

**" FACTORS THAT AFFECT DEMAND FOR
HEALTH CARE SERVICES
IN NYERI DISTRICT "**

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By

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DECLARATION

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

Signed 

Date 9th Nov 2005

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This research project has been submitted with my approval as the University Supervisor.

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DEDICATION

This work is dedicated to God and my family.

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LIST OF ACRONYMS

MoH	Ministry of Health
HIV	Human Immunodeficiency Virus
AIDS	Acquired immune Deficiency Syndrome
TB	Tuberculosis
NGO	Non-Governmental Organization
WHO	World Health Organization
KDHS	Kenya Demographic and Health Survey
GOK	Government of Kenya
PHC	Primary Health Care
URTI	Upper Respiratory Tract Infection
IMR	Infant Mortality Rate
MMR	Maternal Mortality Ratio
SPSS	Statistical package for social sciences
MDG	Millennium Development Goals
RHFMC	Rural Health Facility Management Committee
CQI	Continuous Quality Improvement
UN	United Nations

ABSTRACT

There is continued concern about unequal access to quality health care, which includes public, private and faith based health care services. In assessing the utilisation of health services, the indicators often assessed include people's health status (morbidity and mortality) accessibility to basic health services, utilization of health services and expenditures on health. A number of factors affect whether or not a person seeks health care services. Studies have identified several factors that account for patient delay in seeking care and health service delay that translate in inaccessibility to health care (Phillip, D. et. al 1999). Factors that characterise the response of the health care services include: quality of care provided, cost of services, waiting time.

The study was carried out in ten health facilities in Nyeri district. The objective was to determine how patient characteristics, quality and access factors of health care service influence utilization of health care facilities. The study results indicate that a person values quality health care and thus utilizes the facilities where quality care is provided such as the hospitals. Education promotes value and attitudes that provide incentive to use health care services.

The extent of present health status is a determinant of use for health services. The fee paid for health services was significant at 5% confidence level. Results show that many patients (83.8%) lived 1-20 km from the health facility; hence distance from respondent home to facility of choice is not a deterrent to seeking health care. The reason leading to this health-seeking pattern is attributed to the poor quality of health care provided in nearby rural facilities, which translate into inaccessibility. The poor quality in rural health facilities is related to lack of quality enhancements such as presence of theatre facilities, diagnostic facilities and the staffing levels. However, many clients (42.3%) walked to the facilities and the overload on the district and referral facilities can be reduced by improving the quality of health care at the primary health care level. From the results, 16.5% of the respondents' wishes doctors were made available in the health facilities. Respondents consider the provider consultation when judging quality of care.

Clients' demographic and social/economic characteristics are proxies for the health status of patients and are key determinants of health services utilization. Access to services and their perception by clients influences health service utilization. User fee and waiting time are major determinants of health care demand and they were significant at 5%. The study has illustrated the critical role of clients' perception about service quality on visits to health facilities. The attitude of health facility personnel towards patients is a determinant of service utilization and is significant at 5% level. Based on the data from the health records office in Nyeri District, the rate of utilization of health services in the government facilities is high, compared with the utilization rate in the private and the mission facilities. This may be due to proximity of government health facilities. User fees are a deterrent to health service utilization by the poor. To further encourage utilization of existing health facilities qualification of the personnel deployed in all facilities needs improvement. Patients' perception of adequacy of drugs and diagnosis at the health facilities affect health services utilization. The presence of a doctor in a health facility significantly increases demand for health services.

CHAPTER 1: INTRODUCTION

1.1 Background

1.1.1: Strategic Management

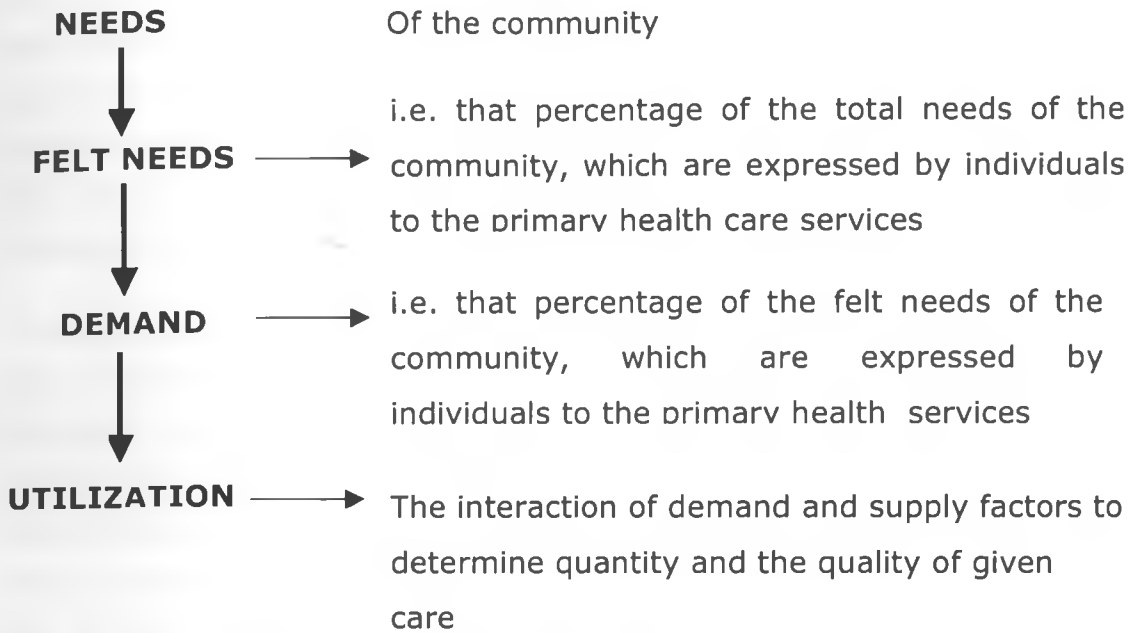
Strategic Management is a new view of business Policy and Planning. The concept of strategic management evolves from the concept of strategy used in military organizations. Wren (1994) pointed that; Peter Drucker established the basic conceptual framework for business policy and strategy field, which later developed into the concept of strategic management. Ohmae (1982) noted that strategic analysis is the starting point of strategic thinking. In addition to strategic thinking, Redding and Catalanello (1994) concluded that strategic readiness or an organisation readiness for change will determine how well strategy will be formulated and implemented.

Strategic management is experiencing continuous changes in its approaches. The changes in approaches to strategic management resulted from the realisation that different organisations operating within a different environment would require a different type of strategic management. Rumelt, Schendel and Teece (1991) noted that the adoption of the economic approach resulted from increased use of economics by strategy scholar and the ability of economics to contribute to the field of strategic management. Porter (1980 and 1985) and Gilbert and Strelbel (1986) used the external approach to strategic management in their studies. Strategic thinking in health care is hardly practiced and excess formal thinking in strategy formulation has resulted in intellectual stagnation (Ira Studin, 1995). Today, strategic managements is widely accepted as a process that comprises three phases; formulation, implementation and evaluation as well as control of strategy.

1.1.2: *Matching individual demand of health care with supply of health services*

The figure below shows the relationship between individual demand for health care and the supply of the services.

Figure 1: Demand, supply and the utilisation of primary health care



Source: From Kenneth Lee and Anne Mills, 1983

A number of factors affect whether or not a person seeks health care services. Gender roles are social bound, while sex roles are natural. Studies have identified several factors that account for patient delay in seeking care and health service delay that translate in inaccessibility to health care (Phillip, D. et. al 1999).

Measuring, monitoring & understanding the influence of financial and non-financial factors pose in determining healthcare seeking behaviour at district and sub district levels are necessary to guide policy. Such factors include opportunity costs in travel time, affordability and perceived quality of services and waiting time (Kinsley, M.B. et. al 1990). Factors that characterise the response of the health care services include: quality of care provided, cost of services, waiting time. The quality factors include attitude of health care providers towards clients, cleanliness, availability of drugs, confidentiality during diagnosis, qualification of health care providers and availability of services (Brawley M., 2000).

1.1.3 Health Care System in Kenya

The healthcare services in Kenya assume the mass deprivation pattern. Mass deprivation pattern is characteristic of the poor nations where the majority of the population has equivalent but deficient access to health services while a small privileged class finds ways to obtain the care it needs. With mass deprivation, the strategic effort most useful is 'scaling up' meaning overall extension and strengthening of the health system and improving access and quality of care.

There is continued concern about unequal access to quality health care. In its policy framework, the Ministry of Health recognizes the challenges these emerging health issues entail. The Government has responded to this by embarking on health sector reforms (Republic of Kenya, 1994). The 1994 Health Policy Framework and the National Health Sector Strategic Plan (NHSSP, 1999 - 2004) provide the vision and the agenda for the Ministry of Health (MOH). The aim of the Government through the Ministry of Health is to implement appropriate policy, structural, financial and organizational reforms to enhance efficient and effective delivery of health care services. The strategic plan identifies the specific treatment and essential health services packages to be delivered at each level of the health care system.

