The nomad group had a different constraint with 84.3%(253) reporting the distance as being too far. Another participant from Hungai commenting on the lack of access to hospital or clinics commented 'both transport and mobile clinics are so infrequent and far in between as (like) the cry of a donkey'. From their experience the donkey cry is infrequent.
Figure 17: Distance taken to reach the clinic
Figure 18: Reason for not attending clinic

- Settled Nomads
4.7 Data generated based on interview with health workers

In total fifty health workers (nurses, clinical officers and public health technicians) were interviewed. Seven (fourteen percent) of them had worked in that area for less than one year, four (eight percent) had been there for one to two years and thirty nine (78%) had worked there for more than two years. The health workers were asked if the institution in which they were working had conducted mobile clinics, fourteen (28%) said yes while thirty-six (72%) said they did not conduct mobile clinics. Further they were asked how many times mobile clinics had been conducted by the facility in the last six months, thirteen (26%) said they conducted one outreach clinic; one (2%) said they conducted two outreach activities while the rest (72%) said they did not conduct any.

Health workers were asked if nomads used the facility in which they worked, thirty-three (66%) said yes while seventeen (34%) said no. When asked whether they thought nomads encountered special problems in accessing the services all of them thought so. Asked to say the nature of the problem forty six (92%) identified distance as a key constraint, while two (3%) cited language barrier and another two (3%) cited other problems (lack of medicine, health worker attitude and long stay in the waiting lines).
4.8 Data based on focus group discussion

In total ten focus group discussions (FGD) were conducted five in Wajir East and five Wajir West. After the house-to-house survey mothers who fitted the criteria for inclusion into the FGD were selected and discussions generated. Results of the discussion indicate that most mothers mentioned long distances as the biggest obstacle to assessing childhood and maternal health services. A mother from Athi Bohol confided ‘sometimes it takes two days and nights on a camel back to reach a health facility, and even when you are there you need money and food for the sick person and the relatives looking after him/her’.

Mothers also mentioned transport problems; cost of medicines and shortage of drugs in the public health institutions as reasons why they cannot assess health care. A participant from Hungai showed the team a ten-month-old child that she had ‘taken for immunizations for close to six times and yet the child did not receive even a single vaccination despite the repeated effort, reason being lack of vaccines, facility closed and staff attitude’. Another participant said ‘people keep their sick ones at home for close to one to two months because of lack of transport’.

Women from Shanta Abaq said that they had not seen immunizations teams for six months to one year. Asked further to say how they could benefit from the health services, most said that the government should bring health services to the people especially watering points and conduct mobile clinics more often. The team carrying out the investigation ran into problems in Ganyure centre where some of the households were initially reluctant to participate in the study since we were not
carrying drugs or relief food but after a little explanation by the headman they accepted
to part in it. This problem kept on recurring in other centres as well.
CHAPTER FIVE: DISCUSSION

5.1 Age
Majority of the women interviewed were between 20-34 years of age. Age was cross-tabulated against utilization variables to see if it affected how services are used. Results obtained show that age did not influence most utilization variables however younger women were more unlikely to take their children for immunization (Fishers Exact test =1.0; p < 0.05) or seek treatment for their sick children (X^2 = 9.8; p < 0.05). The same has not been observed for the settled population. The findings in this study contradict what Esamai et al., 2001 found in their study where they found that younger mothers are more likely to take their children for immunization compared to the older ones.

5.2 Shelter
The Somali hut was the most common form of shelter (80% for settled and 98% for nomads) for both groups. It may be said that this form of shelter is most suited for the nomadic lifestyle of the people, but this cannot also be true for the settled people. It may be a reflection of the poverty levels predominant in the region. The study used type of shelter in which people live in as a measure of income and see how it influenced utilization variables. The type of shelter influenced clinic attendance (Fishers exact test = 0.045; p < 0.05); TT coverage (Fishers Exact test = 0.003; p < 0.05) and treatment services (X^2 = 23.3; p < 0.05). The poor nomadic women were more unlikely to access those services. Income influenced FP service use (Fishers exact test = 0.007; p < 0.05); immunization uptake (Fishers Exact test = 0.005; p < 0.05) and treatment services (X^2 = 6.109; df 299; p < 0.05) for settled people. The findings of this study contrast with those found by Esamai et al., 2001 where they found that income did not influence immunization uptake.
5.3 Access to information

Eighty percent of settled people had access to information in the form of access to radio while only 11% of nomads had it. The study analyzed how access to information influenced utilization rates and found that there was a highly significant influence on most of the variables except FP and postnatal services. The influence was more significant in the nomadic category achieving Odds Ratios (8.5 for clinic attendance; 10.3 for TT coverage and 3.4 for delivery services.) Women with access to information were more likely to use these services.

