Determinants of Provider Preferences for Utilisation of Oral Health Care Services in Uganda: A Rural – Urban Comparison

by

Annette Nannyonjo Mbaziira (BDS. Hons)
MBZANN002

Thesis submitted to the University of Cape Town in partial fulfillment of the requirement for the award of a Master's degree of Public Health

Faculty of Health Sciences
University of Cape Town

June 2005

Supervisor: Dr Michael Thiede
Health Economics Department
University of Cape Town

Declaration

I, Dr Annette Nannyonjo Mbaziira hereby declare that the work on which this dissertation is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree at this or any other university.

I empower the university to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

_____

Dr Annette Nannyonjo Mbaziira

Date.....

Acknowledgements

Firstly, I would like to thank the Swedish International Development Co-operation Agency for the financial support that has seen me through the entire course. Special thanks go to the Health Economics Unit and the School of Public Health and Family Medicine at the University of Cape Town for their guidance and support, which has enabled me to complete my master's degree.

My sincere gratitude goes to Dr Michael Thiede, my supervisor, without whose guidance and encouragement I would not have successfully completed this dissertation. Many thanks go to Mr. Okore Okorafor for his time and assistance during my write-up.

Secondly, I wish to thank the Director of Mulago hospital and the medical superintendents of Masaka, Iganga, Kalisizo and Nkozi hospitals without whose permission to access their hospitals, some of the information would not have been obtained. Sincere thanks go to the dental practitioners working in the above hospitals as well as the health centers – Komamboga HC, Nsinze HC, Kaliro HC, Nambaale HC, Mpugwe HC and Namungwale HC – and the private clinics – St Andrew's clinic Gaba, St Paul's clinic Iganga, St Jude's clinic Iganga, Byansi clinic Kawempe and Pilkington clinic in Kampala – who encouraged the respondents to participate and also assisted in conducting some of the interviews.

I am highly indebted to all the research assistants with whom I conducted the study. Special mention goes to my sister and right-hand research assistant Ms Matilda Nannindwa, Ms Dawn Bisuuti and Fr F. X. Mayinja (Jr) for their dedication towards this cause.

I would also like to thank all the respondents for the time they gave up to participate in the study. Their unconditional acceptance and willingness to remain behind after treatment, so as to be interviewed, was commendable. Without them, the study would not have been realised.

Last but not least, I would like to thank my classmates and in particular my friends, Mrs Kate Kikule, Ms Rosette Kyomuhangi, Dr Lennie Kyomuhangi and Dr Mercy Kamupira, for their encouragement and support especially during the rough times. Life would not have been the same without you.

Dedication

I would like to dedicate this thesis to my husband Mr. Leonard Matovu Mukasa and my children Leone and Louis whose unconditional love and constant prayers have seen me through this course. I also dedicate it to my sister Mrs. Marie Kiggundu who, uncomplainingly, cared for my children during the times when I was away from home. Lastly, I dedicate it to my parents, Mr. and Mrs. Mbaziira who committed themselves to laying the foundation for me. My brother Toine, thank you for your constant support.

"God bless you all"

Abstract

The demand for health care has been addressed by many researchers in health economics, which is indicative of the important role it plays in the assessment of health service provision and utilisation. However, studies on demand for oral health care are limited, especially in the developing country context. Determining the factors that influence the utilisation of oral health care services and their effect on choice of oral health care providers is instrumental in evaluating a government's commitment to addressing the barriers that impede the provision of equitable health care services.

Quantitative and qualitative methods of collecting and analysing data were used. An analytical cross-sectional study was employed to examine the demand for oral health care in rural and urban districts of Uganda. It distinguished between determinants of individuals' choice of oral health care providers in both the public and private sector. Interviewer administered questionnaires were completed by 493 patients from five different districts. The qualitative part combined focus group discussions and in-depth interviews of key informants within the selected districts.

The quality of oral health care was found to have a significant effect on demand for health care. The definition of quality in this study includes the availability of drugs, the availability of providers, preferably with a good attitude towards their patients, and a good facility environment. The cost of health care did not have as much an effect on the demand for oral health care as had been expected. Cost issues mainly included factors such as payments at the facilities, consultation fees and informal fees. Other determinants include the distance between the facility and the patient's home, and the severity of the patient's oral health condition. Socio-economic and demographic factors, namely age, gender, education and income, were also assessed.

The study recommends that more zealous oral health promoting programmes be conducted and that these should involve dentists disclosing more oral health information to their patients during and after treatment. The greater part of the population has poor access to oral health care services, and thus the study advocates that the government makes available more resources for this cause. It also suggests

that pre-payment schemes be made part of the financing mechanisms, especially for the less affluent, so as to enable them to access health facilities when the need arises.

This report begins with an overview of the country's background and how the Ugandan oral health care system operates. Chapter Two reviews the existing literature on issues of demand and determinants of choice of health providers, whereas Chapter Three addresses the methods and analyses of the study. Thereafter, the report presents the analyzed study results, giving a brief discussion of these in Chapters Four and Five respectively. Finally, it suggests ways of providing more equitable services, and improving oral health care service provision in the country of Uganda.

TABLE OF CONTENTS

CONTENT **PAGE**

List of Tables

List of Figures

List of Acronyms

AAR:	African Air Rescue
AIG:	American International Group
HC:	Health Centre
IAA:	African Air Ambulance
PHDO:	Public Health Dental Officer
MOH:	Ministry of Health
SID:	Supplier Induced Demand
UPE:	Universal Primary Education
UNDP:	United National Development Programme
UNCST:	Uganda National Council for Science and Technology

Some definitions

Quality of health care: The degree of excellence of health care as measured against other similar health care received by the patients.

Extraction: Careful removal of a tooth from its socket, normally by a dentist.

Anaesthesia: Drug or gas that prevents one from feeling pain and is used mainly during surgical procedures in health facilities.

Sterilise: Term used to describe complete destruction of living organisms or any procedure that renders an atmosphere free from bacteria and other germs. The commonest methods used in Uganda are boiling, autoclaving or chemical methods.

Endodontic treatment (Root canal therapy): It is a type of conservation involving treatment of disorders of the pulp whose nerves and blood vessels have been damaged or have died. It involves the removal of pulpal remnants and cleaning and obturation of the resultant space, in order to prevent bacterial proliferation within the canal system. The purpose of the treatment is to remove bacteria and to disinfect the root canals as a means of saving the tooth.

Restorative treatment: Fillings are the commonest type of restorative treatment. It means that the dentist places material into the tooth to replace decayed tissue and restore its function.

Chapter One

BACKGROUND TO THE STUDY

1.1 Introduction

Dental services have often been perceived as similar to general health services. Yet, it is evident that the two differ in several aspects. According to Sintonnen and Linnosomaa (2000), dental care differs from general health care in that dental diseases are generally easier to diagnose and that their progression is more predictable. Dentistry is also regarded as one of the least diverse of the health professions (Oral Health Summit 2002), as it deals with comparatively few diseases. Another feature that distinguishes dental services from other medical disciplines is that it is simpler for individuals to make decisions about the timing and choice of oral health care providers, since dental health problems are usually not life threatening and as there is a very low risk of spreading dental diseases across individuals.

Moreover, oral health care services involve the use of technical equipment, which makes these services comparatively expensive in developing countries. Tight government budgets pose limits on the procurement of adequate equipment of dental technology at the public health centres. In many developing countries, therefore, access to oral health care is highly inequitable. Due to financial constraints, the number of dentists employed by government to work in the public sector is small, and they are poorly paid. There is, therefore, a tendency for newly qualified dentists to either join private practice or search for what are perceived as "greener pastures" abroad. This reduces the number of dentists that are available to meet the demand for oral health care in Uganda. Selecting a provider can thus be challenging, considering these and other barriers, such as geographical access, reputation and customer care of the health care providers, cost of treatment, supply of essential drugs, income and education, among others. The prevailing situation is that the rural population is faced with a limited choice of oral health care providers, which has led to some unqualified people practicing dentistry (Barton & Barton 2004).

There have been very few studies done on demand for oral health care services in Uganda, or on factors that determine an individual's choice of oral health care providers. By examining health care demand and preferences in the utilisation of oral health care services, taking into account

both the public and the private sector and any other choices that will be identified, this study intends to make a comparison in utilisation choices between individuals in rural and urban settings. The findings of this research are intended to address the inequities and malpractices that have been noted in oral health service provision and that duly inform Ugandan health policy.

1.2 Demographic indicators

The Republic of Uganda is located in East Africa and is bordered by Kenya in the east, the Democratic Republic of Congo in the west, Sudan in the north, Tanzania in the south and Rwanda in the southwest. It has a population of about 25.2 million people (Uganda Bureau of Statistics 2003), with an annual population growth rate of 3 percent. About 51 percent of the population is female and 49 percent male, with a life expectancy at birth of 50.8 and 47.9 years for females and males respectively (Ministry of Health 2004b). Uganda's fairly high infant mortality rate of 88 per 1000 live births (Ministry of Health 1999) indicates that health care services are still inadequate.

Although Uganda has been popularly known as the "Pearl of Africa" since British colonial days, it is one of the world's 20 poorest countries with a Human Development Index of 158 (United Nations Development Programme 1998). Approximately 46 percent of its people are living in absolute poverty (Ministry of Health 1999). Nonetheless, it has substantial natural resources in the form of fertile soils and regular rainfall, making agriculture the main source of income for more than 80 percent of the Ugandan work force (Wikipedia 2005).

The country is made up of a number of regions and 56 districts named after their chief towns (Wikipedia 2005). Uganda has adopted a system of decentralization. All resources and information from the central government are thus received at the district before being dispatched and disseminated to the relevant recipients. The districts are further divided into divisions for Kampala, and counties, sub-counties, parishes, and sub-parishes for the other districts.

1.3 The Ugandan oral health care system

Ministry of Health (MOH)

The highest level of oral health care service is provided at the Ministry of Health where a few dental surgeons work. In Uganda, a dental surgeon is trained to carry out preventive, curative and

restorative treatment, to supervise subordinates and to carry out some administrative functions. At the Ministry of Health, there are two positions for dental surgeons, namely a principal dental surgeon who is in charge of clinical services and a senior dental surgeon in charge of community health. The Director of Dental Services has recommended that more posts for dental surgeons be made available at this level (Director of Dental Services, personal communication).

At the community level, the nature of commonly required oral health care is the relief of dental pain. Public and private oral health care providers in Uganda carry out this service, and they function as completely separate entities. It is hoped, however, that these two sectors will in future harmonize their activities so as to achieve economies of integration (Birungi, Mugisha & Nsabagasani 2001).

1.3.1 The public health sector and its role in the provision of oral health care

The organisation of health care delivery may largely affect the cost effectiveness of health services. In Uganda, the public health sector is still relatively weak. There seems to be a lack of commitment to effective and equitable health care provision. Some government health workers either provide services privately for a fee in government facilities instead of, or in addition to, the services they are supposed to offer (Birungi, Mugisha & Nsabagasani 2001). Others work a few hours at the public facilities and for the rest of the day retire to their private practice. Additionally, the public health care system operates as a private system with materials and financial inputs from government serving as subsidies for the private sector (Jitta 1993). Such public health services are provided through government hospitals and health centres. These health facilities may provide both medical and dental or only medical services.

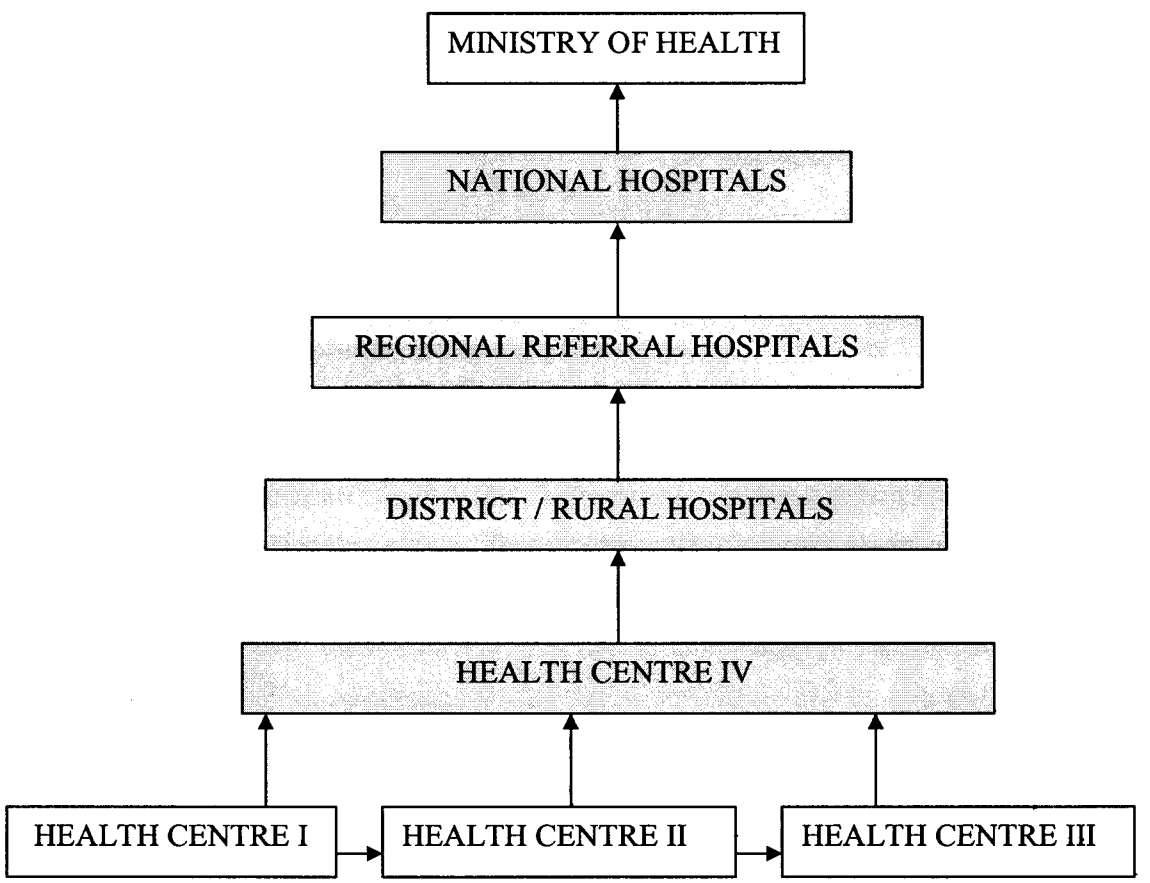
Health Centre Grades I, II & III

Health Centre Grade I (HC I) is the lowest level of health care provision and is normally run by a nursing assistant. It handles first aid and minor ailments. Health Centre Grade II (HC II) operates at a parish level. The health policy recommends that two nurses and two nursing assistants manage this facility. It offers the basic health care requirements, namely outpatient care, antenatal care, immunisation and general outreach programmes.

Health Centre Grade III (HCIII) serves at sub-county level, and on top of providing all the above services, it offers in-patient and environmental health care. In addition to the staff at HC II, a HC

III usually has a clinical officer, an additional nurse, a laboratory assistant, a health assistant and a records officer. According to the Director of Dental Services, the government has not yet made provision for the delivery of dental services at these centres. However, a National Health Infrastructure Development and Maintenance Plan is underway to elevate all the above centres so that they will be able to provide community based preventive and promotive health services (Ministry of Health 2000). The public sector's health care system is organised as depicted in Figure 1 below:

Figure 1: Organisation of the public sector



Note: The coloured parts signify the health facilities at which, according to government plans, oral health care is provided.

Health Centre Grade IV

Health Centre IV (HC IV) is where all the health plans for the sub-district are made. In addition to all the services offered at Health Centre III, HC IV also carries out surgical procedures. HC IV

supervises the lower level units I, II and III. Health data are also collected and analysed at this level. One medical officer, two clinical officers, two nurses, one laboratory assistant, a dispenser, an anaesthetic assistant and one public health dental officer (PHDO) generally run the health centre (Ministry of Health 2000).

At present, it is the government's policy to have dental personnel up to Health Centre Grade IV only. The PHDO who serve at this level carry out basic curative and major preventive tasks. They are also responsible for outreach programmes. PHDOs go out to the communities and educate the population on oral health care at the Health Centres II and III on particular days. They also help with emergencies in those areas as needs arise. It should be noted, however, that, despite such recommendations, many HC IVs neither have dental personnel working there nor do they have access to regular resources to conduct these outreach programmes.

District (Rural) Hospitals

According to Uganda's health policy, every district should have a government hospital, also known as a rural hospital. This recommendation has not been effected in all the districts. For example, most of the recently introduced districts do not have district hospitals. The rural hospitals mainly offer general health services, manage special cases from the lower health centres and refer complicated ones to the referral hospitals. The district hospitals should ideally have at least one dental surgeon and two PHDOs. The recruitment of dental personnel at the district level is by the District Service Commission. This is because there is decentralisation, which means that each district identifies its priorities and recruits according to both need and resources available for the purpose.

Regional Referral Hospitals

Complicated cases from private and public health facilities are referred to regional hospitals. These are also teaching hospitals and act as resource centres in the regions in which they are located. According to the Uganda Demographic and Health Survey 2000-2001, regional referral hospitals offer a mixture of referral, general and specialist hospital services (Uganda Bureau of Statistics 2001). All the above functions depend on the availability of specialists, drugs and supplies. The hospitals also provide technical and capacity building services to the staff in the lower level health centres. The newly drafted dental policy recommends that each regional referral hospital have at least two dental surgeons and three PHDOs (Director of Dental Services, personal communication). Not all the regional referral hospitals are in the same situation. Some of

them, for example Hoima and Kabaale, have only one dental surgeon. Masaka hospital, in contrast, has six PHDOs but no dental surgeon. It is the responsibility of the Health Service Commission to recruit dental personnel to meet the requirements of these regional hospitals.

National Referral Hospitals

There are two national referral hospitals, namely Mulago and Butabika Hospitals, which offer a wide range of specialist services. Mulago Hospital serves as the national referral and teaching hospital. Although Butabika Hospital offers some dental services, it deals mainly with mental disabilities. All major oral health cases are referred to Mulago Hospital, and it is also the referral hospital for the central region. It provides the Minimum Health care Package for a large number of residents of Kampala and neighbouring districts. The human resource capacity of Mulago Hospital is 1,636 (Uganda Bureau of Statistics 2001), with eight PHDOs and fourteen dental surgeons instead of the seventeen outlined in the health policy.

Mulago has a department of oral surgery, an outpatients' dental clinic department and a dental school. The oral surgeons of the department of oral surgery carry out mainly surgical procedures. At the dental clinic, dental surgeons attend to the private patients who pay for their treatment, and PHDOs serve the general non-paying patients. Dental technologists and technicians also operate here. Dental treatment is also carried out at the Dental School. Here we find an orthodontist, a prosthodontist, an oral surgeon, an oral pathologist, an oral radiologist, a periodontist and dental surgeons. In addition to treating patients, the above oral health care personnel also offer training services. Such a diversity of oral health care personnel is only found at the national referral hospital and within the private sector.

1.3.2 The private sector and its role in the provision of oral health care

The private sector is a major provider of health care and service delivery in Uganda. It is estimated that as much as 79 percent of curative care is provided by the private sector and only 21 percent by the public sector (Hutchinson 1998). Currently, the private sector includes all forms of providers ranging from formal to informal entities. It consists of private not-for-profit providers, which include non-government organisations and missionary hospitals, and private for-profit providers, which include formally registered clinics and hospitals as well as informal non-registered ones. Most private facilities are concentrated in the urban areas, where they serve both the poor and the rich. The rural populations are generally poor and mainly depend on public

health care centres and missionary private hospitals (private not-for-profit) for oral health care. There are very few private clinics in the rural areas.

This sector encompasses all the oral health care cadres mentioned above in Section 1.3.1. The only maxillo-facial technologist in the country who used to work in the public sector has since retired and joined the private sector. Some of the health personnel who work in the public sector also work in the private sector. A number of traditional practitioners also offer private oral health care services, as the Health Policy recognises the traditional practitioners as partners in the provision of health care (Ministry of Health 2000).

1.4. How the Ugandan oral health care system operates

Uganda is a former British colony that gained independence in 1962. By that time, there were only about ten oral health care workers, all of whom were dental surgeons who had been trained abroad, and who were now serving about seven and a half million people (Ministry of Health 1989). Now the country trains its own dental surgeons and PHDOs. The first two Ugandan trained dental surgeons graduated in 1987 and, until recently, Makerere University Dental School had been admitting an average of ten dental students for the course every year. The number has risen because a few privately sponsored students are now being admitted for this five-year course too (Ministry of Health 2003a).

Qualified dentists work for the government in hospital dental clinics, although most of them supplement their income by working at private clinics. The oral health care workforce by 2003 constituted of about fifty dental surgeons and three hundred PHDOs (Muhirwe 2003). This number is low because of the so-called 'brain drain' through migration, deflections and deaths The country has been investing large amounts of public funds in training dental personnel only to see its efforts stifled by migration from health to other sectors, from the public to the private sector, and from Uganda to more industrialised countries. This is not at all surprising because, apart from the mandatory year of internship, the government has not put in place any strict regulations to ensure retention of its health care professionals. Until recently, the government used to decide where newly qualified dentists were sent to work. There is now a policy of non-recruitment of intern doctors into the public sector due to government's inability to provide a living wage even for its existing health professionals.

The distribution of qualified dental personnel is geographically inequitable, with about 80 percent of dental surgeons and 50 percent of PHDOs being concentrated in the urban areas (Muhirwe 2003). This means that the people in the rural areas have to travel long distances to receive specialised treatment. For this reason, many rural dwellers end up going to unqualified or traditional 'dentists' for treatment (Barton & Barton 2004). The lack of proper epidemiological data for oral health care moreover makes it difficult to predict the human resource needs in the rural areas (Birungi, Mugisha & Nsabagasani 2001).