The Ministry of Health institutions form a pyramidal structure of facilities with the system being key component of overall health care system. This pattern stems from the public sectors being the main provider of health services, through this network of about 4,200 health facilities, comprising: hospitals (218), health centers (575), dispensaries (2,523), maternity homes (191) and health clinics/ medical centers (707) and a bloated work force. The services include public, private and faith based health care services. Appendix 1 shows the types and number of health facilities in Nyeri district.

The greatest health problem facing the country is HIV/AIDS pandemic with the present prevalence at 6.7% as shown in the Kenya Demographic Health Survey (KDHS, 2003). The KDHS 2003 further expounds on how this problem has been compounded by among others the worsening key indicators. For instance the infant mortality rate (IMR) stood at 74 per 1,000 live births in 1998 (KDHS,

1998) and now is at 78 per 1,000 live births. Also the maternal mortality rate (MMR) is at 414 per 10,000 women of child giving age, average immunisation coverage is 52% (Central >75% and N. Eastern 8%); and under 5 utilisation of facilities at 20.2% (also see appendix 4).

Because the government of Kenya (GOK) owns the majority of the health facilities, it is the major financier of health services, relying on tax revenues. The GOK through the Ministry of Health contributes about 42% of the total spending on health and individuals through out-of-pocket expenditures, contributes 52% towards health financing (Republic of Kenya, 2003). Appendix 2 shows the sources of financing and trend of key indicators in the health sector. For the rural facilities, less than 11% of the population is served (Republic of Kenya, 2003).

Kenya like other global partners is faced with the many health related challenges. To deal with these challenges efficient utilization of resources to maximize utilization of available health care facilities equitably is necessary. Also, urgent focus on alternate financing of health care is important that factors in the access to quality health care services.

1.2 Statement of the Problem

In assessing the utilisation of health services, the indicators often assessed include people's health status (morbidity and mortality) accessibility to basic health services, utilization of health services and expenditures on health. The conventional wisdom is that the poor are often the disadvantaged whatever the dimension assessed- that they suffer more in regard to their health (death), utilize services less and pay more of their income (proportionately) on health than the better off. Such disparity have been shown to pervade the whole world, being rampant between and within countries- whether they are rich or poor, or have high or low aggregate health (Schellenberg et al., 2003, Evans et al., 2001).

To reduce the poor rich gap in the health sector, the government of Kenya abolished the user fee in all government health units except the private wings

and the referral facilities (Government of Kenya, 2004). In addition public subsidies are now more towards those services expected to be used by the poor- the peripheral government facilities and the mainly faith based private-not- for-profit (PNEP) health facilities. Other studies have shown that clients may be willing to accept higher costs if they believe that services are of high quality (Mwabu, 1998). Access to service is a vital but complex element of quality of care, since it determines whether a client even gets to the service provider. Studies identify distance and cost as being among the major factors that constrain women's ability to access services (Bongaarts and Bruce, 1995; Stash, 1999; Bulatao, 1998; Alkin et.al., 1986). It was further suggested by the same studies that further investments in reducing distance to health facilities and the prices of rural health clinics be reduced to zero were not required and that there was room for introducing user fees to public health facilities. The proposed study sought to investigate factors underlying observed health care use patterns, specifically the factors that are barrier to access to quality health care.

This observation leads to the following questions:

- 1) Why is demand for health care at some facilities high even when technical quality of service at the same facilities is known to be low and they are more than 5km (recommended Distance by WHO) from the residence of the user?
- 2) How much utilization of services can be accounted for by accessibility to the service.

Also little work has been done to isolate the effect of specific access factors on utilisation of health care services.

1.3 Objective of the study

To determine factors that affect use of the health facilities in Nyeri District

1.4 Importance of the study

Amongst the beneficiaries of this study are the decision makers and managers in the health sector. Other beneficiaries will be Policy makers, Funding Partners, Donors academicians and researchers.

1.5 Organization of the study

Each of the following three chapters deals with different aspects of the study chapter 2 deals with a review of the studies conducted locally and internationally on health service demand. The findings of the studies helped the researcher to identify the gaps in health care delivery in Kenya. There is a general agreement that the studies have not addressed the effect of specific access factors on demand.

Chapter 3 contains methodology and the materials used in the study. In chapter 4, the results of the study are presented- information on key variables presented in the conceptual model. The results are in form of narratives that summarizes information contained in the frequency tables and the model table. Chapter 5 contains: Discussion of the results, Conclusion, Policy implications of the results and Recommendations.

SECTION 2: LITERATURE REVIEW

2.1 Introduction

Strategy making is a response that does not necessarily 'solve' the problem, but which redefines it in terms of more familiar sub problems. Unlike rational analytical problem solving, the functions of strategy are not to 'solve' a problem but to so structure a situation that the emergent problem is solvable (Richard D. Rummelt, 1986).

The concept of strategic management evolves from the concept of strategy used in military organisations. The word strategy is derived from the Greek word "stragos", which means army and leading. Initially, the concept of strategy was referred to the leading role of a general in command of an army as well as meant for military purposes (Greenly, 1989; and Mintzberg and Quinn, 1991; and Wren, 1994). Quinn noted that the concept of strategy in military organizations was used for various military purpose such as developing organizational objectives, maintaining the initiative, concentrating organisational resources, conceding selected positions, flexibility, and coordinating and commitment.

In the field of modern management, the earlier concepts of policy and strategy can be traced to the work of Henry Fayol and Peter Drucker. Wren (1994) pointed that; Peter Drucker established the basic conceptual framework for business policy and strategy field, which later developed into the concept of strategic management. The strategic process emphasises the importance of gathering and the use of environmental information. The environmental information, which is collected through situational analysis, can assist an organisation in identifying and understanding the factors that contribute to its ability to develop effective strategy as well as achieve its objectives efficiently and effectively. Courtney, Kirkland and Viguerie (1997) stressed the importance of situational analysis to companies formulating and implementing strategies in uncertain business environment. According to the authors all strategies making begins with some form of situation analysis. The authors emphasised that to

cope with different levels of uncertainty, organisations need different analytical approach to determine the best possible strategies. Ohmae (1982) noted that strategic analysis is the starting point of strategic thinking. The author stressed that the object of strategy in business is to bring about the conditions most favourable to ones side that can be accompanied with realistic responses to changing situations.

Christensen (1997) indicates that organisations need to develop competency in strategic thinking in order to conceive and implement creative and coherent strategies. In addition to strategic thinking, Redding and Catalanello (1994) concluded that strategic readiness or an organisation readiness for change will determine how well strategy will be formulated and implemented.

Strategic management is experiencing continuous changes in its approaches. This is because the concepts and applications has been characterised as developing, dynamic and applicable to all types of organisations. The changes in approaches to strategic management resulted from the realisation that different organisations operating within a different environment would require a different type of strategic management. Mintzberg and Quinn (1991), among others, believed that there is no one best way to create strategy. Carroll (1987) pointed that the wide inquiry in strategic management has also led to distinctive approaches such as the economic and organisational approaches. According to Carroll, the economic approach emphasises the best way to position a firm in a given structure of competition.

Rumelt, Schendel and Teece (1991) noted that the adoption of the economic approach resulted from increased use of economics by strategy scholar and the ability of economics to contribute to the field of strategic management. Theses authors claimed that the adaptation of the economic approach resulted mainly from the lack of theory building in the early works of strategic management. Studies by Burn and Stalker (1961), Chandler (1962), Lawrence and Lorch(1967), and Rumelt (1986) established the relationship that exist between corporate strategy, structure and economic performance.

Porter (1980 and 1985) and Gilbert and Strelbel (1986) used the external approach to strategic management in their studies. These authors suggested that strategies should be formulated based on the findings of the external analysis of the industry structure and competitive positioning. According to the authors, strategies developed in this manner and matched with the external competitive forces can provide significant benefits to organisations.

Ulric and Lake (1990) stressed that an organisation success will depend not only on its ability to meet customer needs but also on how well the organisation's internal processes work to meet the external demand.

Strategic thinking in health care is hardly practiced and excess formal thinking in strategy formulation has resulted in intellectual stagnation (Ira Studin, 1995). Strategic thinking focuses on underlying relationships as opposed to facts as they appear. Strategic thinking that focuses on appearances vindicates preconceived notions and clouds the search for critical issues. True and superior strategic thinking therefore, combines "*rational thinking*" with "*Imaginative integration*" (Kenichi Olmae, 1983).

2.2 Factors affecting access to quality health care services

A community's demand for health care exists only in terms of what the community is prepared to sacrifice in money, time, inconveniences and incidental costs incurred (Kenneth L. et al. 1982). Utilization of health is a result of interaction of demand and supply, of consumers and providers. Heller (1982) in a study in Malaysia revealed that the demand for care was highly inelastic to cash price. *Distance* did not have a significant influence over demand for health care. Meanwhile, there had been a number of studies providing conflicting conclusions as to effect of prices on demand for health care (Mwabu, 1986; Gertler et al, 1987; Alderman and Gertler, 1988). Furthermore, studies on the demand for medical care in industrial countries uniformly concluded that prices were important determinants of utilization of medical care (Manning et al, 1987).