5.4 Education

Illiteracy levels are high in both groups (84% for settled and 99% for nomads). Education was cross-tabulated against the utilization variables. Education had no impact on utilization variables for settled people while it influenced most variables in the nomadic category except postnatal and treatment services. Education was analyzed further and shows similar results for education reported above. Early marriage was the most important factor according to the respondents contributing to low levels of education. The findings of this study contrast with what Esamai et al (2001) found in which they found a significant relationship between education and immunization coverage with longer schooling periods likely to result in better immunization coverage. Bjerregaard et a., 1988 also found similar to what Esamai et al found.

5.5 Awareness

Levels of awareness was high in the settled people with 98% of women knowing that there are clinics where pregnant women can attend for services as opposed to 61% of
the nomads. Awareness influenced significantly clinic attendance, TT coverage, delivery, treatment and immunization services in both groups. Women who knew where the clinics were located were more likely to go for these services. The findings of this study are compatible with that by Dao et al, 1995 where awareness of the homestead leader about immunization influenced uptake of immunization.

5.6 Distance

The study found that 84% of nomadic women gave distance as the important reason for not using health services. Distance influenced most utilization variables in the nomadic category with women traveling longer distances unlikely to use these services. This is supported by evidence from the focus group discussion where women say distance and lack of those services in their locality prevents them from accessing those services. These findings agree with what Dao et al, 1995 found where childhood and maternal immunizations were dependent on distance traveled by the mother. Esamai et al, 2001 however did not find distance as a problem in immunization uptake. Majority of health workers interviewed perceive distance as an obstacle to accessing health care.

5.7 Utilization of antenatal, delivery, FP and post natal services

Results from this study show that 89.7% of settled mothers attended the clinic for antenatal services while only 10.3% of nomadic mothers sought the same service. The utilization rate of settled mothers’ compares well with other parts of the country unlike the nomads whose utilization rates are very low. The Kenya Demographic Health Survey (KDHS) of 1998 shows antenatal attendance for Kenya being 92% for the country. Result of KDHS (2003) shows that 90% of Kenyan mothers receive antenatal care from health professionals. In North Eastern province only 25% of mothers received antenatal care from health professionals. In his study of antenatal mothers in Mbeere District using antenatal services Mwaniki (2001)
found 97.5% of pregnant women used antenatal services. Dao et al (1995), found low utilization of antenatal services among the Fulani nomads of Northern Nigeria with less than two percent of mothers receiving TT. He attributed the low usage to distance to the health facility and knowledge of the leader of the kraal (Settlement). Distance is a major factor hindering the use of health services among the nomads. Two hundred and sixty one (261) out of three hundred settled mothers who walked for less than three hours attended the clinic ($x^2=35; p<0.001$) while a similar proportion that were walking for more than four hours to reach a health facility did not attend the clinic ($x^2 =135.56; p<0.001$).

Care during labour and delivery is important for reduction of maternal and infant morbidity and mortality, and efforts are being made to have more mothers access to skilled attendance during labour and delivery. Results of this study demonstrate that a skilled worker attended 65% of settled mothers while traditional birth attendants delivered 35%. Conversely untrained birth attendants attended 95% of nomadic mothers, and 5% were attended by a skilled worker. High antenatal care is not matched by high level of skilled attendance during labour and delivery. Globally, WHO (1989) estimates that 57% of births occur at a health facility thereby get the services of a skilled worker. Mwaniki (2001) reported that a skilled provider attends 51% of mothers in Mbeere District. KDHS (1998) shows that in Kenya 42% of mothers deliver at home. Results of KDHS (2003) show that four out of ten births are delivered in a health set up. North Eastern Province had less than seven percent (7%) of mothers being attended by a skilled worker as opposed to Nairobi (77%). It is surprising that Somali nomadic women hardly deliver in health facilities. WHO (1989) reports the Republic of Somalia as having the lowest proportion of women who deliver in health facilities (2%) even
before the anarchy, which compares well with their sisters in Kenya (5%). Availability of radio, level of education, awareness of place of delivery, location of clinic and distance are important factors that influenced the place where mothers chose to deliver.