The government's national referral hospitals and regional referral facilities consist of general clinics where treatment is free and of private clinics where user fees apply. Cost sharing, which had been introduced in the 1990's as part of a structural adjustment programme, was abolished at the government-run health centres in 1999/2000, so district or rural government hospitals and HC IVs are expected to provide free services. Although the general government clinics are not subjected to user fees, some patients do end up paying out-of-pocket to ensure faster dental services thus promoting informal payments. The fact that there is a short supply of drugs and other consumables at the public health facilities exacerbates the situation.

At present, the Ministry of Health has not placed adequate emphasis on oral health care but it has identified it as an essential health care programme in the Uganda National Minimum Health Care Package (Ministry of Health 1999; Barton & Barton 2004). This is because Uganda has to put aside what it considers to be less grave conditions (such as oral and mental health) to concentrate on more life-threatening diseases, namely HIV/AIDS, tuberculosis and malaria. HIV/AIDS currently affects about 5.8 percent of adults in the productive age group of 15-49 years (Ministry of Health 2004b).

1.5 Problem statement and rationale of the study

In Uganda, as in many other sub-Saharan African countries, government plays an important role in the provision of oral health care services through fiscal resource allocation. However, it does not give dental services the same recognition as it does other medical services, which is reflected in the low allocation of resources to dental services. This tends to create inequities in the provision and utilisation of those services.

Knowledge about the determinants of health care utilisation is essential for policymakers in order to design programmes with the aim of improving access to health services, including oral health care. Apart from the predicament of meagre resources being allocated to oral health care, many other barriers need to be addressed too. The people in the rural areas suffer from a number of dental diseases but are the least likely to attain services (Barton & Barton 2004). The ratio of dentist-to-population is low, with a large proportion of the population not receiving adequate oral health care. In Africa, the dentist-to-population ratio is approximately 1:150,000 (World Health Organisation 2004). Worse still, the professional incentives to serve the underserved are inadequate, as only a few dentists willing to work in the rural areas. Furthermore, knowledge about oral health care is insufficient and the educational system is only just beginning to address issues of oral health education in schools.

While some research has been done on the utilisation of specific health services in Uganda, no study has been published regarding patient's choice of oral health care providers in the country. Little information exists on the specific factors that determine people's demand for and choice of oral health care providers. It is important to assess these factors and the impact they have on utilisation of services so that they can be properly addressed by policy. The results obtained by means of this research study might also be of interest to health economists and to members of the dental fraternity.

Since dental and general medical services differ in a number of aspects, the information will serve to emphasise how the factors have different impacts on these services, with the aim of according dental services the recognition and financial resources they deserve. This will also serve to increase the accessibility of dental services to the underserved as well as avoid wastage of resources through unnecessary duplication of services.

Little information exists on the equity implications in the distribution and provision of oral health care services in the country. The study will contribute to this information pool and, in turn, to the improvement of equity in service provision in Uganda.

1.6 Main objective and specific objectives of the study

Main objective:

The main objective of this study is to determine the factors influencing the utilisation of dental services and how these affect patients' choices of oral health care providers in order to inform health policy in Uganda.

Specific objectives:

The specific objectives are:

- to assess socio-economic and demographic factors that influence the patient's choice of dental service provider;
- to compare the impact of those determinants between urban and rural settings;
- to provide information that will assist policy makers to improve the provision of oral health care services in a developing country context.

Chapter Two

REVIEW OF LITERATURE

2.1 Introduction

This chapter offers an overview of the existing literature and theories on the demand for health and health care This demand can be analysed within two generalised approaches; namely the Grossman model and agency theory. The current chapter also gives some insight into the characteristics of health and health care as a commodity. Literature on how oral health diseases impact on demand for health care is also presented. Factors that have been known to influence the demand for health care and their possible effects on choice of oral health care provider are also presented, along with some empirical studies in substantiation of my argument.

2.2 The theoretical background of demand for health care

Individuals usually make their own health care choices. They choose when and how often to visit the health care provider. Making these choices may not be straightforward, as one has to consider the risks, benefits and opportunity costs involved. Seeking advice from friends, relatives and health care providers further complicates these decisions (Jack 1999). Two alternative models are often used to describe individuals' choices around health care utilisation. Firstly, health could be treated as a stock variable within a human capital framework. Grossman (Grossman 1972) pioneered this approach. According to this line of argument, people consume health care not only because they value health per se but also because health represents an input into the household production function (Jack 1999). Secondly, health care and therefore dental care too could be regarded as one of the many commodities around which individuals have well defined preferences. Health care can be demanded, supplied and distributed. These characteristics of health care contributed to the development of another approach known as the agency theory. The Grossman model and the agency perspective on patient-doctor relationships provide different but complementary explanations for the demand for health care and each will be looked at in detail.

The Grossman model

Grossman's approach to exploring health care choices was to treat health as a stock variable within a human capital framework (Grossman 1972). Grossman related human capital to increases in an individual's stock of knowledge and skills (education). Health and education were viewed as an individual's form of human capital, and wealth as the external financial capital (Becker 1965). The Grossman model (Grossman 1972) considered health and wealth as two interrelated assets. Using this model, Grossman demonstrated that consumers demand health and health care for two reasons. Firstly, utility is derived from pure consumption, that is, health care is demanded because it directly generates utility (e.g. pain relief). It also facilitates better performance of the necessary tasks in the labour market. Simply put, one has more time and energy for production and consumption when one is healthy. This implies that disutility results from sickness.

Secondly, health is demanded for investment. Initially, an individual inherits a stock of health. This stock depreciates over time. The individual is then expected to invest in medical care, combined with other inputs, to produce new health that partly counteracts the gradual 'natural' deterioration of health (Muurinen 1982). By engaging in health promoting behaviour, one increases one's health capital stock, whereas certain detrimental behaviours reduce it. This implies that individuals determine their amount of health stock and, therefore, their life span.

However, this model could be criticised in that it overstates the control an individual has over his health status and life in general. Grossman proposed that individuals invest in health stock in order to attain a longer life span. It conversely implies that individuals can also choose their time of death by not investing in health. In other words, by not investing enough in health stock, the rate of depreciation and loss of health stock might reduce one's life to mere days or hours (Zweifel and Breyer 1997). As this is clearly unrealistic, this notion is therefore not favourable for long-term decisions about health issues.

Grossman also ignores the role played by risk and uncertainty in an individual's life. The model has been found to be unrealistic as a description of the inherently uncertain area of health and utilisation behaviour in that its main part is based on the assumption of complete certainty (Muurinen 1982). The uncertainty of one dying of natural disasters, such as earthquakes, floods, accidents etc., over which one has no control and in which one cannot make any stock investments, was not considered. People take risks in order to achieve wealth and, therefore,

health. For example, many women still practice prostitution as their sole source of income, yet it is definitely known to have a negative impact on their life spans and is therefore regarded as a risky occupation.

Grossman's model indicates that health is demanded either for purposes of consumption or for investment. It regards the health benefits as alternatives. The criticism here is that these two health benefits should not be regarded as alternatives but as complementary (Muurinen 1982). Furthermore, the model disregards the possible negative influence of some consumption goods such as tobacco.

According to the general consumer theory, consumers produce commodities with inputs of market goods and their own time. The same applies to health. People produce health through 'health inputs' and time. Such health inputs include accessing medical care, exercising, consuming health-promoting foods and leading healthy life styles. Since these inputs are needed in the production of the commodities, then, demand for these goods and health is derived demand (Grossman 1972). Individuals make time to seek health care and, in turn, achieve good health. The individual demand function for health care services devised from the Grossman model is given below:

$$M(t) = f [H(t), w(t), p_m(t), age(t), E(t), X(t)]$$

where

- $M(t)$ is medical services,
- $H(t)$ is health status,
- $w(t)$ is the wage rate that may also be affected by health status,
- $p_m(t)$ is a price vector for medical services,
- $age(t)$ is the age of the individual,
- $E(t)$ is the individual's level of education, and
- $X(t)$ is the environmental vector.

In the wealth context, an individual's demand for health is positively correlated to his wage rate, as is seen in the above equation. Wealth could have been expected to have a negative correlation with health care demand because richer individuals have better access to clean water, housing and sanitation, and so would be expected to fall sick less often. However, the model predicts that, as wages increase, the marginal product of the health stock increases, which, in turn, increases the value of health, leading to greater demand for health care services, other things being equal.

Higher health care costs will cause a drop in demand for health care, so prices have a negative impact on health care demand (Grossman 1972; Wagstaff 1986).

According to the model, education is positively correlated with health as it reduces the rate of depreciation and increases the general non-market productivity of the individual (Muurinen 1982). This means that better education also has a negative impact on health care demand, as such individuals usually have higher incomes and thus a better standard of living. Wagstaff (1986) concurred with Grossman on the positive relationship between health stock and education but derived results that were contrary to the expected prediction. Better education is expected to influence individuals' health activities and production but the findings indicated that more highly educated people utilise health care services more than poorly educated ones.

However, the nature of the education-health relationship in the Grossman model is unspecified. Grossman did not take into consideration that health care decisions are not necessarily individualistic. In many cases, decisions about health care consumption are made at household level. Grossman based his model on an individualistic production approach to health behaviour instead of on the more realistic household production approach (Muurinen 1982).

It is also assumed that age increases the rate of depreciation of health, thus implying that the desired health stock is likely to decrease over time. Aging should therefore cause an increase in health care demand. This argument might be true for medical services but not for dental health services. Demand for oral health care has in many instances been seen to decrease with age (Atlas of Canada 2004).

Health and health care as commodities

Although health has value in use, it cannot be exchanged nor can it be traded in the market, so it cannot be regarded as a commodity. Health care, on the other hand, is considered a commodity because it can be exchanged, traded in a market, demanded, supplied and distributed. Its heterogeneous and intermediate nature makes it a complement to all other inputs of health production (McGuire, Henderson & Mooney 1988).

Since dental care (and even general health care) can be sold and bought, it may be appropriate to treat dental services as any market services (Anderson & Benham 1970). Health care markets could further be assumed to function as any other market. Perfect markets are characterised by

clearly distinct demand and supply with no economies of scale, product differentiation or externalities. In addition, perfect markets create competitive equilibrium, whereby the consumer and the producer derive maximum utility and profit respectively out of their economic resources. There is also availability of perfect information for both the provider and the consumer to enable the consumer to exhibit sovereignty and rationality while taking health care decisions.

However, this ideal is hardly ever the reality. Health care markets usually experience market failure, characterised by the absence of the above conditions that are necessary to achieve the market efficient solution (Mills & Gilson 1988).

The agency approach

In a health care market, there is usually information asymmetry. Consumers often have little knowledge and are uncertain about their state of health, health care requirements, time and cost of health care consumption. Information on health care is often acquired at a significant cost. This is complicated by the complexity of technical data and medical terms involved, the multiplicity of choices available, the appropriateness and effectiveness of the treatment, and the distressed mind associated with disease that prompts the consumers to seek help from the health care provider (McGuire, Fenn & Mayhew 1989).

The health care provider, on the other hand, possesses most of this information and often takes advantage of the consumer's information deficiency. He, in turn, influences the individual's consumption and utilisation of health care, sometimes creating unnecessary demand and providing excessive health care in cases where less would have sufficed. Health providers may distort demand and perform more expensive or less time consuming services if the marginal benefits of that service outweigh the associated marginal costs. This scenario is known as supplier-induced demand (SID) and has been modelled in agency theory (Mooney & Ryan 1993).

Supplier-induced demand is likely to take place in a dental office. Patients are usually advised to go for regular check-ups, which means that they might require to receive treatment before they actually realise that they are ill. 'The consumer, *therefore*, is not the best judge of the appropriate means of achieving *his welfare*' (McGuire, Fenn & Mayhew 1989 "*my emphasis*"). In this case, it is the dentist (agent) who has knowledge of the patient's (the principal's) oral health status and the consequences of not undergoing treatment. The agent sometimes uses this knowledge to influence the principal's use of dental services, sometimes pursuing objectives that are not in the

interests of the principal. Although the agent may share some of the principal's objectives, such as getting well, he might also have other interests, for example, increasing his own income, and he may convince the principal to subject himself to expensive cosmetic treatments that may not have been a priority for the principal. However, there is still some controversy and inconclusiveness about the existence of supplier-induced–demand for dental care (Stoyanova 2001).

Health care is heterogeneous in nature and its demand is complicated by uncertainty surrounding the timing of ill health. Since individuals have little or no insight into their future state of health, they are rarely prepared for the health care costs that they eventually incur when they fall ill. As uncertainty increases, patients often make wrong, misguided or anxious decisions, which result in even higher costs. In response to the consequences of their earlier decisions, patients normally opt to depend on the doctor/dentist for almost all their health care decisions (McGuire, Fenn & Mayhew 1989).

It has been acknowledged that the principle of demand for health and the making of health care decisions is sovereign to the consumer (McGuire, Henderson & Mooney 1988). For instance, consumers may be aware that eating too many sugary foods is bad for their teeth, but they may choose to do so all the same. Yet in other instances, consumers may be uncertain about the choice over which they have sovereignty, so they rely on the decisions made by the health care provider. Poor health status could also prevent consumers from making rational choices about their health care (Mills & Gilson 1988). In some cases, rationality is practically impossible. Mentally ill or unconscious consumers and young children are not in position to make rational decisions. Again, in such cases, the provider undertakes the health care decisions.

Since patients are overly dependent on oral health care providers for oral health care decisions and provision of treatment, they paradoxically try to devise ways of controlling the provider's actions in order to counteract this dependence. They do this by using selective monitoring, incentives and punishments to encourage providers to implement and achieve their objectives (Bossert 1998). The principal's ability to monitor the agent's actions is obviously limited and costly. Even if the principal recognises the need to monitor treatment and to seek a second opinion from other agents, there is no guarantee of satisfaction. There are no set standards for determining the best medicine or practice among the providers, and each provider has different practice patterns, qualifications and approaches. For these reasons, patients tend to rather question

their own doctor instead of seeking further opinions from any other health care providers (Mooney & Ryan 1993).

Although the theory of agency has been applied to patient-doctor relationships in general, its applicability in specialist-patient relationships where there are minimal repeated interactions, is still questionable (Mooney & Ryan 1993). In fact the historical customary approach in terms of which the physician knows everything and always makes decisions about what should be done for a patient, whereas the patient knows nothing and accepts the recommendations without question, is being phased out, and is being replaced with consumerism and the movement towards shared-decision making, as can be seen in evidence-based medicine.

2.3 Oral health problems and the demand for health care services

Good oral health is fundamental to general health and essential for an individual's well being. Proper oral health care reduces the probability of premature mortality, in that early detection of some oral conditions (such as oral carcinomas) is in most cases life saving (World Health Organization 2003). Sometimes the earliest symptoms of disease, for example, Karposi's sarcoma in HIV-infected individuals, are first detected in the oral cavity. It is therefore essential to make oral health care services accessible to all. Regular checkups and early treatment would also prevent discomfort and suffering from diseases that could otherwise be prevented.

The commonest oral health problem worldwide is dental caries, followed by periodontal diseases (World Health Organization 2003). A similar pattern is seen in Uganda (Namayanja 2003; Ministry of Health 2003b). These two diseases have been known to be the major causes of tooth extraction (McCaul, Jenkins & Kay 2001; Namayanja 2003; Ministry of Health 2003b). Dental caries is a multifactorial disease associated with considerable costs. It is characterised by demineralisation and calcification of the tooth structure, leading to the formation of a cavity (Sweeney et al 1996). In contrast, periodontal disease is a combination of infection and inflammation of the gingiva, progressing into the deep tissues of the periodontal membrane, and it is characterised by the destruction of periodontal fibres and resorption of the alveolar bone (Mitchell & Mitchell 1999). There is usually formation of stones of a chalky nature (calculus) on the surface of the teeth, mainly due to poor brushing methods. If left untreated, these conditions have been identified as some of the major causes of morbidity. They result in loss of teeth, difficulty in chewing, poor nutrition and alteration in people's appearances.

In the school environment of Uganda, pain and discomfort associated with caries and its sequel have often caused interference with schoolwork, leading to absenteeism and poor performance (Namayanja 2003; Barton & Barton 2004). This is also true for industrialized countries where dental caries affect 60 to 90 percent of schoolchildren and the vast majority of adults. Other studies show that adult periodontal diseases are more prevalent in the industrialized countries where smoking is a major contributing risk factor. Other oral problems include oral cancers and fractures due to trauma. Reliable epidemiological data on frequency and severity of oral-dental trauma is lacking in most countries (World Health Organization 2003).

Poor oral health has a negative impact on the quality of life enjoyed by the population and worsens the inequalities already experienced by the underprivileged people. In many developing countries, there is limited access to oral health care and teeth are frequently left untreated or are just extracted due to late presentation at the hospitals. In Uganda, extractions are the only real option of treatment for many of the rural people (Barton & Barton 2004). Often, people do not access dental services because they simply do not know about the service and its availability, and thus miss out on the benefits gained from early diagnosis and treatment, disease prevention or oral health promotion measures (World Health Organization 2003). In fact, even individuals who do receive these services must find them relevant and they must fill a perceived need otherwise demand for them would be limited. The demand for health care is not only determined by pain and discomfort but even more importantly because individuals and households measure the cost benefits of their choices and the constraints they face (World Bank 2003).

Financial, attitudinal, structural and provider-related barriers all influence the demand for oral health care services (Centre for the Health Professions 2002). These barriers deter people from utilising available facilities. Services are often inaccessible or too expensive for the poor to utilise. Such an inability to access dental services unfortunately leads to more expensive use of emergency care. Furthermore, even when dental services are accessible, they are usually of low technical quality and not responsive to people's needs (World Bank 2003). A study carried out in South Africa on private dental practitioners' perception of barriers to dental care revealed that fear and dislike of dentists was one of the most cited reasons for not visiting dentists (Gilbert, Brand & Rudolph 1995).

2.4 Quality and choice of oral health care providers

There is evidence from the literature to suggest that quality is the most important determinant in the choice of health care providers (Ndeso-Atanga 2003; Munga 2003; Mapira 2003). Quality is not necessarily associated with good outcomes, though, as poor health outcomes may occur even with the best health services. Equally, good outcomes may result from poor quality service, since people may in fact be able to withstand difficult conditions, such as an inadequate drug supply. Quality of care can be either perceived or observed. Perceived quality of care is the consumer's assessment of the health care providers, whereas observed quality is concerned with whether these services conform to the defined professional standards (Baltussen et al. 2002). Our interest, in this study, lies in the perceived quality.

The quality of health care services can be assessed according to a number of dimensions. These include the direct effectiveness of the treatment, the cost it imposes on patients through repeated visits, the attitude of the providers, the opening hours and waiting times encountered at the clinics, and the cleanliness of the facilities (Jack 1999). Perceived quality of care can also be assessed on the basis of three different kinds of quality problems: overuse of services, such as unnecessary use of diagnostic tests; under use of such services as endodontic treatment (root canal therapy) due to resource constraints; and misuse of services, such as the failure to monitor abnormal results or the prescription of the wrong medication. Donaldson and Nolan (1997) described quality of care in terms of the dimensions of structure (or capacity to provide high quality care), process (or performance), and outcomes.

Structural aspects are concerned with characteristics of the resources, including health care providers, location and accessibility of services. These measure the presumed ability of a provider to deliver quality health care service. For example, structural measurement is used in the assessment of nursing home care, where determining quality involves assessing the facilities, as well as the staffing and training of domiciliary nurses (i.e. home based nursing).

Measuring process or performance is concerned with screening, diagnosis and management of disease. These may include interpersonal aspects of care, such as patients participating in health care decision-making, and the timeliness, accuracy and convenience of therapy. A failure to provide appropriate care may result in harm to patients, and thus performance measures are considered serious measures of quality.

Outcome measurement may be specific to a health problem and may involve patients ranking their health status along a scale from excellent or good to fair or poor. Or it may measure functions, such as going to work or school, and other social, physical and mental functioning. This form of quality measurement is the most crucial one because the majority of patients are more concerned with health improvement than with the management process. Making improvements in the quality of health and health care take into consideration both the process and the outcome of health services offered to the patients.

Quality of care has often been sacrificed for the seemingly pressing problems of finance and access. Experience has shown that implementing user fees without improving the quality of care quickly reduces the demand for health care in that facility (Mariko 2003). It has also been noted that when quality improves, the demand for services increases, even among poor clients (World Bank 2003). Many poor people in fact bypass their nearest and most accessible public health care centres in search of better quality services at a more distant public facility. It is also important to note that some quality improvements reduce the demand for health care. By improving the health status of the individuals through better quality care, the need for repeated visits, i.e. the demand for health care, will fall as quality increases (Jack 1999).

Quality is perceived by an average individual as the availability of basic medical supplies and of knowledgeable physicians with the right attitude (Mariko 2003). According to Baltussen et al. (2002), perceived quality of health services has a significant impact on utilisation patterns, and Becker et al. (1993) concur that poor quality is a major barrier to seeking health care. In sub-Saharan Africa, patients regard the availability of drugs at the health centres as evidence of a good quality service (Leighton 1995).

Availability of sufficient health care providers is another aspect that patients perceive to be part of quality care. Simply put, people value adequate doctors better than poor ones, and good doctors better than adequate ones (Sahn, Younger & Genicot 2003). Good staff attitude is also one of the major elements of quality, as perceived by patients. In this way, the doctor-patient relationship has a direct effect on quality of care. Some studies have suggested that more personal patient care by the provider results in greater patient involvement, better communication, and hence better quality of care. The findings of Cleary and McNeil (1988) confirmed that the characteristics of providers that resulted in more 'personal' care are associated with higher levels

of patient satisfaction. The measurement of patient satisfaction compares patients' expectations with their actual experiences at the health facilities (Donaldson & Nolan 1997).

It should be noted that, in order for the health care staff to deliver good quality services, they need the right materials in the clinics and a conducive / favourable working atmosphere. Cleanliness and sterility are very important in a dental clinic. Due to the HIV/AIDS pandemic, patients are very cautious and demand equipment to be sterilized properly, and would rather pay an extra charge at the private facility where they perceive maximum cleanliness and sterility.

