The Geography of Health Services, Case Study of Medina, Saudi Arabia

Being a Thesis submitted for the Degree of Doctor of Philosophy,

in the University of Hull, UK

By

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October 2005

Abstract

This study examines health services in Medina in relation to the delivery system, the spatial distribution of health services, accessibility and effectiveness of utilization, including satisfaction with the services. A total of 500 patient questionnaires and 31 face-to-face interviews with key decision makers were used in addressing the research questions.

Despite many positive aspects to the health services in Medina, such as the ratios of physicians and beds/population compared to the whole Kingdom's average, there are some problems that need to be overcome. The provision of primary health care centres (PHCCs) is very far from the health ministry target, which is one PHCC to serve 5,000 to 10,000 people and they are unevenly distributed. The capacity of state hospitals is almost full, and needs to be expanded by building another general hospital in the east part of Medina to help remedy the current balance in spatial distribution. The lack of a clear spatial distribution policy for Medina's health services is evident in the concentration of general hospitals on one side of the city. Most private hospitals and clinics (doctors) and groups of clinics are concentrated south and south west of the city centre, in a circle of about two kilometres in diameter. Demographic and socio-economic factors appear to be influential in explaining differences in utilization, access, and preference between types of health services (private/state/traditional healers). Accessibility issues had little effect in making health care users switch to private hospitals. It seems that perceptions of accessibility were influenced by the widespread ownership and use of cars.

It appears that consumers' satisfaction with accessibility and quality was higher for private health services than state ones in the study area. However public and private provisions are intercalated in complex ways.

Overall, the study shows that, given Saudi's expanding population and growing wealth, there is growing demand for new health facilities and access is stile a major planning issue, although it needs to be reconceptualization in the light of car ownership. New agendas are set for service planning, and for medical geography in the Saudi Arabia.

I

Acknowledgements

I would like to express my thanks and appreciation to all individuals or organisations that cooperated with and helped me. In particular my main supervisor, Professor Graham Houghton and the supervision committee members, Dr Suzanne Reimer and Professor Andrew Jonas for their supervision, guidance, support, and valuable feedback during the period of my study. Their comments and suggestions were appreciated and surely reflected throughout the study. Thanks to the University of Taybah, Medina, Saudi Arabia, for giving me this opportunity to pursue my graduate study. I greatly acknowledge their financial support.

I would also like to express my appreciation to all who co-operated me in the General Health Administration Affairs in Medina, especially the general head manager Dr Abdulgader Altayb, for his help in facilitating the to make ease to conduct of survey questionnaires and interviews in health institutions. My thanks also extend to all other individual managers or those were on duty in the Health Administration Affairs or at each health institution, state and private, who took part in the interviews.

Thanks go to many other physicians, officers and medical workers in all health institutions where the survey took place. I am grateful to all personnel from Medina Municipality, the Ministry of Health and the Ministry of Planning, who provided me with data.

Finally, I dedicate this work, with my grateful thanks, to my wife Um Asem, my daughter Yara, and my sons Asem and Hatem, for their support and patience throughout my study years.

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Introduction

Making comprehensive health services available to the whole population is no easy task for a government. The way health care services are delivered varies according to the socio-political and economic conditions and ideology of the country. For example, America's economic market ideology, or enterprise economy, is reflected in its health services, since a key determining factor in access to health services is the availability of health insurance coverage. The health system operates on 'market', principles and health facilities are provided by various bodies for different groups of users: government provides services on behalf of citizens; employers make health care provision for employees; and some individuals pay into private insurance schemes (Curtis, 2004). In the former socialist countries, health services were centrally planned, funded and controlled. They were free of charge to users, but patients could not exercise choice as to which doctor they visited. In the UK, the National Health Service (NHS) is a collective welfarist health service under government control, but with planning and administration devolved to regional level.

Access to and use of health care is affected by political and administrative structures from one country to another, and from region to region within countries. Difference between countries in the ability to invest resources in health is a major factor in global health. For example in 2000, the USA and the UK spent 100 times more per head of population, in international dollars, on health care than did developing countries such as India and Ethiopia (Curtis, 2004). However, the relationship is not clear cut. Differences between countries include not only financial investment, but also the mode of health services delivery. A major reason for these variations in resource use and services provision is difference in the administrative and political structures that govern health policy and health services provision. However even in wealthy countries there is variation in the provision of health services between regions, and between cities and rural areas. In the USA, for example, there are large geographic variations in the provision of health services (Curtis, 2004; Knapp and Hardwick, 2000, and Carrasquillo et al., 1999).

Saudi Arabia's health delivery system is no exception to such variation in provision between regions and cities. Indeed, inequity of health service provision exists even between the residential districts in one city. Such variations most often lead to difficulties of access and utilization. This study examines the geography of health services in Saudi Arabia, and more specifically the provision, accessibility and utilization, of the health services provided in Medina city and patient satisfaction with such services.

1. Health in Developing Countries

Many developing countries, until recently, have paid comparatively little attention to the supposedly 'unproductive' health sector, focusing instead on the productive sectors that could generate high economic growth. They are coming to realise, however, that health is one of the most important aspects of social development, and health services play an essential role in the development process.

The problem is that many developing countries have modelled their health policies and systems on those of the industrialised world, irrespective of appropriateness to their health problems and conditions, or of feasibility and cost-effectiveness in their socio- economic circumstances and under the prevailing socio- political systems. The socio-political and economic systems of the developing countries are very different from those in the industrialized world, and the prevailing health problems are different too. This suggests a need to rethink existing health care systems and to develop approaches that are practical and cost-effective in the context of the huge health problems, socio-cultural structures and resource constraints of developing countries. Many governments have turned their attention to the problem of how to provide a reasonable level of health coverage, cost-effectively and in a manner suited to their political conditions.

Researchers in various disciplines have outlined different national health care models, but the predominant focus has been on the developed world (Gesler 1984; Joseph and Phillips 1984; Meade et al., 1988; and Gatrell, 2002). There has been little work on health care systems in the Arab world in general and Saudi Arabia in particular.

This dearth of research can be attributed to several factors. It is not simply the tendency of developing countries to imitate the industrialised countries' health systems, as noted earlier, but also a shortage of data concerning operational policy, and financial constraints. It is generally very difficult for health care researchers in developing countries to obtain up-to-date information on healthcare organisations, health professionals, capacity of hospitals, numbers of health institutions, or even basic population demographics. Data on level of utilization of the health services and the coverage of the population is still more difficult to find. These problems have been highlighted by many researchers, for example Joseph and Phillips (1984), Gesler (1984) and Stephen (1991).

Health care systems in developing countries such as Saudi Arabia are often characterised by high centralisation and uneven spatial distribution, with urban areas significantly better served than rural ones. They have been criticised for poor coordination and inadequate record-keeping systems. Provision of health care for the population is constrained by shortage of resources, the high cost of medicines and medical technology, and lack of sufficient trained health personnel. At the same time, many are battling a high rate of infectious preventable diseases; high death rates, particularly among babies and children; malnutrition; shortage of clean drinking water and poor sanitation. The hospital-oriented policy, with its focus on curative rather than preventive care, which many developing countries adopted in imitation of the industrialized world, has been unable to meet the health needs of the majority of the population.

In 1975, studies were sponsored by the World Health Organisation (WHO) and United Nations Children's Fund (UNICEF) to find an alternative approach, and experiments were carried out in many countries with different economic, sociocultural political circumstances (Newell 1975; and Djukanovic and Mach 1975, cited in Bakhashwain, 1995). As a result of these and other studies WHO, UNICEF and other non-governmental organisations prompted a new direction in health policy and strategies in order to improve health coverage such that most of the world's population, particularly in rural and peripheral areas and urban slum dwellers, would have access to services by the year 2000. Thus, in 1978, WHO announced in its conference the emergence of the Primary Health Care (PHC) approach, as the crux of its campaign to achieve health care for everybody by 2000.

Saudi Arabia, as a member state of WHO, adopted the primary health care (PHC) approach and initiated new health policies consisted with that approach. By the year 2000 there were 1,766 primary health care centres (PHCCs) in the Kingdom (Health Statistical Yearbook, 2000).

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During the past thirty years or so, Saudi Arabia has experienced rapid population growth and social and economic change, as a result of the improvement in the economy. These developments have brought improvements in living standards and wider provision of general services, including health care, with a substantial increase in the numbers of hospitals, hospital beds, health personnel, and health centres. It is the policy of Saudi Arabia's government to make health services available where possible at no cost to the consumer, in every city and town, and even in remote areas. With this goal in mind, expenditure by the Ministry of Health has increased rapidly in an attempt to achieve development in health services commensurate with the general economic change in the Kingdom (see Tables 1.12 and 1.13).

With this expansion of health service facilities, it might be expected that the provision and distribution of health services, and satisfaction with them, should have greatly improved. However this thesis shows that there is little evidence by which the validity of such an assumption can be verified. Subjective observation suggests that considerable improvement has occurred, but it is perhaps not as great as the level of expenditure would lead one to expect. Health policy is still focused heavily on curative rather than preventive care, contrary to the theory of the PHC approach. There are also differences in distribution of both state and private health services facilities between urban and rural areas, even between areas in the same city.

Spatial distribution and provision of state health services, especially primary health care centres (PHCCs) in the study area have not met the goal of the Ministry of Health, which is one PHCC for 5,000 to 10,000 people. Consequently, there is inequity of health service distribution, which could lead to physical inaccessibility of such services. This may be a result of the continuing rapid increase of the population.

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Health service provision has not kept pace with such growth to maintain the same level of provision. Demographic and socio-economic factors are varied in terms of access to and utilization of health services in the study area. Use of private health services is also likely to be influenced by affordability and quality issues.

2. Organization of the Study

This study examines the geography of health services in Saudi Arabia, and more specifically the provision, accessibility and utilization, of the health services provided in Medina city and patient satisfaction with such services. It is organized into nine chapters. Chapter one presents an overview of Saudi Arabia, including population in each region, the development of the Health Ministry and its budget over the last three decades, including development of health policy, trends in hospitals and bed numbers across the whole Kingdom. Also, the importance of the study is highlighted, and the objectives and research questions set out. In chapter two, the literature on the geography of health services is reviewed; international and national findings on medical geography are reported and definitions are given of medical geography. spatial distribution, accessibility, utilization of health services, and satisfaction. In chapter three, the survey design and the methodology of the study is discussed. Chapter four describes the research area, including its population, rate of growth and other contextual issues. In addition the provision of hospitals, primary health care centres, dispensaries and clinics, state and private, is described, including the current geographic distribution of all health institutions in Medina. Because of the concern about quality, ratios of beds and physicians per person in Medina are analysed. Chapter five introduces demographic and socio-economic characteristics of health service users in the study area, such as age, sex, education level, income and their impact on type (state/private) and frequency of healthcare services used. Chapter six

introduces inequality of health care distribution and the factors behind the current distribution are analysed, based on the survey data. Also, the research findings on travelling distance, and patients' perceptions of the service, use of the Saudi Red Crescent Society and reasons for non-use are analysed, and the problems facing PHCCs in Medina are highlighted. Chapter seven contains an analysis of the accessibility and utilization of health services in Medina, and the outlook for health services in Medina based on the survey data. Chapter eight examines patient satisfaction with health services and their opinions about these services. In chapter nine, the conclusions and implications that emerge from the study are brought together. The chapter contains a summary, a comment on the limitations of the study and suggestions for further study on the geography of health services.

Chapter One

An Overview of Health Services in Saudi Arabia

1.1 Introduction

Following the discovery of oil in Saudi Arabia in the early 1930s and its subsequent commercial explanation, the Saudi government found itself in a position to develop health care quickly. Early efforts were ad hoc and unplanned. The formal organization of public health services in Saudi Arabia really started in the early 1950s, when an anti-malaria programme was set up jointly by the Ministry of Health (MOH), the Arabian-American Company and the World Health Organization (WHO) (Al-Tuwaijri, 1989, cited in Albaz, 1992).

Since these initial efforts, health services in Saudi Arabia have developed quickly, in both therapeutic and preventive services. These services are provided to all the population via primary health care centres (PHCCs) and state hospitals, free of charge. There has been a remarkable growth in the number of hospitals and PHCCs, and a corresponding growth in other health resources, such as doctors, nurses and equipment.

However, as health care is a basic right of the whole population, it is important that the government provides heath services to people in both urban and rural areas. In this respect, a major challenge faces governments, particularly when they attempt to select the best way to achieve a high level of health care at the least possible cost. Whilst improvement of health conditions is a major goal of social and economic development, many problems come from a continuing high increase of population. The annual rate of natural increase was 35/1000 in 1997 and 34/1000 in 2001 (Health Statistical Yearbook, 1998 and 2001). Such a high increase of population can cause over-use of services, as needs increase in relation to the quantity and improved quality of healthcare services. Suitable methods need to be adopted to solve such problems. Al-Ribdi (1990) indicates that each government uses a system which suits its own geographic, demographic, environmental, political and socio-economic system.

This study investigates health services in Medina, with particular attention to health resources, population, and the distribution of provision, the accessibility and effectiveness of utilization, including users' characteristics and their satisfaction with the services, in order to make suggestions to improve the services. This chapter sets the research in context, by providing background information on health services in Saudi Arabia. The importance of the study is then explained, and the research objectives and questions are set out.

1.2 Beginning of Health Ministry

As early as King Abdulaziz's era (1900–1953), interest began in spreading state healthcare services to all parts of the Kingdom. Before that folk medicine was predominant, diseases were widespread and there were many deaths, especially in the pilgrimage season, perhaps because of the influx of pilgrims from many different countries and the crowded conditions, leading to a spread of disease. Also many citizens were poor, so the life expectancy was short, in line with Winslow's (1951) finding that there is a relationship between income and length of life. When individual income is high, average life expectancy is generally longer, and the reverse (Winslow, 1951 cited in Al-Shrnobi, 1985).

A health administration was established in Mecca in 1926 and later called the Headquarters of Health and Succour. This formed the core of the Ministry of Health, which was founded in 1951 to take responsibility for the delivery of health care to the public. In 1953 the Ministry was transferred from Mecca to Riyadh (the capital). In the 1950s most health care facilities were concentrated either in Mecca, the location of pilgrimage (hajj), and in the east of the Kingdom, for the employees of oil industries. Little health care provision existed in other parts of the Kingdom.

Many problems faced the Saudi government in providing health services in this period, for example, lack of financial resources and technical experience, the shortage of personnel and managers, and the difficulty of travelling between cities and villages. Despite these difficulties, the establishment of the Saudi Ministry of Health made a radical change to the health service, as the ministry drew up the features of the medical policy in the Kingdom and established many hospitals and primary health care centres, to provide therapeutic and preventive services. Also, doctors began to be imported from outside the Kingdom in 1953. By 1958, the numbers of foreign workers in the medical field reached 726 persons including doctors, pharmacists, nurses, and other medical specialists (Mufti, 1999).

When the Health Ministry was transferred to Riyadh it attempted to expand its services to cover most parts of the Kingdom. This was done through the establishment of regional health districts in different parts of the Kingdom, which took responsibility for delivery of health services within their regions. The numbers of regional health districts has varied over time, being increased to cover more areas and to reduce centralisation of management. There were six regional health districts at first, over the entire Kingdom, and then the number was increased to ten in the 1960s, to 14 in the 1980s and reached 20 in 1995.

Despite the existence of regional health administrations, decentralisation of management was limited. Al-Ribdi (1990 p. 53) reported that "in spite of this recent

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progress towards decentralisation, the regional health directors still have only limited influence over the health affairs in their region". For the most part, they followed the policies and instructions set by decision makers in the capital; the function of the regional authorities was basically the day-to-day implementation of central government decisions.

As a result of both quantitative and qualitative improvements in the health services in Saudi Arabia, poliomyelitis was by 2000 completely eradicated from the Kingdom. Also, the incidence of many parasitic diseases such as Bilharziasis and Leishmaniasis has been decreased in some regions and they have been eradicated from others (Health Statistical Yearbook, 2001). Reflecting such advances, life expectancy had risen to average of 71.4 years; 69.9 years for males and 73.4 years for females by 2001 (Health Statistical Yearbook, 2001). These figures compare well to the aggregate average of 57 years in 1985 (Alfalh, 2002).

A quick look at the numbers of hospital and primary health care centres in the whole Kingdom in the past and at present reveals that the total number of beds in 1946 was only 300. In 1960, the number of state hospitals had reached 40, there were 48 surgeries, and the total number of beds was 3,668. Those figures rose to reach 50 hospitals, 187 dispensaries and 7,942 beds in 1971. The facilities continued to increase, reaching 150 hospitals, 190 private and state dispensaries and 8,132 beds in 1973 (Mufti, 1999). In 2001, the total number of MOH hospitals in the Kingdom was 191, with 28,140 beds. Medina's share was eight hospitals. The number of primary health care centres in the same year reached 1,786, of which Medina's share was 33 (Statistical Yearbook, 2001).

Health services, both therapeutic and preventive, are offered free to all citizens and foreigners in Saudi Arabia in the government health facilities. However, they are not free in the private hospitals and dispensaries. There is no medical insurance so far for citizens in Saudi Arabia, so private patients pay for services, except that some companies, for example Saudi Oil Company, pay their employees' treatment costs.

It is difficult to compare the services in private and state hospitals, because the quality and the quantity change from time to time, due to the change in physicians and nurses. Saudi is still heavily reliant on foreign physicians and nurses because of a lack of qualified citizens in the health sector. In 1996, the proportion of Saudi's physicians in the government sector was 53.7% and that of nurses was 36.8%, while in the private sector, the share of Saudi physicians and nurses was only 2.7% and 0.2% respectively. These ratios have not increased much, especially in the private sector, through to 2000. In 2001, Saudi physicians represented 62.2% in the government sector and Saudi nurses, 42.9%, but in the private sector, the proportion of Saudis physicians and nurses was only 6% and 0.8% respectively (Statistical Yearbook, 1996 and 2001).

When the period of foreigners' (physicians/nurses) contracts ends, they go back home, and other new immigrants usually follow. This leads to lack of continuity and, hence, differences in the quality of healthcare provided. This is important since, if physicians are good, the hospital(s) or surgery(s) are good in patients' view and the converse is also true.

Previous studies suggest that there are strengths and weaknesses in both state and private provision. The advantages of state hospitals are: 1) they are free of charge; 2) they do not hurry to operate on a patient until it is certain he/she needs it; 3) some hospitals, especially in the big cities in Saudi Arabia, have a high standard of medical

technology and a full range of medical specialists. The disadvantages are: 1) alleged negligence of some doctors and cleaning companies; 2) long waiting lists, especially for specialist hospitals and dentists (Al-Anezi, 2001; Qussas, 2002; Al-Guhani and Meki, 2002).

The advantages of private hospitals are: 1) no waiting list; 2) some private hospitals bring highly qualified, expert doctors from various countries all over the world, for a temporary visit so patients can see them without travelling far; 3) they are clean. The disadvantages are: 1) they are quite expensive for those who have low or average income; 2) they allegedly ask for many tests and X-rays that patients may not need, generating more profits; 3) the discount that some private health institutions announce does not allows reflect the true rate (Al-Kamshi, 2000). Bakshwian (1995, p. 155) noted that the practice in the private sector, in an attempt to attract clients is:

"...to place an ordinary advertisement in the papers, quoting prices for particular operations and giving estimates for hospitalisation. However, when a client goes to the hospital, he finds that the prices quoted cover only the cost of the operation and he has to pay extra for the necessary medication and other related services".

4) Not all private hospitals have high medical technology and also they do not cover every specialism.

In addition to the services provided by the Ministry of Health, there are other government sectors that offer health services to their employees and others, such as: the Ministry of Interior, National Guard and Ministry of Higher Education. The Ministry of Health provides about 66% of all health services in the Kingdom (Al-Mana, 2004), 25% is provided by other governmental sectors, and the remainder is provided by the private sector. In general, the number of state patients sent outside the Kingdom for treatment has decreased noticeably; there were only 33 in 1997 (Mufti, 1999).

1.3 The Aims of Healthcare Services in Saudi Arabia

Health services in Saudi Arabia are provided in three ways; the Health Ministry, the private sector and other government sectors. The greater part of the services is provided by the Health Ministry and the ministry aims to provide the services to all citizens and foreigners in the Kingdom.

The Health Ministry has announced its aims in the First Development Plan (1970/1975) (Mufti, 1999). These can be summarised as follows:

1) To expand therapeutic health services by developing the existing services and establishing new ones, for example, maternal and child care, health offices and health centres. The service seeks to discover disease as early as possible, and to protect people by immunisation against contagious (notifiable) diseases, improved health environment and health education, and efforts to protect the Kingdom from diseases brought in by travellers;

2) To establish many more health centres in cities, villages and rural areas to provide primary health care via these centres;

3) To work to solve problems of health, environment, epidemics and food, by means of relevant research;

4) To increase the effectiveness and capability of hospitals by developing, expanding, or maintaining them, and working to increase the number of beds in existing hospitals or establish new hospitals;

5) To provide more specialist health services in all central hospitals located in cities, and to expand and develop technical departments in line with progress in science and technology;

6) To expand, increase and improve emergency health services;

7) To work to improve engineering services in the medical field which would in turn improve conservation of medical equipment and associated health services to make them more effective; also, to improve central supply of medicines and establish new supply centres for each health area;

8) To make medicine available to all patients by encouraging establishment of pharmacies across the whole Kingdom, and urging people not to overuse medicine and other medical facilities;

9) To increase the number of medical human resources, whether by indigenous people or by importing staff from outside the Kingdom;

10) To practise family health record-keeping, whereby each person has a file continuing record of his/ her health throughout their life, which will help to offer the patient suitable therapeutic or preventive services.

11) To get help from experienced cleaning and nutrition companies to serve health institutions.

1.4 The Main Goals of Health Policy

Health policy in Saudi Arabia seeks to provide the basic health services to all people wherever they live in cities, villages or rural areas. This goal sets the main outlines of Saudi health policy, with two kinds of services provided: therapeutic and preventive.

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Therapeutic health care aims to increase the level of health among citizens, and protect them against notifiable disease, and to take measures against any notifiable disease that may appear and clean the area of that disease. Achieving these goals necessitates attention to such factors as 1) training enough human resources to provide such therapeutic services; 2) trying to provide a suitable health environment, by supplying good houses, clean drinking water, and using new methods of removal of rubbish and waste water; 3) eradication of insects or larvae which may transfer disease to humans and the places where they live; 4) immunization against dangerous disease and establishment of special health centres for treating sick people.