Use of postnatal services was low with only 13.7% (41) of settled mothers returning for services as compared to 0.3% (9) of nomadic mothers. Generally utilization of postnatal services is low in Kenya and globally. In Kenya three out of ten mothers seek postnatal services, but Mwaniki (2001) found only 25.29% of mothers in Mbeere returned for postnatal care.

FP utilization was found to be low in Wajir where only 9.3% of settled mothers and 0.3% of nomadic ones used FP (all methods). KDHS (1998) shows 62.3% of women and 39% of men use FP. This study did not attempt to find out the reason for such low usage but it was coming out very clearly that when mothers were asked questions about FP they thought that delivery is natural process and that there is no need for interfering with it. Besides, since children are a gift from God birth control is seen as foreign culture and against their belief. They also associate FP with women of loose morals and therefore should not be associated with them, which made further discussion of the subject even difficult.
5.8 Immunization

Immunization knowledge is 96.3% for settled and 19.7% for nomads. Coverage by immunization among the settled is well below the national average for all vaccines when mothers with cards were considered. The proportion of fully immunized children was found to be 25% among the settled and 1% among nomads. There is also significant difference between the two proportions of immunization coverage in the two groups (settled and nomads) for all the antigens (P<0.001) i.e nomads had achieved lower coverage rates for all the antigens. This is attributable to immunization knowledge, distance and level of income. KDHS (2003) preliminary analysis shows 52% of children between 12-23 months as fully immunized while North Eastern is reported to have immunization rates below 6% as compared to Central province, which has 75% coverage. This compares well with the results of this study, particularly the nomadic population, since most people live in rural areas.

Other studies show a similar trend. Franktin (1996), compared immunization coverage rates for settled and nomadic Rendille tribesmen and found that the settled Rendille had a high proportion of immunization coverage, unlike the nomadic Rendille whose coverage rates were as low as two percent, but the nomads were healthier despite their inaccessibility to health care. The explanation for this is attributed to dietary factors where the nomadic elements were found to have high intake of camel milk as opposed to the settled Rendille whose diet consists of meat and other foodstuffs.
Dao (1995) in his study of Fulani nomads found immunized proportions as low as 2.6% the key reasons given were distance and knowledge about immunization of the leader of the homesteads (P<0.00001). Also Al-Nahedh (1995) in a study among rural women in Saudi Arabia found distance as one the most critical factors influencing choice of MCH services.

However, Esamai(2001) and Bjerregaard et al (1987) did not find any relationship between immunization and distance.
CHAPTER SIX: CONCLUSIONS AND ECOMMENDATIONS

a) Illiteracy in both groups is high 98.7% and 83.7% for nomads and settled respectively. Early marriage of girls and child labour was given as an important reason in both groups for not going to school.

b) Use of health services is low in both groups particularly among nomads; women in the settled category attended the clinic while nomadic women did not use antenatal services. Maternal immunization was high among the settled people and low among the nomads. Most nomadic women delivered at home and were attended by untrained birth attendants. Levels of immunization are low in both groups. Knowledge on contraception and contraceptive use is very low in both groups.

c) Among the factors, which influenced use of health services in the region include; access to information, distance and availability of mobile services.
6.2 RECOMMENDATION

a) Multi-sectoral approach. Low levels of education prevalent in the area influences use of services. Other players like the ministry of education should be brought on board to devise ways to reach the nomadic communities. Local pastoral associations need to be trained to deliver services to nomadic communities.

b) Construct more health facilities to take services closer to nomads or deliberate efforts should be made to target nomads at watering points. Nomadic mothers deliver at home and have no access to skilled health worker yet now the policy advocated by Ministry of Health is to have more women deliver in health facilities. This means that training of TBAs is no longer a priority yet nomadic women have access to TBAs. This approach is counterproductive for those areas with large nomadic populations, hence the need to reconsider the training of TBAs. TBAs training should be given more emphasis.