In Kenya, studies reported a substantial decline in health care utilization after the introduction of user fees in 1989. Likewise, utilization of inpatient hospital services substantially declined (Mbugua, 1995, Mwabu, 1998).

Another study from the Niger (Diop, 1995) provided evidence for the assertion that for access to quality health care for rural populations to sustain, cost recovery must be tied to quality improvement measures and to cost containment measures. Specific factors that affect demand for health care services are reviewed below:

2.2.1: User fee, Service Access and Utilisation

Access is the patient's ability to obtain medical care (WHO, 2003). The ease of access is determined by such components as the availability of medical services and their acceptability to the clients, the location of health care facilities, transportation, and hours of operation and cost of care. Barriers to access can be financial (insufficient monetary resources), geographic (distance to providers), organizational (lack of available providers) and sociological (e.g., discrimination, language barriers)[Ndhlovu 1995].

2.2.2: Quality of health services

Juran, (1970) defines quality as "fitness" for use, a definition that draws attention to satisfying clients needs. A study in a rural Kenya by Mwabu et al (1993) found that demand was lower at facilities lacking aspirin. Curiously, demand was higher at facilities lacking ant malarial drugs, suggesting that high demand depleted stocks for anti-malarial.

Clients say that they value service providers' technical competence, as well as privacy and confidentiality. Providing more complete and accurate counseling that is tailored to the client's needs has been associated with higher levels of client satisfaction, as well as higher contraceptive prevalence and client retention (Costello et al., 2001 and Williams et al., 2000). Identifying the problems, retraining providers, and using clear protocols for engaging clients resulted in

much improved client-provider interactions, and address the needs of clients, providers, and program managers (Costello et al., 2001). Clients are generally more likely to use low-cost services. Clients may be willing to accept higher costs if they believe that services are of high quality. Access to service is a vital but complex element of quality of care, since it determines whether a client even gets to the service provider. In Kenya, clients said that low costs and proximity of services were the two most important factors that attracted them to services (Ndhlovu, 1995).

2.2.3: *Financial factors*

Expense of travel to health facilities and the opportunity cost of that higher access costs (transport costs and the opportunity cost of patients' and family caregivers' time) have a significantly negative effect on utilization. Gertler and van der Gaag (1990) found trip travel time to health facilities was similar to the price elasticity. In Peru, travel time elasticity's were very small relative to price elasticity's, probably because user fees are a far larger component of the "total price" (time and money) of obtaining care in rural Peru than is travel time. The opportunity cost of women's time i.e. time required to use health services effectively presents a particularly significant obstacle for women relative to men. Even free or low-cost reproductive and other health care involves costs, including the opportunity cost of time away from income-generating activities (AbouZahr 1996).

2.2.4: *Geographical factors*

There are extremely wide ranges of factors that influence whether or not a woman seeks and obtains quality care from modern health-care facilities. Difficulties in reaching health facilities, as a result of distances, lack of transportation, or poor roads, water mass are well-documented impediments to care (World Bank, 1993). Qualitative research results clearly describe the financial difficulties faced by women and children in seeking healthcare. If an ill woman wants to visit a health centre, she may have to walk very long distances. Studies identify distance and cost as being among the major factors that constrain women's ability to access services (Bongaarts and Bruce, 1995; Stash,

1999; Bulatao, 1998). But the degree to which these barriers limit access is strongly influenced by clients' perception of quality. Furthermore, distance need not preclude access. In Nigeria Mensch et al., (1994) found that some women may prefer to travel to a more distant facility if they feel that it provides better services, including a range of care options, effective counseling, and convenient hours. In Tanzania Makundi (2001) recorded the following statement from a woman in a focus group discussion, "Distance might not matter as long as one knows the advantages associated with such a long walk"

2.2.5: Social cultural barriers

Cultural factors affecting access are usually intra household allocation of health inputs: food, education, and economic resources. Household health status determinants include household resources for nutrition, education, and medical care. The major household inputs that affect health status are food and income interventions. Severely malnourished girls were 45 percent more in Sierra Leone in 1989 as cited in Acsadi and Johnson-Acsadi 1993. Education increased likelihood to use medical care services and family planning. Economic obstacles consist of the costs of seeking and obtaining care that face potential users. Further, educational and class differences between clients and providers often limit clients' ability to assess services.

In South Asia, some Muslim countries, and parts of sub-Saharan Africa, the decision for a woman to seek medical care is not made by the woman herself, but by her husband, mother, mother-in-law, village elders, or other family or community members (Acsadi and Johnson- Acsadi 1993). For example, a Ugandan study (Kasolo 1991 cited in Timyan and others 1993) found that men generally control the cash needed for transport to and use of health services.

2.2.6: Provider Barriers

In a study conducted in Tanzania Gilson et. al. (1994), referred to the issue of unqualified health workers. Many studies cited clients who felt disappointed that the provider did not spend more time with them to discuss the problem and treatment. Referrals though valued by patients, are often misunderstood.

Sometimes clients view referrals as a failure of the staff or health unit to correctly identify their problem (Nshakira et. al., 1996). Furthermore, it creates financial problems for the user in terms of additional transport cost and unfamiliarity with a distant health facility.

The interpersonal relationship between clients and the provider as reported by many authors is the most important issue for patients' perception of quality (Kim et. al., 2000). The importance of staff living close to a health facility to provide service whenever needed was one of the main reasons why clients prefer private clinics. (Nshakira et al.,(1996). The DISH project also found that lack of providers at a health facility had a negative impact on patients' perception of quality (DISH, 1999).

One study found that people were uncertain about exact costs of health services because the charges varied depending on the service a client received. In Tororo District, Uganda, Opare (1996) discovered that communities were in fact willing to pay for improved quality of services. Despite an appreciation for improved services, some people could not still afford the services due to other extra costs such as transport costs.

2.3 Conclusion

From the literature review it was concluded that clients were willing to travel long distance (even walk) and pay more to seek quality health care. The literature also reviewed that clients were willing to take risk in order to reach and receive services that suited their needs. For example women use ingenious ways to access and utilise family planning services. Many studies show that patients equate availability of drugs with high quality services. Specifically, patients wanted providers to conduct a proper examination, identify the problem and prescribe treatment. Other suggestions included availability of operational equipment, ambulance, furniture, beds, mattresses and gloves.

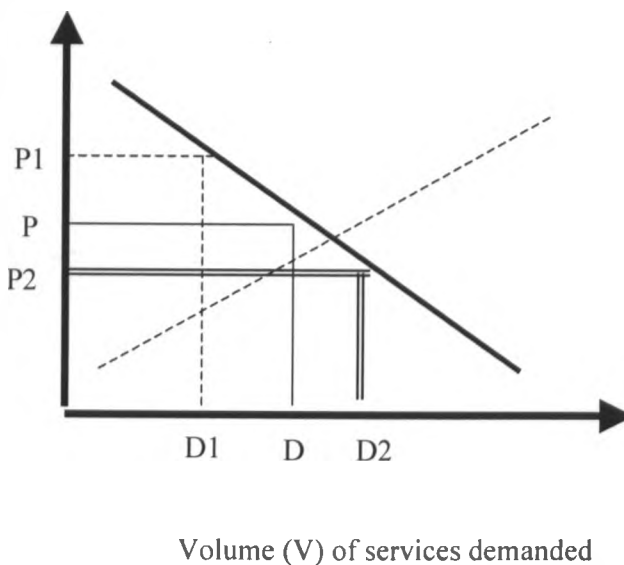
2.4 Conceptual model

Patients' choice of health facilities and the extent to which they utilized facilities can relate to the following sets of factors:

- Access factors, which include income, out of pocket cost of services, transport expense, travel time, waiting time at the facility, and distance from home.
- The patients' social factors, which include gender, age, level of education and occupation
- Attributes of health facilities, such as type of facility (public, private, mission) and quality dimensions, such as staff attitude and availability of drugs.

The three sets of variables (access factors, socio factors, and quality factors as given above) are the independent variables. The dependent variable is the frequency of use of the chosen facility, measured by the number of visits to the facility over the last one month.

Figure 2: Demand & Supply Curve



Where,

p = Price per visit; V = Number of visits to a health facility over a specific period, e.g. one month; DD = Demand curve for medical services; SS = Supply curve for medical care, which is assumed to be fixed. As the price (P) increases to p_1 , the number of visits (D) declines by D_1 . Conversely, as the price (P) reduces to (P_2), the number of visits increases to (D_2). However, holding user fees constant, the demand curve shifts up and down as factors change.

A general demand model can then be written as:

$$D = f(P, Q, S, A, O)$$

Where,

D = Demand of health services; P = Price of health services; Q = Quality of health care; S = Social factors; A = Access factors; O = other factors

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Study Design

The study was a cross section survey of patients attending health facilities in Nyeri district in the year 2005.

3.2 Scope of the Study

The study was conducted on selected clients who visited hospital-serving people in Nyeri District.