The Health Ministry has achieved most of the above goals. It began by tackling the most widespread and virulent diseases such as malaria. Also, a health quarantine centre was established in Jeddah with a capacity of more than 2,400 people¹. By 2000, the number of such centres reached 24, distributed at sea, air, and land ports. The total number of pilgrims submitted to preventive measures was 1,363,992. Of these, 31,106 were vaccinated against meningococcal meningitis, and 307,700 pilgrims were given chemoprophylaxis as a preventive measures for some infectious diseases (Health Statistical Year Book, 2001). These measures were undertaken to protect people during the pilgrimage season, when many dangerous diseases might enter the country with pilgrims.

Furthermore, health institutions were founded to provide human health resources. The number of health institutes was 44 in 1996. Because some health institutions were upgraded to health colleges, the figure decreased to become only 22 in 1997 and 24 in 2000. Table 1.1 shows that the number of health institution students was 2,404.

¹ Jeddah is about 65 kilometres from Mecca. It has a seaport and airport, and many hajjis enter the Kingdom via Jeddah each year.

During the same period, the number of health colleges reached 13, with 1,367 students and 528 graduates in 2000, compared to 617 students and 478 graduates in 1998 (Health Statistical Year Book, 1998 and 2001). The total number of Saudi students in university medical school was 8,008 in 2000 and there were 1,021 graduates in the same year, compared with 6,452 students and 732 graduates in 1998 (*ibid*).

With regard to preventive medical care, many state hospitals and PHCCs were founded (see Tables 1.5 and 1.9), to provide free medicine. Attention is paid to treating disabled people and developing medical rehabilitation centres. The total number of cases attending those state rehabilitation centres was 497,245 in 2000, compared to 611,234 in 1998, a decline of 113,989. Also, attention is paid to treat those who need haemodialysis and organ transplantation. For example, in 2000 there were 100 state artificial kidney centres with a total of 6,116 patients, compared to 4,733 patients in 1997 (Health Statistical Year Book, 2000 and 1998). However, such centres exist only in the main large cities of Saudi Arabia, so those who live far away from them may be unable to benefit from such services.

Table 1.1 Total Students and graduates in health institutes 1996 to 2000

1996		1997		1998		1999		2000	
students	graduates								
2482	2085	865	379	1073	568	1590	610	2404	*

Source: health statistical year book, 2000 * Not available

1.5 Health Budget

The health budget was low at first, only four million Saudi Riyals (S.R.)^{*} in 1953, but it was rapidly increased to 32 million in 1955 and about 39 million in 1956. That

⁺ One US\$ equal 3.75 S.R.

steady increase in health budget was due to the general increase in the government budget in that time because of high oil revenues in the 1950s.

Oil revenues continued to fund a high level of government spending. In 1970 the Ministry of Health budget was about S.R. 177 million, about 2.97% of the total government budget. The figures sharply increased after that, reaching more than S.R.10 billion in 1984, representing 4.1% of the total Kingdom budget, of S.R.260 billion in that year. That significant increase/growth in health budget could be due to two factors; to the high increase of general government budget, and a new health services project to build five hospitals in Jeddah, Medina, Jizan, Al-Khubar and Al-Hufuf with a total capacity of 2,275 beds (Ministry of Health, 1982). However, the budget decreased in 1985 and the years after until it reached about S.R. 7 billion in 1995, out of the total Kingdom budget of about S.R 150 billion in that year (see Table 1.2). The reduction of the health ministry budget might be due to the drop in the total Kingdom budget necessitated by falling oil prices, and also the fact that the basic infrastructure of medical projects was almost complete. In 2000, however, the health budget figure had increased by about double that of 1995, representing 7.1% out of the total government budget (Statistical Yearbook, 1996). The Medina region's share was 4.52% in 2000 and 2.76% in 2001. The national doubling may relate to the high debt of the health ministry, as Alfalh (2002) reports that the debt of the health ministry reached more than 50% of its total budget in 1996, so the ministry was allocated large amounts in subsequent years to pay that debt.

proportion of the total outgot in buddi winnon Riyals.									
	Total Government	M.O.H	Share of M.O.H	Medina health					
Years	Budget in Million*	Budget*	Budget to Total Gov.	share of MOH					
	SR.		Budget	budget					
1970	5,966	177	2.97%	_					
1975	45,743	3,197	6.99%	-					
1980	185,800	5,656	3.04%	-					
1985	260,000	8,957	3.45%	-					
1990	143,000	7,729	5.40%	-					
1995	150,000	7,364	4.90%	-					
1998	196,000	12,214	6.2%	4.73%					
2000	185,000	13,046	7.1%	4.52%					
2001	215,000	21,900	10.2%	2.76%					

Table 1.2 Growth of Health Ministry Budget in Saudi Arabia since 1970 to 2000 and its proportion of the total budget in Saudi Million Riyals.

Source: statistical Yearbook, Different issue.

*Numbers are rounded up.

- Data not available.

1.6 Health Delivery System

As noted earlier, the body with primary responsibility for planning, financing and delivery of health care in the dominant public sector is the Ministry of Health (MOH), which is also responsible for the general public health infrastructure and medical training. Other ministries that provide medical care for their employees also treat patients referred to them from MOH institutions. There are several major specialist and teaching hospitals in the Kingdom, some of which accept referrals from other government health care providers, as well as carrying out research and training. By comparison, the private health sector is smaller, but it is growing and is a significant contributor to health service provision in the Kingdom. The private health sector is supervised, encouraged and sometimes subsidised by the government, but this services are limited to those who can afford to pay. In this section, the health delivery system is reviewed.

The MOH is the major agency that provides therapeutic, precautionary and rehabilitation health care. This health care is provided through a network of 1,786 PHCCs across the whole Kingdom in 2001. Patients are referred from the basic treatment at PHCC to specialists at hospitals, of which there were 191 in the same year (Statistical Yearbook, 2001).

The seventh development plan of 2000/2004 paid much attention to social and health care. This clearly appears from the expenditure on development of social and health care, which increased from 3.5 billions Saudi riyals in the first development plan 1970/1975 to 95.8 billions in 2000/2004. But despite this high expenditure, health services still have not reached the hoped-for levels (Al-Omir, 2002). Failure to provide a high level of healthcare could be due to many factors, such as the rapidity of population increase, by natural increase or immigration, emigration which makes it difficult to cope with providing high health care. The natural increase was 3.7% in 1996, making Saudi Arabia's population one of the highest growing in the world (Alfalh, 2002). Another factor is the high cost of treatment, not only in the case of Saudi Arabia but all over the world. In Saudi Arabia, the annual cost of healthcare services expenditure is about 20 billion Saudi Riyals; MOH and other government entitles account for 14 billion, and 6 billion goes to the private sector (Al-Omir, 2002).

There are many kinds of health systems across the world, but none is best in all circumstances. Each country practises the health system that is thought to achieve the main target of healthcare. Alfalh (2002) points out, however, that a good health system should include the following criteria: 1) health services should be provided to everyone equally; 2) the cost should be reasonable for both the provider and consumer; 3) care provided should be based on up-to-date knowledge. Hence, a system that works to providing healthcare services to all people is required. In developing countries, Saudi Arabia being no exception, the health services are mostly

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centralised in urban area, a feature that the Saudi health system shares with many other developing counties. Bakhashwain, (1995 p. 35) observed that:

"Ministries of Health in developing countries should adopt a policy and strategy which will improve their population's health conditions, rather than pouring their scarce resources into a few prestigious projects with advanced technology, to which only a small proportion of the population have access".

No doubt there are some specific changes and challenges that face health services and social development plans in Saudi Arabia, for example, rapid population growth, growing awareness of health care, globalisation, changes of disease patterns and the uneven distribution of health services in one region or over the Kingdom. Those changes, directly or indirectly, affect ways of offering health services, and also increase the burden on Health Ministry resources. The health services in Saudi Arabia are unevenly distributed, with greater availability in the urban areas. Moreover, advanced and technology based health care exists alongside traditional healing, which is still trusted and relied upon by a large segment of the population.

It has already been noted that there is a high level of centralisation in the Saudi health system. Despite the existence of 20 regional health authorities, they actually have little financial and administrative autonomy. The key decision-makers are the King as Prime Minster and the princes as governors of the provinces. Local elites can also bring a great deal of direct or indirect pressure to bear on health care planning and delivery. The government controls the provision and planning to health services to ensure that the services are available and accessible to all.

Another feature of the system, irrespective of the rhetoric of government objectives, is a predominant focus on the relatively costly curative care, with rather less focus on preventive care. Thus, despite notable advances, there are still high rates of infant and child mortality, at 21 per thousand, compared to other countries which have a similar development level, for example, Bahrain and Kuwait. Deaths in hospitals accounted for 2% out of the inpatients in 2002. Moreover, malaria continues to be endemic in south-west Saudi Arabia, where there were more than 13 thousand cases in 1998 (Alfalh, 2002). There is also a significant problem of death and injury from road accidents, which can be attributed to a lack of attention to road safety education.

Alongside the modern health care provided by the Ministry of Health, other governmental institutions and the private medical sector, health care for many people in Saudi Arabia is still provided by folk healers of various kinds, despite the lack of official recognition. Indeed, some traditional healers gain a reputation which extends throughout the region, and people come from neighbouring countries to consult them. Traditional healing in Saudi Arabia has been described by Sebai (1983), El-Shafei (1985) Al-Ribdi (1990) and Bakhashwian (1995), among others. Typically, such healers inherited their profession from their ancestors. Others learnt from another practitioner, or developed their skill through experience.

One reason for the wide acceptance and of traditional medicine in the Arabian Peninsula is that until the early twentieth century, no other form of health care was available. In almost every tribe, there would be one or two healers, and if none of the tribe's members practised folk healing, the healers of allied tribes would be consulted.

The popularity of traditional medicine is not confined to any specific population category, but extends to the educated and the illiterate, rural, and urban dwellers, and both sexes, though women constitute the majority who consult folk healers. The folk medicine practised in Saudi Arabia can be classified into four types 1) herbal medicine; 2) bone-setting; 3) spiritual healing; practitioners in this category are mostly religious leaders, who recite verses of the holy Koran and the prophet traditions (Hadith). They are most often consulted in cases of psychological illness; 4) witchcraft; healers in this group, the majority of whom are African, use sorcery, spells and magic. This type is unlawful and access to it is difficult, being through a third party, well known to the practitioner.

Not only is traditional medicine wide-spread, but also some of the methods used, such as herbs, have proved effective. The WHO has recognised the practice of traditional health services in some developing countries and urged that they be integrated within the health system. If organised, and licensed to restrict unscrupulous practitioners, traditional healing could play a useful role in the health system.

1.6.1 Other government agencies

The Saudi state health delivery system has some similarity to the British National Health Services (NHS), but there are some differences. In Saudi Arabia there are other government agencies apart from MOH that provide health services, accounting for about 20 percent of the total health services provided (Al-Omir, 2002), as follows:

- The Ministry of Defence and Aviation, the Ministry of Interior and the National Guard provide health services to their employees. Some of these health facilities are available to other citizens in limited cases; however access to such facilities is not easily obtainable. None of these agencies provides as wide a range of health services, at as many locations, as the MOH.
- 2. The Ministry of Higher Education provides health care to undergraduate and graduate students, staff and their families through teaching hospitals associated with schools of medicine. These hospitals are sometimes available

for the general public on a limit basis of referral, but only in a few locations where the universities are located.

- 3. The Ministry of Education provides health services to school students the throughout academic year, via school clinics.
- 4. King Faisal Specialist Hospital and Research Centre in Riyadh, which operates separately from the MOH, provides highly specialist health care to all people on a referral basis.
- 5. The Saudi Arabian Red Crescent provides emergency services at the prehospital stage and at the scene of accidents. It runs an ambulance service in the cities, also between the cities via number of clinics location on the motorways.
- 6. The Royal Commission for Jubail and Yanbu run their own hospitals and provide health care to their employees at those two industrial cities.
- 7. The Ministry of Labour and Social Affairs provides some basic health care in some rural areas.
- 8. The General Administration of Youth Welfare, which runs sport clubs, provides treatment for sport injuries.

Other health facilities are provided by the Ministry of Municipalities and Rural Affairs and the Meteorology and Environmental Agency. The role of these agencies is not in the treatment of individual patients, but in the form of a general responsibility for environmental health. For example, they carry out routine check-ups on all workers in the food and services industries, and quarterly inspection of premises where food is served, such as takeaways, restaurants and hotels.
Most of these health facilities, except the services provided by the Ministry of Municipalities and Rural Affairs, and the Saudi Red Crescent Society and rural community health projects, are located mainly in the big Saudi cities such as Riyadh and Jeddah, which means they are not readily accessible to all people.

The health care system in Saudi Arabia shares some features with other national health systems, but also differences in terms of funding and providing organizations. The following section highlights national health systems in some main developed countries compared to the Saudi health system.

1.7 Some Differences Between Saudi Health System and National Health Systems in Three Selected Developed Countries.

Curtis (2004) introduced some key features in the general delivery health services in different three developed countries Britain, USA and France. The health systems in those three countries are compared to the Saudi health system (see Table 1.3).

The National Health Service (NHS) in Britain is financed from the central government budgets, the revenue being raised mainly through general taxation. The whole population is entitled to use this service. Patients register with one general practitioner (GP) who is contracted to the NHS and paid the term of the contract, together with a complex set of criteria including 'capitation' payments for each patient resisted on the GP's NHS list. Patients can register with any local GP of their choice and change when they wish, though some areas may have few practising locally GPs, therefore offering less choice. Catchment area is decided by the practice itself but, the NHS monitors these to ensure all areas of the country are covered. Where an area is considered to be well serviced by GPs, the NHS may impose restrictions on the establishment of new practices. No fee is charged for consultation with the GP but, with certain exceptions, patients pay a contribution to the costs of

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University Distary Hut any medication prescribed. The GP is also the referral route to secondary and tertiary services, a part from accident and emergency services which can be accessed directly.

In the United States the majority of patients take out independent medical plans. often paid for partly or wholly by employers. These plans cover the patients for general medical services. Managed care organizations (MCOs) are a very common method of organizing funding of privately insured care through contractual agreements. These operate by contracting to manage an insurance fund for provision of health services to a group of enrolled patients, covered by an insurance plan, which covers access to particular general physicians, or specialists. The types of medical services covered vary according to the terms of the insurance plan. For patients who do not have medical insurance, there is a 'safety net' in the form of Medicaid, a state scheme providing access to basic medical care. A second publicly funded scheme called Medicare serves older patients whose health care needs may be too complex and costly to be met through private insurance. Access to hospital care is determined mainly by the coverage and services arrangements specified in the patient's insurance plan or by Medicare/Medicaid.

In France, health care system funded through a number of social health insurance schemes which cover the great majority of the population. Over 80% is covered by the dominant, state regulated insurer. Ambulatory general medical services are provided by generalist physicians who operate as independent practitioners. Much of the cost of consultation and prescriptions is covered by the medical insurance system and fees charged for consultations are regulated. Individuals often take out complementary independent insurance cover to meet the difference between the full cost of general medical care and the pay-out from social insurance. The health system has been reformed to provide universal health coverage which helps those on low incomes by providing more complete cover for costs of medical care. Doctors may set up their practices wherever they wish and patients can make use of more than one general physician. Access to hospital care does not depend on referral by one particular physician or general practice. For some types of ambulatory medicine patients may alternatively use specialists who practise in community based setting. Often groups of specialists will set up a joint clinic to provide ambulatory access to a range of medical specialities at one location.

The disadvantage of such systems is the increasing financial burden on the state. Thy also involve long waits for treatment and patients may have to travel some distance from their home. Such centralised provision also makes it difficult to change elements of health services infrastructure, such as hospitals and clinics, in response to public opinion.

The health care system in Saudi Arabia is slightly different in terms of funding and providing. It shares some features with the previous three developed countries' systems, which also having its own characteristics. As mentioned earlier, the majority of health services in Saudi Arabia are provided by the Ministry of Health and funded through the general government budget. The other government health agencies are mostly funded via the authority to which they belong but also, ultimately, from the general government budget. The MOH services are provided the services completely free of charge for citizens and foreigners, including basic medicines. Some other health agencies also provide the services free of charge although others require some contribution, for example King Faisal Specialist Hospitals and Research Centre. However, not all people can access all those other health agencies, services; because

they are mainly provided for certain groups of people. For example, the health services provided by the Ministry of Defence and Aviation are mainly for the employees of the affiliated institutions. Access by other people is very difficult and usually requires the consent of the Minister with overall responsibility for the services, or people in high authority.

The private health sector works separately from the state one and funds itself from the charges made to patients. However private sectors facilities are found only in the cities and their use largely depends one the ability to pay. Patients should register with the PHCC located in their residential distinct, but for private facilities there is flexibility to go wherever the patient wants.

Table 1.3 Features of three national health system and compare to the Saudi Arabian health system

Country (type of funding Britain Central budget Funding; quasi- market structure	Type of professional General practitioners (independent contractors to NHS)	Type of coverage Comprehensive general medicine (24 hour access to GPs under the NHS); no fees for consultation but	Eligibility Patients registered with only one GP (have choice of GP under NHS)	Relation to hospital sectors Referral to most hospital care via GPs: 'gatekeeper' role for GPs
France National health insurance	Generalist physicians or specialists in community	some for prescriptions Government regulated insurance schemes:	Patients can consult more than one	Referral to hospital via generalists or specialists
USA Regulated private	clinics	comprehensive cover	under the health insurance system	
insurance with public safety net; MCO model is commonly used to manage care	physicians or specialists	coverage and cost depend on health insurance; private insurance plan or 'safety net' public cover, mainly through emergency rooms	by insurance coverage and ability to pay	Access to hospitals depends on insurance plan and MCO or Medicaid/ Medicare eligibility
Saudi Arabia* State budget funding	General physicians or specialists	Free consultation and medicines free in state sector and charge in private sector as they work separately	Patients registered with only one state PHCC. Flexibility in private care according to ability to pay	Most referral to state hospital care via PHCC. Access to private hospitals direct

Source: Curtis (2004, p. 138). * Saudi Arabia section added by the researcher.

1.8 The Rate of Population Growth in Saudi Arabia

Table 1.3 shows that Saudi citizens represent 74.8% of the total number of the Kingdom's population, distributed among 13 regions across the Kingdom (Fig. 1.1); males constitute 50.04% and females 49.96% of the total number of Saudi citizens. Non-Saudi residents provide 25.2% of the total population; males accounted for 66.85% and females 33.15% of the total numbers of non-Saudi population residents in 2000 (Statistical Yearbook, 2001).

As previously noted, the rate of population growth is high, 3.39% among Saudi people and 3.34% for non Saudis in 2001 (Health Statistical Yearbook, 2001). This gives Saudi Arabia one of the highest rates of population growth in the world. It is expected that the population of the Kingdom will increase by 56.6% between 2000 and 2020, while the Saudi population will increase by almost 90% in the same period (Seventh Development Plan, 2000/2004). These rapid increases make planning for services in general and health services in particular very difficult (see Table 1.3).

In 2004 the total population of Saudi Arabia was 22,673,538, of whom 16,525,302, (72.9%), were Saudis and 6.144.236 (27.1%) non-Saudis. This means the proportion of non-Saudis has increased by 1.9% compared with 2000. In terms of their spatial distribution in the Kingdom, the Saudis are mainly concentrated in two regions, Riyadh and Mecca, with 22.5% and 21.7% respectively of the total kingdom population. Medina came in the fifth position with 6.9% of the total kingdom population. Non-Saudis are concentrated in four regions, which together account for 83.2% of the total of non-Saudis, namely Mecca (36%), Riyadh (28.1%), Eastern 13.1% and Medina (6%) (Ministry of Economy and Planning, 2005). This

concentration could be related to religious reasons in the western area (Mecca and Medina) and job availability in Riyadh and the Eastern region.

Administrative		Saudi			Non-Sau	di	Total			% of total
Area	Male	Female	Total	Male	Female	Total	Male	Female	Total	population
Riyadh	1625188	1627541	3252729	992856	484745	1477601	2618044	2112286	4730330	22.7
Makkah	1782178	1773382	3555560	1164015	729198	1893213	2946193	2502580	5448773	26.1
Jazan	475286	507171	982457	65746	34819	100565	541032	541990	1083022	5.2
Eastern Prov.	1182048	1104996	2287044	506522	215347	721869	1688570	1320343	3008913	14.4
Asir	689643	739628	1429271	165498	42695	208193	855141	782323	1637464	7.9
Al-Qaseem	396328	394603	790931	141552	47375	188927	537880	441978	979858	4.7
Hail	216800	232883	449683	51050	19251	70301	267850	252134	519984	2.5
Medina	543833	517258	1061091	218459	99320	317779	762292	616578	1378870	6.6
Al-Baha	206115	228088	434203	29038	13141	42179	235153	241229	476382	2.3
Norhern Bord	110437	111516	221953	18636	8955	27591	129073	120471	249544	2.0
Tabuk	264656	243225	507881	61722	24103	85825	326378	267328	593706	2.8
Najran	161775	162494	324269	48478	12841	61319	210253	175335	385588	1.8
Al-Jowf	145764	145969	291733	51343	11374	62717	197107	157343	354450	1.7
Total	7800051	7788754	15588805	3514915	1743164	5258079	11314966	9531918	20846884	100
%	50.04	49.96	100	66.85	33.15	100	54.28	45.72	100	-

Table: 1.4 Saudi Population by sex and Nationality in Administrative area in 2000.

Source: Statistical Yearbook (2001).



Fig 1.1 Saudi Arabia's Regions

Sources: http://www.saudiembassy.net/country/map.asp

1.9 Health Service Resources

1.9.1 Human Resources

Table 1.5 shows that there was a sharp increase, especially between 1982 and 1992. in the number of workers, whilst since 1992 the number of workers has grown steadily. The total number of physicians in Saudi Arabia was 31,983 in 2001, of which 14,950 worked at the Ministry of Health (MOH), making 46.7% of all physicians, compared to 53% in 1992. In the private sector, there were 9,445 physicians in 2001, about 29.5% of the total number, which was nearly the same rate as in 1992. There were 7,588 physicians in other governmental sectors, representing about 23.7% of all physicians, an increase of about 5.7% compared to 1992. The total number of nurses over the entire Kingdom in 2001 was 67,421. The share of MOH was 36,495, 54%, whilst other governmental sectors had 17,664 or 26%. In the private sector there were 13,262 nurses, accounting for 20% of the total. The total number of assistant health personnel including staff in pharmacies was 38,519. Of these, 22,255 of them worked in MOH, and 9,867 and 6,397 worked in other governmental and private sectors respectively.