Patients sometimes spend a lot of time waiting for services in the public facilities. This is one of the reasons why some opt to seek care from a private facility, if they want to be served quickly. According to the World Development Report 2004 (World Bank 2003), clients value clinics that are open at convenient times and with less waiting in between patients. Mapira (2003) in Zimbabwe and Munga (2003) in Tanzania also found that waiting time has a significant impact on the choice of health care provider.

2.5 Costs and the choice of oral health care provider

The costs of oral health care may be divided into direct and indirect costs. Direct costs are the actual costs incurred by households in relation to service provision. They may result from the use of good quality services or from the costs associated with a lack of quality, such as repeated tests and procedures, patient visits that might have been avoided, and the prescription / administration of unnecessary medications, as seen in supplier-induced-demand (Donaldson & Nolan 1997). Direct costs include out-of-pocket expenditure for treatment such as consultation fees, user fees, drug costs and transport costs.

Indirect costs are the productivity losses related to opportunity costs and time losses associated with the sickness (Brouwer, Rutten & Koopmanschap 2001), such as loss of quality-adjusted years of the patient, anxiety for patients and family, or work-days lost. This opportunity cost is understood to mean how resources might be used for the next best alternative, for example, delivery of underprovided services.

With the exception of a few countries, dental care services are usually paid for out of pocket (Stoyanova 2001). The user fee financing mechanism has been used at many dental clinics in

public facility cost recovery schemes. The World Bank and the International Monetary Fund (IMF) promoted this mechanism as part of the health policy package, which was one of the components of the structural adjustment programmes for countries in debt. They applied / required user fees as a condition for giving loans to developing countries, such as Uganda and Kenya (Whitehead, Dahlgren & Evans 2001).

The mechanism was focused on publicly provided health care services with the aim of promoting the privatisation of health service providers, and increasing the private financing of public providers. Effectively, this means that, where user fees are operational, there should be an immediate change or improvement in the quality of health care, otherwise demand for and utilisation of these services will go down (World Bank 2003). Unfortunately, this has not been the case in most developing countries. The evidence suggests that formal cost-sharing schemes have in fact deterred the poor from utilising health services (Gilson 1998).

Nonetheless, user fees have been effective in some developing countries that initially had very poor health systems before user fees were introduced. For example, under the Bamako initiative, cost sharing in public health facilities increased the amount of revolving funds, which in turn improved the availability of drugs and quality of health care services in Benin (World Bank 2003). In Uganda, user fees have improved the provision of oral health care services in some government hospitals, for example, Mulago Hospital. Financial resources acquired from the private dental wing are used in the procurement of supplies that are also utilized by the general non-paying wing (Head of Department of Mulago Dental clinic, personal communication).

On the whole, the widely used out-of–pocket payment for oral health care in Uganda is unreliable for the patient. Since most individuals are uncertain of their oral health status, it means that their time of consumption of oral health care services is unpredictable, resulting in unexpected expenses. Uncertainty about ill health should rather be addressed by means of a risk pooling mechanism whereby risks and costs are shared across a group of individuals (McGuire, Fenn & Mayhew 1989). There are only six pre-payment schemes or health care maintenance organisations in Uganda, which operate on a purely private basis. These include Micro Care Health Insurance Scheme formally known as AON, African Air Rescue (AAR), International Air Ambulance (IAA), American International Group Uganda (AIG), and Case Med Care Ltd (Ministry of Health 2004b). Most of them only offer basic dental treatment, namely extractions and fillings, as well as scaling and polishing.

Oral disease intervention is not universally available or affordable because of rising costs and limited resources (World Health Organization 2003). Informal fees are a source of increased oral health care costs. According to the World Development Report 2004 (World Bank 2003), informal payments have considerably increased the price of health services in Uganda.

Similarly, transport fares also increase health care costs substantially. Generally, rural populations have higher transport costs and less access to health providers and other public goods (Jack 1999). The cost of oral health care is often correlated with quality in that more expensive facilities tend to have higher quality services. There is usually a trade off between quality and cost. On average, high quality services are found in urban areas, so rural dwellers have to pay more for both travel and for care in order to access these services. At times, rural people may be willing to spend more money, as long as they are assured of quality service and better health outcomes (Ndeso-Atanga 2003). Access to health care services in Uganda is predominantly dependent on private spending, and accounts for 57.9 percent of total health care expenditure (Hay 1998).

It is logical to argue that people generally seek lower cost and physically proximate facilities, and that the poor are more likely to seek less expensive and nearby health care providers, but this is not always the case. Akin et al (1995) contradicted this notion when they found that price was not the most important determinant of health care utilisation, even for those who said it mattered.

2.6 Effect of distance on provider choice

In developing countries where distances to health facilities are large, infrastructures are lacking and many households are living below the poverty line, cost of access is a major determinant of whether to seek health care or not (Hjortsberg & Mwikisa 2002). According to a study done in Guatemala and another in Pakistan, distance to the nearest government facility was found to be inversely proportional to use of health care (Noorali, Luby & Rahbar 1999). This could be a reason why even some relatively poor individuals may resort to using nearby private clinics, even though they are more expensive.

According to Todd and Durward (1993), half of the patients who reported having had treatment from a traditional dentist said they would have preferred to see a qualified dentist, indicating that

their choice had been expedient because there was no local qualified dentist nearby. This confirms the role played by distance as a barrier to accessing health care.

Contrary to the above findings, Ndeso-Atanga (2003) in his survey of one of the rural districts in Cameroon found that patients sought medical treatment beyond the closest and cheapest government clinics. He concluded that, despite precarious transport in rural areas, distance to a health centre was not as important in the choice of health care provider as previously believed, as long as the quality was right. His results challenged the findings of many previous studies that had indicated that distance deterred the poor from accessing health care.

In Uganda, only 57 percent of the population lives within a 5km radius of a health facility. The majority of people live in areas with poor roads and comparatively expensive treatment facilities (Barton & Barton 2004). Therefore people travel long distances and spend considerable resources in order to access health care (Ministry of Health 2004a). There are very few privately owned dental clinics in the rural areas. Most of them are of poor quality and more expensive than the public facilities. For these reasons, the rural population prefers to go to public facilities. Yet, publicly provided dental services in the rural areas are mainly hospital-based, so patients have to travel even further than the nearest health centre in order to access oral health care.

2.7 Socio-economic effects on provider choice

Effects of education and income on provider choice

Education and income are important determinants of health service utilisation in general, but tend to influence dental service utilisation more than medical services (Atlas of Canada 2004). More educated individuals tend to have higher incomes and more information about their health care needs, and may be able to use a given amount of income more effectively to improve their health than others. They may in particular be able to transform these financial resources and knowledge into higher levels of health by making better choices with regard to health care providers (Jack 1999).

Education has also been identified as a determinant of choice between public and private health care in some contexts (Frederickx 1998). In other contexts, where the general level of schooling is very low, the explanatory value of people's education for the choice of provider is also low, as for example, in Mali (Mariko 2003). Even in high-income countries where most people have

access to basic education, it was found that education at any level of income did not appear to affect the likelihood of people making multiple visits to the dentist or incurring higher expenditures there (Manski, Macek & Moelle 2002).

According to a study done in Zimbabwe, high-income brackets have a significant impact on the choice of health care providers, with high-income households mostly visiting private facilities and those with larger families choosing government health units (Mapira 2003). Other studies have shown that low household income is a barrier to the use of modern medical services even in publicly provided facilities (Creese 1991).

Having dental insurance coverage is in turn associated with income (Atlas of Canada 2004). In high-income countries, having insurance coverage for dental services is one of the strongest non-medical determinants of the utilisation of dentists. It not only increases the likelihood of visiting a dentist, but also increases the likelihood of making two or more visits. Since poor and low-income people are less likely to have private dental coverage, they would have been expected to have irregular dental visits but this is not always the case. It has been documented that about 81 percent of low-income patients in urban areas have resorted to seeking dental care from the dental schools where costs are low (World Health Organization 2003), and this has produced considerable positive results. According to Gaughwin et al. (1999), children treated in the dental schools have significantly lower caries than those treated at private clinics. These findings can be attributed to the financial requirements in private clinics, which limit children's visits to private dentists, whereas dental school clinics encourage more regular visits.

2.8 Demographic factors as determinants for choice of provider

Gender tends to have a greater influence on medical service utilisation than on dental service utilisation (Atlas of Canada 2004). Empirical studies carried out have shown varying relationships between medical and dental services and gender. For example, a study done by Todd and Durward (1993) and another by Sarrazin (2002) did not show any association between the type of dentist visited and the gender or occupational background. Conversely, Mapira (2003) noted an association between medical services and gender, finding that more men tend to seek treatment in private clinics than the rest of the household, mainly because they control household resources. This is exacerbated if the size of the household is bigger, in that men with considerably

larger households will visit private clinics, leaving the rest of the household to go to the public sector.

Age is one of the strongest determinants of health care utilisation. A newborn will hardly ever require the services of a dentist. In the industrialised countries, oral disease is the most prevalent disease of childhood. Most frequent dental use and need is seen among children from about 6 years to young teens. By the age of seventeen, almost 80 percent of children have experienced dental decay to some extent (Oral Health Summit 2002). In Uganda, a quarter of urban primary school children and 10-15 percent of rural children have untreated dental caries and/or gum disease (Barton & Barton 2004). Dental visits decrease as people age. The converse is usually true for medical treatments in that visits to a physician tend to increase as individuals age (Atlas of Canada 2004).

Chapter Three

METHODS AND ANALYSIS

3.1 Conceptual framework

The literature review in the previous chapter has provided some insight into what factors might influence people's choice of health care provider. Using this theoretical background and results from empirical studies, we will construct a conceptual framework that will enable us to establish the relationship between these factors and the choice of oral health care service provider.

Figure 2: A simplified model of factors influencing choice of oral health service provider

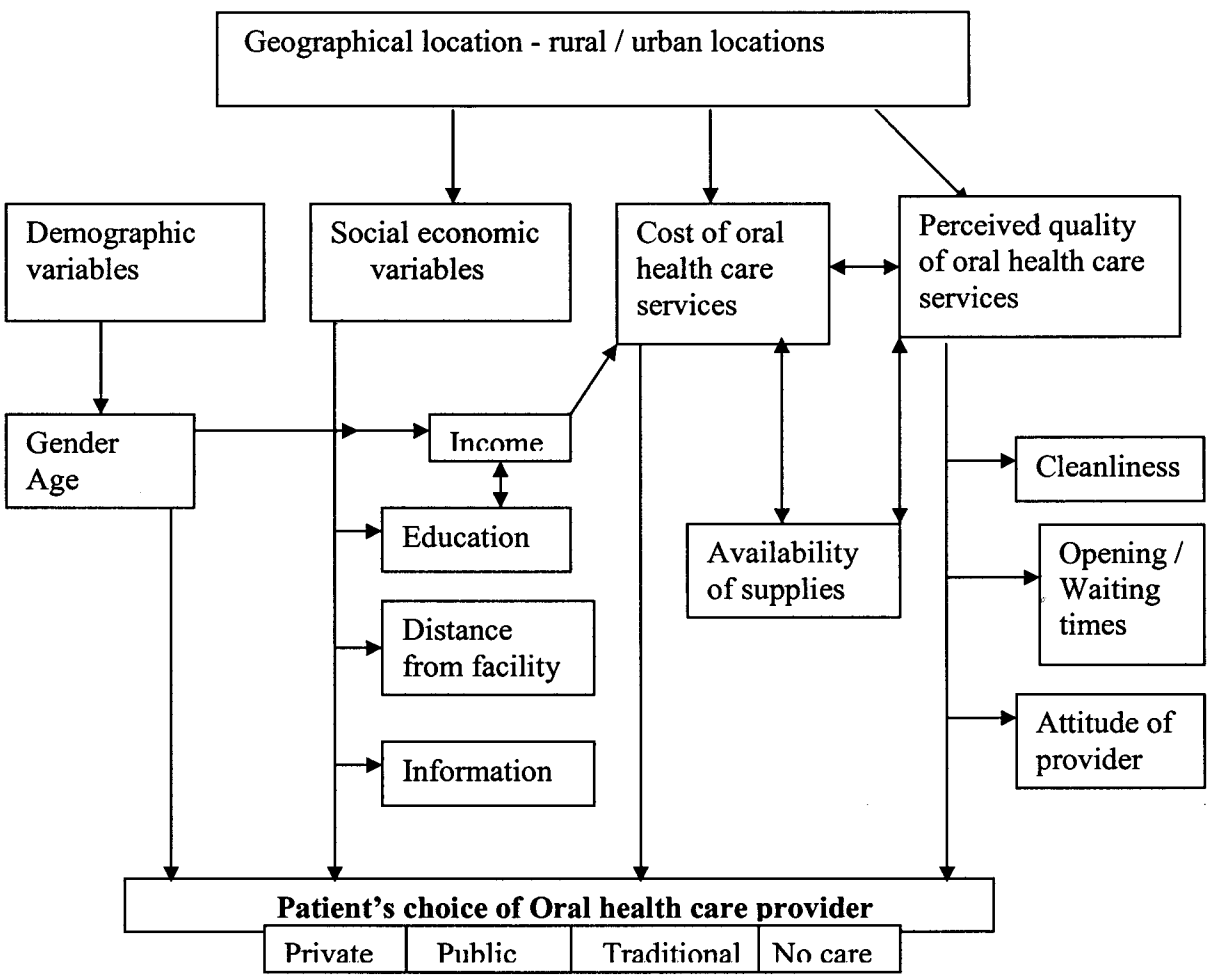


Figure 2 above presents the factors that are assumed to influence an individual's selection of oral health care provider, when that individual is ill or in pain. The study is furthermore based on the assumption that the consumer is behaving rationally. The consumer is assumed to be capable of making rational decisions and choices about the health care provider he or she prefers to see. Normally when people fall ill, they choose to either seek help from a traditional healer or from a private or a public facility; or they may choose not to seek any professional help at all. If they do decide to use a private facility, then they are faced with two alternatives: going to a private hospital or to a private clinic. Alternatively, if they choose to go to a public (or government) facility, they have the option of going to the non-paying general side or to the private wing of the government facility.

Another assumption is that preference for dental service providers in public and private facilities is a function of cost, perceived quality of care, socio-economic factors such as education and income, information, distance from facility, and demographic factors such as gender and age. Geographical location may influence the social economic status of an individual in that rural dwellers would be expected to have low income, be less educated and less informed and reside far away from the health centres, which would, in turn, affect their decisions. Gender and age impact on an individual's choice through income. The choices of females, the young and the elderly might furthermore be influenced by dominant males and older individuals, due to their low income-generating capacity. The costs of services in rural and urban settings differ and are dictated by the level of income in the different settings. The cost of oral health care services may depend on the availability of supplies, as well as on the perceived quality of those services. Availability of supplies is also perceived as part of a quality service.

The method that will be used to measure the determinants of provider choice is to assess the individuals' perceptions of how these factors contribute to their decisions. The problem with this method is that the measurement is subjective, as people may have different perceptions of an otherwise similar situation. Davies and Ware's (1988) findings show that the consumer's perception of quality may affect their decision to use health care.

3.2 Methodology

A cross-sectional analytic survey was employed to assess patients visiting the private clinics and the public sector in both the rural and urban settings between December 2004 and February 2005.

3.2.1 The Study Area

The study was conducted in five districts namely Kampala, Masaka, Mpigi, Rakai and Iganga districts.

Figure 3: Map of Uganda with district boundaries

*** The bold boundaries demarcate the districts where the study was conducted**

All the districts are bordering Lake Victoria (Figure 3 above), which means that their climates are fairly similar. These districts were selected because of the researcher's understanding of the local languages, which would enable her to conduct focus group interviews personally. The people of Masaka, Rakai and Mpigi mainly speak Luganda, whereas those from the Iganga district speak

Lusoga. Kampala, being the capital city of Uganda, is a multilingual district with Luganda, English and Swahili as the major languages.

Apart from Kampala, all the other districts are relatively poor with a greater part of their population living below the poverty line. Approximately 38 percent of the population survives on less than US $34 per capita per month, an equivalent of US $1 per day (Uganda Bureau of Statistics 2003). Subsistence farming and fishing are the only source of livelihood in the rural areas, while those in the urban settings depend on small scale trading, crafts, welding and motor vehicle servicing. The number of economically productive individuals is small, which affects household levels of income and standard of living.

About the districts

Kampala district harbours the capital city of Uganda and covers an area of 238 km^2. Its central heartland is mainly industrial and commercial, but the suburbs practice agriculture and animal husbandry. Small though it is, Kampala has a population of 1,254,710 (Ministry of Health 2004a), 80 percent of which are low-income earners with an income per capita of US $ 220 – 250. The general illiteracy rate in the city is 47.4 percent. In Uganda, adults who have not acquired full primary education are assumed to be illiterate (Uganda Bureau of Statistics 2003). There are 159 health facilities, which include private and public hospitals and clinics. The 450 km road network makes these health facilities physically accessible (Kampala District Profile n.d).

Masaka district covers a total area of 10,611 km^2 with a population of 774,362 (Ministry of Health 2004a). Only 13 percent of this population are formally employed, whereas 51 percent are self employed and 36 percent carry out unpaid family labour (unemployed). By 1993, only 50 percent of the population lived within 5 km of a health centre. The 3 hospitals and 12 health centres in the district are unevenly distributed. The illiteracy rate of Masaka district is 37.7 percent with the female population being more illiterate than the male population (Masaka District Environment Profile 1998).

Mpigi district, in the central part of Uganda, covers an area of 6,413.5 km^2. Its population of 420,688 (Ministry of Health 2004a) is mainly rural, with only 15 percent urban. Like many other Ugandan districts, Mpigi district is poor, with about 40 percent of its population having no major economic activity. Only 24 percent have some sort of employment, of which only 8 percent are formally employed. The illiteracy rate is 26 percent. The Mpigi district has better access to health

centres than many other districts, though, with 5 hospitals, 67 health units and 8 health centres (Mpigi District Environmental Profile 1998).

Iganga district covers a total area of 13,113 km^2 and is thus the largest district studied. Its population of 739,663 (Ministry of Health 2004a) is generally young with less than half in the productive age group. The district is predominantly rural with only 4.7 percent of its surface area classified as urban (this includes semi-urban trading centres). On the whole, 30 percent of the population is economically active, but only 0.2 percent are regarded as professionals. The majority of the population is self-employed. Sixty two percent have obtained full primary level of education. Health care is provided by 3 hospitals, 8 dispensary units, 54 sub dispensaries and 3 aid posts. The major form of transport to those rural health centres is walking and cycling (Iganga District Environment Profile 1999).

Rakai district is 4,973 km^2 and is thus the smallest of these 5 districts. The population numbers 480,204 (Ministry of Health 2004a), the majority of whom live below the poverty line. This is due to the AIDS epidemic, which has affected that district for a long time. A large share of the most productive groups is affected by the epidemic. AIDS-related deaths have left a high number of orphans who cannot contribute to economic development (District State of Environment 1998). The illiteracy rate in this district is very high (64 percent of the population). The health care services are also poor, with only 12 qualified doctors serving both government and private health facilities. The doctor to patient ratio is 1:31,958 and the doctors are found mostly in towns. There are 7 medical assistants and 36 nurses. Despite this skeleton staff, the district has a total of 38 health units with 2 district hospitals and 22 private clinics (District State of Environment 1998).

3.2.2 Quantitative data collection

Population and sampling

A multi stage sampling strategy was used. Stratified random sampling was employed in the selection of health centres and private clinics. The district divisions were chosen as strata. Random sampling of the strata gave the specific divisions from which the health facilities were sampled. From these strata, random samples of health centres were selected. Private clinics were also randomly selected from a list of private clinics in the selected divisions of the districts. However, some of the selected survey sites had to be abandoned and replaced by others because these health centres had no dentists or dental materials at the time of the study. The researchers

furthermore had to select those centres where they found dental patients. Further complicating the situation is the fact that Masaka and Rakai districts have very few private dental clinics and these could not be accessed for research. Since dentistry is a more specialised discipline, dental patients are not as easy to find as medical patients. Being a cross-sectional study where data had to be collected at a specific point in time, it was necessary to use several localities in order to get a representative sample.

In the end, the study used a sample of 493 patients. At each study site, with the exception of Mulago, the national referral hospital, all the patients at each facility were interviewed, if they consented. At Mulago hospital, where there is more than one dental surgery, random sampling was applied to select which surgeries to use for the study. Systematic random sampling of patients was further achieved by interviewing every alternate patient who entered the selected surgeries.

The survey sites

The hospitals where the study was finally carried out included Mulago Hospital in Kampala district, Iganga Hospital in Iganga district, Masaka Hospital in Masaka district, Kalisizo Hospital in Rakai district and Nkozi Hospital in Mpigi district. The majority of these hospitals were selected because they were basically the sole government hospitals in their respective districts (Uganda Bureau of Statistics 2001). They serve a significant proportion of the district population, as well as the neighbouring ones. This means that the catchment areas are so diffuse that the target populations cannot be easily determined. As mentioned earlier in the introduction, these hospitals offer both private and general free services. Mulago and Masaka Hospitals also offer referral services.

It became apparent during the course of the research, that human resource constraints continue to afflict the provision of oral health care services in Uganda (Ministry of Health 2004a). Masaka Hospital is a regional referral hospital with six PHDOs but no dental surgeon. There is only one visiting dental surgeon in Nkozi Hospital and no PHDO, whereas Mulago Hospital has fourteen dental surgeons and seven PHDOs. Among the hospitals visited, only Iganga District Hospital fulfils the health policy requirement of one dental surgeon and at least two PHDOs recommended for a district hospital. The above information reflects the inequality in health care service provision in Uganda.

The district hospitals were classified as urban, and the health centres as rural. Although Kampala district health centres are basically peri–urban, they were included in the rural group for the sake of consistency with the other health centres of the districts studied. Nkozi Hospital was also included in the rural group because, although it is a hospital, it is situated in a rural area.