3.3 Population and the Units of Study

The population of the study was drawn from the selected hospitals in Nyeri district. It comprised all clients visiting the selected hospitals. A total of one hundred clients were interviewed in Nyeri municipality and a total of fifty clients were interviewed in Kieni east Division.

The study included all clients who used the health facilities in municipality and Kieni East divisions of Nyeri District during the study period. The two divisions qualified for selection because of their differences in socio-economic background. The municipality division represented the more affluent area that consists of both urban and rural populations. Nyeri town, the provincial headquarter of central province, has a more heterogeneous population in terms of ethnic mix. In addition, residential setting is rural settlements, urban and slum settings. Nyeri municipality has 42 health facilities (See Appendix 2).

3.4 Sampling

The sampling frame was from health information at the office of the medical officer of health, Nyeri District. A large and representative sample size fulfilling the requirement of efficiency, reliability, representative ness, and flexibility provided the data used in the study. The sample size to be used in the study was derived using the formula by Fisher et al., (1998).

$$n = z^2 * p * q / d^2$$

Where,

P = 0.11 being the coverage by the rural facilities (KDHS, 2003) - the estimated proportion of q is 1-p; Z = critical value corresponding to 95% confidence interval obtained from the tables of standard normal distribution. ; d = degree of precision set at ± 0.05 ; n = size of the sample

$$\text{Hence, } n = (1.96)^2 \cdot (0.11) \cdot (0.89) / (0.05)^2 = 150$$

Thus, the most conservative sample needed for the study was 150 respondents. Of this 150 a proportion of 1:5 was drawn from each of the selected divisions. The sample was increased to 260 respondents during data collections to allow for adequate numbers of patients visiting the various facilities to reveal their views on health care delivery services in the study. The included respondents were in possession of an in or outpatient card and number.

A combination of purposeful, simple random sampling and systematic sampling was used to select the final sample as follows. Kieni East and the Nyeri municipality divisions were purposefully selected. Secondly, facilities from two divisions used in the study were selected using random selection. The following sub groups of facilities were sampled: public hospitals, public health centers, and public dispensaries; private hospitals/private clinics; mission hospitals/mission dispensaries. In total, ten facilities were used in the study. Third, clients underwent interviews during the time of exits from facilities. Systemic sampling method was used to select the clients. This method suited the population because the population was heterogeneous. Sample sizes of the clients at various provider types and at different levels of health care were determined using their respective proportions in the population.

3.5 Data collection

A questionnaire with both open ended and closed ended questions was used in the study. The instrument was pre-tested at Nyahururu district hospital. The research assistant and the interviewers were recruited after under going an aptitude test.

The patients' interviews were conducted at the exit points of the facilities. The exit point of choice was the pharmacy because all clients pass through pharmacy to obtain drugs. The respondents were informed that the information they voluntarily gave was confidential. To ensure confidentiality the respondents were required to give their names during the interview. A number represented each respondent, and these numbers served as the unique identifier of the respondents.

3.6 Data Analysis

The collected data was edited to ensure its completeness, accuracy, uniformity, and consistency. The data was analysed using SPSS software whereby frequencies and summary statistics were obtained. Different analytical methods were use:

- Uni-variate analysis was used to compute the means and correlations of key variables.
- A bi-variant analysis was used to compare relationships between two variables, e.g. utilisation and age.
- Multivariate analysis was used to determine predictors of health care services utilisation

The estimating model in a multivariate regression took the form:

$$D = a + b_1x_1 + b_2x_2 + \dots + b_k x_k + e \quad \text{whereby,}$$

D = Number of visits; x_1 --- x_k = Explanatory variables; b_1 --- b_k = coefficients to be estimated and e = Error term

3.7 Ethical consideration

Prior to the commencement of the field activities, informed consent was sought from facility and community leaders. The respondents were informed that the information they provide was confidential. To ensure confidentiality a number was used as the unique identifier of each respondent

3.8 Limitation of the Study

- The sample of patients used in the study had voluntarily visited the facilities and so may not be representative of the whole population.
- Due to funding problems, the sample size is small and therefore its results may not be generalised to the whole population.
- The results could be improved by undertaking a household survey. However the researcher was limited in this regard by lack of adequate funding for the study.

CHAPTER 4: STUDY RESULTS

4.1 Respondents background characteristics

The specific demographic characteristics considered here included respondent age, sex and education level.

4.1.1: Age and gender of respondents

The results of the study show that majority of the respondents (50.4%) were between the age of 16 years and 25 years of age while only 2.3% were 15 years old and below. The mean age of respondent was 33.2 years (Table4.1.1a).

Table4.1.1a: Age distribution of respondents

Age in years	Frequency	Percent
0-15	6	2.3
16-25	131	50.4
26-35	86	33.1
36-45	19	7.3
46 and above	18	6.9
Total	260	100

Table: 4.1.1b: Gender distribution of respondents

Gender	Frequency	Percent
Male	64	24.6
Female	196	75.4
Total	260	100

The survey also collected data on the respondent gender. Women were the

majority (75.4%) among those who visited the health facilities while men were 24.6%. The results are summarized in table 4.1.1b.

4.1.2: Education

Education of the respondents categorized as none, primary, secondary, post-secondary training is shown in table 4.1.2. The study reveals that 51.5% had attained primary education, 29.1% secondary education, 6.1% had post secondary training, and 12.6% had no education at all. The mean number of years the respondents attended school was 8 years.

Table 4.1.2: Education level distribution

Education	Frequency	Percent
None	41	12.6
Primary	168	51.5
Secondary	96	29.1
Post-secondary	20	6.2
Total	326	100.0

4.2 Social economic factors

The social economic factor considered in the study included: income of respondents in the last one year; cost of services; access factors such as distance travelled, means of travel, cost of travel and means of travel to the facilities.

4.2.1: Respondents Income

Table 4.2.1: Respondents Income

Income in shillings	Frequency	Percent
12500-25000	139	53.5
25001-37500	58	22.3
37501-65000	21	8.1
65001-75000	17	6.5
Above 75000	25	9.7
Total	260	100

Income level of respondents indicates the capacity to pay for health services. Results of the study are presented in

table 4.2.1. Most (53.5%) of the respondents had an income of below 25000 Kenya shillings while only 7.7% had an income of above 75000 Kenya Shillings.

4.2.2: Cost of Services

As shown in table 4.2.2, the results of the study reveal that 66.5% of the paid 1-500 shillings for treatment. The number that did not pay anything at all for services was 27.5%. Respondents who could afford to pay above two thousand shillings were 3.5%. The percentage of respondents that did not pay included those who accompanied children less than five years (children less than five years do not pay for services), and those officially exempted due to inability to pay. Average cost of services was 121 shillings.

Table 4.2.3: Cost of health service

Cost in shillings	Frequency	Percent
No payment	69	27.5
1-500	167	66.5
501-1000	10	4.0
1001-1500	2	0.8
1501-2000	3	1.2
Above 2000	9	3.5
Total	260	100

The respondents also revealed what they spent on other non-health goods and service. Most respondents 48.8% spent 1-100 shillings while 45% did not spend anything. In addition, 3.5% spent 100-200 shillings and 3.8% spent above 200 shillings. On average, the clients spent 49.5 shillings to meet other needs such as lunches.

Information relating to the perceived cost of health care service of the respondents to pay for services was obtained. The respondents were asked to state whether the services were expensive. Majority (78.5%) said they were not expensive while 13.5 said they were expensive. This shows that most of the respondents are able to pay the money charged in the facilities.

4.2 Access factors to the facility

4.3.1: Distance travelled to facilities

Study results show that mean distance from clients home to facility 10 kilometres. Majority of respondents (83.8%), lived 1-20 kilometres from the health facilities, 5.4% lived 21-40 kilometres from the facilities while 4.6% lived less than a kilometre away from the health facilities (table 4.3.1).

Table 4.3.1: Distance travelled from home to facility

Distance in km	Frequency	Percent
Less than 1 km	12	4.6
1-20	218	83.8
21-40	14	5.4
41-60	6	2.3
Above 60 km	10	3.9
Total	260	100

4.3.2: Means of travel to the facilities and cost of travel

The study shows that most respondents used public means (49.6%) or walked to the facility (42.3%). The others either used their own means (6.9%) or hired transport (1.2%).

Table 4.3.2a. Means of travel to facilities

Means of travel	Frequency	Percent
Walked	110	42.3
Public means	129	49.6
Hired a vehicle	3	1.2
Own means	18	6.9
Total	260	100

The average cost of travel per visit was 24.4 shillings. The study results show that those who paid zero for travel were 47.7% including those who walked or used means such as bicycles, carts etc. Those who paid for travel in the range of 1-50 shillings were 42.7%. Those who paid above ksh200 were 0.4% (also see tables 4.3.2a&b)

Table 4.3.2b: Cost of travel from home to facility

Cost in shillings	Frequency	Percent
No payment	124	47.7
1-50	111	42.7
51-100	11	4.2
101-150	6	2.3
151-200	7	2.7
Over 200	1	0.4
Total	260	100

4.3.3: Travel time

The mean travel time was one hour. About 54.6% of clients used less than one hour to get to facilities; many respondents walked to the facilities. Some of the respondents took 1-2 hours (40%), others took 2-3 hours (3.5%), 3-4 hours (1.5%). Only 0.4% took more than 4 hours to get to the facilities (Table 4.3.3)

Table 4.3.3: Time taken from home to facility

Time in hours	Frequency	Percent
Less than1	142	54.6
1.01-2	104	40.0
2.01-3	9	3.5
3.01-4	4	1.5
Above 4	1	0.4
Total	260	100

4.3.4: Waiting time

Time taken to wait for health care at a facility is a good indicator of how well the facility lay out facilitates provision of health services. In addition, it indicates how well the facility systems and the procedures are working.