Table 1.6 shows that the total number of physicians working in PHCCs in 2001 was 4,547, a ratio of 2/10,000, plus 9,906 nurses a ratio of 4/10,000^{*} and 5,960 assistant health personnel. In 1992, the figures were 4,369 physicians a ratio of 2/10,000 and 8,614 nurses, a ratio of 2/10,000 and 4,336 assistant health personnel. There was not much change in the figures over the time between 1992 and 2001, compared to the growth of development in the Kingdom. Perhaps the relative lack of change during the last ten years in the number of physicians may be due to the government policy, which encourages the private sector to participate actively in health services.

^{*} The rate calculated by the researcher depending on data from Health statistical Yearbook (2001).

Alternatively, it may be because many PHCCs are located in rural areas, which most doctors do not like to work in. Furthermore, it may be that a higher proportion of the health budget was spent on health projects and the Primary Health Care (PHC) programme rather than employing physicians in PHCCs.

Sectors Health resources		Ministry of Health	Other Governmental Sectors	Private Sector	Total
	Physicians*	5123	-	1526	6649
	Nurses	9729	-	3442	13171
	Assistant health				
1982	Personnel **	5925	-	1485	7410
	Dispensaries	-	-	105	105
	Clinics	-	-	609	609
	Primary health care				
	centres	973	-	-	973
	Physicians*	13900	4721	7530	26151
	Nurses	32229	11422	10216	53867
	Assistant health				
1992	Personnel **	17165	6806	4319	28290
	Dispensaries		-	464	464
	Clinics	-	_	+	-
	Primary health care				
	centres	1731	-	_	1731
	Physicians*	14950	7588	9445	31983
	Nurses	36495	17664	13262	67421
	Assistant health				
2001	Personnel **	22255	9867	6397	38519
	Dispensaries	-	-	775	775
	Clinics	_		795	795
	Primary health care				
	centres	1786	-	<u> </u>	1786

Table 1.5 Human Health Resources in Ministry of Health and other Sectors in 1992 and 2001

Source: Statistical Yearbook Different Issues.

*Include dentists.

**Include pharmacists.

+ Not available.

1.9.2 Service Resources

In the last ten years the number of primary health care centres (PHCCs) increased to reach 1,766 in 2000 and 1,786 in 2001 compared to 1,702 in 1992, Statistical Yearbook 1996 and 2001). That means that on average one PHCC served 11,804

people over the whole Kingdom, i.e. Saudi and non-Saudi in 2000, for Saudi citizens the figure would be 8,827 people/PHCC in the same year.

The recommended average of WHO is one PHCC per 10,000 people (Alhmiadi, 2002). This seems to be reasonable, but it should be mentioned that there is a large variation in terms of PHCC averages between cities, towns and villages in Saudi Arabia. The number of families registered with PHCCs in rural areas is much lower than in urban areas. For example in Medina region, the registration average in rural areas was 308 families per PHCC, but in the cities it was 1,785 families per PHCC (Medina Municipality, 1999). The figures are even higher in the city of Medina itself, with Alawaly, and Alaws PHCCs, for example, having 4,330 and 2,166 registered families respectively in 2002^{*}. That variation between rural and cities may be due to the small and scattered population in the rural areas and their concentration in the cities. Thus, average statistics for the Kingdom as a whole do not give a clear idea of what exists in individual areas.

Cable 1.6 Physicians, Nurses and	l Assistant Health Personnel	in PHCCs from 1992 to 2001.
----------------------------------	------------------------------	-----------------------------

Years	3						-			
Categories	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Physicians	4369	4363	4365	4339	4172	4036	3943	4027	4192	4547
Nurses	8614	8549	8957	8924	8885	8536	8538	9501	9848	9906
Assistant Health										
Personnel	4336	4429	4438	4474	4520	4430	4313	4907	5091	5960
	7 1	1. 1:00.								

Source: Statistical Yearbook, different issues.

Table 1.7 Physicians, Nurses,	Pharmacists and Allied Health	Personnel in MOH hospitals
•	from 1992 to 2001.	

Years										
Categories	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Physicians	9013	9666	10136	10365	10439	9993	7964	10050	10191	9949
Nurses	23296	24461	26292	25676	25369	25622	26925	27386	27636	25922
Pharmacists	411	484	581	553	558	538	625	642	704	649
Assistant Health										
Personnel	10603	11309	12023	12323	12397	12776	12952	13467	13752	13249

Source: Statistical Yearbook, different issues.

^{*} These figures were given by the managers of the Alawaly and Alaws PHCCs.

Table 1.8 Physicians, Nurses and Assistant Health Personnel in Private health sectors from 1992 to 2001.

Years	··		[
Categories	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Physicians	7530	8135	7926	8291	8482	8891	9021	9825	9053	9445
Nurses	10216	11232	9937	9983	10588	10800	11609	12266	12610	13262
Assistant health										
Personnel	4319	4653	3884	3877	4013	6397	6627	5501	4450	6540
Source: Statistical	Voorbo	l diffor	ant ica							

Source: Statistical Yearbook, different issues.

In relation to MOH hospitals, Table 1.7 shows that the number of physicians was 9,013 in 1992. This figure increased to reach 9,949 in 2001. Nurses, pharmacists and assistant health personnel numbered 25,922 and 649, and 13,249, in 2001, compared to 23,296 and 411, and 10,603 respectively in 1992. This large increase in the number of nurses, pharmacists and assistants could be due to the increase in the number of hospitals, and to the greater numbers of students graduating from health institutions, which reached 2,058 in 1996 (Statistical Yearbook, 2001).

With regard to the private health sector, Table 1.8 shows that the number of physicians has been increasing since 1992 to reach 9,445 in 2001, with an average increase of 239 physicians yearly. These increases may be related to the policy of the Saudi government, which encourages the private sector to participate in health services. The seventh development plan aimed at continued increase in private sector participation in health care provision, to give it a chance to support the establishment of health institutions; and to invest in producing medicines and medical equipment (Seventh Development Plan 2000/2004).

In Table 1.9 we can see that since 1992 the increase in hospitals and bed numbers has continued. The total number of hospitals in private and government sectors was 274 with a total of 43,151 beds. In nine years the figures increased to reach 324 hospitals providing 46,622 beds in 2001. The increase in numbers of hospitals and beds in fact should increase the bed/population ratio, but the reality was different. The seventh

development plan 2000-2004 had aimed to maintain the current rate of hospitals which was 2.4 beds/1000 population. That level of provision seems to be not achievable. The beds/population ratio (Table 1.10) decreased from 2.5 beds/1000 population in 1992 to about 2.2 in 2001. The main reason is the rapid population growth, since the development of health services resources could not cope with it. To meet the aim of the MOH, 2.4 beds/1000 population, the number of hospital beds must be increased quickly in the next few years.

In terms of health personnel we find that Saudi Arabia was in a middle position compared to other countries with a similar level of development, for example Kuwait and Bahrain in 1997. But it is still far behind the rate of some developed countries such as Sweden and New Zealand (see Table 1.11).

<hr/>		2001	•	r	
		Ministry of	Other	Private	
	Sectors	Health	Governmental	Sector	Total
Years			Sectors		
	Hospitals NO.	170	32	72	274
1992	Beds NO.	26878	7285	8988	43151
	Hospitals NO.	174	32	75	281
1993	Beds NO.	26974	7338	7477	41789
	Hospitals NO.	173	34	72	279
1994	Beds NO.	26878	8357	6592	41827
	Hospitals NO.	175	36	74	285
1995	Beds NO.	26737	8563	6616	41916
	Hospitals NO.	176	39	75	290
1996	Beds NO.	26955	8794	6876	42625
	Hospitals NO.	180	39	84	303
1997	Beds NO.	27058	8970	8185	44213
	Hospitals NO.	182	39	87	308
1998	Beds NO.	27428	9119	8485	45032
	Hospitals NO.	186	39	89	314
1999	Beds NO.	27794	9169	8766	45729
	Hospitals NO.	188	39	91	318
2000	Beds NO.	27864	9169	8886	45919
	Hospitals NO.	191	39	94	324
2001	Beds NO.	28140	9376	9106	46622

Table 1.9 Hospital and Bed Numbers in Health Sectors in Saudi Arabia from 1992 to

Source: Statistical Yearbook Different issues.

Sectors	Bed No. in Governmental Sectors	Gov. sectors beds Ratio	Beds No. in Private Sector	Total Beds No.	Gov. & private sectors beds Ratio
Years					
1992	34163	2	8988	43151	2.5
1995	35300	1.9	6616	41916	2.3
2000	37033	1.7	8886	45919	2.2
2001	37516	1.8	9106	46622	2.2

Total 1.10 Beds per 1000 population in Saudi Arabia for some selected years

Source: Statistical Yearbook Different issues.

Table 1.11 Ra	te of selected health resources per population for selected countries in 1997.
	Rate per 100,000 population

Countries	Physicians	Nurses	Midwives	Dentists	Pharmacists
Saudi Arabia	166	330	-	16	21
Bahrain	100	285	-	9	20
Kuwait	189	475	-	26	35
Malaysia	65.8	113.3	27.1	8.6	-
Morocco	46	105	-	4	11
New Zealand	217.5	771	56.2	39	-
Sweden	311	821	-	152	

Sources: WHO. http://www.who/countries/sau/en/

- Data not available.

1.10 The expenditures on human resources, social welfare and health over the previous development plans

This section traces the pattern of increasing expenditure on the MOH over the last three decades and particularly the emphasis in this expenditure on high cost projects. For more than two decades after the unification of Saudi Arabia, about 90% of the population were living in rural areas and the government could not afford to provide adequate health services for all the population. The discovery and exploitation of oil, however, brought significant improvements in the living standards and services available to the people, particularly during and after the oil price boom of the 1970s. The increase of revenues to SR368 billion in 1981-1982, enabled large-scale spending on projects related to social welfare, including health services. In later years, however, as prices fell and production declined, the government suffered a loss of revenues and had to curtail its expenditure. The multiplicity of agencies involved in provision of health services in Saudi Arabia makes total expenditure on health care in recent years difficult to estimate. Data are available only for MOH, which is the main health care provider and even these data are sparse. In other governmental organisations, which provide health facilities only as a secondary function, health expenditure is not shown as a separate category but may be subsumed under other expenditure categories, such as salaries, recurrent expenditure or operational and maintenance programmes.

The first development plan (1970-75) allocated SR 7 billion to human resources, representing 20.6% of the total expenditure of that plan. The social and health investment was SR3.3 billion, representing 10.3% out of the total investment for the period. During the first development plan, oil production and revenues increased from 3.8 million barrels a day to 7.1 million barrels a day, and the price increased from \$1.8 to \$12.40. As a result, it was possible to increase investment in human resources. In the second development plan 1975-80, the allocation was SR.51 billion, a sevenfold increase over the previous plan's budget, and 14.7% of the total investments. Social and health funding increased by about eight times to reach SR. 27.6 billion, 8% of the total government budget. The increase of the financial allocations to those sectors continued to increase in the third development plan 1980-85. Human resources spending more than doubled to SR.115 billion, 18.4% of the total. Social and health development expenditure also doubled, reaching SR 61.2 billion, 9.8% of the total. In the fourth development plan, 1985-90, the expenditure on these two sectors remained high, SR.115.1 billion for human resources, 33% of the total, and SR.61.9 billion for the social and health sector, 17.7% of the total (see Table 1.12).

The expenditure in the fifth development plan accounted for 68% of the total investment of that plan. The allocation for human resources was SR.164.6 billion, 48% of the total, while social and health development was SR.68 billion, 20% of the total. In the sixth development plan 1995-2000, the increase in expenditure continued to become SR.216.6 billion for human resources development, representing 51.5% out of the total, and SR. 87.5 billion, or 20.8%, for social and health development. Together, these two sectors accounted for 72.3% out of the total development budget.

The financial allocations of the seventh development plan 2000-2004 were increased by 22.6% compared to those in the sixth development plan. The fund for development of human resources was SR. 276.9 billion, 56.7% of the total, while those for the social and health sectors was SR. 95.8 billion, an increase of 19.6%. This increase might be attributed to the general increase in standard of living, and also the attempt to keep abreast of international standards (Table 1.13).

The Saudi Arabian authorities have been trying to reduce the inequality of health services provision among the regions of the country, so that adequate services will be within reach of all the inhabitants, whether in urban or rural areas.

	First Plan		Second Plan		Third Plan		Fourth Plan	
	SR Billion	%	SR Billion	%	SR Billion	%	SR Billion	%
Economic Resources Development	9.5	27.7	97.3	28.8	192.2	30.7	71.2	20
Human Resources Development	7	20.6	51	14.7	115	18.4	115.1	33
Social & Health Development	3.5	10.3	27.6	8	61.2	9.8	61.9	18
Infrastructure Development	14.1	41.4	171.3	49.3	256.8	41.1	100.7	29
Total	34.1	100	347.2	100	625.2	100	348.9	100

 Table 1.12 Actual expenditures by Development Agencies during the Five Developments

 Plans 1970-1989.

Source: Ministry of Planning (2001), seventh development plan 2000-2004.

Table 1.13 Actual Expenditures	by Development	Agencies	during the	Five
Develonme	nts Plans 1990- 🤉	2004		

	Fifth Pla	n	Sixth Pla	an	Seventh Plan*	
	SR Billion	%	SR Billion	%	SR Billion	%
Economic Resources Development	34.1	10	48.2	11.5	41.7	8.5
Human Resources Development	164.6	48	216.6	51.5	276.9	56.7
Social & Health Development	68.8	20	87.5	20.8	95.8	19.6
Infrastructure Development	74.2	22	68.1	16.2	73.8	15.2
Total	340.9	100	420.4	100	372.7	100

Source: Ministry of Planning (2001), seventh development plan 2000-2004. *Planned expenditure.

1.11 The Importance of the Study

Health care represents one of the most important services which any government offers to its people. That is because it is a basic necessity for everyone, and plays an essential role in the nation's welfare in its two aspects: therapeutic and precautionary. Albaz (1992, p. 5) states that "health care is a basic need for all people". Similarly, Azarnoff (1982) argues it is a "basic service necessary for survival" (quoted in Albaz, 1992, p. 5). In the same regard McLafferty (1989, p. 131) argues that "the state must confront the ever-present tension between supporting health care as an entitlement

that is, as a service that should be available at certain basic levels to all people - and supporting health care as an industry". Therefore everyone has a basic need and a right to use health services; hence private and public health services have to be supported by the government, to make them within the reach of each resident, and at a reasonable cost (Al-Gahmdi, 1981).

In the past three decades, Saudi Arabian cities have grown rapidly, owing to the influx of internal and external migrants searching for jobs, and because of the boom created by high oil revenues. This continuing expansion necessitates hard work in order to raise the level of all public services including health care, to keep pace with new developments. Knowing the current spatial distribution pattern of health services is an important starting point for improving these services. Also, it is important to know the magnitude of government expenditure on such important services.

The Ministry of Health provides more than 66 percent of all health services across the Kingdom, and this is evidence that the government pays great attention to providing health services. The city of Medina is one of the most important Saudi cities, due to its religious position. Thousands of pilgrims (hajjis) and visitors visit Medina each year. For example in the 15 days' hajj period, the number of pilgrims making outpatients and inpatients visits to hospitals and PHCCs in Medina was 104,587 and 130,628 in 2000 and 2001 respectively (Health Statistical Year Book, 2001). So, health care must be provided for these pilgrims and visitors, as well as citizens, in an easy and accessible way.

Al-Ruwaythi (1997) claimed in his book, "Geographical Characteristics of Medina Munwwarah" that the distribution of primary health care centres over Medina city is not in line with the population distribution. Informal observation at some health centres and at public places indicated to the writer that there have been complaints from those who utilize health services in Medina, expressing dissatisfaction with such services' accessibility, availability, quality and geographical distribution, as well as unavailability of medicine at state hospitals, and the high cost of care at private medical institutes. Alfize (2002) emphasized that although the current funds of the Ministry of Health are enough to provide care for all Saudi citizens, at high quality private hospitals, the yearly cost of a bed has increased from 293,583 S.R. in 1990 to 408,000 S.R. in 1999, a rate of 40%. Meanwhile, there has been a decline in the quality of medical services and the quantity provided by Health Ministry run facilities, which most patients complain about.

In the light of these concerns, and the fact that the geography of health service provision in Medina has not been studied before, and because, as a native of Medina, the researcher already has some knowledge of the study area and the people, this study examines and investigates health services in Medina in relation to the delivery system, distribution, accessibility and effectiveness of utilization, including satisfaction with the services, according to the following objectives and research questions.

1.12 The Objectives

The aims of the research are as follows:

- To identify the spatial distribution of health services in Medina.
- To find out on what principles the locations of clinics and hospitals have been decided, e.g. close to areas of major health problems, or new housing areas, or a move to fewer but larger clinics.

- To identify area(s) of under-provision and over-provision of health care facilities, and the problems which face health services in the study area.
- To identify the demographic and socio-economic factors of users and assess whether the current level of health services is consistent with the general government aim of "health for everyone by 2000".
- To critically examine the complementary roles of private health services and state health services, in reducing patients' waiting time for health services.

Two significant contributions will be made by the research: 1) the research will contribute to academic understanding of the geography of health; 2) The conclusions and recommendations should help those responsible in their decision-making.

1.13 Research Questions

There are three main (conceptual) questions answered through eight subsidiary (empirical) questions.

- 1. What are some emerging spatial patterns of health care provision in Saudi urban context and how do these compare with the western context?
- 2. What is the relationship between the urban geography of health care provision and that of consumption in the specific context of Medina?
- 3. What contextual, local factors are important in shaping services equity in the Saudi urban context and how can health care be restricted to take account of such factors?

In order to answer the above questions, eight subsidiary questions are explored empirically follows:

- 1. What are the main underlying assumptions guiding policies on the geographic distribution of hospitals, primary health care centres and clinics, state and private, in Medina?
- 2. Are hospitals and primary health care centres equitably distributed over all the city of Medina?
- 3. How accessible in terms of time and distance are health services in Medina?
- 4. Is there a relationship between demographic and socioeconomic factors in terms of utilization of health care, and type of health services provided?
- 5. Are services provided by hospitals, primary health care centres and other health centres satisfactory, i.e. to what extent are people satisfied with services provided by the health sector?
- 6. Is the current capacity of hospitals adequate for the population of the city?
- 7. How can hospitals and primary health care centres be re-structured in order to ensure that all people have easy access to the services?
- 8. Does the distance from state health care institutions cause people to switch to private services? What are the main factors which make patients prefer to use private health services or the reverse.

As a theoretical basis for the present study, therefore, the next chapter reviews the literature of the geography of health services.

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Chapter two

Literature Review

2.1 Introduction

As there is a huge literature in the field of "geography of health care", this discussion concentrates on three main aspects of health care services: distribution, accessibility of health services (in terms of distance and affordability), and utilization, including satisfaction with the services.

Few studies have been done in the study area and in Saudi Arabia in general on health care from a geographical perspective. To set the research in context, this chapter will begin by reviewing research from around the world.

2.2 What is Medical Geography?

Medical geography is known as a branch of applied geography, which studies the spatial pattern of phenomena related to health and healthcare, and investigates the relationship with the environment or any other factors (Stimson, 1981, cited in Annimer, 1992). Ricketts, et al. (1994 pp. 321-322) defined medical geography: as "both an ancient perspective and relatively new specialty, using the graphical techniques and tools of geography to analyse health care issues. It encompasses health issues related to the spatial variation of resources as well as disease ecology".

Medical geography is studied in two main ways. The first one is interested in the geographical explanation for the existence of diseases (i.e. why that disease appeared in that area and not in others) and their distribution. The second one studies the geography of health services in terms of provision, availability, utilization, spatial accessibility and the distribution of healthcare services.

The Dictionary of Human Geography (2000) identifies medical geography as:

Geographical analyses of health, disease, mortality and health care. The relationships between environment and patterns of ill-health or mortality have long exercised the attention of geographers and the antecedents of this tradition continue to be explored, demonstrating the antiquity of medical geography...there are consequently 'two traditions' of medical geography, one focusing on health services, the other addressing mortality and morbidity (Johnston et al., 2000 p. 494, 495).

The discipline of services is known as an old-new branch of geography (Alzaman, 1994). It was part of the field of applied geography, in particular regional planning after the Second World War. Owing to the need for improved welfare provision after the war, basic changes were required to improve services, not least distributional issues such as the location of provision and its quality. Hence there was a basic need for regional planning in European cities (*ibid*). An awareness of the need to study health care can be related to the development of the welfare approach in human geography, and the concern to improve the quality of life for people. To do so, recognising the importance of health and welfare services is required (Smith 1977, 1979 cited in Howe and Phillips, 1983).

The focus in the geography literature has been equity in spatial distributions of health services, and on the development and application of techniques for better spatial planning (Joseph and Phillips, 1984; Hayeenes, 1987). In the field of healthcare planning, for example, medical geography offers location allocation modelling. This is a technique widely employed by healthcare providers to decide how best to arrange services, especially in developing countries which are still setting up their health care systems. Another focus of research interest has been patterns of utilization, where the

interest lies in identifying which groups use services most. In this connection, the decline in use of services as a result of distance from facilities has been a topic of concern. Differential utilization is a controversial matter with implications for resource allocation decisions. One view is that high levels of hospital utilization can be explained by the pattern of existing provision. An alternative explanation views high level of utilization as a reflection of greater social need (Phillips and Verhasselt, 1994).

Some writers, such as Joseph and Phillips (1984), ranked medical geography in general as one of the oldest branches of geographical study. In the second half of the nineteenth century many studies were carried out in the field of "medical geography" or "geography of health care" as Phillips (1981) called it. This was especially true in western countries, where it became a well-established field (Jones and Moon, 1987; Al-Ribdi, 1990) that examined many problems in health care (see Meade et al. 1988). Early in the second half of the nineteenth century, much research was focused at first on disease ecology. The aim of such studies was to identify the environmental and social conditions, which could explain regional variations in the incidence of disease. Until the early 1970s, little attention was paid to the specific study of health care services and their utilization. Since about the mid 1970s, according to Joseph and Phillips (1984), contemporary medical geography has turned from concentrating on disease ecology to the distribution and description of health care facilities:

Most spatial research in contemporary medical geography has concentrated either on describing and optimising distributions of health care facilities or on describing and modelling their use (Joseph and Phillips, 1984, p. 5).

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Similarly, Howe and Phillips (1983 p. 41) state that until almost the end of 1970s, "little attention had been paid to the spatial analysis of health-care services and planning and health behaviour" (also see Jones and Moon, 1987).

Most of the recent research has been focused on the spatial aspects of human health problems, and location-allocation of health care facilities, the analysis of the hierarchy of health services, and distance decay function for services (Mohan, 1983; Meade et al., 1988; and Elzahrany, 1989). This reflects a broadening of the scope of research by medical geographers during the 1960s and 1970s, to cover the geography of health care delivery. This development in medical geography involved two important trends.