c) Revive mobile clinics. Mobile clinics have long collapsed and there is an urgent need to revive the sector since it constitutes an important service access point to the community.

d) Health education. Awareness of the need for antenatal, delivery, postnatal and immunization services is low; hence the need to mount health education that makes use of the local language and expertise to pass health messages to the nomads and settled people. More effort is required from state and non-state actors. Knowledge about childhood immunization is low among nomads. The health worker seems to be an important source of knowledge. Campaigns should be done that target not only the women but also men and community leaders.
e) Further work needed: Factors influencing contraceptive use. Low use of FP services in the area should be a cause for concern. Further attempts should be made to understand the factors that are responsible for this state. Besides peer education, attempts should be made to encourage more mothers to access services. Little information is generally available about the health of nomads including accessibility to healthcare, therefore other studies should be undertaken to determine the factors that influence the use of healthcare. The role of men as decision-makers needs also further investigation.

g) Immunization levels in the area are very low especially when the nomad element is factored in. The country’s health planners need to take nomadic populations into account so that successes among the sedentary people are not reversed by the mobile elements of the population. Settled women of similar income and education are taking their children for immunizations implying the long distances trekked to health facilities and the presence of health workers in those facilities who are insensitive to the needs of nomads makes it extremely hard for them to access these services. The other problem is that planners at the ministry headquarters think of nomads as rural populations that do not warrant special consideration. They need to appreciate that nomads have unique problems that pose special challenge. Veterinarians have been experiencing similar problems in assessing rural areas and efforts are being made to decentralise services so that less qualified people are being used to deliver veterinary services yet that is a highly specialised area. Local pastoral associations have been trained to diagnose and treat veterinary problems and they are doing that very well particularly in Wajir. Can the ministry of health and other players target the pastoral associations as service delivery points?
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APPENDIX 1: RESEARCH INSTRUMENTS

PART A: QUESTIONNAIRE

Introduction. I am a student in Kenyatta University undertaking a masters Degree in public health and Epidemiology. I will ask you questions related to my study. Please respond to the questions according to your undertaking. Thank you. Dakane M.

Socio-Demographic data:

Age: ..............................................................
Sex: ..............................................................
Religion: ..........................................................

Type of house:

- Somali hut
- Thatched house
- Stone house

Does your household own a radio?

- Yes
- No

Education:

1. Have you ever attended school?

- Yes
- No

2. What is the highest level attained?

- Primary
- Secondary
- College
- University
3. If you never attended school in the first place, what is the reason?
   o Got pregnant  
   o Got married  
   o Needed to work in the family  
   o Could not pay school fees  
   o School too far  
   o Don't know  
   o Others (specify).................................

Maternal health and F/P services:

1. Are you aware of the existence of clinics attended by pregnant ladies?
   o Yes  
   o No

2. If yes. Where is it located?
   o Urban  
   o Rural

3. Do you know of any benefits of attending the antenatal clinic?
   o Yes  
   o No

4. If yes, can you list some of them
   .................................................................
   .................................................................
   .................................................................
   .................................................................
   .................................................................
   .................................................................

5. During your last pregnancy did you attend the clinic
   o Yes  
   o No
6. If your answer to Q7 above is No, what are some of the reasons why you did not?

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

7. When you attended the clinic, were you given any injections to protect against tetanus?

  o Yes
  o No
  o Don't know

8. If you were given T.T. injection, how many times?

  o Number of times
  o Don't know

9. How long do you take to reach the nearest antenatal clinic?

  o Less than one hours walk
  o Three hours walk
  o Four-six hours walk
  o More than a days walk
  o Don't know

10. If the clinic were near your place, would you attend it?

    o Yes
    o No
    o Don't know

11. If you answer to Q12 is No, give reasons

    ........................................................................................................................................
    ........................................................................................................................................
    ........................................................................................................................................
    ........................................................................................................................................
12. During your last pregnancy where did you give birth?
   o Health facility
   o At home
   o On the way to hospitals
   o Others (specify)

13. Who assisted you with your last delivery?
   o Doctor
   o Nurse
   o Trained birth attendant
   o Untrained birth attendant
   o Others (specify)