The mean waiting time was 2 hours. The percentage of clients who waited for less than an hour was 38.1%, while those who waited for 1-2 hours were 22.7%, Those clients who waited for 3-4 hours were 5.6%, with 6.5% waiting for four hours and above (table 4.2).

Table4.3.4: Waiting time at the facility

Time waited in hours	Frequency	Percent
<1	99	38.1
1.01-2	59	22.7
2.01-3	47	18.1
3.01-4	25	9.6
4.01-5	15	5.8
5.01-6	6	2.3
Above 6 hrs	9	3.5
Total	260	100

The sum of the travel time to a facility and waiting time at the facility is the total time a respondents spent seeking health care services. The study results show that 17.7 % took less than an hour to seek the services, 39.6% took 1-3 hours, 29.6% took 3-5 hours, and 13.1% spent 5-7 hours. The mean number of hours spent seeking health care services is 3 hours.

4.4 Provider factors

The facilities included in the study were sampled from among public hospitals, public health centers, public dispensaries, faith based and private facilities.

Table 4.4.0: Type of facility

	Frequency	Percent
Public Hospital	90	34.6
Public health centre	46	17.7
Public dispensary	42	32.7
Faith based	31	11.9
Private	31	11.9
Total	260	100

4.4.1: Quality factors

Respondents' perception of the facility's quality attributes revealed varying results. The respondents rated the facilities by scoring on a likert scale. The likert scale ranges from excellent to poor and through good to fair. The attributes used to rate the facilities are the attributes clients valued in a provider. The results are presented in table 4.4.1.

The respondents were asked how the staff behaved towards them during consultations. Sixty four percent of respondents said the attitude of facility staff was excellent. The percentage of respondents who said the attitude of staff was excellent were 65.4%, while 5.8% believed the attitude was fair. Only 2.1% said that the staffs were respondent unfriendly.

Table 4.4.1: Provider attributes rating

Rating/Attribute	Excellent		Good		Fair		Poor		Don't know	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Attitude of staff	170	65.4	66	25.4	15	5.8	7	2.1	2	0.8
Drug availability	110	42.3	70	26.9	51	19.6	29	10.8	1	0.4
Adequate diagnosis	98	37.7	83	31.9	68	26.2	6	2.3	5	1.9
Facility cleanliness	114	43.8	90	34.6	30	11.5	18	6.9	8	3.1
Confidentiality and privacy	170	67.7	58	21.5	14	5.4	8	3.1	5	1.9
Staff qualification	130	50	93	35.8	20	7.7	9	3.5	1	0.4
Condition of bed/ linen	119	45.8	73	28.1	32	12.3	14	5.4	19	7.3

The respondents disclosed whether they had been provided with the drugs prescribed and whether the medications were consistently in stock. Availability of drugs was rated "excellent" by 42.3% of respondents; "good" scored by 26.9% "poor" by 10.8% of respondents. Of the respondent interviewed, 37.7% believed that the diagnosis done by staff in the facilities was adequate and complete. In regard to cleanliness, the respondents were required to give an opinion as to the cleanliness of the facility in general. The respondent interviewed rated the cleanliness in the following way: excellent, 43.8%; and poor, 6.9%.

The respondent was asked to rate the examination areas and the behavior of staff during examination and treatment. Among the respondents, 45.8% and 5.4% rated them fair and poor respectively. The results indicate that 21.6% of the respondents rated the health care services in Nyeri are excellent; 50.8% as good; 25.8% as fair and 1.5% as poor.

4.4.2: Respondent overall waiting time in the facilities and of health services.

The respondents were asked to rate the general state of the facilities. Majority (51.5%) rated the facilities as good while 1.5% was dissatisfied with the facilities (table 4.4.2b). Further the waiting time was rated as average (51.1%) by most of the clients, while 26.2% believed the time was short (table 4.4.2a). In addition 82.2% respondents said that the services were not expensive and 17.7% thought they were expensive.

Table 4.4.2a: Rating waiting time

Rating	Frequency	Percent
Very short	68	26.2
Average	133	51.1
Too long	59	22.7
Total	260	100

Table 4.4.2b: Rating of facilities

Rating	Frequency	Percent
Excellent	51	19.6
Good	134	51.5
Fair	69	26.5
Poor	4	1.5
Total	260	100

4.4.3: Desired improvement for health services

Respondents' view on what they most desired to be improved indicates attributes most valued. From the results 57.7% wished that drugs be made available, while 16.5% wanted doctors made available in all health facilities. Some respondents wished waiting time be reduced (5.8%) and staffs change their attitude towards the respondents (6.2%)

Table 4.4.3: Rating of improvements

Rating/attribute	Frequency	Percent
Drug availability	150	57.7
Staff attitude	16	6.2
Availability of doctors	43	16.5
Waiting time	15	5.8
Schedules/hours	5	1.9
Staff availability	5	1.9
Cleanliness	7	2.7
Cost of services	11	4.2
Admission facilities	8	3.1
Total	60	100

4.5 Use of health care services

4.5.1: Frequency of health services

In order to obtain information on respondents' frequency of use of a provider, inquiring how often they had used the provider over the last one month captured the rate of visits by respondents to the provider. In addition, information on

frequency of use by their members of the family over similar periods captured the rate of visit by family members. Subjects were grouped into four groups: zero times, once, twice, three and above. The results show that 40% of the respondents interviewed at health facilities had not previously visited the facility; 35.4% had visited once, 15.4% twice and 9.2% more than 3 times.

Table 4.5.1: Number of times respondent visited facility over last one month

No of visits	Frequency	Percent
0 times	104	40
Once	92	35.4
Twice	40	15.4
Three times and more	24	9.2
Total	260	100

The provider type list provided information indicating the reasons for choosing a specific provider. Asked why they preferred the facility, 70.6% of respondents mentioned availability of drugs, 12.1% cited good attitudes of staff, and 7.01% said doctors were available, while 4.3% of the respondents were attracted by the nearness of the health facilities to their homes

4.5.2: Decision making in the households

The results of the study show that women make decision (37.7%) regarding whether to seek or not seek health care services more frequently than men (31.9%). Only 7.4% made self-decision to seek health care services

Table 4.5.2: Decision making in the family

Decision Maker	Frequency	Percent
Mother	98	37.7
Father	83	31.9
Guardian	18	6.9
Spouse	19	7.3
Employer	4	1.5
Both spouse	15	5.8
Self	19	7.4
Others	4	1.6
Total	260	100

4.6 Determinants of demand for health service

The determinants of health service utilization were analyzed using bivariate and regression methods. The log of number of visits to the facility was the dependent variable. The independent variables included log income, log fees, log travel time, gender, log age, log years of schooling and provider factors as perceived by the respondent.

The log of the variables was used because the relationship between the dependent variable and each of the independent variables is non-linear, e.g. the relationship between visits to the facility and the service fee paid by the respondent. The data was smoothed close to normal distribution using the logarithm of the individual data. The data was further subjected to bi-variant analysis whereby the different variables were correlated and found to be significant at 1% and others at 5% (Appendix 4). To determine the predictors of healthcare service demand, multiple regression analysis of the data was done. The economic/social demographic factors and the quality were added in sets and analysed while the access factors were added one at a time to minimise the effect of multi-co linearity (table 4.6).

The economic determinants of healthcare demand include log of income of respondents, log of fee paid for health services. These have a varying influence on utilization of health services. Income is negatively associated with health service utilization, but the income coefficient is not statistically significant. Service fee reduces health service utilization and its coefficient is significant at 5% level ($t=-2.12$). A unit percent increase in fee reduces utilization by 0.17%. This means that doubling the service fee will lead to a 17% reduction in utilization. Other factors affected utilization of health services as shown in table 4.6.1b. For example waiting time in the facility reduces utilization of services ($t=3.15$). A percentage increase in waiting time reduces utilization by 0.74%. Again, doubling waiting time, e.g. when a health facility is closed for public health reasons or a facility is not capable of providing a specific service and the respondent have to seek such services from facilities far away, reduces utilization by 74% if travel time increases by 100 percent. Other variables

affected utilization in varied ways, and were subjected to the same interpretations.

The R^2 squared indicates the predictive power of each of the models. The R^2 gives the percent change in visits explained by all the variables in the model. Results show that the overall strength of the model increases as the number of variables increases in the model.