First, human geography now includes the examination of spatial aspects of the allocation and use of a broad range of services. Secondly, specialist geographers within human geography have been ready to look beyond previously established disciplinary boundaries to incorporate multidisciplinary ideas and techniques into their research (Phillips 1981, p. 1).

In the same regard, Curtis and Taket (1996, p. 10) state, "The main focus is on service provision and/or service use, particularly their spatial patterning, hence the alternative name, 'geography of health care' or (in a more restricted sense) 'geography of health services'". However, it should be mentioned that there is a debate between geographers over the name of this subject area: Which is more accurate, "medical geography" or "geography of health care"? In this regard, some geographers claim that the title "medical geography" in this situation is misleading; Phillips and Rothwel (1983), for example, argue that:

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The present title of 'medical geography' is a misnomer because the field is now less concerned with the spatial aspects of disease and more with the provision and delivery of health care services (quoted in Al-Ribdi, 1990 p. 8).

Curtis and Taket (1996, pp. 10-11) argue that the geography of health care is distinguished by three main components:

The first of these includes studies of the structures and spatial patterning of health service facilities like hospitals, clinics, and doctors' surgeries.... A second component is provided by studies which aim to identify patterns of inequality in supply and use of services...Thirdly, there are studies, which focus on patient utilization of health services.

Medical geography has been shaped by humanistic thinking, which is widely applied in various areas of human geography. Hence medical geography has now been broadened in scope and "includes studies which examine features of health service provision and use from the point of view of the service user, exploring consumers' notion of concepts of accessibility, appropriateness, and satisfaction" (Curtis and Taket 1996, p. 15).

Other geographers have argued that this change of emphasis from disease ecology to investigation of the provision and use of health care services can be attributed to several factors:

 (a) A developing interest in the delivery of health care services as part of the geographical study of public services generally (Jones and Moon, 1987). This is a reflection of the increasing importance of welfare provision, to enhance the quality of human life (Howe and Phillips, 1983).

- (b) The analysis of health care systems and associated issues such as the location of, and accessibility to, facilities, are more amenable to geographical measurement than are matters of disease ecology (Al-Ribdy, 1990).
- (c) This is also an area that can be investigated at a variety of levels, from the macro level of groups within populations, to the micro level of the individual or household (Phillips, 1981). This means that geographers can tailor the scale and purpose of the study to the types of data that can be obtained.
- (d) A distinction may also be made between the analysis of the delivery systems and investigation of the level of use and satisfaction of consumers who use the system. Both kinds of research often need geographical techniques (Al-Ribdi, 1990).

To examine health care anywhere, it is essential to understand the national health system in the place being examined, and its hierarchical structure (Pacione, 1986; Al-Ribdi, 1990). Very often, health systems are different from one country to another. For example, in Saudi Arabia, health services are provided by various government agencies such as the Health Ministry, Ministry of Defence, Ministry of Higher Education and Royal Commission for Jubail and Yanbu, as well as the private sector. The state health services are free of charge. In contrast, in the UK, for example, all state health services are provided by the National Health Services (NHS) with charges for prescriptions for people aged 18 to 60 years old, with some exceptions for groups with special needs, such as those with very low income and those with certain chronic diseases.

2.3 International Findings on Medical Geography

Planning for health services is one of the most important subjects in regional development. It requires a good knowledge of how people use health facilities (Joseph and Phillips, 1984; Muller et al; 1998). In the third world, several problems face health services, especially in the lack of facilities, which may relate to the lack of expenditure in the field of health services (Jarallah, 1997; Aman, 1998).

It is noticeable that health services tend to be concentrated in areas with high population density. That means that other small cities, villages and small groups of people are often not provided with such services locally, and have to travel to reach them. A study by Annimer (1992) gave a general idea about health services in Khartoum and in Sudan in general. She was interested in the distribution of health centres in Khartoum and how this related to the distribution of people there. She also investigated the quality and availability of health services. Annimer found that many people were concentrated in some districts of Khartoum, and there was considerable variation in the density of population between districts. Also, she found that the distribution of health centres was random and the distance between them varied. She recommended that extra health centres be established, which she thought should reduce distances which patients had to travel.

From these points come the importance and necessity of regional planning for health services, in a pattern which provides equitable geographical distribution over the city or over the whole country, in order to make services accessible for most users in a reasonable time (Jarallh, 1997; Aman, 1998).

In relation to regional inequality, some geographers argue that inequality of health resources exists even in developed countries. For example Jones and Moon (1987) state: "Northern England is, in general terms, less well off in the case of health care resources" (p. 229). Also, the NHS, which was founded in 1948, did not remove all inequalities in health services, although it has brought about much important improvement. Howe and Phillips (1983, p. 42) stated that "the NHS removed some of the more obvious inequalities in health-care provision while the welfare state in general improved the lot of the needy". This is not the case only in Britain, but applies to other countries such as the US. Joseph and Flynn, (1988) for example, found disparity among regions in the distribution of health services between state and private hospitals in New Zealand. Some districts had few or no private hospitals. Only 35% of the New Zealand population had private health insurance (Chtwynd, et al., 1983). This would inevitably influence the choices of consumers between the private and public sectors.

There are limits to how far people are able or willing to travel to obtain medical services. Other factors which may influence utilization behaviour include whether public or private transportation is available, how severe the health problems are, and financial considerations. Because of the centralisation of some health facilities, patients in some cases must travel in order to get treatment. In two towns in East Anglia, UK, it was found that most residents lived within 40 minutes of a hospital. Because of poor public transportation, some had switched to private health care, available close to where they lived. Poor access posed particular difficulties for patients who were chronically ill and needed to attend hospital regularly (Hayeenes and Bentham, 1979, cited in Jones and Moon, 1987).

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Centralization of provision increases the importance of physical access to care, a major reason being the link between access and the rate of utilization. Jones and Moon (1987 p. 240) state that "...patients who live close to a surgery consult up to a third more often than those living at distances of over 2.5 miles away and those with transport problems are particularly disadvantaged" (see also Whitehouse, 1985) and Joseph and Phillips, 1984). Similarly, Phillips (1979) claimed that the rate of doctor consultation is affected by distance from provision (in Jones and Moon, 1987).

Albishri (1989) studied planning health services in the Saudi regions and in the Kingdom as a whole by examining selected indicators, such as the numbers of people per physician, per nurses, and per bed, and the burden of work at hospitals. He concluded by making a recommendation to subsidize regions which he believed had a shortage of health services. Although Albishri's study was limited, it was a useful contribution in the health service field and evaluation of health services in Saudi Arabia at that time, and made suggestions for future health service planning. Regional health care planners attempt to solve problems such as unevenness of provision of health and welfare services, in order to achieve justice and equity in geographical distribution. This requires better planning to ensure that facilities are within reach of all people across the country, wherever they are located.

2.3.1 Accessibility and Utilization of Health Services

A crucial relationship in any health care delivery system is that between consumer and provider, and this needs to be understood if health care resources are to be distributed in the most efficient and effective manner. Most of the considerations that affect this relationship are non-spatial, for example, gender, age, and marital status. Research has focused particularly in two aspects of the consumer-provider interaction. accessibility and utilization. Accessibility refers to the position of patient and practitioner relative to each other. Since most factors, if not all, which affect accessibility of health service could be applied to utilization their patterns are often quite similar. Joseph and Phillips (1984, p. 9) state that accessibility and utilization, "are two sides of the same coin, as utilization is a manifestation of 'revealed accessibility'". Good accessibility does not, however, necessarily lead to utilization of resources, that is, actual interaction.

It is very difficult for government or any health organisation to make healthcare services equally available for all. Indeed, Al-Ribdi (1990) states that equal availability of health care services is never fully attainable. This is essentially because some tertiary health institutions or specialist hospitals must be centralised at cities. Inevitably, these are less accessible for those who live far from the cities. Distance is one of the most important influences on accessibility of health care facilities, which has long been recognized as a primary determination of utilization. In the third world, distance is a very significant factor, especially when health facilities are often limited, where most patients are likely to have to travel for treatment on foot and where more accessible alternative sources of medicine are available (Robert, 1983). Muller et al. (1998) found that a distance of 3.5 km reduced attendance at health services by 50 percent in Papua New Guinea.

Another study by Von Reichert, et al. (1995) on access to maternity services in rural Montana, US, investigated differential access between white and Native Americans. It showed that rural seclusion affected both groups, which suffered from few rural hospitals and few physicians. The level of primary care services in the counties depended on the density of population. More populated counties offered better health services, while the smaller counties had less health service and no specialist care. Statistically, the authors found that 19 percent of the white group and 37 percent of Native Americans from the total births, which were 130,000 in the period of the study, travelled to find services outside their county. In fact, there was no significant difference between the two groups; both preferred local services when the quality of provision was high, and both groups travelled when the provision of facilities was poor.

It is notable that long distance is quite a high barrier for those who use health services care regularly. Distance has been shown to be an important factor in utilization (Shannon, et al., 1979; Mayer, 1983; McGuirk and Porell, 1984), but measures of distance have often been crude or replaced by proxy variables because of cumbersome data requirements and/or cartographic limitations (Green,1991). Joseph and Phillips (1984) reviewed the various measures of distance, travel time, linear distance, and road mileage and expanded the notion of geographic accessibility to include location (physical proximity) and effective accessibility (whether a facility is always available or open and whether a person's time space budget permits her/him to use the services). Another measure of distance that is particularly relevant when considering health care accessibility is that of perceived distance. For example, rural residents, who are accustomed to travelling long distances, may perceive a trip length of 50 miles very differently than urban residents would.

Gittelsohn and Powe (1995) for example, found that access to Coronary Artery Bypass Grafting in Maryland was very poor for patients travelling more than 80 miles. Slack, et al. (1997) used access as a determinant of demand in their study of

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"the relationship between accessibility and deprivation data". It appeared that deprivation and accessibility of services are both important factors that determine the rate of hospitalisation. They concluded, "If high hospitalisation rates are taken as an indication of effectively-met demand, then policy makers may have to consider increasing the accessibility of hospital services" (p. 30). They made suggestions to make the supply side effective.

Many geographical writers have examined distance to health services. Philo (1995) and Park and Wood (1992) note that distance has been understood as a deterrent to utilization, at different times, and in different geographical settings. Recently Gregory and Adrian (2000), studying in rural Vermont, note that longer distances from the health provider reduce utilization. They recommend that the provider's location must be within easy reach, especially for those who use health care quite often, such as those having chronic illness, or the elderly.

Furthermore, the rate of utilization is often higher for those who have a regular source of care. They state:

Having a chronic illness is a strong predictor of utilization. Having a chronic illness increases the utilization by half of a utilization band. Access to care is particularly important to elderly members of this group, as they must incur the extra costs associated with poor access more frequently than those with better health conditions (Gregory and Adrian, 2000, p. 1205).

Their analysis revealed that those with a chronic illness travelled approximately twothirds the distance to a physician compared to those who did not report a chronic illness. Three percent of the sample travelling to the nearest Veterans Administration hospital faced a round-trip of 160 miles. It is true that utilization of health care facilities is subjective, especially in respect of some factors, for example, level of medical need and, financial cost, but all users must be provided with a certain level of health care. The reduction in utilization levels attributable to distance varies according to the type of facility, socio-demographic variables and illness. Robert (1983) in Nigeria found that perceptions about illness and about specific diseases are reflected in the varying levels of health facility utilization, in the treatment of particular conditions, and in distance decay gradients of varying steepness. Although there is a general reduction in health care utilization as distance increases, utilization in individual villages varies greatly, in ways that are not explainable by distance alone.

Research has shows that gender, age and rural versus urban location are among the factors that may influence utilization, or mediate its relationship with distance. A study by Bay et al. (1997) examined the use of hospital services by the elderly compared with other age groups: they used four variables: age, gender, time and origin. It was found that the highest rate of health utilization in the study area was among females. They considered that this might be due to maternity cases; once maternity cases were controlled for, it was found that females used health services less than males. Regarding age, children less than four years were the biggest user group, related to the fact that babies were born in hospitals. Then came people aged 75 or older, probably due to their health condition, with an average stay in hospital 10.8 times longer than among those who were aged from 15-44 years. In some developing countries, too, men use health services more than women (Muller et al., 1998). This may be due to many factors such as social, culture, economic and productive activities. Regarding the type of community, rural residents use hospitals much more than those living in cities. Bay et al. (1997) for example report that

residents of rural Alberta used hospitals 69.5% more, compared with city-dwellers, and used hospital beds 51.6% more, suggesting that people living in rural areas consume much more hospital resources. This perhaps reflected that admission criteria for rural hospitals were much less sharp. Many writers, for example Fortney, et al. (1999) argue that travel time to the healthcare services affects the frequency of visits; those closer make more visits than those who live further away. This potential support enables them to be discharged earlier than urban residents. As a higher percentage of rural Albertans are elderly, however, the effects of age and patient origin are confounded, which may help to explain the higher utilization rates for rural residents (Bay et al., 1997). Another reason may be that rural people are more likely to experience transfers from the local small hospitals to higher level hospitals in urban areas.

It is thought that there is not much difference between consumers/users of health services in developed and undeveloped countries. All look for good health services in terms of accessibility, quality and location, and to avoid high costs when they pay for care themselves. Kloos (1990), in Ethiopia, revealed that utilization of health services depends on various factors such as type of health care, transportation cost, type of illness, patient preferences, patient social-economic status and referral patterns. In the same regard, Elzahrany (1989) and Al-Ghamdi (1981) agree with Kloos that demographic and social-economic characteristics are known to have a significant influence on the utilization patterns of health care services (Al-Ghamdi, 1981). Availability and accessibility are also important factors for utilization of health services. These depend on several factors such as geographical location and health centre working hours. Furthermore, the attitudes of users play a significant role in determining utilization of services (Elzahrany, 1989). Yet, the style of providing
services is also important to users of the services. Tomanah and Hrashfah (1995) in their research about "The Effective of Services upon Users' Satisfaction from Health Centres in Mafraq Governorate in Jordan" found negative attitudes toward both the external and internal atmosphere of medical centres, for example availability and suitability of waiting rooms, availability of medicine, level of cleanness and availability of immunisations. Also, respondents were dissatisfied with the time they spent with the doctor to get a diagnosis, and low participation in planning, executing and evaluating health care programmes. However, in general, the study showed that 74% of respondents had positive attitudes toward the Medical Centres services. There were significant differences in satisfaction with respect to variables such as age, education and type of medical insurance, but there was no significant difference in relation to sex and social status.

In summary, planning for health services requires a good knowledge of how people use health facilities (Joseph and Phillips, 1984; Muller et al., 1998). Many factors affect health- seeking behaviour at particular health facilities in developing countries. Distance, for example, is one of the most important influences on use of health facilities. The impact of seclusion has been studied, mostly using a questionnaire approach, but little has been done to assess distance decay in the third world, owing to shortage of small-scale demographic data. However, attendance at local health centres was found to decrease by distance, more than attendance at hospitals (Muller et al., 1998; Kloos, 1990). A possible explanation is that the reduced effect of distance for hospitals is related to the fact that travel to hospitals is mostly for serious illness, which usually requires transport, whereas visitors to local health centres go on foot. It cannot be denied that distance to the service is very important. But there are other factors no less important than distance. For example satisfaction with the service could be a barrier to getting healthcare service: this may involve different aspects such as quality of service, availability of medical equipment, waiting time and financial cost. Some people may live close to a health centre but travel to one further away because of dissatisfaction, for whatever reason. This phenomenon is more pronounced in the private health sector in the third world and in Saudi Arabia, where patients can go directly to private health services without referral.

2.4 Medical Geography in the Arab World

Medical geo-science in the Arab world has a famous history dating from in the middle ages. At the beginning of the Islamic era (seventh and eight centuries A.D.), Greek and Unani medicine (translated as natural medicine) were used to treat diseases. Important contributions were made by Arab Muslim scientists to developing medical knowledge between the seventh and fifteenth centuries (Meade et al., 1988; Gesler, 1984; Al-Ribdi, 1990).

The most famous of these were Ibn Hokal, and Al-Masaudi, who lived in the tenth century, then Ibn Khaldun in the fourteenth century. They specified the relationships between disease and their environment. However, the greatest physician of the Islamic era was Ibn Sina, who lived in the tenth century. His wide knowledge extended beyond medicine to other disciplines such as logic, metaphysics and philosophy. He wrote a total of 276 texts (Sharaf, 1986). Until the nineteenth century, Unani medicine was still in use in most Arab countries, although western modern medicine is now the basis of the health care systems in most of these countries (Gasler, 1984, Al-Ribdi, 1990).

Until recently, little progress was made in medical geography in the Arab world. There are few books on medical geography. Sharaf (1995) claimed that his book "Environment and Human Health in Medical Geography", first published in 1986, was probably one of the first books, in Arabic, in the medical geography field. His work emphasizes disease ecology and the environmental factors that might affect human health, for example, geographical location, economic level, the development of urbanisation and pollution. Also, the book emphasizes some contagious diseases such as malaria and non-contagious ones such as vitamin deficiency. Although it provides a good introduction to the Arab health geography field, it suffers from a lack of statistical information. Another criticism is that the writer relied heavily for his explanation on prevailing western methods and texts. Subsequently Alridysi (2001) published his book 'Medical geography' in which he identified some introductory concepts of medical geography and healthcare, classified type of diseases, and the nature and human ecology (environment) of diseases. The book also discusses primary health care, and description methods, and analysis of medical geography data. Despite the fact that the book depends heavily on western literature, it provides an important foundation for geographers wishing to understand this field.

Whilst studying health services is a relatively new discipline for Arab geographers, there are some studies of other services which help provide insight in terms of content and style of analysis. These studies, for example, include: Alsaleh (1983) on education services in Mecca in terms of the spatial distribution of schools and the level of people's education; Alsaeed's (1989) work on postal services in Riyadh in terms of the distribution of post offices and post boxes; Jarallah and Al-Mahmoud (1992) analysis of the network of telephone kiosks in Dammam, in terms of current

spatial distribution pattern and analysis of spatial location, leading to suggestions for the location of telephone kiosks in under-serviced areas.

Also, some dissertations and theses have been written in this field, although none on Medina. These include: Al-Ghamdi (1981) on the primary health care delivery system in Jeddah; Elzahrany (1989) on health services utilization in Makkah in Saudi Arabia; a dissertation by Saeed (1990) on the factors influencing the effectiveness of primary health care centres in Saudi Arabia; Al-Ribdi (1990) on provision and use of primary health facilities in the Alqaseem region; Albaz (1992) on patient satisfaction with primary health care services in Riyadh; Bakhashwain (1995) on acceptance and utilization of primary health care in Jeddah city; and Al-Magrabi (2001) on the geographical aspects of health and use of primary health services in Jeddah.

2.5 Traditional Medicine and its Use

Traditional medicine is a broad and vague term, encompassing a variety of health care activities, for which no clear system of definition and categorization exists. In the literature, all the non-modern, non-western, medicine tends to be classified under this heading. In many societies, none of the alternative approaches to health and illness are accorded official recognition. This it is very difficult to differentiate between complex systems of health care such as the Arab Unani or Indian Ayurvedic systems on the one hand and home remedy on the other.

Many people in developing countries still rely heavily for health care on traditional medicine more than 75% according to Good et al. (1979). Indigenous methods of treatment are still widely used in Africa, Asia and Latin America (Kleinman, 1980; Eyles and Woods, 1983 and Gesler, 1984).

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The choice of traditional or modern health care depends on a number of factors, among them, accessibility. Lasker (1981) for example found that in the Ivory Coast, traditional healers were more often consulted than modern doctors, in rural areas, but in urban areas where modern treatment is more accessible, the reverse was the case. However, accessibility is not the only explanation, given the finding by Meade et al., (1988) that native medicine was more popular with rural residents and moderns more widely used by urban residents, even when the two systems were equally available.

Jones and Moon (1987) and Meade et al. (1988) highlight the impact of people's beliefs about the cause of illness and the appropriate treatment, on the kinds of help they seek. Such factors may lead people to consult a traditional healer for certain problems and western style physicians for others. For example, psychological problems may be attributed to a curse or evil spirits; in such cases, the patient will tend to visit religious magical healers. Some societies believe that modern medicine cannot cure some kinds of illnesses, and so people prefer to see traditional practitioners, particularly in prolonged illnesses (Yoshida, 1990 cited in Bakhashwain, 1995). Other reasons for choosing traditional healers include suspicion of modern medication because of the fear of is side-effects. Ashour (1985) pointed out that the instructions accompanying medicines often warn of such effects. He pointed out that every medicine bears instruction for use, often warning of side-effects and argued that this was a drawback of modern medicine. Traditional healers are also favoured because of their viewing patients holistically, taking account of their psychological, social and economic circumstances, which modern medicine is perceived to ignore.

In Saudi Arabia, the role of traditional medicine has declined rapidly in recent years in the face of the vast expansion of modern biomedical methods and facilities. Nevertheless, in the 1980s, Al-Ribdi (1990) noted that traditional healing was still widespread in both rural and urban areas. Although such practices are not officially recognised and are therefore illegal, in practice the activities of traditional healers are tolerated unless there is a serious complaint. Such healers usually practice from home and news of their services is spread by word of mouth. Therefore, the number and location of such practitioners is unknown.

For many Saudis, the type of help sought depends on the type of disease. For example, rural Saudis visit the health centre (modern medicine) for common ailments such as cold, cough, diarrhoea and fever, but for other conditions such as Gamba, a severe, sharp stretching pain in the side of chest, they prefer a traditional healer (see Sebai, 1981).

Social-cultural factors such as socio-economic status seem to have a bearing on the patient's decision whether to seek health care from traditional or modern health services. Previous research in other developing countries has suggested that because of the cultural familiarity of medicine and the ability of folk healers to understand patients' beliefs, traditional medicine often brings relief in a way that modern biomedical practice can not.

2.6 Previous Studies of Health Care Provision in Saudi Arabia

It could be argued that the low utilization of any service when it is needed may be related to dissatisfaction of the users. Saeed et al., (1992) used random sampling of patients of a primary health care centre in Riyadh, Saudi Arabia to review the rate of utilization of that health centre and the factors which may affect its use. The authors considered that the frequency of utilization of that particular health centre, when other health centres were available free of charge, indicated satisfaction with the service. The findings showed there was a significant relationship between distance and the nationality of patients using the health centre. In addition some other factors were found to be related to satisfaction, such as short waiting time before seeing the doctor, availability of comprehensive care and car parking facilities. Location of health institutions also often plays a major role in the rate of use and satisfaction. Alhamed and Alshuhaib (1990) for example, in Riyadh, revealed most respondents' dissatisfaction toward the geographical location of hospitals, in terms of distance from them, traffic when they go to it and noise.