The health centres included Komamboga Health Centre in Kampala, Mpugwe Health Centre in Masaka, and Kaliro Health Centre, Nsinze Health Centre, Namungwale Health Centre and Nambaale Health Centre in Iganga district. According to the health policy, services at the health centres are supposed to be free but reliance on user fees is evidently inevitable in many of these health centres due to inadequate and inconsistent supply of drugs and other requirements (Oral health care providers at the centres, personal communication). There is usually one PHDO at the health centres, who offers only basic and normally inexpensive dental treatment.

The private clinics were Hope Medical Centre, St Jude's Clinic and St Paul's Clinic in Iganga district, and St Andrew's Clinic Gaba, Byansi Clinic Kawempe and Pilkington Clinic in Kampala district. Services in this category are offered at a cost, depending on the type of service rendered. Since Nkozi Hospital in Mpigi district is a missionary and private not-for-profit hospital, it was included in this group. Here user fees are charged for the poorer population that visits the clinic in the morning, whereas out-of-pocket payments are made by the private patients in the afternoon (Oral health care provider, Nkozi hospital, personal communication). Apart from the basic dental treatments, private clinics also provide sophisticated services, such as prosthodontic and endodontic treatments.

The Questionnaire

The study instrument used for quantitative data collection in this research was a questionnaire. The purpose of the questionnaire was to identify factors that determine users' choices of providers. Quality control of the tool was guaranteed, firstly, by pre-testing. The principal researcher and one assistant conducted a pilot study on ten students prior to commencing the main study, in order to:

(i) identify and manage logistical problems;
(ii) establish the average duration of the interview;
(iii) determine the appropriateness of the questionnaire; and
(iv) ensure clarity and see if questions would be well understood.

The pilot study process and the results obtained were analyzed and adaptations made to the questionnaire.

The second means of quality control was training. The researcher trained two graduate students and two dental assistants to conduct the research interviews. The research assistants were chosen because of their knowledge of the native languages and their interest in the research. These assistants were trained in the survey tools for two days and then dispatched.

Interviewer administered questionnaires were used (see Questionnaire: Appendix 1). The questionnaire was administered in a face-to-face interview. The trained field workers asked the questions in the subjects' first language and recorded the answers on a standard answer sheet.

The questionnaire consisted of three sections, A, B and C. All respondents answered Section A on socio-economic and demographic factors. Respondents who had visited a dentist in the past year were required to answer section B. Those who had not, or were visiting the dentist for the first time, were referred to Section C.

The key variables considered were costs, perceived quality (which included availability of essential drugs, availability of providers and their attitude, cleanliness, opening hours and waiting times); socio-economic factors (which included income, education, information, and distance from facility); and demographic factors (such as age and gender).

3.2.3 Qualitative data collection

Qualitative data were obtained by conducting focus group discussions and in-depth interviews to probe more deeply into specific issues and to gain insight into the information at a household level. Permission and assistance in selecting participants were sought from the local council leaders. Interviews of both service users and providers were carried out. Most of the sites were health centre compounds, as these gave easier access to participants.

Population and Sampling

Five focus group discussions were conducted, each consisting of ten to twelve people. The groups were randomly selected from trading and health centres of the five districts to ensure representativity. Criterion sampling was also used, picking only adults that had ever suffered

from or been treated for toothache. This sampling method was employed for quality assurance purposes. The focus groups consisted of both males and females, except for the one at Kabwooko Health Centre where only women participated. Women who attend antenatal clinics at the public health centres usually wait for long hours before being attended to. The researcher, therefore, tapped into a "natural" focus group and worked with these individuals on site (Willms & Johnson 1996). These women participated in the discussion while waiting to receive antenatal services. The focus group discussions lasted on average about one hour. All qualitative interview proceedings were tape-recorded. Some notes were taken during the discussions.

Focus group proceedings

Nsambya General Clinic in Kampala

This clinic is situated along Gaba road and provides medical, surgical and dental services. The focus group consisted of ten members.

Kanoni Trading Centre in Mpigi district

The group here included patients that had come for treatment at the private clinic in the trading centre. While they waited for the dentist to come that day, the patients talked to the researchers for an hour and a half. Initially, the group consisted of eleven members. Since the meeting was in the trading centre, however, it attracted some idlers. Their contributions were also incorporated in the findings.

Nkozi village trading centre in Mpigi district

The meeting took place at a local pub, which is also a meeting place for the locals. The local priest who is in constant contact with the locals in this village was the link person. He introduced the researchers to the twelve-member group. This meeting went on for one hour and twenty minutes.

Nambaale Health Centre in Iganga district

The discussion here took place at the health centre. This centre also offers dental treatment. The oral health care provider was available for an interview after the meeting. The nursing sister in charge of the health centre introduced the researchers to the focus group. The meeting was attended by five men and five women.

Kabwooko dispensary in Rakai district

This focus group consisted of twelve women who had come for antenatal services, as no dental services are provided here. The clinical assistant in charge of the dispensary introduced the researchers to the group members, who in turn introduced themselves. This group was more motivated than any of the other groups interviewed earlier. As reflected in the results, more information was obtained from the participants of this focus group than from those of other groups.

Provider interviews

More qualitative data were obtained by conducting in-depth interviews with the oral health care providers and other stakeholders. These persons had great knowledge about the subject and were willing to talk at length about it. In-depth interviews were conducted with the oral health care providers at Nambaale Health Centre and Hope Medical Centre Idudi in Iganga district, Nkozi Hospital in Mpigi district and Kalisizo Hospital in Rakai district. All the interviews took place within the clinics and after the quantitative data collection. This arrangement was convenient for both the health care provider and the researcher. The interviews were brief, lasting not more than 30 minutes, since the health providers were still on duty.

Other key informants

The district co-ordinator in charge of dental services in Masaka district is one of the two dentists who move from health centre to health centre, providing dental services to the rural population in this district. He provided the researchers with information about the problems encountered and barriers faced by patients in accessing dental services in the district.

The meeting with the country's Director of Dental Services took place at the Ministry of Health in Kampala. The director provided most of the information concerning the structure and provision of dental services in the country.

3.2.4 Field editing

The principal researcher was usually available to attend to any issues that arose while in the field. However, this was not possible for the interviews that were carried out at some of the private clinics, as the private patients visit these at their own time. Debriefing and data editing was performed on a daily basis.

3.3 Data management and analysis

All the questionnaires were stored in a cupboard that was accessed only by the principal researcher. This was to ensure safe storage and confidentiality. The data was first keyed into a Microsoft Excel spreadsheet, where it was cleaned, edited and coded. To ensure that all data were safe, a back-up mechanism was employed, whereby data was stored on floppy discs, flash drives and other computers. It was then transferred to STATA 8.0 for statistical analysis. Regression analyses (univariate and multivariate) were used to examine the variables from the questionnaire. Data was inspected for effect modification and confounding, using stratified analyses.

The qualitative data were translated, transcribed and transcripts proofread against the audiotape from which they had been prepared, and thereafter coded. Information was then edited, patterns noted and quotes selected for the report.

3.4 Ethics considerations

Every effort was made to ensure that the research complies with the ethical principles enunciated in the Ugandan and South African Guidelines on Ethics for Medical Research and the Helsinki Declaration. Approval to conduct the study was sought from the Ethics Research Committee at the Health Sciences Faculty, University of Cape Town, and the Uganda National Council for Science and Technology (UNCST). Authority was also sought from and granted by the Resident District Commissioners of the districts where the research was conducted. Furthermore, permission was sought from the medical superintendents of the hospitals that were visited and from the local leaders of the areas where focus groups were conducted.

Written informed consent based on clear and adequate information was sought from the participants prior to the interviews. The aim and objectives of the study, the procedures involved, the duration and the general scope of study were disclosed to participants. The right to abstain from the study was also guaranteed. Permission to use a tape recorder and take field notes during qualitative data collection was also sought from the participants.

The questionnaire and the consent forms were translated from English to Luganda, and Lusoga, which are the local languages of the study population. No names or personal addresses were recorded in order to observe anonymity and confidentiality.

3.5 Limitations and bias

The study is limited to those regions selected through convenient sampling of specifically oral patients and does not represent all the regions of the country, mainly because of distance and resource constraints.

The study requires respondents to recall events about their past oral health care visits. The recall period was put at 1 year, which may have introduced recall bias. A much shorter period would have been desirable but there are usually long intervals between dental problems before a relapse occurs, and considering the fact that people in Uganda do not often go for dental check ups, a longer recall period had to be used to obtain the required information.

The questionnaire is an indirect measuring instrument that records mostly subjectively recorded information. This means that the analysis is based on people's perceptions of determinants of quality, such as cleanliness, adequate supply of drugs, staff attitude, distance and cost of treatment. Patients may not be able to evaluate these aspects adequately. Secondly, people's perceptions may differ even under similar conditions. The perceptions of a person from a rural background may widely differ from one of an urban background.

Another source of bias is item non-response. Some individuals responded to the interview as a whole but were unable to answer some particular questions, especially those concerning their monthly income, level of education or the cleanliness and sterility of the respective facility. Missing values in the dataset constitute a potential source of bias if the responses from those who did not respond to the questions would have systematically differed from those who did. Non–response bias often affects patient surveys, making patient ratings of care in each sample more favourable than the population mean.

Chapter Four

STUDY RESULTS AND INTERPRETATION

4.1 Introduction to the key findings of the study

There were better responses from the rural health centres than from the urban ones. This is because the health care providers at the rural centres were very co-operative and in turn encouraged their patients to participate in the study. Patients at the rural facilities were also easier to deal with due to their willingness to wait longer hours than those in the city. Their motivation to participate was the anticipation of better services in the near future. Through interviews and interactions with the respondents, the researchers were able to identify the most important factors that influence choice of oral health care providers, and these will be assessed individually below.

4.2 Socio-economic and demographic factors

Of the 493 respondents that took part in the study, 41 percent were male and 59 percent female, with a mean age of 28 years. This is comparable to the national population statistics of 49 percent male and 51 percent female. Eighty-three percent of all the respondents were below the age of 40. The age group of 20-29 (38 percent) registered the highest number of respondents seeking oral health care. This does not reflect the country's age bracket with the highest population percentage. According to the national statistics, the greatest numbers of Ugandans fall in the economically inactive age bracket of 0-9 (37 percent) (Uganda Bureau of Statistics 2003).

4.2.1 Education

The study found that the majority of the respondents had completed basic primary education (79 percent). Of those who had not, 11 percent had never had any kind of formal education. This percentage is not very different from the national percentage of 13.9 percent without formal education (Uganda Bureau of Statistics 2003). Urban and rural locations were important sources of socio-economic variation with higher literacy rates in urban areas (87 percent) as compared to the rural areas (67 percent).

Breaking down the statistics, the percentage of rural respondents who had never had any formal education (16.0 percent) was twice as high as that from urban areas (7.4 percent). A similar trend was observed in the national statistics, where 15.4 percent of rural dwellers had never had any formal education, as opposed to 8.1 percent of urban dwellers. The high percentage of rural respondents without formal education could explain the degree of variations in the respondents' perceptions of some of the determinants for choice of providers. The highest level of education most rural people had attained was primary. There is, therefore, a greater proportion of the literate population that has only acquired primary education as compared to post primary education.

The table below summarizes the findings on education, emphasizing its relation to the rural or urban location of the health facilities:

Table 1: Level of education attained

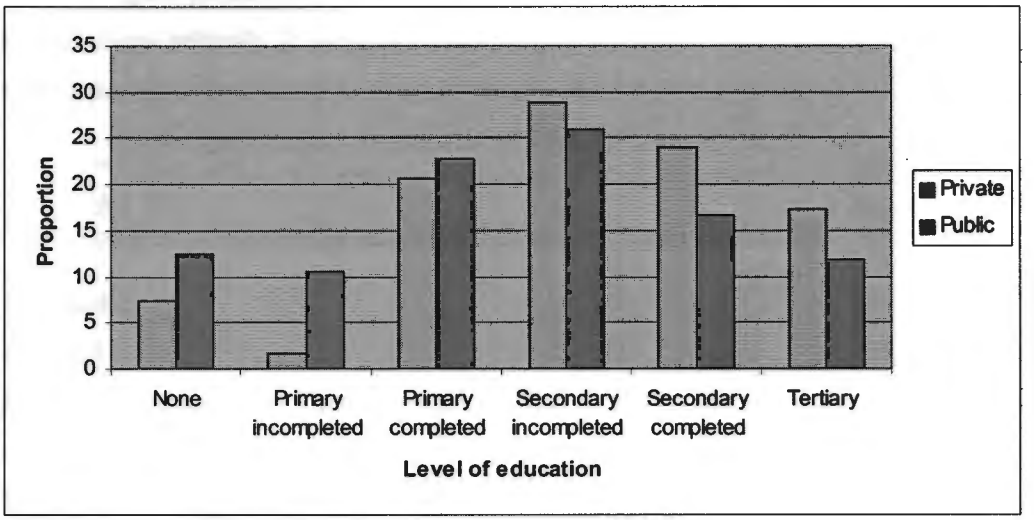
Level of education	% of urban respondents (n=270)	% of rural respondents (n=223)	Total % (n=493)
No formal education	7.4	16.0	11.0
Primary education incomplete	4.3	18.5	10.3
Primary education completed	17.9	28.8	22.6
Secondary education incomplete	27.7	24.4	26.3
Secondary education completed	24.3	8.4	17.5
Tertiary education	18.4	3.9	12.3
Total	100	100	100

There is a relationship between the level of education attained and the respondents' residential areas (i.e. whether they live in urban areas or in rural areas). Approximately 70.4 percent of urban respondents had attained secondary and tertiary education, as compared to only 36.7 percent from the rural areas. This is consistent with the national statistics, where about 73 percent of urban dwellers have attained post primary education, as opposed to 27 percent of the rural population (Uganda Bureau of Statistics 2003).

It is safe to conclude that education empowers individuals with the capacity to evaluate effectively the different types of providers; it also shapes their perceptions of health care. Figure 4 below shows the type of providers visited by respondents of various levels of education. One

facility, Nkozi private not-for-profit hospital, has been excluded during this analysis because its role as either a private or public facility is ambiguous.

Figure 4: Use of providers according to education levels



There appears to be a relationship between people's choice of private clinics and their level of education (Figure 4). The least use of private facilities was registered among respondents with the lowest education levels, namely,; no formal education and education categories below secondary level. As the level of education increases, there is a higher likelihood for individuals to visit private facilities.

Table 2: Relationship between frequency of dental visits and level of education
Proportions in percentage (n=493)

	Never	1-3 Visits	> 3 Times	Don't remember
No formal education	15.18	3.40	10.64	12.50
Primary not completed	21.57	7.95	2.13	6.25
Primary completed	15.18	29.55	27.66	6.25
Secondary not completed	27.84	29.55	14.89	25.00
Secondary completed	11.38	18.18	23.40	18.75
Tertiary education	8.85	11.37	21.28	31.25
	100	100	100	100

The study results showed that 28 percent of the patients were visiting the dental clinics for the first time. Of those who had visited the clinics in the past year, 3 percent could not remember the

number of times they had done so, probably due to the relatively long recall period of one year. The greatest percentage of individuals who had the most frequent visits to dental clinics (87.23 percent) was from the educated individuals. Table 2 above is evidence of this; the individuals who visited the clinics more than three times were those who were more literate. They accounted for the biggest percentage that went for dental checkups (Figure 9) and were more likely to honour dental referrals. In support of this finding, the health care provider from Iganga hospital, when asked if the level of education affects utilisation practices of an individual, had this to say:

> "When you talk to an educated person and tell him to return for a filling, he will. An illiterate or semi-illiterate person might think that you have refused to work on him or just want to extort more money from him."

The findings contrast with those of a US based study by Manski, Macek and Moeller (2002) who analyzed use and expenditures relating to private dental coverage for the US civilian community population during 1996. They provided national estimates for population with dental coverage, number of dental visits per year and mean total expenditures for several socio-economic and demographic categories. They found that low-income individuals were less likely to have dental coverage and were less likely to report a dental visit than high-income individuals. Controlling for coverage revealed that education at any level of income did not appear to affect the likelihood of multiple visits.

4.2.2 Occupation

It was very difficult to differentiate between, on the one hand, self-employed respondents in the village who grow a few crops and rear some animals for sale, and, on the other hand, peasants who practice subsistence farming. These two categories were thus grouped together. The table below is a rural/urban comparison of the respondents' employment status:

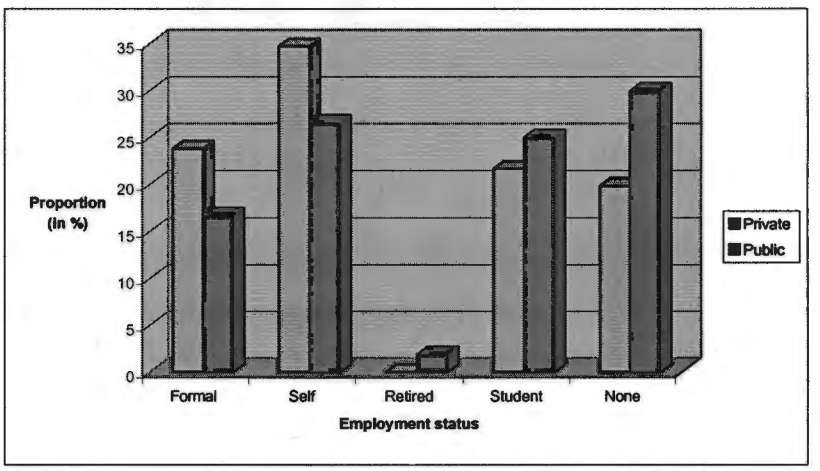
Table 3: Occupation: Rural – Urban comparison (%)

	Occupation (*n=493*)					
Location	**Formal**	**Self-employed /Peasant**	**Retired /Pensioner**	**Student**	**Unemployed**	**Total**
Urban	21.51%	28.67%	0.72%	25.80%	23.30%	100%
Rural	7.88%	33.50%	2.46%	24.14%	32.02%	100%
Combined	15.77%	30.71%	1.45%	25.10%	26.97%	100%

Unlike the rural sample, the urban sample consisted of almost equal percentages of the employment categories, with the exception of the retired/pensioner category. The rural sample was dominated by the self-employed and unemployed categories, followed by the student category. There were higher percentages of self-employed individuals/peasants in the rural areas (33.50 percent) than in the urban areas (28.67 percent) (Table 3). Although the study figures are lower, the urban/rural self-employment trend of distribution is similar to that of the national statistics, where 89.6 percent of the rural population is self-employed as compared to 61.0 of the urban population (Uganda Bureau of Statistics 2003).

Most formally employed respondents live in the urban areas (21.51 percent) as compared to 7.88 percent in the rural areas. A similar pattern is again seen with the national statistics, where 39 percent of the urban population is formally employed as opposed to a mere 9.7 percent of the rural population (Uganda Bureau of Statistics 2003).

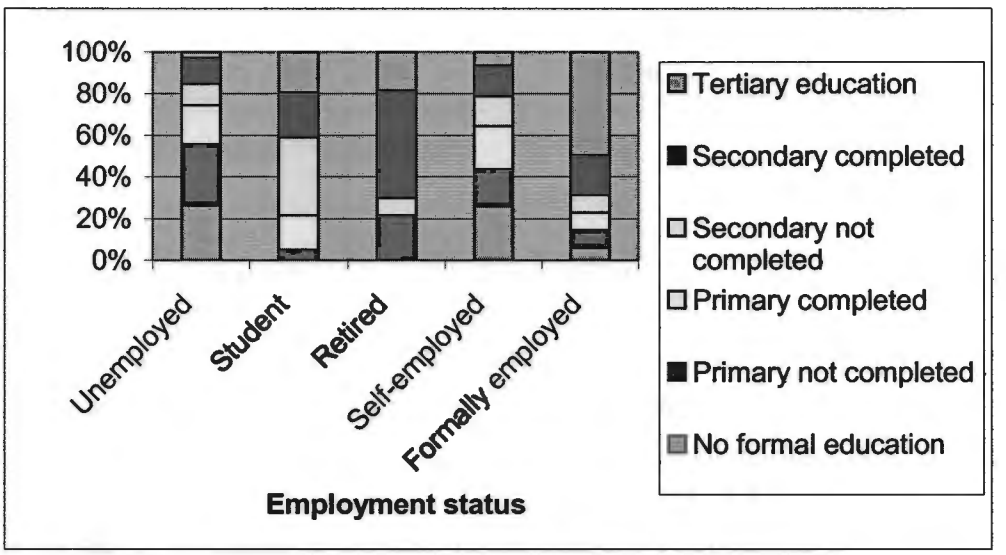
Figure 5: Use of providers according to employment status



A correlation was established between utilisation of private facilities and employment status. Nkozi hospital was again omitted from this analysis, for the same reason as given earlier, i.e. .... It can be seen that self-employed and formally employed individuals are more likely to attend private facilities than public ones. Students, the unemployed and pensioners mainly visited public facilities, probably due to a lack of reliable or sufficient income to pay for private services.

There was a significant share of unemployed individuals in both the urban (23.3 percent) and rural areas (32.02 percent) (Table 3). The results contrast with what is suggested in the national statistics, where the unemployment rate is higher in urban areas with 12 percent, as compared to 2 percent in rural areas (Uganda Bureau of Statistics 2003). There was an inverse relationship between unemployment and education. The more educated the individual, the less the rate of unemployment, so the highest unemployment rate was found among those without formal education or with the least amount of formal education, and it was lowest among those who had attended tertiary education (Figure 6). This contradicts the official labour survey statistics, which found that the lowest unemployment rate is found among the illiterate (Uganda Bureau of Statistics 2003).

Figure 6: Relationship between education and employment



As expected, formal employment was positively related to education. The greatest percentage of formally employed individuals had attended tertiary education (Figure 6). Self-employment and unemployment were found mainly among those without any formal education, followed by those whose education level was below secondary. Self-employment and education were negatively correlated, as the rate of self-employment was higher among individuals with no formal education than among those who were well educated.