Table 4.6: Determinants of health service demand ('t' statistics are in parentheses)

Variables	Models (dependent variable is No. of visits in the last 3 months)							
	1	2	3	4	5	6	7	8
Constant	3.480 (3.56)**	3.024 (2.80)**	3.589 (2.74)**	3.026 (1.92)**	3.032 (1.89)**	3.734 (1.64)**	3.613 (1.56)*	4.104 (1.88)**
Income	-.237 (-1.06)	-.231 (-1.02)	-.281 (-1.13)	-.224 (-.83)	-.224 (-.826)	.035** (1.64)	-.008 (-.21)	-.113 (-.31)
Service fee	-.167** (-2.12)	-.125 (-1.51)	-.136 (-1.48)	6.647 (.53)	6.636 (.53)		-.184 (-.58)	.101 (.33)
Age of respondent		0.002 (-.50)	-.004 (-.6)	-.001 (-1.23)	.009 (-1.21)	-.180 (-.091)	-.018 (-1.68)	-.006 (-.61)
Sex of respondent		0.372 (2.147)	.332 (1.78)	.138 (.698)	.137 (.66)	.206** (-1.75)	.187 (.63)	.068 (.24)
Years in school		-.002 (-1.21)	-.658 (-1.55*)	-.972 (-1.96)**	-.972 (-1.95)**	-1.590 (.710)	-1.589** (-2.04)	-1.547 (-2.12)**
Attitude of facility staff † (1-4)			.294 (2.31)	.223 (1.565)*	.223 (1.52)*	.589 (-2.06)**	.594 (2.65)**	.957 (2.83)**
Drug availability † (1-4)			-0.74	-.031 (-.29)	.031 (-.29)	-.169** (2.65)	-.168 (-1.18)	-.091 (-.68)
Completeness of diagnosis †(1-4)			(-.712)	.008 (.12)	.008 (.115)	.033 (-1.19)	0.038 (.351)	.024 (.23)
Cleanliness of facility † (1-4)			-.045** (1.673)	.030 (.50)	.034 (.50)	-.011 (.31)	-.007 (-.09)	-.280 (-.36)
Confidentiality †(1-4)			0.005 (-.79)	.005** (1.83)	.005** (1.82)	.005 (.14)	.005** (1.57)	.005** (1.73)
Staff qualification †(1-4)			0.044 (-.79)	.002 (.04)	.002 (.036)	.031** (1.60)	0.011 (.127)	.041 (.49)
In-patient facility † (1-4)			-0.006 (-.13)	-.015 (-.30)	-.015 (-.28)	.006 (.15)	-.001 (-.02)	.015 (.24)
Distance				-6.329 (-.52)	-6.328 (-.510)	-.217 (-.722)		
Means of travel					-.003 (-.22)	-.288 (-.639)	-.249 (-.53)	-.141 (.32)
Cost of travel						.483 (1.19)	.133 (.35)	.184 (.41)
Travel time							.133 (.35)	.306 (.85)
Waiting time								-.737** (-3.15)
R ²	0.02	0.05	0.103	0.1	0.1	0.210	0.209	0.312

** Significant at 5% level * Significant at 10% † Measurement on Likert scale -takes in values 1 for the most favourable and a value of 4 for the most unfavourable

CHAPTER 5: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

The study was carried out in ten health facilities in Nyeri district. The main objective was to determine how patient characteristics, quality and access factors of health care service influence utilization of health care facilities.

5.1.1. Respondents background characteristics

Patients' Demographic characteristics provide proxy variables of economic status and also may determine individual demand for health services. For clients and community, quality care is something that meets their needs. Since patients often differ in their preference, their personal satisfaction ultimately depends on the perception, attitude and expectations of each individual (Margaret Brawley, 2000). These perceptions, attitudes and expectations are acquired in different ways- through previous experience with a provider or through information from the community and are important in deciding the provider a person utilizes when seeking health care services. Many of the respondents who utilized the facilities were aged 25 years (50.4%), majority of whom were women (75.4%). These factors require consideration when planning for the health services.

Individual demand for health may be treated as a derived demand and a function of individual health status. Health care services, in combination with several intermediate (proxy) determinants of health such as environmental conditions, sanitation and nutrition; have a direct influence on health. Individuals aim to maximize the utility and expect to get value for their money. The study results indicate that a person value quality health care and utilizes the facilities where quality care is provided such as the hospitals facilities. This further explains why people by pass the primary health care facilities and opt for further hospitals.

Education promotes value and attitudes that provide incentive to use health care services. The results of the study indicates that most (86.8%) of respondent's

hand attained primary level education and among those who attained primary level 29.1% and 6.2% had attained secondary and post secondary level of education. This education level exceeds the national enrolment level of 73.5% in 2003(KDHS 2003). It is hypothesized that low education leads to low use of health facilities.

The extent of present health cares status is a determinant of use for health services. Women tend to manage illness episodes by determining when and where family members when ill seek healthcare and also decide on when and what kind of care they should receive. This is supported by the results of this study, which shows that women (37.7%) make decision when and where to seek health care services when sick. In theory, demand for health services by women exceeds that of men, a view supported by the study results that revealed that 75.4 percent were women.

5.1.2: Access to health care services

Both Mwabu and Mbugua (1995) concur that increase in user fee reduced (52%) utilization of public facilities in general. The fee paid for health services was significant at 5% confidence level. Since many of the people using the health facilities are women and children, the change in fee policy therefore mainly affected them, yet they are vulnerable and needs consideration.

Results show that many patients (83.8%) lived 1-20 km from the health facility. As indicated in the literature review, distance from the health facility did not have any effect on utilization as many by passed the primary health care facilities to visit the district and the provincial hospitals. The reason leading to this health-seeking pattern is attributed to the poor quality of health care provided in these facilities, which translate into inaccessibility. The poor quality in rural health facilities is related to lack of quality enhancements such as presence of theatre facilities, diagnostic facilities and the staffing levels. However, many clients walked (42.3%) to the facilities and the overload on the district and referral facilities can be reduced by improving the quality of health care at the primary health care level.

Those interviewed said that health facilities were at reasonable distances from their homes except for a few who were on referral from rural health facilities. Many (49.6%) patients used public means to travel to the facilities to seek health care and paid an average of 42.7 Kenya shillings. A multisectoral approach to dealing with improving travel obstacles to access health services is necessary.

Of importance is the travel time between the home and the health facility, which was shown to have an effect on demand though statically not significant. The travel time reduced utilisation of health care services. This could be due to the poor conditions of the roads that may be impassable during the wet seasons. Another factor that may contribute to this is the lack of adequate transport to and from the health facilities. Patients walk long distances to reach a point where transport is available.

The result from the study also shows that majority believed that waiting time was average (51.1%), and was statically significant at 5% confidence level. Waiting time of a service measures the efficiency of the processes, systems and procedures of a provider. Therefore it is important to note that 22.6% believed that the time is too long but those who were concerned with time improvement were only 5.8%. This observation could be result from the fact that most patients were using facilities of their choice. This also explains the observation that majority of patients believed that the services were not very expensive (75.5%). This means that the user fee is not a burden to the users of formal facilities, leaving room for the introduction of alternate funding mechanism. However for this to be acceptable and successful, it should be accompanied by quality improvement and cost containment (Diop, 1995).

5.1.3: Provider factors

For patients and community, quality care is something that meets their needs. Frequency of use of a facility indicates a high perception for the facility that the patient highly values the service. In his study, Denton (1991) reconfirmed that

quality is a major determinant of patient choice of health care providers. This view is supported by the results of this study, which captures the effect of quality attributes of the provider on demand of healthcare services in Nyeri district. The study shows Majority (62.9%) of respondents cited the attitude of health workers as excellent. Good attitude of staff rated second as to why patients utilize a facility.

The attitude of staff towards the patients was statistically significant at 5% and is related closely to the confidentiality of the provider; to this effect the results of the study shows that confidentiality/privacy is significant at 5% confidence level. If a provider relates poorly with the clients and they do not ensure confidentiality and privacy during and after serving their clients, utilization of the services they provide will be reduced. Another factor that affects utilization for the services and is closely related to how the client perceives provide is the level of education of the client and is significant at 5% confidence interval.

Drug availability was cited as the most important reason while patients used a facility (57.7%) though insignificant on its own but becomes significant in combination with access factors, supporting findings by Mwabu in 1996.

The quality of reproductive healthcare study (DISH, 1999) found out that patients often expected facilities to have well qualified personnel and laboratory technicians.

From the results, 16.5% of the respondent wishes doctors made available in the health facilities. Patients consider the provider consultation when judging quality of care. Low patient satisfaction of quality of care may arise from poor attitudes from health workers as well as from poor outcomes of treatments arising from the unobserved factors not captured by the data such as a bad reputation of a facility in the community- likelihood of misdiagnosis or even death.

5.1.4: Service Demand

Studies on the demand for medical care in industrial countries uniformly concluded that prices were important determinants of utilization of medical care (Manning et al, 1987). This is supported by the results of the study that shows that user fee is a determinant of health care in Nyeri District, and is statistically significant. However, there is no price elasticity of demand of health services in Nyeri district. To increase access to quality health care for rural populations and to sustain it, cost recovery should be accompanied not only by quality improvement measures, but also by cost containment measures especially if the communities are willing to pay for services.