Most often, satisfaction with health services is subjective. Albaz (1992) investigated factors affecting patient satisfaction with primary health care services in Riyadh, by examining two variables, which he believed have an impact on satisfaction. The first one was the service delivery system, including transport, the physical environment, waiting time, length of visit, patient participation and physicians' cooperation. The other set of factures was socio-demographic variables, which were less significant. They included gender, marital status, age, education, and health status. Albaz used a survey questionnaire with a sample of 280 patients chosen at random from four modern primary health care centres in the study area, 70 from each one. Dissatisfaction with access to health centres was investigated in relation to many elements such as shortage of public transport. This is a particularly salient factor for women, since they are not allowed to drive. More than half the female participants indicated that inaccessibility of transportation was a problem in using health services, compared to 28.5% of men. Patients were also concerned about the accessibility and availability of doctors during the weekend and at later hours. Length of time spent waiting before seeing a doctor was also an important factor in satisfaction. Patients who waited longer evaluated the health care services more negatively. In Albaz's

study 33 percent of respondents waited less than 15 minutes and 30 percent waited more than 30 minutes. Duration of visit was also found to be a factor in patient satisfaction. Patients whose visits were shorter reported less satisfaction. Nearly two thirds of patients took less than 10 minutes to be diagnosed, which Albaz attributed to the pressure on the service by the large number of patients. He suggested expanding work hours by opening PHCCs in the evening might reduce the overcrowding and increase the availability of doctors. Patients also attached importance to the sympathetic attitude of the physician in giving the patient time to explain their illness and listening to their point of view. Such experiences resulted in more patient satisfaction. As regards outcome of care, it appeared that a negative outcome with public primary health care was a factor which induced some patients to go to other health institutions. In Albaz's study, about 27 percent of participants used traditional health practitioners, and 82 percent used private care when they were dissatisfied with public PHCCs.

The conclusion of Albaz's study showed that satisfaction among patients was not very high. It was suggested that dissatisfaction was related to many factors such as duration of visit, outcome of care, service accessibility, and technical quality. It was recommended that to solve such problems, greater efforts were needed to correct short-term deficiencies in the primary health care centre delivery system. That would improve the quality of health care service and increase patient satisfaction.

A different result was obtained by Al-Makdom (1996) in the Alkubar region. He examined patients' and visitors' view of eight state primary health care centres in Alkubar region, to identify their satisfaction with health services in terms of accessibility of the services, health outcome, exhaustive and education health services,

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the effectiveness of the services and the relationship between the health team and patients. Al-Makdom found that there were differences in satisfaction between patient categories. In general, old people were much more satisfied with the services in terms of getting the services and with good treatment from the team than others, and also with the electiveness of the services. This satisfaction with health services in this particular category might be related to many factors, for example: (1) they have much more experience than other young people so their evaluation may be more factual; (2) the health teams may sympathize with old people more than others, (3) when old people compare with the past, they find the current level of health services much better; (4) old people, most often, are much more satisfied and content in life than young people, possibly because they become generally tolerant and accepting, or because they feel more reluctant than younger patients to criticize what is done for them. However, some studies obtained different findings, Weiss (1988), for example, found that old people were less satisfied with health services in terms of accessibility, because of being less active. In general, in Al-Makdom's study, Saudi people were less satisfied with the services than non-Saudis. This may be related to the fact that many doctors and nurses are foreigners and most of them cannot speak Arabic, so it is difficult for patients to explain to them exactly what they want. This reason is also suggested by Al-Ossimy (1991). Men are more satisfied than women in terms of medical education and awareness of health services. This may be because women use health services more than men because of pregnancy, child care and immunization. Thus they may have more experience to evaluate and criticise the services. People with less income are more satisfied, and married people also are much more satisfied than unmarried people. People who walked to the health centres were more satisfied with the services in terms of accessibility and the education health services offered in

general. That may be due to the closeness of the health centre to where they lived, so that they could go to it whenever they needed, without any difficulty.

From a different aspect, the most important contribution in the healthcare services field in Saudi Arabia was made by a non-geographer, who was interested in public health in general and community health in particular. Sebai was a doctor and lecturer at King Saud University, who often worked with a team in different parts of the Kingdom. He started writing on public health in 1967. In 1985 he published his first volume on health in Saudi Arabia, which discussed health problems in rural Saudi Arabia, staff and health education. His second book in 1987 concerned many health problems that interested him, for example, communicable disease, viral hepatitis, cancer, diabetes and road traffic injuries. Many other articles were written by Sebai, such as a field study in 1988 of 1,609 health centres in Saudi Arabia under the auspices of the Health Ministry, which revealed that these health centres did not use a holistic approach as they were supposed to do, in delivering health care services. This was followed by "Laying the Foundation of Good Health Care", in 1990, and many others.

Although Sebai was more interested in public health and community health, less is known about his contribution in terms of variations of geographical distribution and accessibility to health services, which is of great interest in many parts of the Kingdom.

2.6.1 Accessibility and utilization of health services in Saudi Arabia

Accessibility and utilization work side by side. In other words, when the services are easy to access, whether physical or procedural aspects of accessibility, then the rate of utilization will be increased. A few studies have been carried out on health services in

general and accessibility and utilization in particular in Saudi Arabia. They include; Al-Ghamdi (1981), Al-Mubarak (1989) Elzahrany (1989) Al-Ribdi (1990) Al-Osimy (1991) Al-Dalgan (1993) and Al-Kamshi (2000). Those studies will be reviewed in this section. Al-Ribdi (1990) examined 23 health care centres, chosen at random in five sub-emirates in Alqaseem region, Saudi Arabia, to investigate the provision and use of primary health care services. He found that the most important factor behind the utilization of a primary health care centre was its location in relation to the user's home. This factor is more important in remote areas, it being a major consideration for 90% of the sample in two sub-emirates, whereas in the cities, just 50% used the service because it was closest to their home. Similarly, Al-Ghamdi (1981) in his study, 'An approach to planning a primary health care delivery system in Jeddah, Saudi Arabia', found that the majority of his respondents, about 77%, indicated that they used dispensaries because they were close to their places of residence. Al-Ribdi (1990) also stated that distance affects the utilization of health centres. Those who travel less than one kilometre used the health centre more frequently than others who come from further away. However, Al-Ribdi did not indicate whether people who were further from health centres used them less because they could not make the journey, or whether there were other factors involved. Also he excluded females from his sample, which is a significant weakness, since any study of utilization of health services facilities should include the gender factor, because in most societies, women constitute half of the population.

The importance of accessibility also appeared when examined in terms of travel time. Al-Ghamdi (1981) found about 88% of his sample preferred to have a dispensary located within less than 10 minutes drive. A few (about eight to 13 percent) of those who used public health services wanted to use private facilities as well but they could not (*ibid*), possibly due to high cost when other health services are available at free of charge, or may be for some reasons such as inconvenient public health services working hours, their location, or medical services not being available at the dispensary when needed. Other writers have argued that under-utilization of health care in Saudi Arabia is related to patient dissatisfaction with accessibility of service, such as distance and unavailability of transportation (Noor, 1989).

Elzahrany (1989) studied the utilization of health service in Mecca. For this purpose, he divided the city into four major geographical areas: central, northern, eastern-western and southern. The rationale for this division was the different ethnic and socio-economic characteristics of the sectors. The central sector, primarily inhabited by the descendants of early immigrants from Yemen and Southeast Asia, contains a mix of high and low income groups. Most of the population of the northern sector are immigrants from various rural areas in Saudi Arabia. These inhabitants have an average standard of living. The eastern-western sector is composed of the wealthy suburbs in Mecca, whereas the southern sector, populated mainly by descendants of immigrants from Africa and the Indian subcontinent, is the most disadvantaged in socio-economic terms. Elzahrany examined the variation in level of utilization of health service facilities among the populations of these sectors and explored the significance of socio-economic, demographic and cultural factors, and morbidity rate in the utilization of health care facilities in Mecca.

The units of analysis were the three types of health care service providers: governmental providers including public service hospitals, PHCCs and services provided by governmental sources other than the Health Ministry; private sector hospitals, clinics and GPs clinics; and traditional healers. Public services, particularly

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hospitals, were found to be the major providers of health care services. The level of utilization varied from one sector to another, being highest in the northern sector. PHCCs were most used in the northern sector, followed by the southern sector. Private health services were generally less used than government health services, and users were predominantly residents of the economically advantaged eastern-western areas.

A number of factors, however, were found to affect utilization and the type of health services utilized. Because of Mecca's relative proximity to Jeddah (about 65 kilometres) many residents sought private health care in Jeddah's more developed private sector. Use of PHCCs was affected by the fact that PHC was also available in hospitals via outpatient departments. Such factors, together with the referral system, influenced the level of utilization of health services facilities among the population of Mecca. Elzahrany (1989) also pointed to the need for massive health education programmes, particularly for the population of the poor areas, to change people's attitudes and behaviour toward health, disease and medicine. Although Elzahrany presented interesting findings, when he explained the variation rate of users between the four sectors, he did not take into account the spatial distribution of health institutions and inaccessibility and their effect on utilization.

Another study was carried out by Al-Mubarak (1989), who focused on consumers' health awareness and their use of and satisfaction with the public health services delivered through PHCCs. The research, confined to the Eastern Province of Saudi Arabia, employed a sample of 120 respondents, divided equally between the sexes. The level of utilization of health service facilities was found to be low, particularly among women, more than 63% of whom visited the health centre only if they felt

severe pain or illness. Among male respondents, 45% reported that if they felt ill, they would first use previously dispensed medication, before going to the health centre. Women used the private sector more often than men. Also, the study showed that use of health facilities was higher among more educated people.

As regards health awareness, Al-Mubarak found that the majority of the respondents showed some theoretical awareness of the benefits of exercise and a healthy diet, but in practice, they did not follow this advice. Traditional medicine was considered as useful by 75% of the sample, and 35% stated that they visited traditional medical healers. Thirty five percent of professionals indicated that traditional medicine was effective in treating certain conditions.

A very interesting point raised in the study was the feeling among professionals and consumers that their views were neglected by the health authority, on both regional and national levels, when services were planned. Practitioners' role was simply to obey instructions, while consumers had no voice in decision-making on health services. This situation reflects the nature of the political system, and the centralisation of decision-making.

Although Al-Mubarak claimed that one of his aims was to explore consumers' satisfaction with the available health services, he did not present any results on this point, or even list any questions by which it was investigated. However, the study is interesting for its findings on utilization and lack of community participation in health care decisions.

Al-Osimy (1991) investigated the availability of health care facilities and patient satisfaction in three PHCCs in Riyadh. The findings revealed variation in the number of families registered and served by each centre, and variation among the three centres in terms of personnel, equipment and facilities. A majority of the staff at the three centres was non-Saudi, some of them lacked proficiency in Arabic, causing difficulty in communication with patients. Not all of whom had attended a PHC training course. Most of the equipment, whether in clinical or support areas, did not meet the standards laid down by MOH.

Al-Osimy reported that 80% of the users of the selected health centres were Saudi women age 14-29 years old, who used private transportation to reach the centre. These findings, however, suffer from a serious sample bias. This is partly because gender segregation made it difficult for the researcher, as a woman, to have contact with men; her questionnaire was distributed in the women's waiting room. Also, the administration took place during the morning shift, when the researcher would be more likely to see female visitors to health centres than male. For these reasons, it can not be assumed that women did constitute the majority of utilisers of the three health centres. Visits would need to be made on different days at different times, and in areas other than the women's waiting room or data collected by some other means, to obtain an accurate general breakdown. In each of the selected PHCCs, patients were dissatisfied with waiting time, adequacy of staff and equipment, physical examination, sufficiency of medicine in the centre, and availability of health education, such as posters. Particular problems highlighted included overcrowding in the centre, physicians' and nurses' attitudes toward patients, lack of emergency services during the night, insufficient medicine, and superficial physical examination

The final studies were carried out by Al-Dalgan (1993) and Al-Kamshi (2000), who studied the spatial pattern and the distribution of health services in Riyadh. Al-Dalgan's study (1993) examined and analysed the distribution of state primary health care centres' services in Riyadh, and identified the current distribution pattern of primary health care centres. Also, he examined the demographic characteristics of these health centres, such as population density, distance to reach the services and the time taken. Al-Dalgan found some differences between the health centres in terms of distance and time to reach the services. Also, he found that the number of primary health care centres in the study area, which was 55, was not in accordance with the population, and their distribution pattern was over concentrated. Thus he recommended that 26 health centres were needed at that time. Then Al-Kamshi (2000) conducted a similar study. He found the distribution of private dispensaries in Riyadh in general was random and that distance from private dispensaries reduced the number of patients. Also, his analysis showed that two main factors played an important part from patients' view in terms of private dispensaries' location: (1) located in a busy, noisy area; (2) the time to reach the services. However, distance did not affect patient satisfaction. Although both studies contributed to the geography of health, Al-Kamshi used the total of Riyadh population to find the ratio of dispensaries to population, which would not give a reliable result, because many people do not use private health care, but they were included in this calculation. The difference between the two studies was that Al-Dalgan's study was about state primary health care centres and Al-Kamshi's was about private dispensaries.

Most of the previous studies were interested primarily in public (state) health services, with most neglecting private health services in Saudi Arabia. No attempt was made to study both private and state health services in tandem and draw out way they interact. Furthermore, no research has been conducted to examine health services in Medina, using quantitative and qualitative techniques to investigate the provision, distribution and use of both public and private health facilities. As no health insurance for citizens exists in Saudi Arabia, nothing is known about why people prefer to use private or state health services in Medina. Also, very little is known about the geographical distribution of health services in Medina, and access to them. Hence, it is useful to study the impact of such factors. Research generally shows significant influence on patterns of utilization of health care services by demographic and social-economic characteristics. Therefore, factors, such as age, sex, marital status, level of education, occupation and income will be examined. Moreover, given the high expenditure on social and health services in Saudi Arabia, which reached about 23 billion Saudi riyals, 14.6 percent out of the total government budget in 2002, and the magnitude of investment in the private health sector was six billion in that year (Al-Omir, 2002), health services should be offered in an accessible and satisfactory way to all people. Since it is not known whether this is the case in Medina, it merits detailed study. In the next chapter, the methods adopted by the researcher to investigate these issues will be discussed.

Chapter Three

Methodology

3.1 Introduction

The primary research conducted for the thesis investigated the geography of consumption and use of health services in Medina. It was also concerned to determine the elements that affect patterns of consumption, such as patient satisfaction with health services in Medina. Although primarily intended as a study in the geography of health services provision, the literature review guided the work to covering the consumption (use) of health care facilities. The work therefore required an understanding of the varied socio-cultural characteristics of the population in Medina. Variation in socio-economic factors could have given the population of Medina a distinctive pattern of demand and use of health services. Also such basic factors as the age structure of the population, the education level and income may also be important studying any inequity in the provision of health services. The relatively high increase of the population of Medina also influenced the level of demand for health services, and the level of patients' satisfaction with the services provided.

There had been no previous attempt from a geographical perspective to analyse the official statistics related to health and healthcare services provided by the Health or Planning Ministries in Medina. This has already been discussed in chapter two. Also, there was no previous research conducted on the demographic and socio-economic characteristics of the users of the health services in Medina.

The primary aim of the current study was to identify aspects of the geography of health services consumption, such as the spatial distribution, access and utilization of health services in Medina, and patient satisfaction with such services. Such investigation needed to identify the present demographic and socio-economic status of the users. Therefore, a sample questionnaire survey and interviews were designed to help in addressing the research questions. The questionnaire provided data such as on patterns of consumption, distance to the health centre, type of transport used, preference to use a particular type of health services, and the demographic and socioeconomic characteristics of users. The interviews provided data about policy behind the current distribution of the health services institutions in the study area, and the adequacy of the current capacity of state hospitals for the population. The main preferences for using private rather than state health services, as well as the cost of seeing doctors in the private sector were also explored by this means. Some of the responses obtained from interviews with officials were compared with the questionnaire answers obtained from consumers.

This chapter addresses the sources of data and the methods used for this study. It discusses the sample design, questionnaire, the interview instrument and the technique used to analyse the data. As both quantitative and qualitative methods were used in this study, it is necessary to give some background about their nature and the difference between them.

3.2 Nature of Quantitative Research

Quantitative research involves many different approaches to data collection. The main types of quantitative research are surveys and controlled experiments. Bryman (1992) argues that the social survey plays a major role in data collection. There are three ways in which survey date could be gathered and used. First, there is analysis of data which has already been collected, for example, statistics on workers, health and unemployment. Second, there is structured observation, by which the researcher records observations according to a decision made in advance, scheduling and evaluating the resulting data, such as the interaction between pupil and teacher (*ibid*). Lastly, content analysis i.e. communication content of media, for instance magazines and newspapers, can be used to display the main characteristics of quantitative research (Beardsworth, 1980).

The other main strand of quantitative research the controlled experiment, involvers the random allocation of subjects to one or more groups, who receive different treatment. The experimental group(s) are exposed to a particular stimulus, representing the independent variable of the study, which the control group is not. In every other way, the two groups are identical. The assumption, therefore, is that any difference found between the groups can be ascribed to the treatment alone. Quantitative research is an approach that utilizes a particular language, which appears to show some similarity with the ways in which scientists talk about how they examine the natural world in terms of variables, control and experiment (Bryman, 1992). Moreover, quantitative research can be seen as linked partly to positivism and partly to a diffuse and general commitment to the practices of the natural scientist *(ibid)*.

In this context quantitative method, in this study, is used to address the questionnaire's questions as such method suitable to deal with statistical date analysis.

3.3 Nature of Qualitative Research

According to writers such as Henslin (1990) Bryman, (1992) Wainwright (1997) and Neuman (2000), the principal characteristic of qualitative research is its commitment to examine events, action, values, etc. from the viewpoint of the people who are being studied. Qualitative research involves fieldwork. The researcher physically goes to the people, setting, site, or institution to observe or record behaviour in its natural setting (Merriam, 1988; Creswell, 1994). Qualitative researchers often rely on interpretive or critical social science, and informal knowledge developed from the experience of researchers. There has been much debate about the best method for learning about qualitative research, typically including: reading research papers or reports, trial and error, or practice with an experienced researcher.

It could be argued that qualitative research should be more than just descriptive. Qualitative researchers very often seek to provide analysis of the environments they examine. Henslin (1990) argues that qualitative methods enable the research to better discern how people deal with their problems and how they endeavour to project a semblance of order in their lives, leading them to how they can deal with the stream of experiences, which they face or create. This is probably because of the nature of qualitative methods, which is quite closely connected into the realities of people's experience. Consequently, in general, qualitative research can be described as endeavouring to attain an in-depth understanding of the meanings of informants, rather than to produce a quantitative account of characteristics or behaviour (Wainwright, 1997). In the same regard Denzin and Lincoln (1998 p. 3) argue that:

Qualitative research is multimethod in focus, involving a naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. Qualitative research involves the studied use and collection of a variety of empirical materials-case study, personal experience...interview. Accordingly, qualitative researchers deploy a

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wide range of interconnected methods, hoping always to get a better fix on the subject matter at hand.

Social scientists have for many years employed the methods of data collection with which qualitative research is connected. Participant observation, for example, is one of the most important of these methods, especially for researchers who seek to study in depth whether there research subjects represent a group, an organisation or any other subject. This method has been used in health research to study hospitals, wards in the hospitals or individual patients 'groups', for example Sparks et al. (1994) study of childhood accidents in Huddersfield, UK. Participant observation and qualitative research in general have enriched anthropological research. This can be seen in the prevalence of 'ethnographic' research. The new developments in qualitative research make the assumption that they can capture life experience directly (Bryman, 1992). In this study, in-depth interviews were used to identify the policy behind the current spatial distribution of health care facilities in Medina, as well as the inequity of access to such facilities. Such data was analysed qualitatively.

3.4 Some Differences between Quantitative and Qualitative Research

There has been much debate about the differences between quantitative and qualitative research, for instance Sayer (1984), Bryman (1992), Garlikov (2000) and Neuman (2000). The following sub sections introduce the main issues involved.

3.4.1 The Relationship between Researcher and Subject

According to Neuman (2000) quantitative and qualitative research are distinguished by the nature of the data. Qualitative research deals with human subsets, whereas researchers in quantitative research have rarely kept in touch with the people who are studied, although in surveys, for example questionnaire, or follow up experiments, the investigators have come back to their subjects. In contrast, much more sustained contact is required for qualitative research, particularly when the researcher uses participant observation as a main method. However, participant observation inevitably takes longer than survey interviews (Bryman, 1992). It is therefore suggested that the usefulness of statistical methods depends on the context in which they are used in terms of subject matter and the type of research design deployed. In health research, quantitative methods such as experiments and questionnaire survey are more often used for exploratory research. Such studies tend to be basically descriptions of statistical relationships between variables. These, however, can usefully be supplemented by qualitative methods, which may help in providing a deeper understanding and interpretation of such relationships (Curtis and Jones, 1998).

3.4.2. The Relationship between Theory/Concepts and Research

Qualitative researchers often prefer not to take a 'hypothesis' as the starting-point for an investigation, in order to not pre-empt the subject's views about what is significant and what is going on. As quantitative research tends often to be exploratory in nature, its result is difficult to predict. Advocates of qualitative research, for example Filstead (1979, in Bryman 1992) argues that the in most cases quantitative research is described as a routine practice, whereby theories and their associated concepts are simply examined to investigate their validity. A clear connection to theory occurs in some qualitative research, not just as something which appears from the data, but as something which is also formulated while the research is in its early stages. The contrast between quantitative and qualitative research, in terms of testing of a theory against preferring a theory to appear from the data, is not clear-cut so much as tacit (Bryman, 1992). Sayer (1984) notes that quantitative methods frequently use mathematical models to look for the relationship between theoretical and operational models in order to move from the abstract to the concrete. He states that:

Another way of looking at the relationship between 'theoretical' and 'empirical' or 'operational' models is in terms of the shift from abstract to concrete. Of all the kinds of research, this move is most formalized in work which uses mathematical models to explore the properties of hypothetical systems of successively more complex form by relaxing assumptions and building on sub-models (p. 169).

Therefore, it could be argued that numbers can be seen as acceptable evidence in support of certain types of arguments. In the current research findings, the arguments are widely supported by statistics to obtain a clear picture of the actual health services in the area studied. For example, the percentages of responses to some questions are presented, in order to identify broad patterns of responses. Cross tabulation and ANOVA tests are used to examine the differences in means between dependent and independent variables, to see whether they resulted by chance or from significant differences between variables/groups.