14. Around the time of delivery, did you have any if the following problems?
   a. Prolonged labour (more than twelve hours of regular contractions)
      o Yes
      o No
   b. Excessive bleeding
      o Yes
      o No
   c. High fever with bad smelling vaginal discharge
      o Yes
      o No

15. If this facility were near to your place, would you deliver there?
   o Yes
   o No
   o Don't know
16. If no to Q15, give reasons

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

17. Have you ever returned to the clinic after delivery?
   o Yes
   o No

18. Would you like to avoid getting pregnant
   o Yes
   o No

19. If you would like to delay your pregnancy, for how long?
   o One year
   o 2-3 years
   o Stop completely

20. Do you know of anything that can help you delay your pregnancy?
   o Yes
   o No

a. If yes to Q23, can you list some of them?

..........................................................................................
..........................................................................................
..........................................................................................
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21. Do you use any method of F/P?
   o Yes
   o No

22. If yes to Q21, which method do you use
   o Pill
   o IUCD
   o Injectables
   o Norplant
   o Jelly foam
   o Condom
   o Female sterilization
   o Natural
   o Withdrawal
   o Others (Specify) ..............................................................

Child Health Services:
1. Do you have any immunization card for your child?
   o Yes
   o No

2. If yes check
   o Seen
   o Not seen

3. Do you know that children can be immunized against certain diseases?
   o Yes
   o No

4. If yes, to Q3, how did you know about them?
   o Radio
   o Friends/relative
   o T.V.
   o Health worker
   o Newspaper
   o Other specify
5. Which are some of the diseases that you can immunize your children against?

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

6. Was your child immunized against

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<th></th>
<th>Date</th>
<th>Month</th>
<th>Year</th>
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<tr>
<td>Measles</td>
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<tr>
<td>BCG</td>
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</tbody>
</table>

(Enter dates if card available)

7. Please tell me if your child received any of the following vaccines (for those without cards):

a. BCG – An injection given into the left arm at birth that causes a scar
   - Yes
   - No
   - Don’t know

Check for scar

b. OPV- Drops given into the mouth
   - Yes
   - No
   - Don’t know
   - Number of times drops were given ..............................................
c. DPT injections
   - Yes
   - No
   - Don’t know
   - Number of times injections were given

d. Measles injections
   - Yes
   - No
   - Don’t know

8. Where did your child receive these immunizations?
   - Health facility
   - Mobile clinic
   - Don’t know

9. If your child has not completed immunization, what are the reasons?

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

10. Would you immunize your child if the facility were nearby?
    - Yes
    - No
    - Don’t know

11. Has your child been ill in the last one month?
    - Yes
    - No
    - Don’t know
12. If yes, what was the problem?
   - Fever
   - Coughs
   - Diarrhea
   - Others (specify)

13. Was the child taken for treatment?
   - Yes
   - No

14. If the child was taken for treatment, where was he taken?
   - Clinic
   - Herbalist

15. If the child was taken for treatment to the clinic, did he get medicine?
   - Yes
   - No

16. Did the child get well after that?
   - Yes
   - No

**Health workers**

1. Does your facility conduct mobile clinics?
   - Yes
   - No

2. If Yes, how many outreach services has it conducted in the last months?
   - None
   - One
   - Two
   - Three +
3. Do nomadic people use the health facility in which you work?
   - Yes
   - No

4. How often do they use this facility?
   - Rarely
   - Often
   - Very often

5. Do you think in your opinion nomadic encounter unique problem when using this facility?
   - Yes
   - No

6. If you know of some of the problems encountered by nomadic people while trying to use the health facility please list them.
   .................................................................
   .................................................................
   .................................................................
   .................................................................
   .................................................................
PART B: Focus Group discussion

Nomads

1. How far is the nearest health facility from your homestead?
2. Do you use the facility? If no why?
3. Do you encounter problems while accessing the health facility?
4. Which are these problems?
5. Do you know of a better way in which your health needs can be addressed?
APPENDIX 2: INTERVIEW WITH WOMEN FROM STUDY AREA

HALIMA QORAN from Hungai had this to say

"Canugan Waxaa loo kaxeeyay cisbitaalka lix jeer, intaba sooma helin wax talaal ama
dawaa, sabatoo ah mesha daawa iyo talaal oolin ama cisbitaalkiiba laxiray"

TRANSLATION

"I had taken this child for immunizations for close to six times and yet the child did not
receive even a single vaccination despite the repeat effort, reason being lack of vaccines,
facility closed and staff attitude."