Clients preferred the public hospital, which is further than primary health facilities, further supported by the low referral rates in the study area. Previous reviews show that people actually by passed these facilities and prefer the public hospitals that lead to creating an overload in these facilities. This overload is responsible for the bad attitude of staff to patients adapted to cope with long queues.

The study, after controlling specific access factors has isolated the effect each factor had on utilization. Waiting time was found to be a major determinant of health services utilization ($t'=-3.15$); this means increase in waiting time leads to marked reduction (by 74% if time is increases by a 100%) in use of the services. Other factors influencing utilization are price of services, education level of the respondents, and provider factors such as attitude of facility staff, level of confidentiality and privacy exhibited by the provide, drug availability and staff qualifications.

5.2 Conclusion and policy implications

The study analyzed patients' visits in ten health facilities in Nyeri district and utilization of health care services in these facilities. The main objective of the study was to determine how clients' characteristics, access and quality factors influence service utilization.

Clients' demographic and social/economic characteristics are proxies for the health status of patients and are key determinants of health services utilization. Access to services and its perception by clients influences health service utilization. The study has illustrated the critical role of clients' perception about service quality on visits to health facilities.

Service utilisation in Nyeri, like in other places, is inelastic with respect to user fees (Akin et al. 1986). The attitude of health facility personnel towards patients is a determinant of service utilization. Also education level of the respondent is statistically significant. Of most significance is the waiting time, which was significant at 5% ($t'=-3.15$)

5.3 Recommendations

- Based on the data from the health records office Nyeri District, the rate of utilization of health services in the government facilities is high, compared with the utilization rate in the private and the mission facilities. This may be due to proximity of government health facilities. User fees are a deterrent to health service utilization by the poor. Thus, the waiver and the exemptions systems in public health facilities should undergo reforms so that they can serve as proper safety nets for the poor. There is also need to implement alternate health financing such as a social health insurance scheme to ensure that everyone has access to good quality health care.
- To further encourage utilization of existing health facilities qualification of the personnel deployed in all facilities needs improvement. More highly-qualified staff such as doctors could be deployed to the rural facilities. However given the limited number of doctors in the country, government should facilitate supervision of primary health facilities by doctors. Patients' perception about adequacy of drugs and diagnosis at the health facilities affect health services utilization. The presence of a doctor in a health facility significantly increases demand for health services. Redesigning the facility layouts could reduce waiting time.

- Since most patients visit the nearest health facilities, efforts to improve the availability of drugs and diagnostic capabilities at these facilities are necessary. The private and the mission facilities should also adopt these improvement efforts and initiatives.

- Further research is needed to identify gaps among income groups and other vulnerable groups to yield insight into effect of perceived quality on utilization. Studies are needed to find out how patients perceive specific services.

- A community-based survey would improve on the results of the study because it can reduce the self-selection bias.

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APPENDICES

Appendix 1: Facilities in Nyeri District

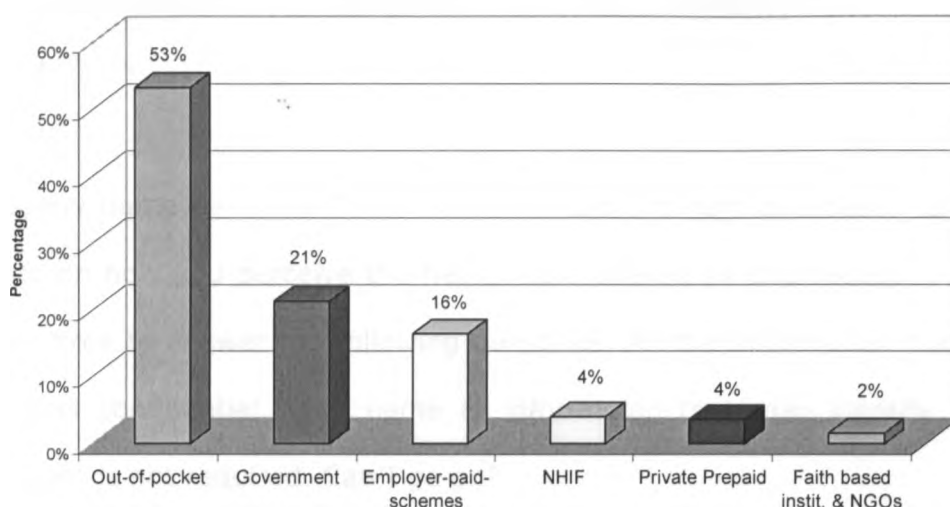
Type of facility	Number of facilities
Public hospitals [gok]	3
Public health centres [gok]	10
Public dispensaries [gok]	52
Private hospitals / homes / maternity	6
Private clinics / private dispensaries	111
Pharmacies	19
Mission hospitals	2
Mission dispensaries / health centres	19

Source: Nyeri District annual plan 2004

Appendix 2: Present sources of health financing in Kenya

The table below shows the present sources of health financing in Kenya being used to meet the targets (Republic of Kenya, 2003).

Figure2: Sources of Healthcare financing (Percentage Contribution)



Appendix 3: Mortality and nutrition (1984 – 2003).

Table 1: Infant and under 5 mortality, Kenya 1984 – 2003

Survey year	Applicable calendar year	Infant Mortality	Under five	Facility delivery	
				Antenatal	Deliveries
1989	1984 – 1988	60	86	78	50
1993	1988 – 1992	62	96	95	45
1998	1993 – 1997	74	112	92	44
2003	1998 – 2002	78	114	90	42

Source: KDSH 2003

Table2: Nutrition 1984 – 2002

Survey year	Applicable calendar year	Stunted	Wasted	Under Weight
1989	1984 – 1988	23	5	5
1993	1989 – 1992	29	5	20
1998	1993 – 1997	33	6	22
2003	1998 – 2003	31	6	20

Source: KDHS 2003

Appendix 4: THE STUDY QUESTIONNAIRE

Instructions

This interviewer-administered questionnaire applies to all patients attending health care facilities in Kieni East and Municipality divisions, Nyeri. Statement of consent

"Hallo, my name is-----and I'm part of a team carrying out a study on how you perceive the health care offered by this facility. I hope you will feel free to answer the following questions. All the information that you will provide is confidential. Your name or information that may identify you as a participant is not required. Can I go on?"

Name of interviewer-----

Registration number of interviewee-----

Date of interview-----

BACKGROUND OF CLIENTS & RESPONDENTS

	BACKGROUND OF CLIENTS	RESPONSES:	CODED Circle appropriately
1	Respondent date of birth	Day Month Year	01 02 03
2	Respondent gender	<ul style="list-style-type: none"> • Male • Female 	01 02
3	Client's date of birth	Day Month Year	01 02 03
4	Client's gender	<ul style="list-style-type: none"> • Male • Female 	01 02

5	Respondents' occupation	<ul style="list-style-type: none"> • Housewife • Professional • Casual labourer • Farmer/ businessperson 	01 02 03 04
6	Residence.	<ul style="list-style-type: none"> • Rural • Urban 	01 02
7	Respondents level of education	<ul style="list-style-type: none"> ▪ None ▪ Primary ▪ Secondary ▪ College training <p>Total number of years in school --- --</p>	01 02 03 04
8	Type of facility	<ul style="list-style-type: none"> ▪ Public hospital ▪ Public health center ▪ Public dispensary ▪ Mission hospital / dispensary ▪ Private hospital / clinic / pharmacy ▪ Alternative 	01 02 03 04 05 06

Economic factors

9	What is the distance from here to your home in kilometres?	<ul style="list-style-type: none"> ▪ Less than 1km ▪ 1-5km ▪ 6-10km ▪ 11-15km ▪ 16- 20km ▪ Above 21 km 	01 02 03 04 05 06
10	How much did you pay?	<ul style="list-style-type: none"> ▪ None ▪ 1-100 shillings ▪ 101-200 shillings ▪ 201-300 shillings ▪ 301-400 shillings ▪ 401-500 shillings ▪ Above 501 shillings 	01 02 03 04 05 06 07
11	What is the cost of other expenses such as lunch, purchases etc.?	<ul style="list-style-type: none"> ▪ None ▪ 1-100 shillings ▪ 101-200 shillings ▪ 201-300 shillings ▪ 301-400 shillings ▪ 401-500 shillings ▪ Above 501 shillings 	01 02 03 04 05 06 07
12	How long did you take to reach the facility from your home?	<ul style="list-style-type: none"> ▪ Less than an hour ▪ 1-2 hours ▪ 3-4 hours ▪ Above 5 hours 	01 02 03 04

13	How long have you waited since you arrived? What time did you arrive? -----	<ul style="list-style-type: none"> ▪ Less than an hour ▪ 1-2 hours ▪ 3-4 hours ▪ Above 5 hours 	01 02 03 04
----	---	--	----------------------