3.4.3 Image of Social Reality

Quantitative research reflects a static view of social reality, in the sense that it does not take account of the impact and role of change in social life. Also, surveys examine the relationships among variables, which in experimental research most often involve the exploration of a limited range of variables within a limited timeframe. However, there is an argument by the advocates of qualitative research that quantitative research seldom examines the processes that link the two. In addition to this, the analysis of relationships between independent and dependent variables neglects to consider the wider context in which these variables are located. Quantitative researchers, however, might claim that they do consider such factors (Bryman, 1992).

Qualitative research is often the preferred approach to studying processes in social life. Bryman (1992) suggests that a qualitative approach facilitates observation of the interrelationships between events and activities, and helps to explore how people perceive the causes of such linkages. In addition to their views of the processes involved in social life, quantitative and qualitative researchers have different perspectives on the reciprocal relationship between the individual and social reality. These differences have a bearing on the appropriateness and relevance of any given tool. The differences can be perplexing to students, researchers, and the readers of research reports. People who judge one style of research by the standards of the other are often disappointed. It is preferable to approach each style with an appreciation of its particular strengths. Quantitative researchers tend "to view social reality as external to actors and as a constraint on them" (Bryman, 1992 p. 102). In other words, quantitative research tends to be based on an assumption "that social reality is static and beyond the actor". In contrast, qualitative research views that same reality in procedural terms, as something being socially constructed (*ibid*, p. 103).

The difference between quantitative and qualitative methods is long-established. Until recently the quantitative approach dominated in health research, but this does not mean the role of qualitative methods has been neglected. Indeed qualitative methods have become more widely used. This applies to research on the geography of health, where in some cases qualitative methods have even superseded quantitative methods (Gatrell, 2002; Patton, 1990). However, any method can be used that is thought

suitable for the problems or research questions investigated, and mixes of the two are common within geography of health research. The current research uses mixed methods and this approach is supported by Gatrell's (2002 p. 87) claim that "the mixing of both quantitative and qualitative methods has proved singularly useful, with insights from in-depth interviews...to quantitative studies".

There are other examples of mixed-method research in health care geography. Ricketts et al. (1994) for example, employed three methods of service area definition. These were 1) the geographic distance method, which uses measurement of fixed distance from patient residence or physician office to a facility; 2) the geopolitical method, which uses pre-existing geographical boundaries; and 3) the patient origin method, which is based on the distribution of patients using a facility. Irrespective of such divisions or names, in one form or other, all three methods can be used under the heading/name of quantitative or qualitative methods. In the current research, mixed methods were used to examine distance and its effect on health service utilization, and to see whether this has any effect on users' choice of the type of health services, i.e. state/private; also, the location of health service facilities in relation to the user's home.

In the present study, many measures are used to assess the equity of healthcare facilities. For example, the proportion of patients who visit a health institution were compared with all the people who live in the same district/region, and time/distance to the service. Questionnaires and interviews with patients and officials were employed to gather such data. In terms of satisfaction with health services, it is argued that PHCCs and hospitals provide health services without examining if the services are acceptable and accessible to users or not. To examine such phenomena, patients'

views should be taken into account to assess such service, which was done in this study. Percentages, cross tabulation and ANOVA tests were used to analyse the data and identify the significant differences in satisfaction, related to demographic and socio-economic variables.

3.5 Quantitative and Qualitative Measurement

Both kinds of research methods, qualitative and quantitative, aim to gather valid and reliable data by using careful systematic methods. It is differences in kinds of data and research styles that make the measurement process different. A wide variety of collection techniques are used by qualitative researchers to measure data while they collect it. Neuman (2000) drew attention to three different types of factors involved in qualitative and quantitative measurement, the first of which involves timing. Quantitative researchers pay much more attention to variables and seek to translate them into clear-cut action during the planning stage which takes place before and separately from the collection or analysis of data whereas for qualitative researchers, measurement exists /appears in the data collection process.

The second difference is in the data itself. Quantitative data can be produced by special techniques developed by quantitative researchers. These techniques produce numerical information when a researcher moves from theoretical ideas to specific data collection techniques. Quantitative research is often presented in the form of numbers, but in many cases it is contains written words, maps etc., whereas qualitative data relies more on verbal formats. It is not possible for a qualitative researcher to convert all observations into a single, common medium. In general, many flexible processes will be developed by the researcher to measure the data in its different forms.

The third difference is in the way that how the two styles produce many connections. Thus quantitative researchers must think about and reflect on ideas before gathering data, and organise measurement techniques, which help them to reflect what the data will be and any guidance for gathering them. Qualitative researchers also reflect on ideas before gathering data, but many of their concepts are developed during data collection activities. Therefore, the data and the concepts are re-examined at the same time by the qualitative researcher. While researchers are gathering data and creating ways to measure it, new ideas will be developed after reflection on the process. Those ideas may in turn suggest new methods of measurement.

From the above discussion, it could be argued that the type of data determines the optimal methods. Quantitative methods (with statistical analysis) are applicable to medical geography when researchers want to express data in numbers, for example the ratio of population/ physicians, the incidence of diseases e.g. Aman (1998), rate of utilization e.g. Bay et al. (1997), geographic access e.g. Carr-Hill et al. (1997).

Yet, it cannot be denied that qualitative methods play a valuable role too in addressing lack of information. This can be done by approaches such as ethnography and indepth interview.

3.6 Value of combining quantitative and qualitative approaches

As mentioned above, quantitative and qualitative methods can be used to complement each other. Quantitative and qualitative methods are not opposite; they rely on each other. In other words, there is no hard and fast dividing line between qualitative and quantitative methods. When we use one of them we most often use the other at the same time, even if we do not realize that we are doing so. For example, when a researcher wants to design a questionnaire, he or she will think about the questions first. This thinking involves some qualitative techniques. This is consistent with what Mattingly and Al-Hindi (1995) state:

Most qualitative research involves some kind of counting, and that quantitative methods involve an array of interpretive acts. Moreover, no research method is guaranteed to be free from bias, nor is any research method exempt from the possibility that its use may have unintended results (p. 433).

In the same regard, McLafferty (1989) for example, conducted quantitative analysis of the impacts of service relocations on hospital utilization and geographical access to health services in her research on the restructuring of hospitals in New York City. The data were used to support qualitative statements by community residents, showing the adverse effects of hospital relocation. Quantitative proofs are often more acceptable and in this case, when joined with qualitative methods, were powerful in supporting the demands of community residents who sought to improvement in access to health services. That brings us to Bryman's argument, which says:

Quantitative and qualitative research can frequently be found together in particular substantive areas in the social sciences, be it delinquency, classroom studies, or whatever. By and large, the two research traditions can be viewed as contributing to the understanding of different aspects of social mobility...However, sometimes quantitative and qualitative research may address similar aspects of a certain field of investigation (Bryman 1992, p. 170).

Similarly, Neuman (2000, p. 122) states "qualitative and quantitative differ in many ways, but they complement each other in many ways, as well". Some other writers have a different point view. Bryman (1992, p. 5) for example, states that "quantitative

and qualitative research are simply denotations of different ways of conducting social investigations and which may be conceived of as being appropriate to different kinds of research question and even as capable of being integrated".

3.7 Published Data

It is generally more difficult to collect health data in developing countries than in developed countries, and this is indeed the case in Saudi Arabia (Al-Ribdi 1990; Bakashwain, 1995). There is a serious shortage of detailed demographic and socioeconomic data. There is no central data resource on health facilities and hardly anything is known about the patterns of use of such facilities.

Given the paucity of data, it was decided to collect data from libraries and relevant institutions in Saudi Arabia pertaining to the research area. Published sources of data from different authorities were used to introduce the research. One example of these is annual reports such as the Statistical Yearbook, which contain statistical data on health services and population for each of the Saudi regions. Another useful data source was Five Year Plans, which contain policies and data on socio-economic sectors and public services, including health services. Each plan document reviews and assesses the achievement under the previous five-year plan and provides the general aims/strategies for the next five years in all sectors. Also, it provides information about general expenditure of development sectors such as social and health development sectors. Those sources i.e. Statistical Yearbook and Five year development plans were obtained from the Ministry of Planning. Another source of data, the Health Statistical Yearbook, was obtained from the Ministry of Health in Saudi Arabia. This provides statistics about health and health services in all Saudi regions, such as the number of health institutions, man/womanpower, coverage of vaccination and so on. Annual reports were also obtained from Medina Health Administration Affairs and Medina Chamber of Commerce and Industry.

3.8 Unpublished Data

Data were also obtained from governmental and administrative or other agencies during the field study, such as the population of each residential district in Medina, and the current number of all the main types of health institutes in Medina. Such information was used to see the distribution of health institutions with the population. Interviews and a questionnaire survey were undertaken to redress the lack of information about health services in Medina. Also, an observation survey was undertaken in order to examine the distribution of health services over all Medina. Such observation helped to produced new maps for the location of private health institution in Medina (see chapter two).

3.9 The Questionnaire

It appears from many theses, books and papers (for example: Al-Ghamdi, 1981; Elzahrany, 1989; Babbie, 1989; Bryman, 1992; Oppenheim, 1992; Al-Ribdi, 1990; Tamanah and Al-Harashah, 1995; Alzaman, 1994; Neuman, 2000; Cohen et al., 2000 and, Jackson and Furnham, 2000), that the questionnaire is one of the main ways of collecting data. It is particularly useful when collecting information from a large number of people. Bell (1988, p. 58) comments that "questionnaires are a good way of collecting certain types of information quickly and relatively cheaply as long as subjects are sufficiently literate and as long as the researcher is sufficiently disciplined to abandon questions that are superfluous to the main task". Similarly, Wilson and McLean (1994) state that the questionnaire is a valuable means of gathering information in an organised way and it is widely used, especially in social science. In many cases, questionnaires are used to collect numerical data, they can be administered without the presence of the researcher, and have an advantage of being relatively easy to analyse.

Owing to the fact that this is the first research in this field in Medina, almost nothing is known about people's utilization of health services. A questionnaire survey was designed to collect some information from the study area. It was believed that this method would enable the collection of essential data that is generally not available in official documents, especially in developing countries such as Saudi Arabia. Unavailability of information is not just a problem in the study area, but could be applied to most developing countries. Gesler (1984, p. 38) reports, " in developing countries, information on individuals or groups of people is usually not available in official documents, so surveys are required to obtain this data". Even though his work was written some time ago this problem has not been overcome.

An advantage of the questionnaire survey is that it can enable the researcher to seek exactly what he or she wants to know, directly from the relevant population. Furthermore, questionnaires and interviews can collect much information, especially in exploratory research such as this study, in terms of accessibility and utilization, social- economic factors, mobility and the attitudes of users towards state and private health services.

The questionnaire design was discussed in four sections. The first section examines health services in the state sector; the second one is for the private sector, while the third one is about patient satisfaction, and the fourth section is to collect respondents' personal information, such as income, age, social status and level of education.

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3.9.1 Research Populations and Sampling

Health services are different from one place to another, in terms of the facilities which are offered to patients. For example, different facilities deal with, respectively. listening to the patient, diagnosing them, and carrying out any analysis that may be needed. As the current study aims to review health services in Medina from different perspectives, according to the research objectives and research questions identified earlier, the research population is all those who utilize health services in Medina.

The goal of sampling is to select a small number of representative individuals from a population to be studied. To make sure that the study sample was as representative as possible of users of all the main health institutes in Medina, and in order to get accurate/reasonable and clear results and avoiding missing answers, a self-administered questionnaire was used. I visited all state and private hospitals with the exception of the psychological hospital in the study area; these amounted to seven state hospitals and six private hospitals at the time of the survey. A total of 17 primary health care centres (PHCCs), represent more than half of health care in the city were selected for visits, which represent 51.5 percent of the total PHCCs in the study area. In addition 20 private clinics, groups of clinics and dispensaries were chosen at random (see Table 3.1).

Questionnaires were handed to the respondents in person, at a rate of 10 questionnaires for each health institution, and received back from them after they had answered it. It was not easy to find enough respondents in some health institutions. In this case I sometimes left non-answered questionnaires with the institution's receptionist, to be given to patients and collected the next day. In this way, I could be sure that every respondent had used the health services at least once, whereas a mailed

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questionnaire, for example, might reach many non-users. Furthermore, it helped to obtain a response; according to Oppenheim (1992, p. 103), a self-administered questionnaire "ensures a high response rate, accurate sampling and a minimum of interviewer bias". In addition to that, self-administration allows the researcher to explain and simplify questions for respondents, who may be unfamiliar with these kinds of questions or who speak in a particular dialect (Al-Ribdi, 1990). Moreover, a self-administered questionnaire will make it possible to survey women, and so to represent both genders in the research, which would otherwise be difficult in some cultures, like Saudi Arabia, where it can be difficult for a man to converse with a woman directly in such circumstances. Therefore, a female nurse from each health institution was asked to help and explain the questionnaire to female respondents and collect it from them after they had answered. Despite that female respondents sometimes refused to answer the questionnaire as they may be afraid to do such things for various reasons. This random sample represented all health services users in the study area. In addition to the questionnaire, several interviews were held with managers at regional health administration level and at selected health institutions in Medina (see interview section).

The field study was carried out from September to November 2002. The health institutions work two sessions a day, although patients attend health centres in the afternoon session, as they are at work in the morning. I visited all the chosen health institutions in both sessions.

I handed the questionnaire to the respondents at each chosen health centre and received it from them after they had answered it. The questionnaire was handed to the respondents at reception, at random, so they could answer it while they were waiting to see the doctor. It was checked that the respondents were settled in Medina and registered with a doctor (GP), because most of the questions were designed to be answered by residents. Also, the respondents were asked to ensure that he or she had not answered this questionnaire at other health institutions.

The purpose of the study was explained, and assurances of confidentially given. These were given on the front page of the questionnaire, to make respondents feel confident in giving actual answers. Oral explanation was given when required.

Formal letters from the researcher's university and from the health administration in Medina were shown to all health institution managers or those in charge there, to prove the credentials of the survey researcher and facilitate access to patients. Such letters also increased the interviewees' confidence that the information they provided would be used only for the purpose of the research. In these circumstances, mentioning their names in the research was acceptable.

A total of 500 questionnaires were completed. Also 31 individual interviews were conducted with key people; four interviewees were in the General Health Administration Affair, 13 in the state health sector and 14 in the private sector (see below for further details).

	Total number of health institutions	Number of sample	Sample as proportion of the total
State Hospitals	8	7	87.5 %
Private Hospitals	7	6	85.7 %
PHCCs	32	17	53 %
Dispensaries & clines including dentists	66	20	30 %
Total	113	50	44 %

Table 3.1: The number of health institutions sampled

Source: Fieldwork.

3.9.2. Types of Questionnaire questions

According to Cohen et al. (2000) there is a variety of ways that questions can be asked in questionnaire modes, such as: dichotomous questions e.g. Yes, No; multiple-choice questions e.g. "How do you rate the cost of private health services in your city? "Cheap, Reasonable, Expensive, Very expensive;" rating scales e.g. 'strongly agree', 'agree', *etc* and open-ended questions, e.g. "do you have any suggestion to improve the distribution of these services" It is true that open-ended questions allow the researcher free response, by sentence completion or commentary, but on the other hand many respondents ignore this kind of question; also, open- ended questions are not suitable for analysis in Statistical Package for Social Science (SPSS), as SPSS programs need specific answers which can be easily coded.

In multiple choice questions, researchers should make sure that all possibilities are covered by conducting a pilot study and pre-testing the questionnaire. As Oppenheim (1992) observes, a good questionnaire is not only a list of questions or a form to be filled out, but is a scientific instrument for accurately collecting and measuring particular kinds of data. It should be noted, however, that a good questionnaire according to Neuman, (2000) and Cohen et al. (2000) is also one that the respondent can be understand easily, and one which produces accurate and relevant information that is vital to a particular piece of research. To achieve this, the questionnaire should be simple, explicit, as clear as possible, and use short questions and short responses. Questions with double negatives or unimportant questions should be avoided.

In the questionnaire for this study, dichotomous, multiple-choice, and rating scale questions were used (see the questionnaire in the Appendix). All these are closed questions, that is, pre-set questions from which the respondent chooses an option and
the answers simply would be ticked. These types of questions are very straightforward and best suited for statistical analysis. Only one question was open ended and was analysed qualitatively.

3.9.3 Statistics used

After data collection, descriptive statistics were used, as were Bivariate statistics to examine relationships (mean differences) between the dependent and independent variables, as follows:

- Frequency distributions percentage distributions to analyse trends of patterns.
- Cross tabulation and chi-square to see if there was any significant difference in the dependent variable in relation to the independent variables;
- One-way Analysis of variance (ANOVA) to see whether there are significant associations between dependent and independent variables, in cases when the chi-square test was not applicable, e.g. when the independent and dependant variables had three or more categories each, such as questions 17, 29 or 32 (see the questionnaire in the Appendix, B).

One-way ANOVA is used when there is one independent (grouping) variable with three or more levels (groups), for example education level: primary, middle school, secondary ...or age groups: e.g. from 20 to 30, from 31 to 40 from 41 to 50, and one dependent continuous variable, e.g. 1= strongly disagree...5= strongly agree. ANOVA tells whether there are significant differences in the mean scores on the dependent variable, across the other groups. Post-hoc tests can then be used to find out where these differences lie. Such tests are only performed after obtaining a finding of significant differences (Pallant, 2001).

The independent samples t-test was used. This test is used when there is one categorical, independent variable, e.g. males/females and one continuous, dependent variable, e.g. satisfaction: 1=strongly disagree...5=strongly agree, the independent samples t-test tells whether there is a statistically significant difference in the mean scores between the two groups, i.e. males and females, on the dependant variable.

In addition to that, an attempt was made to assess whether long distance or inaccessibility of health services affects patients by influencing whether they use a particular type of medical care, e.g. using private health care rather than state, because private facilities are closer to where the patient lives. Another example of the analysis to be carried out was to study the main factors which influence patients who use state medical centres rather than private or the reverse. In other words, is there a significant difference between the users of private and state health services in relation to financial status, closeness to their home and speed of the services? The effects of demographic and socio-economic factors on service utilization were also investigated. This was done by examining patients' rate of utilization of private and state health services by using chi-square and ANOVA tests.

In general, percentage tables provide demographic and socio-economic data on respondents, and frequency distributions. For categorical data, which constituted most of the data in this questionnaire, chi-square and ANOVA tests were used to find out whether there were relationships between variables.

4.9.4 Pilot study

It was necessary to conduct a pilot study for the questionnaire, especially since people being questioned were unfamiliar with social research. The pilot study is an important phase in questionnaire design for various reasons; to make sure that the instrument is suitable for the sample and to give the researcher the chance to amend it before carrying out the main study if required (Oppenheim, 1992; Thomas and Nelson, 1996; Al-Shabaan, 2000). In the same regard, Bell (1993) argues that the purpose of a pilot exercise is to ensure that there are no difficulties in completing the questionnaires, involving a preliminary analysis to see where the wording and format of questions present any difficulties when the main data are analysed.

The questionnaire and interviews were designed in English, and then translated into Arabic to be ready for handing to the respondents. After the answers were received, they were translated into English. Then the answers were coded and entered in the statistical programs (SPSS) to be ready for analysis.

After testing with Saudi colleagues in England, a rigorous pre-test of the questionnaire was made in the field study area. Such testing was necessary to give some knowledge about this kind of work, and to see whether or not respondents would be willing and able to answer the questionnaire. On the basis of the outcome, any question(s) that could confuse the respondent were re-written or deleted. Pre-testing also showed how long the questionnaire survey would take to answer. The first ten questionnaires were handed to visitors at one of the main primary health care centres that had been chosen to be tested in September 2002. The answers were received and reviewed by the researcher. Each questionnaire took approximately 20 minutes to be answered. No confusion was found; all questions were clear. Therefore, the researcher carried on with the rest.

3.9.5 The Interviews

Face-to-face interviews were held with the head manager of health administration affairs in Medina, Dr Abdulgader Al-Tyiab, and his assistant for primary health care

centres, Dr Fahad Kasheem. Also, interviews were held with the manager of the development and planning department, Mr Nayif Al-Shli, and assistant manager of medical licences and pharmacies, Mr Faisal Bdeawi. That was done by visiting the health administration in Medina, which they work for, on different days in November 2002. It was not easy to catch the head manager of the health administration affairs, as he was so busy. Some questions were referred to the development and planning department in the health administration, and others to the Department of Medical Licences and Pharmacies, since they were relevant to them.

It could be said that to hold an interview with a person in high position, one should make an appointment in advance. But, in Saudi Arabia treatment norms are different, particularly when the interviewers/researchers work for themselves such as students. Hence an interviewer should visit the interviewee's office and wait until he finds an opportunity to meet the person whom he wants to interview. Another point that should be mentioned is that phone interviews are not favoured by such people, because of some legal action. Furthermore, phone interviews are not customary yet in Saudi Arabia. Other interviews were held, chosen by random sampling in different part of Medina, with 50 percent of the chosen health institutions' managers, to research views of the health services in Medina in general and their medical centre in particular.

These interviews contained nine questions on average (see the appendices) and took place at the interviewees' office. The interview questions were open-ended because they were designed for a small number of people, so that they could be analysed qualitatively. Open-ended questions give much more information and have many advantages. According to many writers, for example Oppenheim (1992) and Cohen et al. (2000) open-ended questions provide flexibility so that the interviewer can probe and go in-depth if required, or explain any misunderstanding. Also, the limits of a respondent's knowledge can be tested by this type of question; they encourage cooperation and help establish a bond between researchers and interviewee, and they provide greatest insight into what the respondent really believes. Open-ended situations can also yield unanticipated answers, which may lead to researcher to propose suggest relationships or hypotheses that had previously not been considered.

3.10 Conclusion

In this section the research questions of the thesis are revisited and linked to the methods used. The first research question asked, what are the main and underlying assumptions guiding policies the geographic distribution of hospitals, primary health care centres and clinics, state and private, in Medina? This issue was analysed on the basis of interviews with those responsible for decision making at the health administration affairs in Medina.

Research question two was: 'Are hospitals and primary health care centres equitably distributed over the city of Medina?' This was addressed by comparing the population density in each residential area to the number of health institutions in that area, by examining the average time needed to reach the nearest health centre from the patient's home, and by interview questions (see interview questions).

Question three was, 'how accessible in terms of distance, are health services in Medina?' This was answered via questionnaire and interview data to see the relationship between rate of use and distance.

Question four asked, is there a relationship between demographic and socioeconomic factors in terms of utilization of health care, and type of health services provided? The

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answer to this question was obtained from the questionnaire, by testing responses to the preference questions in relation to demographic and socioeconomic variables.