4.2.3 Income

Half of the patients interviewed were either students or unemployed (Table 3) and therefore did not answer the part of the questionnaire concerning income. The income levels and percentages of those who did respond are summarised in Table 4 below. Significantly, only 2 percent of rural respondents earned more than 300,000 shillings per month, as opposed to about 14 percent of urban respondents. The urban figure is comparable to the Uganda Labour Force Survey findings, where only 11 percent of the employed population earns more than 200,000 shillings per month (Uganda Bureau of Statistics 2003).

Table 4: Income: Rural – Urban comparison (%)

	Income	*(n=493)*				
	<100,000 (U$55)	110-300,000 (U$61-166)	310-500,000 (U$171-277)	510-750,000 (U$282-415)	>750,000 (U$415)	Total
	%	%	%	%	%	%
Urban	55.85	30.34	5.52	4.15	4.14	100
Rural	80.42	17.52	0	1.03	1.03	100
Combined	65.72	25.20	3.30	2.89	2.89	100

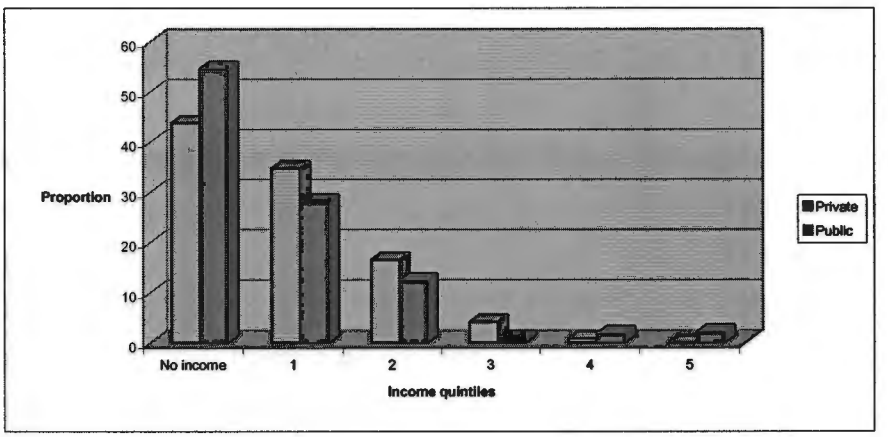
2004 average exchange rate: 1US$ = 1807.11 Uganda shillings

Despite a considerable number of respondents having some sort of employment (either formal sector or self-employment), their level of monthly income is comparatively low (<Shs 110,000-300,000, which is equivalent to <US$61-166). The greatest percentage (65 percent) earns less than 100,000 shillings per month, an equivalent of US$55. A breakdown of the study results shows that 80.42 percent of the rural respondents and 55.85 percent of the urban respondents actually earn less than the national average (Table 4). According to the Uganda Labour Force Survey of 2003, only one in every five persons employed in the urban areas earns at most 20,000 shillings per month and the proportion is even higher for rural employees (Uganda Bureau of Statistics 2003).

According to the results presented in Figure 7 below, individuals with almost no source of income, namely, students and the unemployed, attended public facilities more than private ones. A different trend was seen in the low-income quintile 1, which earns less than 100,000 shillings per month, and in the middle-income quintiles 2 and 3, which earn

between 110-300 000 and 310-510,000 shillings per month respectively. Individuals in those categories visited private clinics more than public ones, although the differences between the choices were not marked. The trend took an unexpected twist when the highest income earners attended more public than private facilities. However, the percentage of respondents in these quintiles was very low (5.78 percent).

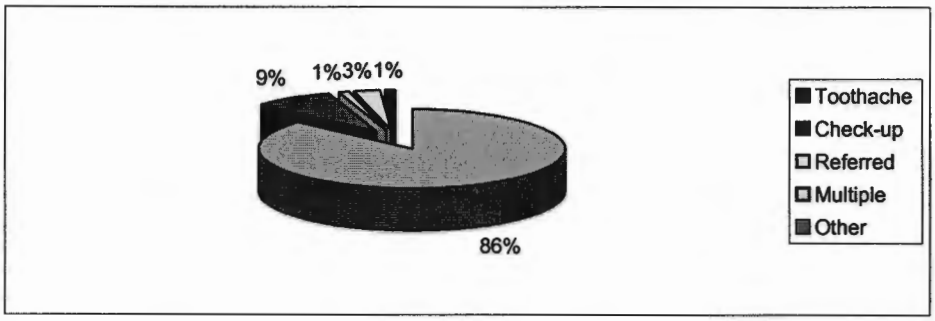
Figure 7: Use of providers according to income groups



4.3 Effects of a lack of knowledge on dental visits

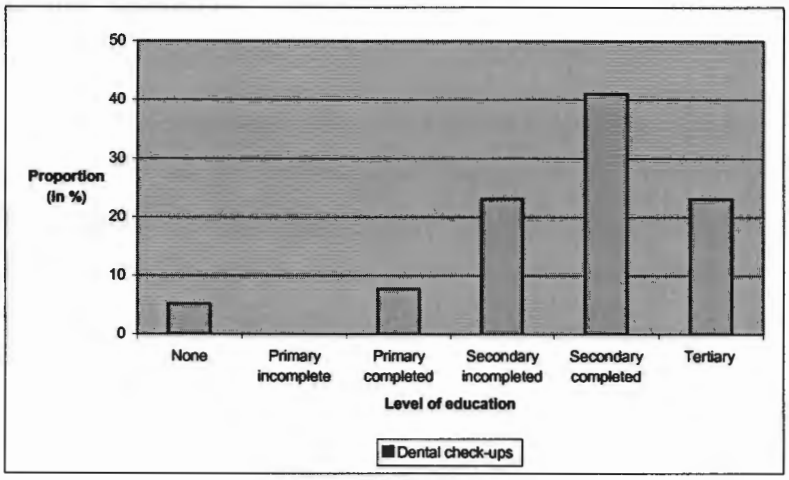
The reasons given by the respondents for visiting the dentist were used to test their knowledge on dental health care. It was noted, however, that their knowledge on why and when to visit the dentist was inadequate. The majority of the respondents were not aware that they should have regular dental visits. About 86 percent of the respondents said that one visits a dentist only when one is sick. This belief was confirmed by the fact that 72 percent of the respondents had ever visited the dentist before the study was conducted and had done so within the past year; their reason being toothache. Only 9 percent knew about the importance of dental checkups. This information is diagrammatically represented below:

Figure 8: **Reasons given for visiting the dentist**



Lack of information seemed to contribute to low oral health care seeking behaviour. Twenty-eight percent of the respondents lacked knowledge about where to go for dental care outside the clinics they had visited. It is very important for individuals to get health care information from the right source. For instance, some of these individuals had received advice from other patients that applying Aspirin (a pain-killing tablet) to the cavity could halt a toothache. To the same effect, another respondent had inserted a piece of blue washing soap in the tooth cavity. However, a few patients (8 percent) reported having gone for dental check-ups, and Figure 9 below shows the association between dental check-ups and level of education.

Figure 9: Association between level of education and dental check-ups



The results show that more educated individuals went for dental check-ups than less educated ones. Respondents who had completed secondary education had the highest percentage, followed by those who had completed tertiary level and those with incomplete secondary education. None of the respondents who had had incomplete primary education went for dental check-ups. It could

be concluded from the results that education played a role in the individuals' decision to go for dental check-ups.

4.4 Choice of facility

Generally, the respondents had utilised more government facilities than private clinics or missionary hospitals. This is because government facilities are cheaper and more deeply situated in the villages than most private clinics. At the public facilities where there was a choice between private clinic (paying for services) and general clinic (free services), more urban dwellers opted for the private side (17.21 percent), as opposed to those in rural areas (8.44 percent). The utilisation results are shown in Table 5.

Table 5: Type of dental facility visited

(n = 493)

	Location	
Facility visited	***Urban***	***Rural***
	%	%
Public hospital (General clinic)	41.48	46.97
Public hospital (Private clinic)	17.21	8.44
Private hospital (Private clinic)	27.75	42.16
Traditional Dentist	0.47	0.83
Multiple Responses	13.09	1.60
Total	100	100

The number of respondents who visited private hospitals or clinics in rural areas was much higher than that relating to urban areas. This is not surprising because some of the hospitals where rural people go are private missionary hospitals that are also rural based, for example Nkozi hospital. Rural residents normally attend hospitals and health centres that are nearest to their homes, whether public or private not-for-profit health centres.

All the patients interviewed had at least gone to a health care centre or visited a traditional dentist for dental treatment, and the option of self-medication did not apply. No respondent indicated that they used drugs bought from pharmacies or other drug sources, except in combination with utilisation of the health centres (Table 5).

4.5 Reasons for utilisation of facility

The single most cited reason for utilisation of facilities by urban dwellers was quality (35.34 percent) followed by distance (21.53 percent) whereas facility utilisation by rural dwellers was mainly influenced by distance (21.76 percent) followed by quality of facility (16.92 percent). Rural respondents, though, had a combination of reasons and this accounted for the highest percentage (42.83 percent) in this category. It should be noted that distance from home to the facility plays an equally important role in the choice of oral health care provider for both rural and urban dwellers.

Below are the reasons for utilisation of the facilities mentioned above:

Table 6: Reasons for utilisation of facility (n=493)

	Location	
Reason	Urban %	Rural %
Nearest facility to home	21.53	21.76
Severity of dental problem	6.07	12.08
Affordability	7.74	3.20
Quality	35.34	16.92
Referred to facility	13.81	2.42
Don't know any other facility	4.42	0.79
Multiple reasons	11.09	42.83
Total	100	100

Quality was mainly perceived as in terms of quick and painless extractions, having no tooth fractured during extractions, drugs issued after extractions and good customer care. Having painless extractions was very important to the respondents and some of the comments given by the respondents to that effect are given below:

> "I had a nasty experience. I went to the village dentist who extracted my tooth when I was not numb. To make matters worse, it was the wrong one so even after treatment, I still felt a lot of pain and fell by the roadside. I was then taken to the hospital where the right one was removed. I nearly died. I can't go back to a dentist unless I am on the verge of death." *Man, Nkozi.*

> "The people in the rural areas may not be the best judges of quality treatment. They don't have many places to go to so they don't get the chance to compare. What they can compare is how local anaesthesia has been administered. That is how they will judge if a practitioner is good or bad; that is, if they don't achieve (get numb)." *Health Provider, Iganga Hospital.*

Surprisingly, only 7.74 percent of urban dwellers and 3.2 percent of those living in the villages actually mentioned affordability as reason for utilizing the facilities they visited. In fact, the rural respondents regarded severity of disease (12.08 percent) as a more influential factor for their choice of provider than affordability. Ndeso-Atanga (2003) also found that it is the wealthy and not the poor who are more likely to cite affordability as a reason for choice.

Some dental procedures cannot be done at the lower level health centres, so patients who require such procedures have to be referred. It is worth noting that more urban patients went to the health centres that they were referred to (13.81 percent), as compared to the patients from rural areas (2.42 percent). The reason given by the rural respondents was lack of financial resources for treatment and transport to referral hospitals. Most rural people would rather avoid far away referrals that would make treatment more costly and only visit referral hospitals if they perceive the condition as very grave or life-threatening.

There were other reasons cited by patients for not visiting the hospitals that they had been referred to. When asked why she did not go to have her teeth restored, one lady exclaimed:

> "Ha!" *(frightened look)* "They say that cementing is very painful, especially when the cement falls out." *Young woman, Kampala.*

Another reason given by the respondents that was not in the questionnaire was a lack of dentists at the facilities they initially visited. There are specific days on which dentists visit certain facilities and if one gets a severe toothache on a different day, one has to seek help elsewhere.

> "I got a toothache on a day that was not for dental treatment at our health centre so I had to go to Masaka hospital for treatment." *Woman, Kabwooko.*

The coordinator of Masaka district confirmed this shortage of oral health care providers:

> "The problem is that many people don't know or value dental conservation so there is a need for health education, but we lack health workers to carry it out." *Coordinator, Masaka District.*

4.6 Waiting time

The average waiting time was 64 minutes, with waiting times at the rural centres longer (85 minutes) than at the urban centres (50 minutes). The waiting time at the private facilities is

much higher than expected (94 minutes). This is not surprising, though, because this category included Nkozi Hospital, a private missionary hospital where people had to wait longer than 3 hours for the dentist from Kampala, who visits the hospital twice a week. Waiting time would then depend on the time at which the dentist arrives at the facility and on the number of patients found waiting.

The focus group discussion conducted at Kanoni trading centre revealed that people go to the clinic as early as 8.00am in order to book places for treatment with a dentist working in Gombe hospital, who comes to assist them at 3pm. This shows that the waiting time at such places goes far beyond the average time revealed by this study. When asked about these long waits, some respondents said it was distressing since most dental patients come to the health facilities when they are in great pain. Others had fewer complaints about it, as long as they were assured of treatment by the end of the day. Their greatest worry was walking long distances at a late hour when returning home after treatment. Responses:

> "Imagine, I came here at 8.30 am and have waited up to now, *looking at an old clock hanging on the wall*, it is 4.30 pm and he has not yet come! I have to walk back home." *Woman, Kanoni.*

> "I left home at 6.30 am and have waited here the whole morning; it is now lunch time. At least if they could give us some tablets to reduce the pain while we wait. I even wonder whether the dentist is coming today or not. I am in pain." *Woman, Nkozi.*

It should be noted that patients at times wait for long hours and return home without treatment if the dentist is unable to come that day.

4.7 Oral health care financing

In Uganda, the most prevalent form of health care financing is out-of-pocket. This type of financing mechanism has been found to be regressive, because it exposes families to large or unexpected expenses in case of long illnesses or when they are least able to pay. Nonetheless, the majority of our respondents used their own income (62.4 percent of urban; 38.14 percent of rural) to enable them meet their treatment expenses. Since pain from a tooth is usually very severe, others had to devise strategies, such as borrowing from friends and relatives, selling assets etc. to acquire additional financial resources to pay for the dental treatment.

More rural respondents borrowed money from friends or sold assets than those in urban areas. They even paid more informal fees for their treatment in the hope of reducing their oral health care expenditure. This is what some of the respondents had to say about the strategies of acquiring financial resources:

> "People in the villages are very poor, but when you have a toothache, you don't think twice. You sell your goat or chicken in order to get money for treatment." *Man, Kanoni.*

> "Even when you are poor, you can't just sit there and think the pain will go away, you have to do something. Toothache is terrible." *Man, Kanoni.*

> "Patients find themselves selling property here in the villages. For instance there is no health centre between Bukomansimbi and Masaka hospital. If one gets a severe toothache on a day that isn't the treatment day for Bukomansimbi health centre, he would have to go to Masaka hospital which may cost him 10,000 shillings transport and 3,000 for extraction. That is a lot of money. He may have to sell a goat at 20,000 or 25,000 shillings in order to get the money needed." *Coordinator, Masaka District.*

The detailed findings with regard to oral health care financing are outlined in the table below.

Table 7: Urban-rural comparison of oral health care financing (n=493)

Financing mechanism	Urban %	Rural %
Pre-payment	0	0
Out -of - pocket		
Own income	62.40	38.14
Friends & Relatives	4.92	11.01
Sold property / assets	4.57	7.56
Gratuity / Informal fees	15.09	20.62
Did not pay	13.02	22.67
Total	100	100

There are only six pre-payment schemes currently operating in Uganda. All are predominantly urban, exclusively private and operate mainly for formally employed individuals, so the schemes have a limited scope for health facilities. Moreover, the study sites did not include any of the facilities operating pre-payment schemes and this explains the zero percent seen in Table 7 above. In addition, dental services are excluded in many of the packages offered by the schemes. Some schemes offer only dental consultation and dental check-ups, while others limit their dental benefit to 100,000 – 200,000 shillings (US $61 – 166) per annum, which is too low for proper dental coverage (Micro Care, personal communication).

Informal fees and gratuity may encourage or discourage people from providing or using services. According to the World Development Report 2004, informal fees are a serious cause of increases in the price of health care costs in Uganda (World Bank 2003). The average gratuity and informal fees in the study was 1,410 shillings for the rural facilities and 1,858 shillings for the urban health centres. Gratuity can be a motivation for the providers, but it may also be a hindrance to health care seekers. When asked if they sometimes give gratuity for the work done by the providers, most of the participants from the focus groups said they would have wanted to give gratuity, but that they were too poor to give extra money after paying the high treatment costs. Below are some of their responses:

> "You can't pay money to the cashier and have any left for gratuity. We pay 3,000 shillings for transport plus 2,000 shillings for removing the tooth. At times we even have to pay for, or buy the medicine ourselves." *Woman, Kabwooko.*

> "In most cases we come with money only enough for treatment but when we come back to the health center on another occasion, say you have brought a sick child and you have some extra money, you can give some to the dentist to buy juice and thank him for the good work performed earlier on." *Woman, Nambaale.*

Some of the public health centres require patients to pay a user fee prior to treatment. Whenever formal payments are made, some patients said they do not get the quality of service they consider appropriate. So they would rather pay informal fees directly to the provider himself in order to obtain proper health care management. The respondents in the focus group at Kabwooko health centre made the following comments:

> "When you pay money to the cashier, the dentist removes your tooth mercilessly. He even asks you if the person to whom you paid the money is going to remove the tooth for you", *pause,* "He does it very ruthlessly." *Woman, Kabwooko.*

> "For me, I learnt a lesson. I don't pay fees to the cashier. I go straight to the dentist, pay him the money so he carries out the procedure carefully and he doesn't even shout at you then!" *Woman, Kabwooko.*

> "Even when there is medicine in the hospital, they may tell you that there is none but that someone else is selling it cheaply but will sell it expensively if you go there yourself, so then you give him money for drugs and he brings for you. We don't think they sell it in the hospital though", *laughter from all.....* "Those people want money, money, money." *Woman, Kabwooko.*

Only 13.02 percent of urban and 22.67 percent of rural respondents did not pay for their treatment despite the abolition of user fees at public facilities, where the majority of the respondents went.

Details about the user fee paradox are given in the discussion, section 5.2. Table 8 below summarizes the direct costs of treatment by the respondents.

Table 8: Direct Costs of Treatment

	Cost in Uganda Shillings				
Variable	**Median Urban**	**Median Rural**	**Overall Median**	**Minimum**	**Maximum**
Amount paid for treatment	5 000	2 000	2 500	1 000	227 500
Transport cost per visit	2 000	2 330	2 000	200	15 000
Gratuity / informal fees paid	1 858	1 410	1 693	100	7 000

Urban dwellers generally had higher amounts of direct costs than rural dwellers. The average amount of money paid for treatment at the urban centres (5,000 shillings) was more than twice as much as that paid at a rural centre (2,000 shillings). Since people in the rural areas are very poor, they prefer to go to private not-for-profit or public facilities where services are cheap and sometimes free. The lowest amount of money that was paid for treatment at a facility was 1,000 shillings and the maximum was 227,500 shillings.

4.8 Distance between facility and home

Some people travel long distances to access dental clinics: 28.72 percent of the total respondents travelled distances beyond 5 km to the health centres. It is interesting to note, however, that the highest percentage of such respondents comes from the urban areas (34.45 percent) as compared to 22.44 percent of rural respondents.

Table 9: Distance between facility and home (%)

	Distance		***(n=493)***		
Location	< 1km	1km - 3km	3km - 5km	> 5km	Total
Urban	35.58%	17.61%	12.36%	34.45%	100%
Rural	44.88%	20.00%	12.68%	22.44%	100%
Combined	39.82%	18.76%	12.70%	28.72%	100%

From the above results, we can deduce that both rural and urban dwellers are equally affected by distance. The total percentage of respondents who live less than 5 km from the facilities (71.28 percent) was greater than the national average of 57 percent (Ministry of Health 2004a).

The commonest type of transport used in the urban areas is public transport (taxi), and it is relatively easy and cheap to obtain. However, transport in the rural areas is difficult and people often walk to the facilities.

> "Public hospital costs are reasonable but transport costs are most problematic because even when patients go to those health facilities without money, the dentists work on them," *pause*, "but they have to get there first." *Coordinator, Masaka District.*

Bicycles are a common form of transport in Iganga district, so that even women many times ride to health centres themselves, something that is considered odd in some other communities. People who do not have bicycles and who cannot walk very long distances either hire bicycles or motorcycles locally known as 'border-border' or used public car transport. The average amount paid for transport was 2,000 shillings and is slightly higher for rural areas (2,330 shillings).

While conducting a focus group discussion, a respondent who had joined late and had been quiet most of the time had this to say;

> "We really lack dentists in our area. We come from far, about 12 miles to reach this place. The 'nearest' hospitals are even further, Gombe is about 20 miles and Mityana is 24 miles, the health centers nearby don't have dental services", *looking directly at me,* "Please help us." *Man, Kanoni.*

The place where these people had come to have their teeth treated, privately, was a small room at the trading centre that is used for other 'minor business transactions' earlier on in the day and later turned into a 'surgery' as the day winds up. The room had a few old benches and a broken old table. The patient's waiting place was the room's veranda whose immediate neighbour carries out welding. It is obvious that these people were so desperate that, when the researchers interviewed them about their problems, they assumed that the study was going to offer part of their immediate solution. This perception had to be corrected immediately.

4.9 Quality and choice of dental provider

The main components of quality assessed by this study were cleanliness and sterility, attitude of staff at these facilities, availability of essential drugs and the presence of trained dental personnel (Table 10). On the whole, the general perceptions of quality of the facilities visited by both the rural and urban respondents were relatively high, with the urban respondents' rankings higher than those of their rural counterparts. From the results presented below, the highest component of quality that was ranked by the urban respondents was the availability of dental personnel (80.79 percent), followed by sterility and cleanliness (72.05 percent). Availability of drugs (68.17 percent) and staff attitude (67.90 percent) ranked lowest. On the other hand, the rural respondents ranked availability of essential drugs highest (70.37 percent), followed by sterility and cleanliness (64.55 percent). Staff attitude and availability of dental personnel were ranked the lowest (59.00 and 56.87 percent respectively).