Health Services Utilization

14	How many times have you visited this facility in the last one month?	<ul style="list-style-type: none"> ▪ Once ▪ Twice ▪ Thrice ▪ Four times and more 	01 02 03 04
15	How many times have someone from your household beside yourself visited this facility over the past 1-month?	<ul style="list-style-type: none"> ▪ Once ▪ Twice ▪ Thrice ▪ Four times and more 	01 02 03 04
16	Were you referred to this facility today?	<ul style="list-style-type: none"> ▪ YES ▪ NO 	01 02
17	Where else would you prefer to seek further treatment apart from this facility?	<ul style="list-style-type: none"> ▪ Public hospital ▪ Public health center ▪ Public dispensary ▪ Mission hospital/ dispensary ▪ Private hospital / clinic / pharmacy ▪ Alternative 	01 02 03 04 05 06
18	Why do you prefer that specific facility?	<ul style="list-style-type: none"> ▪ Drugs are availability ▪ Staff attitude is good ▪ Availability of doctor ▪ Waiting time is short ▪ Schedule/hours are adhered to ▪ Staff availability ▪ Cleanliness of facility Nearest to home ▪ For specific service ▪ Services are cheaper 	01 02 03 04 05 06 07 08 09
19	Is this the first time you have been to this facility?	<ul style="list-style-type: none"> ▪ YES ▪ NO 	01 02
20	Apart from this illness, have you been unwell in the last one month? If yes where did you seek treatment? ----- -----	<ul style="list-style-type: none"> ▪ YES ▪ NO 	01 02

Facility Attributes

21	DIRECTIONS The following sets of statements relate to how the client feels about the Hospital services. For each statement please indicate the extent to which the client belief in each statement. Circling a '1' means that the RESPONDENT thinks the services are EXCELLENT and circling a '4' means the respondent thinks the services are POOR. You may circle any of the numbers in the middle that show how strongly the RESPONDENT feels. There are no right or wrong answers-all we are interested in is a number that best show the RESPONDENTS perceptions about the Facility.	How would you rate the following features of this facility (CIRCLE THE APPROPRIATE NUMBER) <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%;">Excellent</th> <th style="width: 10%;">Good</th> <th style="width: 10%;">Fair</th> <th style="width: 10%;">Poor</th> </tr> </thead> <tbody> <tr> <td>1. Staff attitude</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> <tr> <td>2. Drug availability</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> <tr> <td>3. Adequate & Complete-ness of diagnosis</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> <tr> <td>4. Cleanliness / places toilets</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> <tr> <td>5. Confidentiality/ privacy during diagnosis & treatment</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> <tr> <td>6. Staff qualifications</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> <tr> <td>7. Bed, bedding, & linen</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> </tbody> </table>					Excellent	Good	Fair	Poor	1. Staff attitude	1	2	3	4	2. Drug availability	1	2	3	4	3. Adequate & Complete-ness of diagnosis	1	2	3	4	4. Cleanliness / places toilets	1	2	3	4	5. Confidentiality/ privacy during diagnosis & treatment	1	2	3	4	6. Staff qualifications	1	2	3	4	7. Bed, bedding, & linen	1	2	3	4
	Excellent	Good	Fair	Poor																																									
1. Staff attitude	1	2	3	4																																									
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3. Adequate & Complete-ness of diagnosis	1	2	3	4																																									
4. Cleanliness / places toilets	1	2	3	4																																									
5. Confidentiality/ privacy during diagnosis & treatment	1	2	3	4																																									
6. Staff qualifications	1	2	3	4																																									
7. Bed, bedding, & linen	1	2	3	4																																									
For the following questions circle appropriately																																													
22	What are the most important things that you would want to see improved at this facility?	<ul style="list-style-type: none"> ▪ Drug availability ▪ Staff attitude ▪ Availability of doctor ▪ Waiting time ▪ Schedule/hours ▪ Staff availability ▪ Cleanliness ▪ Reduce cost of services ▪ Don't know 	01 02 03 04 05 06 07 08 09																																										
23	How would you rate waiting time in this hospital?	<ul style="list-style-type: none"> ▪ Very short ▪ Average ▪ Too long 	01 02 03																																										
24	How would you rate the overall services at this facility?	<ul style="list-style-type: none"> ▪ Excellent ▪ Good ▪ Fair ▪ Poor ▪ Don't know 	01 02 03 04 05																																										
25	What was your income last year in Kenya shillings	<ul style="list-style-type: none"> ▪ 125 000-25 000 ▪ 25 001-375 000 ▪ 370 001-65 000 ▪ 65 001- 75 000 ▪ Over 75 000 	01 02 03 04 05																																										

26	When a member of house falls ill who makes the decision about the facility to go to?	<ul style="list-style-type: none"> ▪ Mother ▪ Father ▪ Guardian(brother, sister, friend, cousin etc) ▪ Spouse ▪ Employer ▪ Others (specify) 	<p>01</p> <p>02</p> <p>03</p> <p>04</p> <p>05</p> <p>06</p>
27	Do you think the health services are too costly?	<ul style="list-style-type: none"> ▪ YES ▪ NO 	<p>01</p> <p>02</p>
28	How much did you spend on health last year?	<ul style="list-style-type: none"> ▪ Figure----- 	
29	Do you think the health services are too costly?	<ul style="list-style-type: none"> • YES • NO 	<p>01</p> <p>02</p>
30	What other areas did you spend your earnings on apart from health last year?	<ul style="list-style-type: none"> • Education • Food • Clothing • Others 	<p>01</p> <p>02</p> <p>03</p> <p>04</p>
31	Type of House the respondents lives in.	<ul style="list-style-type: none"> • Own/ rented • Type of roofing type of wall • Number of rooms • Ownership of land 	
32	Marital status of respondents	<ul style="list-style-type: none"> • Never married with children • Never married without children • Married • Divorced/separated • Widowed 	<p>01</p> <p>02</p> <p>03</p> <p>04</p> <p>05</p>

THANK YOU AGAIN FOR RESPONDING TO MY QUESTIONS

Appendix 5: Correlation Matrix for factors that affect Demand for health care services

Variable		A	B	C	D	E	F	G	H	J	K	L	M	N	N	O	P	Q	R
No. of visits	A	1.000																	
Income (sh)	B	0.107 0.092	1.000																
Service fee	C	0.078 .212	.074 .244	1.000															
Distance	D	.021 .738	.085 .183	.134** .033	1.000														
Means of travel	E	.078 .213	.080 .207	.178** .004	.332** .000	1.000													
Cost of travel	F	.035 .579	.061 .343	.233** .000	.519** .000	.275** .000	.000												
Waiting time	G	.015 .806	.002 .980	.047 .456	.097 .122	.014 .828	.205** .001	1.000											
Age of resp	H	.006 .917	.146** .020	.095 .126	.122* .052	.005 .930	.188** .003	.028 .649	.000										
Sex of resp	J	.041 .510	.001 .986	.002 .978	.009 .881	.251** .000	.007 .913	.056 .368	.055 .373	1.000									
Yrs in school	K	.004 .948	.151** .017	.240** .000	.022 .723	.125* .045	.091 .151	.033 .591	.126** .042	.119* .054	1.000								
Attitude of staff †(1-4)	L	.162* * .009	.063 .322	.005 .936	.098 .119	.055 .378	.036 .570	.037 .557	.044 .486	.055 .378	.023 .718	1.000							
Drug Availability †(1-4)	M	.098 .115	.002 .972	.065 .300	.016 .797	.006 .929	.009 .886	.226** .000	.041 .509	.085 .171	.069 .267	.246** .000	1.000						
Complete Diagnosis †(1-4)	N	.029 .115	.132** .036	.067** .283	.051 .415	.069 .272	.039 .537	.026 .680	.029 .642	.063 .311	.057 .361	.017 .784	.204** .001	1.000					
Confidentiality †(1-4)	O	.001 .982	.007 .012**	.015 .804	.000 .997	.020 .750	.018 .776	.092 .138	.020 .752	.015 .805	.054 .385	.127** .042	.037 .557	.030 .633	1.000				
Staff qualification †(1-4)	P	.038 .541	.047 .459	.074 .234	.070 .268	.025 .685	.087 .167	.018 .775	.063 .310	.041* .0511	.058 .351	.162** .009	.045 .466	.223** .000	.120 .055	.108 .083	.000		
Beds/bedding/linen †(1-4)	Q	.001 .989	.054 .396	.035 .579	.082 .192	.170** .006	.067 .288	.027 .666	.042 .504	.15** .014	.098 .115	.148** .017	.040 .527	.002 .977	.248** .000	.000 .996	.250** .000	.000	
Type of facility	R	.002 .972	.134** .034	.279** .000	.146** .020	.041 .512	.118 .061	.257** .000	.034 .588	.050 .420	.164** .008	.076 .225	.397** .000	.078 .213	.380** .000	.073 .244	.006 .929	.173* .005	.000

• Correlation is significant at the 0.01 levels. ** Correlation is significant at the 0.05 levels.

† Measurement on Likert scale –takes in values 1 for the most favorable and a value of 4 for the most unfavourable