ABIDYA QORAXEY from shanta Abaq had this to say:

"Dadka xanuunsan waxaan kahaynaa guryaha ilaa dhowr bilood babur iyo galiid laan
awaded"

TRANSLATION

"People keep their sick ones at home for close to one to two months because of lack of
transport."
APPENDIX 3 MAP OF WAJIR SHOWING THE STUDY AREA
APPENDIX 4: MAP SHOWING THE SUDY AREA
APPENDIX 5: RESEARCH AUTHORIZATION DOCUMENTS

P.O. Box 43844
NAIROBI
14-02-2002

The Director
Board of Postgraduate Studies,
Kenyatta University,
P.O. Box 43844,
NAIROBI.

Thro’
Pro. Romanus O. Okelo (Supervisor)
Zoology Department

Thro’
The Chairman
Zoology Department

Thro’
The Dean
Faculty of Sciences
Kenyatta University.

Dear Sir,

RE: CLEARANCE CONDUCT TO RESEARCH STUDENT NO. 156/9133/2000

I am a postgraduate student undertaking a Master’s Degree in Public Health and Epidemiology. My study topic is ‘Utilization of Health Services among nomadic Somali groups in Wajir District’. I therefore request your office to give the necessary clearance/introduction to the Ministry of Education to undertake the study. The study is expected to be complete by September 2002.

Thank you.

Yours faithfully,

MOHAMED MAALIM DAKANE
APPENDIX 6 (a): AUTHORIZATION BY KENYATTA UNIVERSITY

KENYATTA UNIVERSITY
OFFICE OF THE DIRECTOR, BOARD OF POSTGRADUATE STUDIES

P.O. Box 43844, NAIROBI, Kenya
Tel: 810901 - 19/ 81622/812722
Ext. 57530
Telex: 254383
Fax: 819759

Our ref: 156/9133/2000

Your Ref: 

Date: 28/2/2002

The Permanent Secretary,
Ministry of Education, Science & Technology,
P.O. Box 30040,
NAIROBI.

Dear Sir,

RE: RESEARCH AUTHORIZATION

I write to introduce Mr. Mohamed Maalim Dakane who is a postgraduate student of this University. He is registered for a Master of Public Health and Epidemiology (MPHE) degree programme in the Department of Zoology.

Mr. Dakane intends to conduct a thesis research entitled, “Health Services utilization among nomadic groups in Wajir District”, as a partial fulfilment of the requirement of his degree programme.

Any assistance given to him will be highly appreciated.

Yours faithfully,

[Signature]

J.K. Langat
FOR: DIRECTOR, BOARD OF POSTGRADUATE STUDIES

cc: Registrar (Revd.)
Dean, Faculty of Science
Director, B.P.S - to see on file
Chairman, Zoology Dept.

JKLasa
APPENDIX 6 (b): AUTHORIZATION BY MINISTRY OF EDUCATION

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

JOGOO HOUSE "B"
HARAMBEE AVENUE
P.O. Box 30040
NAIROBI

27th March, 2002

MOHAMED MAALIM DAKANE
KENYATTA UNIVERSITY
P.O. Box 43844
NAIROBI

Dear Sir,

RE: RESEARCH AUTHORIZATION

Following your application for authority to conduct research on, 'study of Health Utilization among Nomadic Groups in Wajir District. I am pleased to inform you that you have been authorized to conduct research in Nairobi for a period ending 30th September 2002.

You are advised to report to the District Commissioner, the District Education Officer and the Medical Officer of Health, Wajir District, before embarking on your study.

You are further advised to deposit two copies of your research findings to this office upon completion of your research project.

Yours faithfully,

[Signature]

A G KAARIA
FOR: PERMANENT SECRETARY/EDUCATION

C.C.

The District Commissioner
Wajir District

The District Education Officer
Wajir District

The Medical Officer of Health
Wajir District