Question five was, are services provided by hospitals, primary health care centres and other health centres satisfactory, i.e. to what extent are people satisfied with services provided by the health sector? This was answered via the questionnaires handed to visitors to hospitals and primary health care centres, private and state. This involved examining patients' satisfaction with health services from various aspects; for example the geographical distribution of medical institutions, the ease of access to health services and the level of medical treatment in general (see part three in the questionnaire).

Question six asked, 'is the capacity of hospitals adequate for the population of the city'? Interviews were conducted and, published and unpublished data was collected from the health administration affair in Medina to find out the total number of hospitals and clinics (state and private) in the study area, the maximum capacity of each hospital and how much of the total capacity is exploited now. Indicators such as bed numbers, medical staff, for example, increase in numbers of doctors and nurses, ratio of beds and doctors to population in the last three decades were analysed. Area census figures from the municipal administration and from the statistical administration branch in Medina were reviewed to examine issues such as population density and age structure.

Question seven asked, how can hospitals and primary health care centres be restructured in order to ensure that all people have easy access to the services? Hospitals, primary health care centres and dispensaries, state and private were identified on the Medina map. Interviews were conducted with some of those who are responsible for health administration affairs in the research area to find out the main factors behind the locational decisions relating to the current health institutions. For example, did population density play a central part in decisions as to where to establish medical centres? Was distance between medical centres, or other factors. influential in the decision? The reason behind the delay of establishment of hospitals or primary health care centres, despite availability of land in most planning districts. was also investigated through these interviews. In addition, a questionnaire was administered to visitors to hospitals and primary health care centres. The questionnaire investigated various issues relevant to the study, for example, how easily the patient can get to the health services, the distance the patient has to travel to find the nearest available health services, the types of transport used and the possibility of using private rather than state medical facilities.

Question eight was, 'does the distance from state health care institutions cause people to switch to private services?' and what are the main factors which make patient's prefer to use private health services or the reverse? This was tackled by several questionnaire survey questions (see the appended questionnaire, questions 12, 17, 21).

Having said that the total number of health institutions in Medina was 113 at the time of the survey, it was difficult to survey all health institutions due to the limited time and financial resources available. Therefore, 50 health institutions were chosen as a sample and the results were generalised to the others. Another limitation was that the survey was handed to the actual users age 16 and over, which means that non-users and those under 16 years were not included in the sample.

Chapter Four

Study Area

4.1 Location

Medina is located in the west of the Kingdom of Saudi Arabia on latitudes 24°-28 North, and longitudes 39°-36 East (Figure 4.1). Due to the location of Medina, it experiences more than 13 hours of daylight during summer and the temperature reaches more than 45°C from May to August. During this time, the city is almost vertically exposed to the sun. However, in winter the sunlight is oblique and the day length is about 10 hours, so the winter is warm. However, sometimes the temperature goes down to less than 5°C due to the cold wind blowing from middle Asia or from Eastern Europe.

According to Medina Municipality (1995), the area of the city is about 589 square k/m. However, the urban area occupies only 293 square k/m and the rest is valleys, mountains, farms, roads and uninhabited land.



Figure 4.1 Medina's location with Saudi Arabia

Source: http://www.maps-of-theworld.com/mappages

4.2 The Residential Districts of Medina

Medina is divided into 56 areas by Medina's Municipality. Each residential district differs in terms of population, population density, type of building and economic level. The biggest area is East Zubair with a total area of 1956 hectares and the smallest is Alharam, which has 144 hectares.

In 1999 there were 11 residential areas that were not populated, but which were planned for future development. The built area occupies 5,631 hectares. 15,910 hectares is designated for future development, 4,752 is agricultural land, and 8,674 hectares is unsuitable for future development. This includes mountains and dry valleys. A total of 11,513 hectares are empty land but available for future development.

The newly developed residential districts, as a part of the new development, have a good network of transport, are built according to a plan, and are large in size compared to the older districts. The older districts were built randomly and the standard of roads and buildings is much lower than in more recently developed districts. Moreover, population density varies from one residential district to another. The average population density is about 152 people/hectare. The highest concentrations of population are mainly close to the centre and the lower ones on the outskirts. The highest population density exists in four residential areas, namely, Alkandag, Alkzrag, Alaleyah and East Hrrah, which have 829, 391, 357 and 357 people per hectare respectively. This may be due to the fact that these residential areas have tall blocks of flats, so they are extended vertically. The lowest population densities are in Kabah, Hufiyh and South Mytan with 22, 15 and 3 people /hectare respectively in 2000, because these areas have little building development.

4.3 Medina Land Use

Medina's planning /urban structure is essentially radial; the roads start from the city centre and radiate in each direction to link external parts to the centre, which is important as it has Alharam (a holy place), trade markets, and hotels. Residential use represents about 34% of the urban area, residential commercial is 1.5%, and 0.5% is for commercial use only. There has been significant explosion in residential building, which more than doubled in about 16 years; the residential area was about 16% of the total urban area in 1978 but by 1994 had increased to 35% (Al-Seryni, 1998). Commercial use mainly exists in the centre of the city around Alharam, and also alongside the main roads which radiate from the city centre. Industrial land represents 3.2% of the total urban area.

It should be mentioned that the main urban concentration is inside the second ring road area. This is where most central government officers' services, hajjis' (pilgrims') and visitors' residences, as well as public residences are located. The city spreads beyond the second ring road, especially to the west and north parts and recently to the east and south. As a result of the urban extension in all directions during the urban upturn of the last three decades, most of the green land which was near the city has been lost. Just a little green land remains in the form of palm orchards that infiltrate the urban area, but these too are disappearing.

Most residential areas do not extend beyond the third ring road, which marks the limit of the city. However, a few residential sites such as Alaquol, Ketanah and Alblga are outside it, as well as the industrial estate and the airport.

4.4 Population of Medina

Table 2.1 shows that the population of Medina was 136,557 in 1971. This figure increased to reach 311,284, representing an average annual growth rate of 14.3 percent between 1974 and 1978. In 1992 the population of Medina reached 608,226 with an annual growth rate of 6.4 percent between 1978 and 1992. It appears that the rate of population growth in Medina has declined since 1971. This may be due to the fact that Saudi Arabia has adopted a series of five-year development plans since 1970 (see chapter one). These development plans may have improved the balance between Saudi regions in terms of distribution of services and economic activities, thereby reducing the impetus of migration to the major cities.

The Medina population formed less than 4% of the total Saudi population in 1992. In 2000 Medina's population increased to reach 858,653 (Medina Municipality 2000), and the proportion increased to 4% of the total Saudi population. According to the

2004 census, Medina's population were 918,889, still forming 4% of the total Saudi population (Ministry of Economy and Planning, 2005).

some selecting years								
Years	Medina Population	Yearly increase rate	Saudi cities population	Yearly increase rate	Share of Medina out of the total urban population	Total of Saudi population	Yearly increase rate %	% of the whole S.A. Pop.
1968	90000	4.2	1300000	10.4	6.9	4000000	3.5	2.3
1971	136557	17.2	1639500	8.7	8.3	6400248	20.0	2.1
1974	198186	15	3108790	29.9	6.4	7008544	3.2	2.8
1978	311284	14.3	4097715	7.9	7.6	8195429	4.2	3.8
1992	608226	6.4	13035556	14.5	4.7	16929294	7.1	3.6
~				The second				

 Table 4.1: Rate of Medina population compared with Saudi cities and the total population in some selecting years

Source: Meki (1998).





Source: Table 4.2

The proportion of the population of Medina city under 15 years was about 49.2% in 1995 (Al-Ruwaythi, 1997). This young age structure is attributable to three factors: a high birth rate, large family size, and immigrants who bring their families to settle especially from Arab countries, for example, Yemen, Egypt and Syria, and other non-Arab countries such as Pakistan and Indonesia. In the same context Meki (1998) indicated that 60.3% of the non-Saudi inhabitants of Medina were married and the remainder (39.7%) unmarried. Previous studies indicate that usually migration to Medina is by the whole family, not only the individual household, probably because

of Medina's religious position. Prophet Mohamed said, 'for those who can die in Medina do so, I will exempt them on the Day of Judgment'. Hence Medina's 1974 census showed that those aged over than 65 represented 3.5% for Saudis and 4.2% for non-Saudis, out of Medina's population in that year². Meki's analysis relied on the 1974 census. Unfortunately there are no up-to-date detailed statistics available for non-Saudis in the city of Medina. Generally, the only available statistics are for Medina as a region. According to these, non-Saudis represented about 23% out of the total Medina region population in 2000, and 68.7% of these were males (see Table 1 appendix A). Thus, the rate of external immigration to Medina has been high. In addition to the religious factor, mentioned above, this could be because it is the major city of the region. Official statistics indicate that immigration from overseas or from other parts of the Kingdom accounted for about 72% of the population increase in Medina's population between 1980 and 1994 *(ibid)*.

During the past thirty years many people from rural areas in the Medina region, especially younger people, have also migrated to Medina to search for jobs or to continue their studies, since most villages have only a primary and sometimes middle school, and there is a shortage of jobs. Most of these rural migrants settle in Medina after graduation or finding jobs, and also to profit from the services the city offers, which are not available in their villages.

The annual average birth rate in Medina between 1974 and 1993 was 31/1000 out of the total population, but lower than the total birth average of the Kingdom, which was 39/1000. Nevertheless, it was very high compared with most developed countries. For example the birth rate in Britain and US was 14 and 16 per 1000 respectively in 1993 (Meki, 1998). The mortality rate in Medina has decreased from 9.2% in 1980 to 3.6%

² This rate decreased for non-Saudis as a result of the introduction of a new immigration system.

in 1994. This improvement is a result of the development of both therapeutic and preventive health services, and also increased awareness of hygiene on the part of inhabitants.

The demographic statistics show that the highest concentration of population is in the western area of the Kingdom. Mecca and Medina regions contained more than 32% of the Kingdom's total population in 1992 (Al-Khrif, 1998), still keeping this ratio in 2000 (Statistical Yearbook, 2001). Moreover, the economic prosperity that the Kingdom has experienced during the past three decades because of increase in oil revenues has resulted in the attraction of large numbers of migrants, especially to the cities. However, this does not explain the high growth of population in the western regions of the Kingdom, where there are no oil fields.

The concentration of people in the western region of Saudi Arabia can in part be explained by the growth of the main cities which are located in the west of Saudi Arabia, especially Mecca and Medina which are multiple function cities. Not only are they places of religious significance, but they are commercial, industrial and service centres which attract outsiders because of their economic prosperity. Moreover, the cities of the western region are cosmopolitan, with many people from different countries, as a result of pilgrimage and the location of the Prophet's Mosque in Medina, which attracts many visitors. Some pilgrims and visitors in the past remained in Mecca or Medina after the pilgrimage; they preferred to settle, rather than return to their motherland. As a result, multiple nationalities have been found in Medina from the past until the current time. So, non-Saudis accounted for more than 29.4% of Medina's population in 1992 (Al-Khrif, 1998). Moreover, we cannot forget the role of

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the economic prosperity that all Saudi cities enjoy and the job opportunities offered by the boom, which is one of the most important attractions.

4.5 Health Facilities

Medina has a good level of health service provision compared with the country as a whole. Table 4.3 shows that in 1997 the average ratios for the Kingdom overall were 1.39 beds per 1000 population, and 0.54 physicians per 1000 population. In Medina, the ratios were 1.70 beds and 0.64 physicians, respectively, which is greater than the total Kingdom average. In the Riyadh region, for example, the ratios were 1.10 beds per 1000 persons and 0.39 physicians per 1000 persons, while in Mecca they were 1.39 beds per 1000 persons and 0.58 physicians per 1000 persons.

Hence we can say that the quantity of health services in Medina is better than in most other regions in terms of numbers of physicians and beds, but this does not necessarily mean that provision is sufficient. Overall, Medina comes in sixth position for bed availability and in fifth position for number of physicians per person out of thirteen Saudi regions (Table 4.2). The service ratio of primary health care centres in Medina was 0.99 centres per 10,000 people in 1997. This number decreased to 0.84 centres in 1999. The total average for the whole Kingdom was 0.89 centres per 10,000 people in 1997. Although the Medina region performs relatively well on quantitative measures of its health services, it has faced major problems in relation to the quality and distribution of these services.

Regions	Beds/1000	Physician/	PHCC/10,000
	persons	1000 persons	persons
Riyadh	1.10	0.39	0.63
Mecca	1.39	0.58	0.54
Medina	1.70	0.64	0.99
Eastern	0.95	0.43	0.64
Aseer	1.55	0.57	1.54
Alqaseem	2.24	0.98	1.59
Hail	1.23	0.51	1.78
Al-Jouf	2.52	0.78	1.59
Tabouk	1.37	0.56	0.77
Northern	2.21	0.42	1.49
Al-Bahah	2.83	0.78	2.13
Najran	1.80	0.67	1.73
Jazan	1.41	0.52	1.36
Average total	1.39	0.54	0.89

Table 4.2 Average of health services over all Saudi Arabia in 1997.

Source: Medina Municipality, (1999).

4.5.1 Primary health care centres

Before 1980 health services concentrated on medicine, which was offered via state dispensaries. Early in the 1980s those dispensaries were changed to health centres that offer, in addition to medical services, some precautionary services such as immunisation and environmental health.

The concept of primary health care is treatment of disease, health education, availability of healthy food and drink water, a healthy environment, maternal care and protection from disease and injury. This represents the best way to provide health care to all people, as was agreed in the Alma-Ata conference in 1978. The Alma-Ata International Conference on primary health care (PHC), organised by the World Health Organization (WHO) set a target of 'health for all people' by the year 2000 and Saudi Arabia, as one of the participants in that conference, has attempted to meet that target. The main declaration of that conference was:

Governments have a responsibility for the health of their people which can be fulfilled only by the provision of adequate health and social measures. A main social target of governments, international organization and the whole world community in the coming decades should be the attainment by all peoples of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life. Primary health care is the key to attaining this as part of development in the spirit of social justice. Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals (WHO, 1978, http://www.who.org).

In 1980 Saudi Arabia embraced the idea of primary health care. The concept of health means safety of the person and society from different aspects: physical, intellectual and psychological. Therefore, primary health care centres (PHCCs) became interested in precautionary rather more than curative services and offered many primary health elements, for example: environmental health activities, health awareness, eradication of communicable diseases, maternal and infant care, immunisation and basic medicine (Medina Chamber of Commerce and Industry, 2000).

PHCCs are the first step for patients to use health services. These PHCCs offer both curative and precautionary services for all people. Each PHCC serves a specific geographical area. There is no choice over which centre is used; residents must register with the centre which is located in their health service area. The PHCC will refer patients to further services if needed.

There were 32 PHCCs in Medina in 1999, with an average of 1,936 registered families and an average of 26,020 people per PHCC. The target of the Saudi Health

Ministry is between 5,000 and 10,000 people per PHCC. Two PHCCs are located in the centre of the city, close to the Prophet's mosque (Alharam). Those two PHCCs, and other temporary health centres are opened at certain times of the year, to serve Alharam's visitors and pilgrims. The number of PHCCs was the same at the time of the researcher's field observations in 2002. This is far from the Health Ministry's target, which requires at least double the existing PHCCs, even to meet the minimum target of one PHCC per 10,000/population. Since the Medina population is estimated to be more than 1,200,000 by 2009 (Medina Municipality, 1994), then in the few remaining years a total of more than 120 PHCCs will be needed to meet the Ministry target, which looks unattainable.

The most important problem, for the purposes of this research, is not so much the number of PHCCs, as inequity in their geographical distribution, which is not in line with the density of population. The Media Municipality Study Project (2000) revealed that more than half of the PHCCs are concentrated in seven residential areas: Quba, East Hrrah, Sala, Alkandag, Alaws, and Alaleyah, out of a total of 56 residential areas with varying population (see Figure 4.4). Only one building out of the total of PHCCs, which numbered 32 at the time of the field work, was designed specifically for this purpose. The rest were using rented property, which had been designed for residence, not for general services. This is one of the most serious problems facing the users, because these PHCCs occupied a block of flats containing more than one floor, without a lift in many cases.

The most important aspect of health services is primary health care, since it gives a range of curative and preventive services, and provides the main link between patient and hospitals. Mufti (1999) argues, however, that the quantitative increase of primary

health care centres across the whole Kingdom will not, by itself, produce successful primary health care. Effectiveness or achievement of PHC relates, rather, to the increase in the activities in PHCCs and increase in outpatient use of the curative and preventive services that are offered. Mufti's argument is true up to a point, but he overlooks the vital question of how people who live at a great distance can receive such a service. For example some parts of the Al-Ola area, in Medina's region, do not have a PHCC, although many people live there; in addition the nearest hospital to them is about 160 kilometres with a rough road (Al-Balwi, 2003). Such problems persist, although the sixth development plan contained some provisions for improving health care in Saudi Arabia. The intentions were to (1) expand the activity of primary health care; (2) work to make PHCC service equally distributed by increasing the number of health institutions; (3) continue encouraging Saudi human resources by increasing the proportion of Saudi health manpower through development of health institutes and provision of training programmes and scholarships; (4) increase the number of hospital beds to increase the effectiveness of curative health care; (5) and try to finance health services by encouraging insurance companies to finance and establish health institutions (Mufti, 1999).

4.5.2 State Hospitals

There are eight state hospitals in Medina. One of them is a psychiatric hospital, and another is for rehabilitation of elderly and disabled people. There is one maternity and children's hospital. The other five are general hospitals with several specialists. King Fahad hospital was founded in 1980 with a capacity of 500 beds. It has a total number of 264 physicians representing 46.3% of the total physicians in the Ministry of Health (MOH) hospitals in Medina in 1999. The number of nurses was 399, representing 29.7% out of the total nurses in MOH hospitals in Medina in the same year. As well

as various specialist departments, three centres are attached to it for kidney disease, diabetes, and dentistry. Also, it is considered a centre for post-graduate studies in the region. The services of this hospital extend up to 400 kilometres. Ohud hospital was founded in 1983 as a general hospital with a capacity of 220 beds. It had 77 physicians and 204 nurses in 1999. It is considered to be the main hospital for eye disease for Medina and its region. The number of patients very often exceeds the capacity of the hospital, for example 239 in 1999 (see Table 4.4). Almegat hospital was founded in 1962, initially as quarantine for infectious disease. In 1989 it was expanded and changed to become a general hospital with an independent section for use as quarantine. Its capacity is 82 beds and it had 81 beds in 1999: there were 20 physicians and 56 nurses in the same year. It appears that the Almegat hospital bed capacity became full in just 10 years since it was founded. Madinat Alhijaj was founded in 1961, to specialise in the treatment of some diseases such as tuberculosis (BCG) and asthma, and to examine foreign workers to make sure they do not have infectious diseases. Thus, its services are limited to certain people and diseases. It had 50 beds, 20 physicians and 46 nurses in 1999. Alansar hospital, the first general hospital in Medina was founded in 1951. It has a capacity of 200 beds, of which 82 were in use in 1999. It seems that Alansar hospital has the lowest capacity usage rate among general hospitals in the area, which may be related to its location in the city centre close to Alharam (the Prophet's Mosque) to serve visitors and pilgrims. The main influx of visitors and pilgrims is confined to a certain time in the year, so the hospital is much busier in some months than others.

In addition to the above hospitals, there are three other hospitals specialising in certain aspects of care. The maternity and children's hospital was founded in 1983 with a capacity of 400 beds. The numbers of beds in 1999 was 393, representing about 25%

of the total existing MOH hospital beds in the same year. It had 135 physicians, representing 23.6% of the total in state hospitals in 1999 and 355 nurses, making 26.4% out of the total in MOH hospitals. This hospital is always very busy, in view of the high birth rate. In 1999, 89% of births in MOH hospitals in Medina were in this hospital³. Moreover, the services of this hospital extend to serve towns and villages outside of Medina. Consequently, an expansion of capacity is needed. There are also problems related to its location in the city centre and shortage of car parking facilities, which make it very inaccessible, especially at the time of pilgrimage, when the city centre is crowded. To meet the increased need, new hospital projects, outside of the centre, have been carried out, to replace the current one. The psychiatric health hospital was founded in 1976 with a capacity of 120 beds. It includes four outpatient clinics: psychiatric medicine, brain scan, neurology and dentistry. The rehabilitation hospital was founded in 1985 to serve the elderly, disabled and others who have chronic diseases. Its capacity is 200 beds. The number of beds in 1999 was 150, with five physicians and 85 nurses. It seems that the capacity does not need expanding, at least at the current time, but the number of physicians and nurses needs to be increased because the services provided in this hospital should be at a reasonable level, since almost all patients in this hospital can do little for themselves.

Table 2.5 shows that the total capacity of the health ministry's hospitals in Medina is 1,772 beds, which represents 75% of the total beds in Medina and the existing number of beds is 1,577. The total number of physicians is 570, and there are 1,341 nurses. From analysis of these data it appears that the ratio of physicians to population is 6.8 per 10,000, that of nurses is 16 per 10,000 and that of beds is 19 per 10,000^{*}. For

³ Source: Medina Health Administration affair (1999), the percent made by the researcher.

^{*} Data analysis dependent on population census in1992 by annual increase of 5.14%.

comparison, in Saudi Arabia as a whole, we find that the ratio of physicians is about 5 per 10,000/population, that of nurses, 14 per 10,000/population and that of beds, 14 per 10,000/population in health ministry hospitals (Health Statistical Yearbook, 2000). Thus it appears that Medina is in a better situation than the Kingdom average. However, we should bear in mind that hospitals in Medina serve the region as well, but the above ratios are based on the Medina population only. Also, even though Medina has better ratios than the Kingdom average, it does not mean that the provided health services are enough, because the overall rate of the Kingdom itself is low compared to countries of a similar level of development, e.g. Kuwait.

4.5.2.1 The Distribution of State Hospitals with Population Density

In terms of their distribution Table 4.4, Figures 4.3 and 4.4 show that there is a lack of balance between population concentrations and the distribution of state hospitals. The hospitals are concentrated in the west part of Medina. Four hospitals are located there: King Fahad hospital in the Bany Salamh area, Madinat Alhjjaj in the Taybah area; Ohud hospital in the Alsalam area, and Almegat hospital in the Alaziziah area The total population of those areas is 37,476, out of Medina's total population, which was 858,653 in 2000, on a total built area of 674 hectares out of the total Medina built area which is 5,630 hectares (see Table 4.4). Alansar and the maternity and children's hospital are located in the Alharam area inside the first ring road area. The population of this area is 72,500, and the built area is 84 hectares. In the Alalyah area there is a rehabilitation hospital which serves specific people, the old and disabled only.