Table 10: Ranking perceptions about quality of the facilities visited (%)

(n=493)

	Location	*Rating*				
Factor		1	2	3	4	Total
Sterility and cleanliness	Urban	72.05%	22.06%	1.47%	4.42%	100%
	Rural	64.55%	30.54%	3.44%	1.47%	100%
Availability of trained dental personnel	Urban	80.79%	14.59%	0.36%	4.26%	100%
	Rural	56.87%	37.26%	5.37%	0.50%	100%
Availability of essential drugs	Urban	68.17%	21.35%	4.49%	5.99%	100%
	Rural	70.37%	23.30%	2.94%	3.39%	100%
Facility staff attitude	Urban	67.90%	22.51%	6.27%	3.32%	100%
	Rural	59.00%	33.00%	4.00%	4.00%	100%

1=good, 2=fair, 3=poor, 4=very poor

The urban-rural difference in perceptions about availability of dental personnel confirms the fact that there are more trained health workers in the urban areas than in the rural areas. Some untrained personnel take advantage of the ignorant and unsuspecting rural populations and treat patients in the rural areas. While doing the study, a young unqualified person was found carrying out dental extractions at one of the health centres. Surprisingly, the majority of patients seemed to be satisfied with his work and many were

convinced that he was trained. The fact that the health centre IVs and hospitals that deliver dental services are far away further promotes such malpractice. However, there were mixed feelings about the qualifications of some of the dental practitioners in the rural areas, as is revealed by the following comments:

> "Judging by the way he handled my five year old son, he extracted his tooth without any hassle; I am convinced that he is qualified." *Man, Nambaale.*

> "Here in the village, it is almost impossible to distinguish trained personnel from those who are not. For us we assume that anyone who is able to extract a tooth is a trained person, and besides, when you have a severe toothache can you even think about the dentists' qualifications?" *laughs* "what matters is to have the tooth removed." *Woman, Kanoni.*

> "We have many untrained people around. They play around with our lives. I think that man was not really trained. He fractured my tooth and left the roots in the gum causing infection." *Woman, Kabwooko.*

> "Our main problem is the lack of dentists in our area. People become dentists while deep in the village and they remove other people's teeth." *Woman, Kanoni.*

It would have been expected for drug availability to be one of the most poorly rated components of quality at the rural health centres visited. On the contrary, though, 70.37 percent of rural respondents reported availability of drugs as good. When asked if they received drugs after extractions, one rural respondent answered;

> "Yes, we get drugs. If they are not there, they write for us and we buy from outside, but this rarely happens." *Woman, Nambaale.*

Other respondents did not share the same view:

> "You people are not serious. Look, I paid money to the cashier. Here is the receipt. Now the dentist has written a prescription for me to buy these drugs from the pharmacy. The nurse has given me only panadol!" *Woman, Mulago Hospital.*

> "I also had my tooth removed by these people who came for outreach but they did not give me any medicine yet I never felt pain afterwards." *Woman, Kabwooko.*

In amplification of these responses, the health care workers were not at all satisfied with the situation, explaining that what the patients reported as relatively satisfactory drug availability was merely the supply of a few painkillers and, occasionally, cheap antibiotics. The rest of the antibiotics and other expensive drugs are purchased outside the facilities. According to Barton & Barton (2004), the situation at the district hospital in Kabale is that "extractions are carried out free but tablets are not and everyone expects and is prescribed tablets".

A provider in Nambaale health centre said that he gets very few vials of local anaesthesia from government supplies and supplements this by using user fees paid by the patients, but that injections and needles are usually in plentiful supply. The bureaucratic procedure through which drugs are obtained at the public hospitals is very long and is at times the cause of drug stock-outs. The situation was, however, reported to be better than it had been a few years ago.

It is also not surprising that respondents from both localities ranked staff attitude comparatively low. Among other factors, patients relate staff attitude or customer care at a dental clinic to proper patient management. Patients are very vulnerable, often irritable and need to be handled with care. Most focus group participants said that they would never go back to a dentist who does not numb them adequately prior to tooth extraction.

From what we gathered from the health providers, attitude may also depend on the workload the practitioner has. According to the Coordinator of Dental Services in Masaka district, the number of patients worked on per day by one dentist at a health centre may be as many as forty, since each HC IV is visited only once a week. Poor staff attitude could also be due to low staff morale, which is caused by low salaries and perpetual stock-outs of essential supplies. Stock-outs were reported to occur more at HC II and HC III than HC IV level (Ministry of Health 2004a).

Mixed responses:

> "Since this new dentist came to this health center, we are very happy. He treats us well. He is very good at his work. The wounds never get infected. If you come without money, he still works on you and tells you to bring it later." *Man, Nambaale.*
>
> "For me I have had six teeth removed and don't experience pain while they are removing. That is why I go back to the same person. I experience the pain afterwards." *Woman, Kampala.*
>
> "I went to hospital to have my tooth removed but the dentist did not numb me well, I felt a lot of pain. He didn't even give me any pain-killers yet I had paid 1,500 shillings. I felt a lot of pain even after the tooth had been removed." *Woman, Kabwooko.*

Sterility of instruments and cleanliness at some of the health centres visited were very difficult to measure, as these were subjective factors. The respondents perceived some centres as 'good', yet

the same centres were observed as obviously very poor by the interviewers. This shows that the study did not have an objective way of measuring what was viewed as very poor, poor, fair or good. In most of the rural health centres at the lower levels, the mode of sterilisation was boiling on small paraffin stoves. When asked why they did not use sterilisers and if they had enough instruments to use so as to minimize cross-infections, some providers answered:

> "Buying a sterilizer is very expensive and the patients pay very little for the treatment so we can't afford it. If we are to use jik (detergent), a bottle is Shs 3,500 and that is costly still; but paraffin is Shs 1,300 a litre," *chuckle* "and you can also prepare a meal on that." *Provider, Nambaale.*

> "We have one set but because patients walk in one by one, it is sufficient. We don't even have a dental chair, we use the normal sitting chair." *Provider, Idudi.*

> "One time I went with the Health Inspector after being tipped off that there was a 'quack' carrying out extractions without sterilizing instruments. What he does is he washes the instruments then reuses them. He did not know me so I first pretended to be a patient. The problem is that patients don't mind about sterilization. All they care about is that the tooth comes out and the pain is relieved." *Coordinator and Provider, Masaka District.*

4.10 Ranking factors affecting the choice of oral health care providers

The most highly ranked factors were all components of quality, confirming the reasons already given above for the utilisation of facilities visited. Availability of trained personnel and drugs was raked the highest, followed by sterility and cleanliness. Severity of disease and staff attitude then followed. Next in line were payments at and distance from the health care centres. Other components of cost were considered less important. Use of traditional dentists or medicine was the least significant of all the factors.

Components of Quality

Topping the list of components of quality was the availability of trained personnel and essential drugs. Nearly 70 percent of those interviewed cited this as very important and 20 percent said it was fairly important. Only 10 percent rated it otherwise (Table 11 below). Dental treatment is mainly surgical and exclusively dependent on trained personnel without whom quality of oral health care services suffers. It is not surprising, therefore, that almost all the respondents ranked it important. Some of the participants had suffered mismanagement at the hands of unqualified health workers. In such cases, oral health care provider decisions had inevitably been altered to

seeking treatment from far away providers, rather than from a nearby practitioner whose qualification was doubtful. The results from the survey on quality aspects of the facilities visited revealed that rural areas have insufficient numbers of dentists, who are available only at hospitals and a few health centres. Urban areas, in contrast, have both public and private hospitals and clinics where the majority of dentists work.

According to studies done in developing countries by Leighton (1995) and Mwabu et al. (1993), patients tend to use health facilities where they are assured of tangible products, such as drugs. This study, too, has shown that availability of drugs is one of the most essential requirements at a health facility. Patients expect to receive drugs when they go to a dental facility so there is less incentive for them to visit a clinic with a poor supply of local anaesthesia and other drug necessities. The findings, however, revealed that even simple medication often had to be purchased at own cost from private pharmacies outside public health facilities during stock-outs.

Table 11: Ranking of factors affecting the choice of oral health care provider in percentage

	Rating			
	1	2	3	4
Factors on quality				
Availability of trained personnel/drugs	69.98%	19.88%	5.27%	4.87%
Cleanliness	54.76%	24.75%	7.30%	13.39%
Staff attitudes	46.04%	27.59%	10.14%	16.23%
Waiting time	27.38%	24.54%	15.02%	33.06%
Factors on cost				
Payments at health centres	42.60%	19.47%	14.20%	23.73%
Consultation fees at facility	32.21%	18.28%	12.30%	37.21%
Level of individual's income	31.93%	17.79%	16.33%	33.95%
Other determinants				
Severity of disease	47.92%	23.10%	10.74%	18.24%
Distance from health centre	42.19%	17.85%	11.97%	27.99%
Didn't know other facilities	28.34%	16.12%	11.60%	42.94%
Traditional dentists/medicine	9.10%	13.34%	8.29%	69.27%

1=very important, 2=fairly important, 3=neutral, 4=not important

Cleanliness and sterility were also major aspects of quality but their measurement was very subjective. Rural respondents might have a different perception of 'what is clean' than urban

respondents. Some health facilities visited were evidently of poor quality with used pieces of cotton wool, used needles and matchsticks littering the floor (as seen in the pictures below).

Figure 10: Photos of a dental set-up at a rural health centre in Iganga district

Needless to say, this type of facility is of very poor quality but the respondents reported it as being satisfactorily clean. This room acts as both the dental surgery and the injection room.

Figure 11: Photo of a dental set-up at a peri-urban health centre in Kampala district

The contrast between the two health centres is apparent. Figure 11 portrays a well-facilitated government-run dental clinic at HC IV, whereas Figure 10 depicts a low-level health centre

where dental services were so compromised that they had to improvise for a dental chair and steriliser.

Cleanliness and sterility were a major concern for as many as 54.76 percent of the respondents, as well as for the 24.75 percent who rated it as fairly important. The remaining 20.69 percent were either neutral or did not think it was important at all. Some respondents in Kampala district said that sterility is one of the major reasons why they visit private clinics. The number of patients there is usually low and waiting times are short, so they believe there is enough time in between patients for sterilisation.

Staff attitude was also regarded as important when choosing health care providers. Approximately 46.04 percent ranked it as very important in addition to 27.59 percent who ranked it as fairly important. 26.37 percent ranked it as either neutral or not important, as their main concern was that of pain relief. Most of those who said they did not consider staff attitude important came from the rural areas. Some respondents reasoned that since they had been enduring episodes of poor staff attitude in the medical outpatients unit, then a single dental encounter could also be withstood.

Waiting time at the facility does not seem to play a significant role to the respondents interviewed. Only 27.38 percent of the patients said it was very important for them to have as short a waiting time as possible, whereas 33.06 percent, mainly among rural people, ranked waiting time as unimportant. 15.02 percent were neutral. Private clinics normally have shorter waiting times than their public counterparts. This lax attitude towards waiting time may be one of the reasons why more patients still go to public facilities with long waiting times.

Components of cost

Payments at facility did not seem to have as much influence as had been anticipated. Since the respondents were generally poor, it would have been expected that they rank payments as the most important factor when choosing providers. Yet only 42.60 percent of respondents admitted dissatisfaction with payments at the facilities. 24 percent said they did not mind paying, as long as they were well attended to. 13 percent were neutral.

Currently, most of the health centres in the rural areas and all the district hospitals visited during the course of this research practice some kind of cost sharing. One reason why the abolished user

fees still exist in government hospitals is the necessity to acquire money to buy the basic supplies when government supplies run out. The cost of dental treatment at a public clinic ranged from 1,500 shillings to 5,000 shillings (U$ 0.83 to U$ 2.77). Patients at Kalisizo hospital pay an official user fee of 2,000 shillings, and patients at Iganga district hospital pay 3,000 shillings. It should be noted, however, that although these fees are being charged, the destitute always get exemption.

There is no proper 'means testing' at these facilities. The decision to exempt is always left to the discretion of health service providers. These health workers and revenue collectors are faced with the difficult task of identifying who can and cannot afford to pay for the services. It has been reported that in some cases, these benefits end up benefiting the rich more than the poor. Unless the practitioners can distinguish between the destitute and those who can afford, and unless those who can afford accept that their fees will subsidise the destitute, exemptions will always be misused (Gilson 1998).

The number of respondents who cited income as playing a very important role in determining where individuals go for treatment (31.93 percent) is almost the same as those who ranked choice of provider as not really determined by income (33.95 percent). The level of income is expected to be one of the main determinants of the demand for dental services (Stoyanova 2001). However, this is not reflected in this study. The results obtained by Lindelow (2003) indicated that income was not an important determinant of health care choices in Mozambique but that education and physical access were more important factors.

Consultation fees at the facility was not a determining factor in this study. Thirty-seven percent of the respondents cited consultation fees for dental treatment as unimportant, reasoning that toothache is not like other diseases that people regularly suffer from, so paying consultation fees for dental treatment would be an infrequent occurrence. Moreover, consultation fees payment is not customary in Uganda, especially in the rural settings, where providers acknowledge the fact that people are poor and prefer paying for the more tangible treatment costs (Mubangizi 2003).

Other determinants

Severity of disease was the third most cited factor for deciding where one is treated (48 percent). Usually, patients go to government referral hospitals when faced with what they consider more severe diseases, such as fractures, severe abscesses or major swellings. If the illness is thought to

be severe, the individual has a stronger incentive to choose modern professional care in a hospital, clinic or dispensary rather than self-medication (Mariko 2003). Individuals devise means of acquiring financial resources when faced with severe illnesses in order to access far away or reputable health centres. For what appears to be a normal toothache, patients usually go to any nearby dental clinic.

The other major determinant of choice for provider was distance of facility from home. Generally, distance from a service is inversely proportional to utilisation, especially for specialist services (Rosen et al 2001), such as dental health care. As many as 42 percent said that long distances are a major hindrance of access to providers of their choice, whereas 28 percent of the respondents stated that their major concern was to go to a good quality service facility and not the distance they would have to travel to access it. Twelve percent were neutral. Typically, by virtue of their geographical location, poor people travel more substantial distances to reach health facilities than the rich in the same country. The study findings are consistent with those of Mwabu et al. (1996), in Kenya, which showed that distance is among the major factors that influenced the choice of health providers.

Lack of knowledge about the existence of other facilities was a minor determinant (28 percent), as was use of traditional dentists or medicines (9 percent). About 69 percent of the patients disregarded the role of traditional dentists in the management of their dental problems. Eight percent were not sure of their role. What is interesting is that, in spite of individuals denying that they used traditional medicines, almost all the rural respondents we talked to during the group discussions admitted to having used some herbal medicines prior to going to hospital. Traditional healers extract baby canines for superstitious reasons (Barton & Barton 2004). Use of herbal medicine tends to cause a delay in patients seeking oral health care. When asked under which circumstances they use traditional medicine and when they decide to go to hospital, the respondents replied:

> "We first put traditional herbs in the teeth until when we find that we can't bear the pain any longer", *pause*, "when they have failed to work." *Woman, Kanoni.*
>
> "We usually put herbs in order to reduce the pain but we know that the only treatment for a toothache is removing it." *Man, Nkozi.*
>
> "By the way, some of these people believe in traditional dentists. One lady told me she had gone to a traditional healer and he removed an insect that was causing the toothache and that she has gone there several times. That the 'dentist'

inserts medicine in the tooth and removes the insect." *Coordinator, Masaka District.*

"I also had a toothache but we stay a bit far from Kalisizo hospital. Transport is a lot yet I would even have to pay for the treatment at the hospital so I packed some herbs in the hole. It helped me for a while." *Woman, Kabwooko.*

Apart from first using traditional medicine and healers, other reasons for delay in seeking treatment from proper hospitals are illustrated below:

"People told me that a toothache is worse than what I was already experiencing and advised me to wait for the right time. They told me it was not yet time for removal and advised me to put Aspirin and the pain subsided. I didn't have to go to hospital then but now it is unbearable." *Woman, Kampala.*

"People told me that Aspirin stops the pain so I tried it out and it worked for me. The tooth started breaking off piece by piece until the whole crown got off leaving only the roots. I went to hospital to remove the roots at my own time, not because of the toothache." *Woman, Kabwooko.*

"I went to a dentist one time and failed to get numb even after 4 injections. The tooth was removed while I was feeling pain. The next time I went I got numb but the pain after removal was unbearable and the wound took long to heal. Now I go to Mulago hospital where services are better. I normally have to wait till the tooth is due for removal because the hospital is very far." *Woman, Kabwooko.*

"I also had a similar experience. I had painful tooth removal and a very large wound and swelling afterwards. That is why we put those funny medicines or herbs rather than go to experience that pain." *Woman, Kabwooko.*

4.11 Regression Results

To gain some insight into the characteristics of individuals who visit private and public facilities, regression analysis, using a probit model, was performed. The aim was to illustrate the cross-tabulated correlation, presented earlier, between individuals who went to either private or public facility and a range of socio-economic and demographic characteristics. They included age, gender, residence, income, employment status and education qualifications. The probit model takes a linear function of the explanatory variables and applies a non-linear transformation using the S-curve of the normal distribution function (Jones 2001). The binary choice model illustrated y=1, if an individual went to the private clinic and y=0, if one went to public facility. The coefficients on the X variables illustrated how the correlation changes with changes in individual's characteristics. Table 12 shows the results of the regression analysis.

Table 12: Regression results; Probit model estimates
Impact of socio-economic & demographic factors on choice of provider

Variables	Coefficients	S.E.	P> |z|
Dependent variable			
Private			
Independent variables			
Age	-0.0117	0.0073	0.111
Male	-0.0479	0.1482	0.746
Urban	0.3469	0.1479	0.019
Income	1.1307	0.6582	0.086
No formal education	0.7182	0.4211	0.088
Pri educ complete	0.8302	0.3886	0.033
Sec educ incomplete	0.9661	0.3863	0.012
Sec educ complete	1.1354	0.3948	0.004
Tertiary education	1.1629	0.4226	0.006
Formally employed	0.3555	0.3297	0.281
Self employed	0.6122	0.3328	0.066
Unemployed	0.1699	0.2266	0.453

Number of obs = 415, LR chi2(15) = 35.30, Prob>chi2 = 0.0002, Pseudo R2 = 0.072

The ideal way to apply regression analysis would have been to use a randomly selected sample, but the study setting limited this application. The health centres involved in this study were not randomly selected due to the limited and inequitably distributed number of dental clinics in the rural areas. Although regression analysis is not designed to address analyses with non-random samples, we have decided to use it in order to get a rough indicator of significance of the results analysed earlier. However, these results must be interpreted with caution.

Significant results

A sample of 415 was used after dropping Nkozi hospital, a non-government rural and private hospital that was an outlier, because, as mentioned before, its status as either a private or a public facility is ambiguous. The chi2 value of 0.0002 specifies the goodness of fit of the model, which indicates a statistically significant association between the socio-economic characteristics and type of facility, although the Pseudo R-square value at 0.072 is low.

Residence

The results show a significant association between visiting a private facility and living in urban areas (p-value<0.05). The positive sign on the coefficient indicates that the residents of the urban areas had a higher probability of visiting private facilities relative to rural dwellers. It is not surprising that more urban dwellers than rural ones attend private clinics. There are usually far more private dental clinics in the urban areas than in the rural areas. In fact, in some rural areas there are only public clinics. This leaves residents in the rural areas with only two options: either attend the available public facilities or travel to the urban areas if they want to attend private clinics.

Nonetheless, some rural areas have only private not-for-profit facilities as the nearest providers of oral health care. Such private hospitals are sometimes the obvious choice for rural dwellers, given the small amount charged for treatment at these facilities. Nkozi hospital (a rural private not-for-profit), for example, charges only 2,000 shillings per extraction; the same amount is charged at Kalisizo government hospital.

Education

All the education categories had positive signs, indicating that at all levels of education the respondents had a higher probability of utilizing private facilities as opposed to public ones. However, the magnitudes on the coefficients of education categories increase steadily from 'no formal education' to 'tertiary education', implying that there is increasing probability of respondents attending private clinics as education levels increase. This is further emphasised by the statistical significance levels at which the coefficients relate. The category 'no formal education' has a coefficient significant only at 10 percent, primary and incomplete education coefficients are significant at 5% and those of highest education levels at 1 percent.

Highly educated individuals have better capacity to evaluate the effectiveness of the different health services and may perceive private clinics to offer better quality services. Their increased tendency to visit private clinics might also be associated with higher incomes and therefore the affordability of costly private services. Another aspect as mentioned earlier may be related to shorter waiting times and convenient opening hours. Since highly educated individuals have been associated with formal employment (Figure 6), it is also possible that the time these individuals get to visit health facilities is outside their working hours, when most dental public facilities are

closed. In Uganda, many small private dental clinics operate well beyond normal working times and days.

Income

Income was positively correlated with attending private facilities. The weaker statistical significance of the coefficient on income (p-value <0.1) signifies a weaker association between this category and private clinic utilisation. This is probably because half the patients interviewed were either students or unemployed, which made the proportion of individuals who responded to the question on income, too low to register reliable results. However, these results can be interpreted to mean that the probability of individuals with high incomes using private facilities is higher than for those without any source of income.

This finding is consistent with an earlier study in Uganda by Mubangizi (2003), who found that private health care service use increased with increase in income. The same study also noted that more than 40 percent of the lowest income quintile used private health care services and 30 percent of the highest quintile used public health services. A similar trend was found in the results presented in section 4.2.3 of this study. These findings relate to the different individuals' varying perceptions of quality of service and probably the type of oral health centre that is more proximal to these individuals; whether private or public.

Occupation

Self-employment has a positive coefficient, indicating that self-employed individuals have a higher probability of visiting private facilities than public facilities. The coefficient on self-employment is 0.61. This shows that the probability of self-employed individuals attending a private clinic is higher than that of the reference individual.

Self–employed individuals usually opt for private facilities due to their direct access to resources as well as the value they attach to the opportunity cost of waiting for treatment at a public facility. Although the coefficients on unemployment and formal employment were statistically insignificant, formal employment is normally associated with higher income and therefore greater ability to afford private treatment.

Other statistically insignificant variables

Since the signs of the coefficients on age and gender are negative, it would imply that older individuals who are male have a lower probability of attending private clinics than younger and female individuals. However, both these variables do not give statistically significant p-values. The findings on gender are consistent with those reported in the Atlas of Canada (2004) and by Todd and Durward (1993) in Cambodia, namely that gender tends to have a much greater influence on medical service utilisation than dental service utilisation.

From the above findings, it can be concluded that, in addition to quality, cost, severity of disease and distance from facility determined earlier, the socio-economic and demographic characteristics of an individual also contribute to the choice of health care provider, in other words, whether to visit a private or public health care facility.

Chapter Five

DISCUSSION OF RESULTS

5.1 Introduction

The results of this study showed that various factors play a role in determining people's choice of oral health care providers. Such factors were seen to affect help-seeking behaviour of people from rural and urban areas to varying degrees. There are, particularly, barriers in gaining access to oral health care for people in the rural areas. Since the most commonly required oral health care amongst these people is that of dental pain relief, policy responses have to shift from trying to change help-seeking behaviour to trying to address service provision. Currently, the pattern of service utilisation is typified by low uptake of regular dental check-ups, delay in accessing care for serious dental conditions and over-utilisation of emergency services (World Health Organization 2003), such as tooth extractions.

The study established that the urban respondents were generally more satisfied with the oral health care services than their rural counterparts. The study findings support those of previous studies, viz. that health care service utilisation is a function of price and quality (Mapira 2003; Munga 2003; Ndeso-Atanga 2003). The components of quality assessed in this study included availability of trained staff, availability of essential drugs, cleanliness and sterility, waiting time and staff attitude. The components of cost consisted essentially of income, consultation fees, transport costs and treatment costs.

5.2 Components of quality and choice of facility

Availability of drugs and trained personnel emerged as the two highest ranked determinants for choice of oral health care provider among the components of quality. Many more health care providers operate at urban health care centres than at the rural centres. A Pearson-Chi square test, using the data reflected in Table 10, supports the above hypothesis ($p<0.05$). It shows a statistically significant association between rural and urban availability of trained personnel as reason for utilisation of a given facility. This could be explained by the fact that there are few incentives to keep oral health care providers in the rural areas, given that the remuneration of oral

health care personnel of the same level working in the urban and rural areas is the same at all government facilities. In the public sector, there are only qualified oral health workers available as low as level HC IV. Moreover, not all the HC IVs have dental practitioners. Masaka district, for instance, has eight HC IVs but only two PHDO who travel between the eight centres. There are no dental services at the lower level health centres, and this finding leads to a conclusion that the underserved populations, mainly rural dwellers, are prone to malpractices from unqualified practitioners (section 4.8).

It is generally known that rural areas are unable to attract private providers due to the poverty that causes financial barriers to private services. Worse still, the weak revenue generating capacity of the public sector means that its services are unsatisfactory. In light of a weak public sector, it would be important to have a well functioning private sector to reduce the over-dependence of rural populations on the public sector. However, the private clinics would have to offer relatively cheap services if they are to compete with government clinics in the rural areas.

Drug supply at public facilities is one of the most pressing problems faced by the public sector, yet that is one of the basic requirements of a health facility. The study revealed that more rural respondents reported satisfaction with drug supply at the public facilities than did the urban respondents. This may be explained by the fact that not all the public facilities offer oral health care services and the few that do might be reasonably facilitated. Another reason is that dental patients do not require a wide spectrum of essential drugs, so the few that are needed are easily acquired. Given that some patients may not even require any antibiotics following their procedures, such patients will obviously report satisfactory drug availability from the painkillers issued to them. These tablets are sometimes adequate and relatively cheap to obtain.

In the instances where drugs were not available, health workers prescribed the drugs, which were purchased at private pharmacies. It could then be argued that the poorer patients who were not able to afford the drugs went without. From this we can conclude that, although the government is making an effort to make drugs available at its facilities, thus increasing the demand and utilisation of public facilities in the rural areas, there is still evidence of inadequacy. Maintaining a reliable and affordable drug supply is critical to attracting and retaining patient flow at the health facilities, so the bureaucracy that at times causes drug stock-out needs to be revised.

Both urban and rural respondents considered cleanliness and sterility very important. Dentistry is a surgical discipline and should only be carried out in a very clean and sterile environment to prevent cross-infections. According to Morrow (1995), the transmission of some deadly viruses such as HIV and Hepatitis B & C can occur via improper handling and cleaning of dental instruments. There is a possibility that these viruses can be transmitted by blood on instruments from one patient to another. The research revealed that some facilities exhibited low standards of cleanliness and sterility. This may discourage people from visiting such health centres. A number of people, in the urban areas to be exact, reported being cautious when choosing which dental offices to go to for fear of transmission of incurable infections, and this may partly explain the difference in the utilisation pattern between urban and rural areas.

Staff attitude plays a very important / significant role in attracting patients to a health centre in the first place, as well as in retaining them. This is particularly true for clinics that practice capitation as a method of payment, where a practitioner is paid based on the number of patients on his list. While it is true that poor staff attitude may drive patients away from an otherwise good quality facility, the findings at the rural facilities suggested otherwise. This contradiction could be attributed to the insufficient number of dental clinics in the rural areas, which limits flexibility. The findings suggested that the rural populations had limited or no other choices of providers, so that they had somehow become accustomed to the poor customer care accorded by the available providers. Urban dwellers, on the other hand, had a much wider choice of clinics and hospitals to select from and would not return to practitioners who would not display the proper attitude.

From what we gathered from the health providers themselves, their attitude may depend on the practitioner's workload, the availability of essential supplies and general staff motivation. The study further led us to conclude that oral health care providers in the public sector become frustrated when faced with a queue of patients and only limited drugs. A practitioner with a queue of patients waiting at a public facility may not display as much patience as one attending to well-scheduled appointment patients at a private clinic.

The study found that more people waited at the rural clinics than at urban ones. This is consistent with the findings of Munga (2003). The opportunity costs of time wastage may play a bigger role in urban dwellers' choice of private or public facilities than that of rural dwellers. It was concluded that the rural dwellers wait longer because they have fewer providers to attend to them unlike urban dwellers who have many options. The availability of a number of private clinics in

the urban areas enables urban dwellers to switch from public facilities to private ones in search of shorter waiting times. Private consultation is typically of more accurate (particularly in terms of appointment scheduling), which implies lower waiting times at the cost of higher out-of-pocket payment than in the case of public ones (Fabbiri and Monfardini 2002).

A different trend is seen with Nkozi hospital, the private rural hospital in this study. Although it is a private hospital, the opportunity cost of time is much higher here, probably because the dentist only visits the hospital twice a week. The waiting times here depend on the time at which the dentist reports to work and on the number of patients waiting to be treated that day. It can be deduced that the opportunity cost of time lost when patients wait for care affects rural dwellers more than urban ones. The demand for oral health care services is affected by the time one waits to get oral health care, and the utilization of these services depends on the supply and availability of drugs and providers respectively.

5.3 Components of cost and choice of provider

The study found that only one eighth of the urban respondents and less than one quarter of the rural respondents did not pay for treatment, and that all those who paid had financed their treatment from out-of-pocket. In Uganda, the private sector's out-of–pocket payments account for 53.4 percent of the total expenditure on health (World Health Organisation 2003). It could then be concluded that oral health care provision in most areas is based on the individual's ability to pay, and that the burden of payment is one of the major reasons why the poor and needy found mainly in rural areas delay seeking treatment.

Uganda first implemented user fees in the early nineties, but the policy was changed in 2000. Now the health policy requires that no fees be charged at the public health centres. The study revealed, however, that user fees that have been known to be inequitable and had been abolished are still being used at most of the facilities. The amended policy would have been effective if the health centres were assured of continuous flow of supplies but the prevailing situation is that hospitals are generally under-funded and often fail to complete their tasks. Implementing this health policy, then, would leave populations without services when there are stock-outs, so most of the health centres have resorted to charging a small fee to ensure continuity of treatment all year round. However, the health policy has worked in national and regional hospitals, where there

is a private and a general (non-paying) side. Funds from the private side, in that case, supplement the general side.

The findings further showed that, although patients may ask for exemption from paying for treatment, those who do are usually worked on last. In North California, Williamson (2001) reported a similar situation where non-paying patients complained that they normally waited 4 to 6 hours to be treated, while those paying came and went quickly. As mentioned earlier, it is also possible that ineligible individuals may claim exemption. Since there is no proper 'means test', health workers usually keep the destitute waiting until those who have paid have been worked on; and until some of the ineligible patients have become impatient and eventually paid for the treatment. This has reduced the number of claims from ineligible patients. A proper means test needs to be designed, however, in order to reduce the poorer population's opportunity cost of time.

We can conclude that, despite government's effort to provide free health care services to the less affluent, dental services are still being paid for at the majority of health centres. This affects the utilisation of these health facilities. Since cost is still a barrier to utilisation of oral health care services, that barrier also reduces the cost effectiveness of such services. The existence of cost-sharing, user fees or informal fees even in government-run health centres confirms that there are few resources allocated to dental services, and indicates the need to increase priority given to oral health care. In fact, the Health Sector Strategic Plan 2000/01-2004/05 still recognizes the existence of user fees since the Directorate of Planning and Development pledged to continue to develop and support it as an alternative financing scheme (Ministry of Health 2000).

In many rural areas, user fees or treatment costs are considerably low compared to the travel and care taking costs that increase the amount spent by the patient. Presently, the percentage of households within walking distance, i.e. 5 km, to a health facility is 57 percent (Ministry of Health 2004a). This does not necessarily mean that dental services are available at these facilities. The nearest health centre with dental services for some rural dwellers was reported to be as far as 10 to 25km from their homes. Although not very well reflected by the responses from the research, distance is evidently a significant barrier to health care access by the rural people. The Coordinator in Masaka district cited this example: "Public transport costs from Bukomansimbi [a village in Masaka district] to Masaka hospital is about 10,000 Uganda shillings, yet an extraction costs 3,000 Uganda shillings." This observation implies that the user fees in some cases are much

lower than the transport and indirect costs involved and may result in late presentation of patients at the clinics and deter the poor who cannot afford such expenses.

Another observation was that a number of rural patients had to walk to the health centres to access oral health care. The most easily available mode of transport in the rural areas was bicycles, which have to be paid for. The average amount paid for transport was 2,000 Uganda shillings. This is far too much for peasants in the villages who barely have any reasonable source of income. County's findings (County 2002) confirm that it is transport costs, not transport availability, travel time, long waits, or distance, that is often the most important barrier to dental care.

5.4 Socio-economic and demographic factors

In spite of the results, which indicated that income is not a very important factor in determining the utilisation of oral health care providers, it is generally known that level of income does determine whether one goes to a private or a public clinic. The results of the regression analysis in Chapter 4 indicated an association between private facility utilisation and income. At most, one in every five employed Ugandans earns 20,000 shillings per month (Uganda Bureau of Statistics 2003). This emphasizes the findings in section 4.4 above that fewer people visit private as opposed to public facilities due to their low income earning capacity, and it is more so for the rural residents than for urban ones. The study results and the national results both show that those who earn more than 100,000 Uganda shillings mainly reside in urban areas (Ministry of Health 2003a).

High-income earners can afford costly treatment and were expected to visit private facilities, but this study found that the opposite was true. Individuals in the highest-income quintiles probably perceive public facilities as offering better quality services, thus displacing the lower income groups who would otherwise have used them (Mubangizi 2003). The proportion of low-income earners that visited private facilities reflects this displacement (Figure 7).

Income inequalities and financial barriers to health care exist across different socio-economic groups. Women and children often have meagre resources because they are usually the financially dependent party of the household. This was confirmed by the fact that a number of patients in the study (mainly rural) had their oral health care financed by their parents, husbands and a few other

relatives. Retired people are also more apprehensive about spending a significant amount of their limited resources on dental treatment because they usually have a fixed income or pension. The use of dental care by the elderly was thus also substantially influenced by financial barriers and other non-dental health concerns. Eliminating such barriers would definitely have a positive effect on their use of oral health care. It is worth noting that the more sophisticated and therefore expensive modes of treatment, such as prosthodontic, orthodontic and restorative treatments, were often not available for the rural population at all.

There was a positive relationship between the number of visits and the age of the respondents, especially the age cohort 20-29. The number of dental visits declined progressively for the ages above 40, implying that as people age they are less likely to seek oral health care. The study's high percentage (83 percent) of patients below 40 years is consistent with the findings that unlike medical visits, dental visits are most common among the youth and decrease as individuals age (Atlas of Canada 2004). The results from the regression analysis did not establish any significant relationship between choice of private facility and age or gender. This is contrary to the findings of previous studies but consistent with the results obtained by Ndeso-Atanga (2003). The socio-economic and demographic factors that have been shown to positively affect this choice are education, occupation, income and location. Unfortunately, there was much missing information about income because half of the respondents were either students or unemployed, so it was not possible to obtain a continuous variable.

It is presumed that more educated individuals can improve their own dental health status more efficiently and that they should thus visit a dentist less often than less educated ones (Stoyanova 2001). Interestingly, even though Wagstaff (1986) concurred with the fact that better education is expected to influence individuals' health activities and production, his findings also indicated that the more highly educated people tended to utilize health care services more than the poorly educated ones. Wagstaff's findings were similar to those of this study. With regard to the frequency of dental service utilisation, literate individuals, namely those who had completed primary education and beyond, made more dental visits than illiterate ones. It could be argued that more literate individuals take up dental check-ups and referrals (Figure 9), and that this is why they frequent dental offices (Table 2), but this is not soothe case. Figure 8 illustrates that the majority of patients, including literate ones, visit dentists because of toothaches. Therefore, the dental visits could probably be more related to income than education.

It is worth noting that the national literacy rate was 54 percent in 1991 (Masaka District Environment Profile 1998) but that it has risen to 70 percent (Uganda Bureau of Statistics 2003), probably due to the introduction of free primary education, an initiative known as Universal Primary Education (UPE). The findings showed that the majority of respondents had at least attained a primary level of education. Most of the respondents interviewed were in the age group of 20-29 years and may thus have benefited from this scheme. The study findings might thus reflect an increased awareness of the availability of dental services among the youth.

The majority of the urban respondents had attained secondary and tertiary education but only one third of the rural respondents had, which was consistent with the national statistics. The possible explanation for this variation is that secondary education is costly and that rural dwellers are poor, so many drop out of school because of financial constraints. Another explanation may be that the majority of post secondary institutions are found in major towns, making them inaccessible to many rural dwellers.

The study also showed people's lack of adequate knowledge about oral health care. There is an obvious need for oral health education but the personnel to carry it out are lacking. The greatest number of respondents said they visit dentists only when they suffer from severe toothache. There was also evidence of delay in seeking oral health care, associated with the use of traditional herbs and Aspirin tablets. Even after receiving advice from their dentists, patients rarely have tooth restorations or conservations and still wait for severe toothaches, citing bitter past experiences. These observations were more evident in rural areas and further confirmed by the rural respondents admitting that they were unable to go to other facilities when referred. This indicates that the government's objective of establishing a functional referral system (Ministry of Health 2000) is still far from being realized.

There are still barriers that prevent consumers from accessing oral health care, especially in the rural areas. Government's inability to equip dental clinics at the lower levels is depriving patients of the possibility of having timely treatment. Lack of formal education and low income are contributing to patients' inability to visit other facilities when referred, which denies them the opportunity of seeing what better-facilitated clinics are like so as to acquire the capacity to distinguish between 'poor' and 'good' quality services.

5.5 Other factors

As already mentioned, patients seek treatment from public and often referral facilities when faced with what they perceive as a severe health problem, and visit nearby clinics for minor ailments. Respondents also delay reporting illness or do not seek care at all for less severe ailments (Mapira 2003). However, many of the patients who came to the national hospital had travelled long distances for minor problems. These patients admitted to feeling more secure when seeking care from Mulago hospital since this all complicated cases are referred to this hospital. This further confirms that patients search for quality treatment when choosing providers.

Distance affects both rural and urban dwellers. The findings indicated that rural and urban respondents travelled short and long distances to access dental services but for different reasons. Most of the rural dwellers had to and were willing to travel long distances because they stay very far from the health centres. This also applies to urban dwellers who, although they usually have nearby health centres, may opt for centres far away where there are better quality or cheaper services.

In light of all the above difficulties, people sometimes find themselves using traditional medicine or local herbs to deal with toothaches. This was confirmed by all the rural focus group discussions carried out in all the districts. Many respondents admitted to having used local herbs before visiting the dentist. Some had even inserted washing soap into the cavities in the hope that it would relieve the pain. In contrast, the urban groups mainly inserted Aspirin tablets. The reason given for such behaviour was lack of money for treatment and fear of pain during and after treatment. Although a few of the subjects still visit traditional dentists and use local herbs, many said they would prefer to visit a qualified dentist if they had the chance.

It could be concluded that oral health care services are still inadequate in Uganda, especially in the rural areas, and that access to the existing ones is hindered by a number of barriers, namely financial, geographical, attitudinal and provider related barriers. Inadequate awareness of oral health care among the populations due to a lack of comprehensive health education and upholding of cultural values exacerbate the situation. The government is, therefore, still faced with the task of removing these barriers and constructing a health system that will effectively and equitably provide oral health care services to its entire population.

Chapter Six

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The purpose of this study was to determine the factors that influence the utilization of oral health care services in Uganda and how these affect the Ugandan people's choice of oral health care providers. As there was no data available on this subject in Uganda, no comparisons with previous studies could be done.

Using a cross-sectional analysis, we interviewed patients from rural and urban areas in five districts, visiting public and private facilities. As expected, we found evidence that good quality of services, as well as reasonably cheap oral health care were important considerations in choosing health care providers. The availability of trained dentists and drugs, the severity of the disease, and the cleanliness and sterility of the practice, as well as the distance of patients' home from the facility all played a major role in the choice of oral health care provider.

Our study has further led us to conclude that, although cost of treatment is a determinant, it is not as important as the above components of perceived quality, contrary to what Munga (2003) found for general health services. The difference might be attributed to the differences between dental care and general health care services. It also showed that the high opportunity cost of time is negatively correlated with dental care, in other words. Some socio-economic factors also had an impact on individuals' choice of providers. Education, which was expected to be associated with a reduced number of dental visits, in fact had the opposite effect, with less educated individuals seeking dental care more often than more educated ones. Age was also a determining factor, as the youth seem to frequent dental clinics more than the elderly.

On the whole, the study found that patients look for quality care. This observation was more relevant for the urban respondents than the rural ones. Although the findings are not new, they do contribute to a better understanding of how patients make rational health care decisions, and also emphasise the difference between dental and medical health care. It is also important to know

more about why patients choose to utilise private dental services and to what extent the availability of these services leads / affects / increases demand.

6.2 Policy recommendations

It has been revealed by this study that there is a general lack of knowledge about oral health care among the population. The greatest percentage of the respondents was not even aware that it is essential to go for dental check-ups. Such patients clearly need more information about how to look after their teeth better to avoid toothaches and extractions in the future. A few dentists at HC IV level institutions only conduct outreach programmes when resources are available. In order to increase people's knowledge about oral health care, however, the outreach programmes currently running should be targeted at the populations deeper in the rural areas. During such outreach programmes / initiatives, people should be made aware of the dangers of facilities that do not observe maximum cleanliness and sterility so as to reduce cross-infections brought about by unscrupulous 'practitioners'.

Dentists and other members of the dental fraternity should become more involved in oral health promotion programmes. The fact that most of the patients interviewed had in fact visited a dentist more than once in a year implies that dentists are in regular contact with such patients and that they should therefore seize every opportunity to advise them correctly. This could be done by dentists disseminating more information about oral care to their patients before, during and after treatment. Counselling around unhealthy behaviour is an important communication skill that should be part of all oral health care visits. Such oral health enhancing practices delivered through the collective efforts of the oral health care personnel will ensure that patients ultimately receive the care they need, as dentists are in a better position to influence the amount of care patients receive.

In order to prevent and manage dental problems more effectively, the government should provide additional resources, if the people of Uganda, and especially those in the rural areas, are to receive the service they deserve. Such resources need to be distributed equitably and transparently among the rural and urban populations. There may be formulae to allocate resources to health authorities, but if there is no transparency and fairness in the allocation of resources to different groups and services, then inequities in service provision will always remain.

Policy makers should address the barriers to access of dental health care services by devising policies that will ensure the maximum utilisation of available services by all populations. Such policies would include introducing dental services at the lowest health centres so as to minimise the malpractices carried out by the many untrained personnel mainly found in the rural areas. It will also serve as a measure to decrease distance travelled by patients to health centres.

In line with the above, district health inspectors should visit the lower centres more regularly to track down the self–proclaimed dentists and to decrease complications and cross-infections brought about by such practices.

As preparations of establishing national pre-payment schemes are underway, including dental services in these schemes should also be considered. Oral health care services are not included in most of the pre-payment arrangements available and the few that offer them select and limit the type of services provided. Pre-payment mechanisms permit spreading out the cost of treating illness among other sick as well as healthy individuals so that the burden of illness is not borne by the patient alone or by his household. Pre-payment schemes for informally employed individuals also need to be devised. This will be an incentive for patients to present early and more regularly for treatment and check ups at the dental offices.

References

Akin, J,S., Guilkey, D.K. & Denton, H. 1995, Non-monetary Demand for Medical Services: Some Empirical Evidence, *Journal of Political Economy*, 83 (3): 575-614.

Andersen, R. & Benham, L. 1970, Factors Affecting the Relationship between Family Income and Medical Care Consumption of Appropriate Dental Services, *Journal of American College of Dentists*, 65: 7-16.

Atlas of Canada. 2004, *Health Services Utilisation: Bar chart of the 1998/99 Physicians and Dental Services Utilisation by Gender-Description*, Retrieved: 23rd September 2004, from http://atlas.gc.ca/site/english/maps/health/servicesutilization/1.

Baltussen, R., Ye, Y., Haddad, S. & Sauerborn, R. 2002. Perceived Quality of Care of Primary Health Care Services in Burkinafaso, *Health Policy and Planning*, 17 (1): 42-48.

Barton, C & Barton, P. 2004, *An Update from Chris and Polly Barton in Uganda*, Christian Dental Fellowship, Retrieved: 13th February 2006, from http://www.cdfuk.org/missionpart2.htm.

Becker, G.S. 1965, A Theory of the Allocation of Time, *Economic Journal*, 299 (75): 493-517.

Birungi, H., Mugisha, F. & Nsabagasani, X. 2001, The Policy on Public-Private Mix in the Ugandan Health Sector: Catching up with Reality, *Health Policy & Planning*, 16: suppl 1(2).

Bossert, T. 1998, Analysing the Decentralisation of Health Systems in Developing Countries: Decision Space, Innovation and Performance, Elsevier Science Ltd, *Social Science Medicine*, 47: 1513-1527.

Brouwer, W., Rutten, F. & Koopmanschap, M. 2001, Costing in Economic Evaluations, in Drummond, M. & McGuire, A. (eds), *Economic Evaluation in Health Care: Merging Theory with Practice*, Oxford: Oxford University Press.

Centre for the Health Professionals. 2002, *Dental Workforce Supply and Demand*, Presented at CPCA Oral Health Summit, University of California, San Francisco. Retrieved: 24th August 2004, from http://www.futurehealth.ucsf.edu/resources/roadshow.html.

Cleary, P.D. & McNeil, B.J. 1988, Patient Satisfaction as an Indicator of Quality Care, *Inquiry* 25: 25-36.

County, B. 2002, *Behaviour Risk Factor Survey: A survey on percentage of respondents who did not have any kind of dental insurance*, Retrieved: 25th August 2004, from: http://www.berriencohlthdept.or/brfs/berrien02brfs-dentalcoverage.htm.

Creese, A. 1991, Charges for Health Care: A Review of Recent Experience, *Health Policy and Planning*, 6: 309-319.

Davies, A & Ware, J. 1988, Involving consumers in quality of care assessment, *Health Affairs*, 7 (1): 33. Retrieved: 9th February 2006, from content.healthaffairs.org/cgi/reprint/7/1/33.

District State of Environment Report. 1998, Rakai District, Uganda.

Donaldson, M, S. & Nolan, K. 1997, Measuring the Quality of Health Care: State of the Art, *The Journal on Quality Improvement*, 23: 283-292. Retrieved: 26th April 2005, from http://www.dse.unibo.it/wp/457.pdf.

Fabbri, D & Monfardini, C. 2002, *Public Vs Private Health Care Services Demand in Italy,* Retrieved: 8th February 2006, from http://www.dse.unibo.it/dfabbri/gde.pdf.

Frederickx, I. 1998, *Health in Rural Tanzania: The Determinants of Health Status, Health Care Demand and Health Care Choice*, Centre for Economic Studies, Discussion Paper Series, DPS 98.

Gaughwin, A., Spencer, A.J., Brennan, D.S. & Moss, J. 1999, Oral Health of Children in South Australia by Socio-demographic Characteristics and Choice of Provider, *Community Dental Oral Epidemiology*, 27 (2): 93-102.

Gilbert, L., Brand, A. & Rudolph, M.J. 1995, Private Dental Practitioners: Perceptions of Needs and Barriers to Dental Care, *Journal of the Dental Association of South Africa*, 50: 5-7.

Gilson, L. 1998, *The lessons of user fee experience in Africa*, In: Beattie, A., Doherty, J., Gilson, L., Lambo, E. & Shaw, P. (eds), *Sustainable Health Care Financing in Southern Africa*, Washington DC, World Bank.

Grossman, M. 1972, On the Concept of Health Capital and the Demand for Health, *Journal of Political Economy*, 80: 223-255.

Hay, R. 1998, *Health Services in Uganda: A Consultancy Report Submitted to the World Bank*, Kampala, Uganda.

Hjortsberg, C. & Mwikisa, C.N. 2002, Cost of Access to Health Services in Zambia, *Health Policy and Planning*, 17 (1): 71-72.

Hutchinson, P. 1998, *Equity of Access to Health Services in Uganda: The Effect of Income, Gender, Proximity to Services and Quality of Care*, Draft Report, World Bank, Uganda Resident Mission.

Iganga District Environment Profile. 1999, National Environment Management Authority.

Jack, W. 1999, Principles of Health Economics for Developing Countries, *WBI Development Studies*, The World Bank, Washington, D. C.

Jitta, J. 1998, *Quality of Care in Uganda Health Care Services.* In: *Health Care Systems in Africa*, Copenhagen, University of Copenhagen and the Enreca Health Network, pp 35-47.

Kampala District Profile. n.d., Kampala, Uganda. Retrieved: 15th April 2005, from http://www.ugandadish.org/kampala.doc.

Leighton, C. 1995, Overview: Health Financing Reforms in Africa, *Health Policy and Planning*, 10 (3): 213-222.

Lindelow, M. 2003, *The Utilisation of Curative Health Care in Mozambique: Does Income Matter?*, Oxford University, Centre for Study of African Economics, World Bank.

Manski, R.K., Macek, M.D. & Moeller, J.F. 2002, Private Dental Coverage: Who has it and, Does it Influence Dental Visits and Expenditures? *Journal of American Dental Association*, 133 (11): 1551-9.

Mapira, W. 2003, *The Demand for Health Care in Urban Areas of Zimbabwe, MPH Dissertation*, School of Public Health and Family Medicine, University of Cape Town: Cape Town.

Mariko, M. 2003, Quality of Care and the Demand for Health Services in Bamako, Mali: The Specific Roles of Structural, Process, and Outcome Components, *Social Science & Medicine*, 56: 1183-1196.

Masaka District Environment Profile. 1998, National Environment Management Authority.

McCaul, L.K., Jenkins, W.M. & Kay, E.J. 2001, The reasons for Extraction of Permanent Teeth in Scotland, a 15-year Follow up Study. *British Dental Journal*, 190 (12): 658-662.

McGuire, A., Fen, P. & Mayhew, K. 1989, The Assessment: The Economics of Health Care, *Oxford Review of Economic Policy*, 5: 1-20.

McGuire, A., Henderson, J. & Mooney, G. 1988, *The Economics of Health Care*, London: Routledge, Ch 1-3.

Mills, A. & Gilson, L. 1988, *Health Economics for Developing Countries: A Survival Kit*, EPC Publication No. 17, London: Evaluation and Planning Centre for Health Care LSHTM, Chapter 4.

Ministry of Health. 1989, *Report of the National Oral Health Plan Committee*, Ministry of Health, Kampala.

Ministry of Health. 1999, National Minimum Health Care Package; Oral Health, In :*Uganda National Health Policy*, Ministry of Health, Kampala.

Ministry of Health. 2000, *Health Sector Strategic Plan 2000/01-2004/2005*, Ministry of Health, Kampala.

Ministry of Health. 2003a, *Annual Health Sector Performance Report, Financial Year 2002-2003*, Ministry of Health, Kampala.

Ministry of Health. 2003b, *Development of a National Oral Health Policy*, Ministry of Health, Oral Health Section, Kampala (*Unpublished*).

Ministry of Health. 2004a, *Annual Health Sector Performance Report: Financial Year 2003-2004*, Ministry of Health, Kampala.

Ministry of Health. 2004b, *Financing Health Services in Uganda 1998/1999-2000/2001: National Health Accounts*, Ministry of Health, Kampala.

Mitchell, L. & Mitchell, D.A. 1999, *Oxford Handbook of Clinical Dentistry*, Third Edition, Oxford: Oxford University Press.

Mooney, G. & Ryan, M. 1993, Agency in Health Care: Getting Beyond First Principles, *Journal of Health Economics*, 12: 125-135.

Morrow, D. 1995, *Hepatitis C and Dental Transmission: Occupational Risk for Hepatitis C Virus Infection among New York City Dentists,* Hygiene Risk for Dental Patients. Retrieved: 17th May 2005, from http://www.hcvets.com/data/transmission_methods/dental.htm.

Mpigi District Environment Profile. 1998, National Environment Management Authority.

Mubangizi, D.B. 2002, *Public-Private Mix Health Care Resources Distribution Implications for Equity: Kampala District, Uganda, MPH Dissertation,* School of Public Health and Family Medicine, University of Cape Town, Cape Town.

Muhirwe, L.B. 2003, *Reforming the Oral Health Sector in Uganda: A Primary Health Care Approach*, MPH Integrating Experience: Special Studies 550.866. Retrieved: 12th September 2004, from http://www.jhsph.edu/Academics/MPH/Muhirwe_IE paper 2003.pdf.

Munga, A.M. 2003, *The Impact of Costs and Perceived Quality on Utilisation of Primary Health Care in Tanzania: Rural-Urban Comparison, MPH Dissertation*, School of Public Health and Family Medicine, University of Cape Town, Cape Town.

Musgrove, P., Zeramdini, R. & Carrin, G. 2002, Basic Patterns in National Health Expenditure, *Bulletin of the World Health Organisation*, 80 (2): 134-142.

Muurinen, J-M. 1982, Demand for Health: A Generalised Grossman Model, *Journal of Health Economics*, 1: 5-28.

Muwaazi, L., Tiromwe, F., Sali, C., Kasangaki, A., Nkamba, E. & Ekwaru, P. 2002, A Report of the Pilot Study on District Capacity Building for Oral Health Survey in Decentralised Districts (*Unpublished*).

Mwabu, G., Ainsworth, M. & Nyamete, A. 1993, Quality of Medical Care and Choice of Medical Treatment in Kenya: An Empirical Analysis, *Journal of Human Resources*, 28: 838-862.

Namayanja, K.E. 2003, *Factors Contributing to Prevalence of Dental Caries and Periodontal Disease among Primary School Children in Jinja District, MPH Dissertation*, Institute of Public Health, Makerere University, Kampala.

Ndeso-Atanga, S. 2003, Health Care Quality and the Choice of Care Providers: Cameroon II, Articles of Africa's Changing Markets for Health and Veterinary Services, *The New Institutional Issues*, UCIAS Edited Vol 5.

Noorali, R., Luby, S. & Rahbar, M.H. 1999, Does Use of Government Service Depend on Distance from the Health Facility?, *Health Policy and Planning*, 14 (2): 191-197.

Oral Health Summit. 2002, Retrieved: 6th February 2006, from http://oph.dhh.state.la.us/maternalchild/oralhth/docs/oralhltplansum.pdf.

Rosen, R., Florin, D., Dixon, J. & King's Fund. 2001, *Access to Health Care*, Report of a Scoping Exercise for the National Co-ordinating Centre for NHS Service Delivery & Organisation, R & D (NCCSDO).

Sahn, D.E., Younger, S.D. & Genicot, G. 2003, The demand for Health Care Services in Rural Tanzania, *Oxford Bulletin of Economics and Statistics*, 65 (2): 241-2600305-904.

Sarrazin, M.S.V. 2002, *Gender Differences in Health Service Utilization*, VA Medical Centre, Iowa City.

Sintonen, H. & Linnosmaa, I. 2000, Economics of Dental Services, In: Culyer, A.J. & Newhouse, (eds)., *Handbook of Health Economics* (Elsevier, Amsterdam) Chapter 24.

Stoyanova, A.P. 2001, *Demand for and Utilisation of Dental Services: An Empirical Study of the Spanish Dental Care Market*, Departmento de Teoria Economica. Retrieved: 26th April 2005, from http://www.riscd2.eco.ub.es/~creb/papers/lna-tesina.pdf.

Sweeney, P., Allison, D., Davies, J. & Pitts, N. 1996, *An Investigation of the Association between Deprivation and Dental Caries Experience among 12 year old Children in Scotland,* University of Dundee, ISBN 1 8998 16 3.

Tiromwe, F., Ekoku, E., Manji, F., Baelum, V. & Fejerskov, O. 1988, *Oral Health in Uganda*, Results of the National Oral Health Survey, Ministry of Health.

Todd, R. & Durward, C.S. 1993, Utilisation of Dental Services in Cambodia and the Role of Traditional Dentists, *Community Dental Health*, 11: 34-37.

Uganda Bureau of Statistics. 2003, *Uganda National Household Survey 2000/2003*, Report on The Labour Force Survey, Uganda Bureau of Statistics, Entebbe.

Uganda Bureau of Statiatics. 2001, *Uganda Demographic and Health Survey 2000-2001*, Uganda Bureau of Statistics, Entebbe.

Uganda Ministry of Health online - Health Infrastructure. Retrieved: 28th April 2005, from http://www.health.go.ug/health_units.htm.

United Nations Development Programme. 1998, *Uganda Human Development Report*, Kampala.

Wagstaff, A. 1986, The Demand for Health: Some New Empirical Evidence, *Journal of Health Economics,* 5: 195-233.

Whitehead, M., Dahlgren, G. & Evans, T. 2001, Equity and Health Sector Reforms: Can Low-income Countries Escape the Medical Trap? *The Lancet*, 358: 833-836.

Wikipedia. 2005, *The Free Encyclopedia.* Retrieved: 16th March 2005, from http://en.wikipedia.org/wiki/Uganda.

Williamson, D. 2001, *Many Poor Children Live in Pain Because Barriers to Dental Care are too Great*, University of North Carolina, Chapel Hill.

Willms, D.G. & Johnson, N.A. 1996, *Essentials in Qualitative Research, A Notebook for the Field*. McMaster University, Hamilton, Ontario.

World Bank. 2003, *Making Services Work for Poor People*, World Development Report, World Bank, Washington DC.

World Health Organisation. 2003, *World Oral Health Report*, World Health Organisation, Geneva.

World Health Organisation. 2004, *WHO Releases New Report on Global Problem of Oral Diseases*, World Health Organisation, Geneva.

Zweifel, P. & Breyer, F. 1997, *Health Economics*, Oxford University Press, New York.

Appendix 1: Questionnaire

Date of interview (day/month/year) ...../...../.....

Form number

Interviewer code

Place of interview .....

SECTION A

Demographic data

1.0 Gender

male	1
female	2

1.1 Age – number of completed years

1.2 Year of birth (day/month/year) ...../...../.....

1.3 Education

No formal education	1
Incomplete primary education	2
Complete primary education	3
Incomplete secondary education	4
Complete secondary education	5
Tertiary education	6

1.4 Occupation

Formal sector employment	1
Self employment	2
Retired/Pensioner	3
Student	4
Unemployed	5

1.5 What is the level of your monthly income in Uganda shillings (Shs.)?

Less than Shs.100,000	1
Between Shs.110,000 and 300,000	2
Between Shs.310,000 and 500,000	3
Between Shs.510,000 and 750,000	4
Above Shs.750,000	5

SECTION B

2.0 In your opinion, **when** should one visit a dentist?

Never	1
When sick	2
Go for check up	3
Other(specify).....	4

2.1 Is this your first time to visit a dentist?

Yes	1
No	2

2.2 If your answer to question **2.1** is **yes**, go to **Section C**
2.2.1 If your answer is **no**, then complete the rest of **Section B**
2.3 How many times did you visit a dentist in the past year?

Never	1
Once	2
1 to 3 times	3
More than 3 times	4
Don't remember	5

If your answer to **2.3** is **Never**, then go to **Section C**

If not, continue with this section

2.4 Where did you go to seek dental care? Tick the right box in column 1 (multiple responses allowed)

Sector	Type of facility	Col 1
Public Hospital	General clinic	1
	Private clinic	2
Private Hospital	Clinic	3
Traditional Healers	Traditional dentist	4
Self Treatment	Bought drugs from pharmacy	5
	Other sources of drugs	6
Other (specify)	.....	7

2.5 Why did you choose to go to this facility? Tick the most appropriate one (s)

Nearest facility to home	1
Severity of disease	2
Affordability	3
Quality	4
Referred to facility	5
Don't know of any other facility	6

Other (specify).....

2.6 Why did you visit the dentist?

Had toothache	1
For check-up	2
Had been referred	3
Other (specify).....	4

2.7 How long did you wait before you got treatment? .....hrs.....minutes.

2.8 How much did you pay for the treatment at that facility? Please specify the amounts

Item	Amount (shs)
Consultation fees	
User fees in public facility	
Drugs and treatment	
Transport costs per visit	
Gratuity/informal fees	

2.9 How did you finance the costs listed in Question **2.8** above?

Pre payment scheme	1
Out of own income	2
Borrowed from friends/relatives	3
Sold some property	4
Did not pay	5
Other (specify).....	6

3.0 How far is the clinic, hospital or traditional that you visited from your home?

Less than 1 km	1
1km to less than 3km	2
3km to less than 5km	3
5km or more	4

3.1 How would you rank the following at the facility you visited?

Good(1)	**Fair(2)**	**Poor(3)**	**Very Poor(4)**

Item	**(1)**	**(2)**	**(3)**	**(4)**
Availability of essential drugs	1	2	3	4
Availability of trained staff	1	2	3	4
Staff attitude	1	2	3	4
Cleanliness/ sterility	1	2	3	4

3.2 What factors influenced your choice of health care provider? Rate the importance of each using the scale given:

1 = extremely important, **2** = fairly important, **3** = neutral, **4** = not important

Consultation fees at the facility	1	2	3	4
User fees/cost of drugs	1	2	3	4
Availability of trained dental personnel	1	2	3	4
Availability of drugs/dental materials	1	2	3	4
Staff attitude	1	2	3	4
Waiting time	1	2	3	4
Distance to facility	1	2	3	4
Cleanliness/sterility	1	2	3	4
Severity of dental problem	1	2	3	4
Level of income	1	2	3	4
Beliefs in traditional medicine	1	2	3	4

Other (s): (specify).....

SECTION C

4.1 Why have you decided to visit the dentist today?

Had toothache	1
For check-up	2
Had been referred	3
Other (specify).....	4

4.2 What type of facility have you visited today? Tick the right box in column 1 (multiple responses allowed)

Sector	Type of facility	Col 1
Public Hospital	General clinic	1
	Private clinic	2
Private Hospital	Clinic	3
Traditional Healers	Traditional dentist	4
Self Treatment	Bought drugs from pharmacy	5
	Other sources of drugs	6
Other (specify)	.....	7

4.3 Why have you chosen to come to this facility? Tick most appropriate one (s)

Nearest facility to home	1
Severity of disease	2
Affordability	3
Quality	4
Referred to facility	5
Don't know of any other facility	6

Other (specify).....

4.4 How long did you wait before you got treatment? .....hrs .....minutes.

4.5 How much have you paid for the treatment today? Please specify amounts

Item	Amount (shs)
None	
User/Consultation fees	
Drugs and treatment	
Transport costs per visit	
Gratuity/informal fees	

4.6 How have you financed the costs listed in Question **4.5** above?

Pre payment scheme	1
Out of own income	2
Borrowed from friends/relatives	3
Sold some property	4
Did not pay	5
Other (specify).....	6

4.7 How far is this clinic, hospital or traditional dentist from your home?

Less than 1 km	1
1km to less than 3km	2
3km to less than 5km	3
5km or more	4

4.8 What major factors influenced your choice of coming to this health care provider? Rate the importance of each using the scale given:

1 = extremely important, **2** = fairly important, **3** = neutral, **4** = not important

Don't know any other facility	1	2	3	4
User fees/cost of drugs	1	2	3	4
Availability of trained dental personnel	1	2	3	4
Availability of drugs/dental materials	1	2	3	4
Staff attitude	1	2	3	4
Waiting time	1	2	3	4
Distance to facility	1	2	3	4
Cleanliness/sterility	1	2	3	4
Severity of dental problem	1	2	3	4
Beliefs in traditional medicine	1	2	3	4
Other (specify).....	1	2	3	4

4.9 How would you rank the following at this facility you visited today?

Good(1)	**Fair(2)**	**Poor(3)**	**Very Poor(4)**

Item	**(1)**	**(2)**	**(3)**	**(4)**
Availability of essential drugs	1	2	3	4
Availability of trained staff	1	2	3	4
Staff attitude	1	2	3	4
Cleanliness/sterility	1	2	3	4

THANK YOU

Appendix 2: Interview Guide for Oral Health Care Providers

This study aims to evaluate the determinants of provider preferences for the utilization of oral health care services in Uganda. As part of the data collection process, we need to conduct interviews with oral health providers and hereby request you to respond to the questions below. The responses given will be treated with utmost confidentiality. Thank you.

Heath facility.....

1. What kind of patients do you usually treat (socio-economic and demographic considerations) and are you able to comfortably handle all? Consider referrals and traditional medicines/dentists.
2. Are you satisfied with the kind of service you provide to these patients? What do you consider failures on your part and on the part of others? How do you think such short-comings could be eliminated?
3. According to you, what are the factors that influence a patient's decision to visit private or public facilities?
4. Do you think they can afford the treatment you offer and if not, how do they make payments?
5. How do you sterilise your instruments?
6. How adequate is the supply of essential drugs at this facility?

Appendix 3: Interview Guide for Focus Groups

This study aims to evaluate the determinants of provider preferences for the utilization of oral health care services in Uganda. As part of the data collection process, we need to conduct interviews on oral health utilization at household level and hereby request you to respond to the questions below. The responses given will be treated with utmost confidentiality. Thank you.

1. Where do you usually go for dental treatment? Why?
2. What problems do you encounter while seeking dental treatment?
3. How far do you have to travel to get to the facility and how do you get there?
4. How good is the availability of dentists in your area and how does it influence your help-seeking behaviour? What is their attitude towards the patients they treat?
5. Do you receive adequate medication and essential drugs at the facilities you visit?
6. How would you rate the cleanliness of the facilities you visit, do you think they are of the required standard? How are the instruments cleaned and sterilized? Do you always consider sterility before selecting facility for treatment?
7. How costly is dental treatment and do you always find it possible to pay for it? What happens if you are unable to pay?

8 What is the role of traditional dentists/medicines in your health seeking practices?