From the above and figure 4.3 we can surmise that the distribution of state hospitals needs re-thinking by the decision-makers, and it seems that there may be a need for

one more big hospital to be established in the western part of Medina, to serve the people who live there and others who come from the eastern part of Medina region.

As it is, hospital services are not only for the people who live in the district where the hospitals are located, like the PHCCs services, but extend to serve the whole of Medina, and sometimes the whole region. But in this research we are only interested in the distribution of hospitals in Medina, since users from outside Medina are already far away from secondary health services, wherever the services are located in Medina.

Certainly, a total of 1,402 beds, and 370 beds in specialist hospitals, such as rehabilitation care and psychological hospitals, is not enough to serve the population of Medina and its region, which was 1,378,870 in 2001 (Statistical Yearbook, 2001). There are hospitals in Medina's region, but their level of services is not equal to that in the cities, in terms of equipment, numbers of doctors and specialisms, so they tend to refer patients to Medina's hospitals.

The total number of hospital beds in Medina and its region was 2,102 in 2001, providing a lower ratio than some other Saudi regions such as Alqaseem which had a total of 2,036 beds for a total population of 979,858 in the same year (Health Statistical Yearbook, 2001). Also, Medina needs extra facilities since it is different from other Saudi cities, except Mecca, in terms of the demand on health services, because of its religious position. Many hajjis and visitors visit Medina during the year. Thus, health services must be provided for them, as well as for citizens. These facts support the arguments above, even if other regions such as Riyadh and Jeddah regions have a larger population than Medina, Medina should be provided with almost the same quantities of such services.

			Existing		Type of
Hospital	Physicians	Nurses	beds	Capacity	building
King Fahad	264	399	465	500	Governmental
Medina Maternity	135	355	393	400	Rental
Ohud	77	204	239	220	Governmental
Alansar	34	104	82	200	Governmental
Almegat	20	56	81	82	Governmental
Madinat Alhjjaj	15	46	47	50	Rental
Psychological health	20	92	120	120	Rental
Rehabilitation care	5	85	150	200	Rental
Total	570	1341	1577	1772	_
%10000/population	6.8	16	-	19	_

Table 4.3: Number of State Hospitals, Physicians and Nurses in Medina in 1999.

Source: Medina Health Administration, 1999.





Fig. 4.4 The Number of Residential Districts

1	Alharam	20	Alhadigah	39	Buny Salamah
2	Alaws	21	South hjrah	40	Alhufiyh
3	Almustrah	22	Alranona	41	Alnakeal
4	Alkandag	23	East aer	42	Azzhrah
5	Sala	24	Asakab	43	Asadugiyah
6	Alkzrag	25	Abu Bryga	44	West Algurf
7	North Quba	26	Ashahba	45	Alauwn
8	South Quba	27	East hmra Alasud	46	Alshuhada
9	Bathan	28	Wrgan	47	Atlah
10	Alaleyah	29	Arrwh	48	Adar
11	Alaba	30	Northen Alaqiq	49	Wasat zubair
12	East hrrah	31	Tho halifa	50	Eastern Zubear
13	Jushm	32	Um kalid	51	Alkabah
14	South mytan	33	Alaziziah	52	West ganah
15	Alhadra	34	Albulga	53	Adweklah
16	North manahel	35	Aldifa	54	King fahad
17	South manahel	36	Taybah	55	Kunanah
18	Alquswa	37	Sekaht Alhadeed	56	Alaquol
19	Showran	38	Alsalam		

Sources: Medina Municipality (2000).

4.5.3 Relationships between Distribution/Density of Population and PHCCs

Table 4.4, and Figures 4.3 and 4.4 show that PHCCs are distributed in various parts of Medina. The north Quba area has five PHCCs, with a total population of 93,490 and a built area of 470 hectares. Thus, this has the largest share of the PHCCs. Alaleyh area although it has 110,595 people, which is more than in north Quba, has two PHCCs. The second area with a large share of PHCCs is East Hrrah which has four and population of 78,620 with built area of 450 hectares. Again, there are anomalies; for example in Alkandang area there are only two PHCCs, although its population is not much less than that of East Hrrah.

All other areas provided with such services have one or two PHCCs, irrespective of population density. From Table 4.4, we can see that the Sala area has two PHCCs and its population is 46,745, whereas Alaleyah and Alkandag have the same number of PHCCs to serve populations of 110,595 and 74,675 respectively. Other areas such as Alkzrage, Alaws, and West Algurf have smaller populations than Sala, but have the same number of these health services as Sala.

The 12 remaining areas vary in terms of population and rate of building. Each has one PHCC, to serve populations ranging from 38,310 in Almustrah to 2,910 in Alaqoul. In general Table 4.4 illustrates that PHCCs services are amply available in 20 residential areas, while four, Bathan, East Hmra Alasud, Arwh and Um Kalid, residential areas have adequate/sufficient services⁴. Sixteen have the service, but not enough, while the remainder are not provided with such services (see Table 4.4). It is clear that there are some residential areas that are not provided with such services, possibly because they are considered not to need them at present. There are 28 such residential areas. Reasons for lack of PHCC provision may be small population, such as in Taybah and

⁴ According to the criterion of the Health Ministry, which is one PHCC for 5000 to 10000 people.

Alranona, or being close to another residential area provided with health services, for example Jushm and Alsalam, or being designated for future development and currently having no people. There are 11 districts empty of people, accounting for 10,834 hectares.

The Alharam area has a special position, as it has been under new development. It has no permanent residents, as it is a service area for visitors to the holy sites. There are temporary health centres which operate in the hajj season when the number of visitors reaches its peak. Also visitors can use the emergency room in the hospital located in that area, or the health centres which are in the other areas close by. As a result, it seems that the Alharam area does not need a permanent PHCC, at least at the present time.

No.			Area in	Hectares			Primary h	ealth care c	entres
					(1)	(2)			
	District name	Population	Total	Built	Planned	Empty	Need	Available	Pequire
1	Alharam	72500	144	84	60	0		Available	<u>Nequire</u>
2	Alaws	40050	465	180	45	0	4	2	2
3	Almustrah	38310	318	115	113	0	4	1	3
4	Alkandag	74675	269	90	116	0	7	2	5
5	Sala	46745	275	220	0	0	5	2	3
6	Alkzrag	44917	197	170	0	0	4	2	2
7	North Quba	93490	633	470	163	0	9	5	4
8	South Quba	15410	545	120	200	0	2	0	2
9	Bathan	3695	826	150	506	0	1	1	0
11	Alalyan	110595	680	330	214	0	11	2	9
12	Mada	25950	/39	300	3/7	0	3	1	2
12	East nrran	/8620	889	450	439	0	8	4	4
13	Jushm	4550	921	98	80	743	0	0	0
14	South mytan	25	1063	65	175	823	0	0	0
15	Alnadra	0	807	0	87	720	0	0	00
10		0	1651	16	1635	0	0	0	0
17	South mananel	0	1379	0	1257	122	0	0	0
18	Alquswa	15260	297	197	100	0	2	1	1
19	Snowran	0	782	0	782	0	0	0	0
20	Ainadigan	0	403	0	403	0	0	0	0
21	South hjrah	0	1605	0	1038	0	0	0	0
22	Alranona	550	948	5	500	443	0	0	0
23	East aer	85	457	2	55	400	0	0	0
24	Asakab	0	1284	0	0	1284	0	0	0
25	Abu Bryga	4060	273	55	60	158	0	0	0
26	Ashahba	0	271	0	0	271	0	0	0
27	East hmra Alasud	4015	1406	35	130	1241	1	1	0
28	VVrgan	570	953	10	660	283	0	0	0
29	Arrwn	5385	357	40	50	267	1	1	0
30	Northen Alaqiq	7070	381	154	85	142	1	0	1
31	Tho halifa	66605	626	50	43	533	1	0	1
32	Um kalid	1285	360	90	60	210	0	1	0
33	Alaziziah	11005	1429	260	723	446	1	1	0
34	Albulga	0	391	0	391	0	0	0	0
35	Aldifa	16580	1641	220	221	1200	2	1	1
36	Taybah	580	967	14	476	0	0	0	0
37	Sekaht Alhadeed	1660	1152	122	250	780	0	0	0
38	Alsalam	1375	2404	30	214	0	0	0	0
39	Buny Salamah	24516	728	370	85	273	2	1	1
40	Alhufiyh	420	1424	3	5	0	0	0	0
41	Alnakeal	7400	811	30	40	0	1	0	1
42	Azzhrah	12125	605	40	195	0	1	0	1
43	Asadugiyah	240	1136	15	646	0	0	0	0
44	West algurf	28915	879	230	212	0	3	2	1
45	Alauwn	11555	799	80	115	0	1	0	1
46	Alshuhada	11930	350	116	47	187	0	0	0
47	Atlah	8835	262	110	36	116	1	0	1
48	Adar	3670	443	90	60	293	0	0	0
49	Wasat zubair	320	1698	4	235	0	0	0	0
50	Eastern Zubear	10960	1956	103	277	0	1	1	0
51	Alkabah	1525	872	70	64	0	0	0	0
52	West ganah	0	1148	100	651	397	0	0	0
53	Adweklah	6875	652	50	421	181	1	0	
54	King fahad	0			1113	0			
55	Kunanah	840	1232	20	0				
56	Alaquol	2910	184	58	U		U	U	
Tota	1	858653	46480	5631	15910	11513	79	32	4/

Table 4.4: Population and PHCCs in Medina in 2000, by district.

Source: Medina Municipality (2000).

(1) Designated for future development.
 (2) Available for future development.

4.5.4 Private health services

Private health services, including hospitals, dispensaries, private doctors and clinic groups, represent one of the most important in contributions of the private sector in service activity. This is in line with the general government policy that as Medina Municipality (1999) reported, emphasizes the need for the contribution of the private sector to build up the national economy.

As Table 4.5 illustrates, there are six private hospitals in Medina; two more are currently being built. These private hospitals provide 450 beds, which represent about 25% of the total hospitals beds in Medina, and 209 physicians, which represent about 27% of Medina's total hospital physicians.

Table 4.5: Number of health institutions in private sector, with their physicians and beds in Medina 1999

	Number	Physicians	Beds		
Hospitals	6	209	450		
Dispensaries	16	105	-		
Private clinic	33	33	-		
Group of clinics	20	65	-		
Total	75	412	450		

Source: Medina Municipality, 1999 and the researcher's observation.

4.5.5 The Geographical Distribution of Private Health Services in Medina

Private health services are found only in urban areas throughout the Kingdom; there is no role for private health services in the rural areas, as such areas are usually less populated, so that private health services may be unable to make a profit. There is no doubt that the main goal of the providers of private health services is to make a profit, whatever effort is made to present a different image. Savage (2004, p. 554) argues that "profits are still important in the ability of not-for- profit hospitals to upgrade facilities and remain competitive by attracting patients and insurance companies". In cities private health services are concentrated in specific areas, usually much more likely to be found in the city centre or close to it. This situation can be attributed to various factors, for example, population density, good transport networks and availability of suitable space.

A summary is provided here of the geographical distribution of private health services in Medina. The total number of private health service institutions was 73 in 2002. These represent about 65% of the total health service institutions in Medina, which numbered 113 in that year. However these private health services only provided 450 beds, 25% of the total hospital beds in Medina in 1999 (Medina Municipality, 1999). There are four types of private health services in Medina. The first are hospitals, which vary from one to another in terms of capacity and specialisation. Most provide a comprehensive range of medical services. These hospitals are: Medina Domestic Hospital, Targ Binladen Hospital, Al-Ejlal Hospital, Azzhra Hospital, Addar Hospital, Almwasah Hospital and the recently founded Saudi German Hospital.

Another type of private health services is dispensaries, which are different from hospitals in terms of size and capacity; they have no more than eight doctors. Also, these dispensaries are different from each other, as some have many specialisations and others specialise in one area, in dentistry, for example. These dispensaries are showed in Table 4.6 and Fig. 4.6.

The third form of private health services in Medina is group clinics. This name is given to clinics that have more than three specialist areas. Medina has 17 of these group clinics, as shown in Table 4.7 and Fig. 4.6.

Dispensaries' name	Specialization	
	Specialism	Location
Alwatani dispensary	more than one	A south a Al and A D A
	specialism	Assuba Almasajjed Road
Dar Alsalam dispensary	11 11 11	Hagrah Road
Addar dispansery	17 17 19	Hayee Mukiaselah
Almedina Alahli dispensary	19 19 19	Omar Bin Alkatab Road
Alkaser Dispensary	11 11 11	Univirsities Road
Ibn Amer dispensary (1)	17 11 11	Alkaldeah
Abdurhman Alokali dispensary (2)	11 11 11	Assuba Almasajjed Road
Albatargi dispensary	18 19 19	West Hrrah
Albatargi special dispensary	11 17 11	Abu Bakr Assudeek Road
Alaamean Dispensary	11 11 11	Second Ring Road
Abdurhman Alokali dispensay (1)	^{\$\$} \$7 18	prince Abdulmhsen Road
Ibn Amer dispensary (2)	11 11 11	West Hrrah
Wahat Alshfa Dispensary	11 17 17	Alauwn Road
Refk Dispensary	11 IT 11	Azizyha
Dr Abrheim Masaud Dispensary	Dentist	prince Abdulmhsen Road
Sedk Dispensary	Dentist	Second Ring Road
Gsan Fraon Dispensary	Dentist	Assuba Almasajjed Road
Kalid bin Al-Walid Dispensary	Dentist	Abu Bakr Assudeek Road
Dr Sameah Flemban Dispensary	Dentist	prince Abdulmajeed road
Alandals Dispensary	Dentist	Kalid bin Al-Walid Road

Table: 4.6: Dispensaries in Medina in 2002

Sources: Medina Health Administration and Field work.

Clinics' name	Specialism	Location	
	more than one		
Dr Abdalhaleam Marzog Group Clinic	specialism	Prince Abdulmhsen Road	
Dr Mujahd Hakeem Group Clinics	11 11 11	Prince Abdulmhsen Road	
Dr Albukari Group Clinic	11 11 11	Quba Road	
Dr Albukari Medical Clinic	T# 1# 1#	Prince Abdulmajeed road	
Dr Mohammad Aljundi Group Clinic,	11 11 11	Quba Road	
Health Medical Group Clinic	11 11 11	Al-Azhari	
Contemporary Medical Specialist			
Group Clinic	11 11 11	prince Abdulmhsen Road	
Dr Mohammed Alhumadi Group			
Clinic	11 11 IT	Second Ring Road	
Al-Manar Specialist Group Clinic,	11 11	Abu Bakr Assudeek Road	
Dr Ahsan Baksh Group Clinic	11 11 11	Aby Thor Road	
Dr Hamed Alahmadi Group Clinic	11 11 11	Second Ring Road	
Dr Mujahd Hakeem Group Clinic	N 11 H	prince Abdulmhsen Road	
Mohammad Alkani Group Clinic	H H H	Abu Bakr Assudeek Road	
Dr Abraheam Zulali Group Clinic	Dentistry	Abu Bakr Assudeek Road	
Dr Samier Katery Groups Clinic,	Dentistry	Alsalam Road	
Dr Munear Almimany Group Clinic	Dentistry	Abu Bakeer Alsuduk Road	
Albukari Group Clinic	Dentistry	Airport Road	

Source: Medina health administration and researchers' Field work.

The fourth type of private health services offered in the study area is the single clinic or 'private doctors'. The total number of private doctors (private clinic) in Medina is 29. It was notable from the researcher's observation that these clinics are usually run by one doctor and one or two nurses and a receptionist who keeps the records of patients. They cover various health areas. There are fourteen dental clinics, three general practices, three Internal Medicine doctors, two Paediatric clinics, two specialising in medicine and surgery for women, two eye surgeries, one Ear, Nose and Throat clinic, one Orthopaedic clinic and one Cardio-vascular clinic.

The private health services are unevenly distributed. Most hospitals are located in the south east of Alharam's area (the city centre) over a distance of about one or two kilometres, where Addar and Azzhra hospitals lie on Ali bin Aby Talib road with one kilometre distance between them. Near Addar and Azzhra hospitals, west in a straight line and no more than two kilometres away, are located Targ Binladen and Al-Ejlal hospitals in Albahar district; the distance between them does not exceed 500 metres. To the east of Azzhra hospital on Ali bin Aby Talib road, no more than two kilometres away in a straight line, is another private hospital on Prince Abdulmajeed road: Medina Domestic Hospital. Thus, there is a clear concentration of private hospitals in that part of Medina. Concentrated in a circle of about two kilometres in diameter, these private hospitals represent about 70% of the total private hospitals in Medina. This distribution might be attributed to some main factors, for instance, these areas are more populated, close to the city centre so that visitors can use the hospitals, and these areas lack state hospitals. Another reason may be because there is no clear regulation for the location of new health institutions.

In the north east of Medina and far from the main centres of population, is located Almowasah hospital which lies on the airport road in a formal building. This hospital replaced Taybah hospital which was founded in 1984. Its location in that part of Medina may be due to the availability of land, and the need to serve an area which lacked such services. In the south west is the Saudi German hospital on the Universities road. This hospital is new; it was founded in 2002 and seems to be set in a favourable location, some distance from other private hospitals. These areas of Medina have been developed rapidly in the last ten years, so there has been a great increase in building and population, mainly from Alaziziah in the north to Hmra Alasud in the south. Therefore this hospital can serve these residential districts, as well as patients who come from that direction of the Medina region (see Figure 4.5).

4.5.6 Private Pharmacies

Pharmacies provide medication according to prescription, usually issued by a physician. In Saudi Arabia, Ministry of Health regulations state that no medicines can be dispensed without prescription. In practice, however, medicines are available without prescription, except for antibiotics and those listed on the narcotic chart. The latter are considered illegal drugs unless prescribed by a physician, and a pharmacist who dispersed them without prescription would face legal action and possible revocation of licence. In addition to dispensing medication, pharmacists often provide medical advice, and can in these circumstances issue their own prescriptions, the customer being charged only for the medicine. In 1990 there were 2,066 pharmacies and 255 drug stores all over the country. By 2001 there were 3,244 private pharmacies (Health Statistical Yearbook, 2001). Medina city has 224 private pharmacies in 2004

(Medina Health Affair, 2004)⁵. However no statistics about the number of Medina's private pharmacies in previous years are available for comparison.

4.5.7 The Spatial Distribution of Private Dispensaries

Figure 4.6 shows that there is no dispensary inside the first ring road, in Alharam's area, probably as a result of the regeneration of that area by removing old buildings and building new ones. This planning and development has not been completed yet. Also, it appears that dispensaries are concentrated inside or on the second ring road. This area contains 85% of private dispensaries. Only three dispensaries are outside the second ring road area, accounting for 15% of all the total private dispensaries in Medina. Two of these dispensaries are located west of the second ring road, as development extends in that direction much more than in the other three. Concentrations of private dispensaries exist to the north and North West of the city centre at Abu Bakr Assudeek Road and Assuba Almasajjed Road. Those areas contain seven private dispensaries, 35% of the total of private dispensaries in Medina. This is probably as a result of the early residential development in that direction, or because the existing private health services are not enough to serve all Medina's population, so their existence close to each other does not make any difference to those offering the services or to the consumers. The remaining dispensaries are scattered within the second ring road area, with a few in the north area such as Alauwn and Alshuhada.

4.5.8 The Spatial Distribution of Private Group Clinics

Figure 4.6 illustrates that most of group clinics are within the second ring road area. There are 14 group clinics, more than 82% out of the total of 17. The map also shows that there is a concentration of these clinics in the north direction of the first ring road,

⁵ Beside private pharmacies, each PHCC and state hospital has its own pharmacy which provides basic medicine free of charge.

mainly on Prince Abdulmhsen Road, where five group clinics are located close to each other, over a distance of about 500 metres; some of them are in the same building. To the west of those clinics at a distance of about 500 metres, are another two group clinics situated on Quba Road. These two areas have seven group clinics, 41% of the total number of group clinics in Medina. The rest are distributed north. west and east of the second ring road area. Three of them are north west of the second ring road, where the development has been more rapid than to the south and north. For the same reason as already mentioned in relation to the distribution of private dispensaries, the area inside the first ring road remains empty of this type of health care.

4.5.9 The Spatial Distribution of Private Clinics (Doctors)

Figure 4.5 illustrates the geographical distribution of private doctors. If we look closely at the map we can see clear concentrations of these clinics in two areas of Medina. The first is in the south, close to the first ring road on Prince Abdulmhsen Road and Quba Road. The second is north of the first ring road at the beginning of Abu Bakr Assudeek Road.

On Prince Abdulmhsen Road there are six private clinics close to each other, with a distance of no more than 300 metres to the furthest one. These private clinics represent about 20% of the total of private clinics in Medina, which number 29. At a straight distance of about 500 metres, to the west of these clinics are another seven private clinics on Quba Road. These are also close to each other and four of them are located in one building. These seven clinics represent about 24% of all private clinics in Medina. When we look again at these two roads, Prince Abdulmhsen Road and Quba Road, we find 13 private clinics, amounting to 45% of all private clinics. Also,
it is clear that these 13 clinics are concentrated in a circle with a radius of about 400 meters in narrow crowded roads, very often with poor car parking. Since there are no car parks in those two roads, and very often traffic jams, it is difficult to park in clinic working hours. Moreover the poor bus services exacerbate the problem. These clinics' services would be much more accessible to the users if this problem were solved.

The second concentration of these private clinics is located close to the north of the first ring road. There are six clinics at the beginning of Abu Bakr Assudeek, making about 20% out of the total of private health services. To the east of that, at a distance of about 400m, there are three other private clinics on Othman ibn Affaan (Alauwn) and Suaid Alshuhada Road. Again, it is clear that the private clinics north of the first Ring Road represent together 31% of the total private clinics. If we add those clinics to the previous concentration south of the first Ring Road, mainly on Prince Abdulmhsen and Quba Roads, we find that these two areas contain about 76% of all private clinics in Medina.

The remaining clinics are distributed all over Medina, inside the second ring road area. King Abdulaziz Road has the highest share of the remaining clinics, with four clinics. This may be because that road is an attractive area for private clinics, because of the many large new blocks of flats, and the development of buildings on this road, which extends towards the east.

The area outside the second ring road remains poor in such health services, probably as a result of the high rents. Almost all buildings outside the second ring road have no more than two floors, whereas they reach to 14 floors inside the second and first ring roads. Another possibility is that it is too far from the city centre, so it attracts few visitors and hajji; they tend to stay close to the city centre, where hotels or flats are available.

Overall, as private health services are founded basically for profit, it could be argued that there is competition among them to attract many consumers as they can by offering them the best services. Consequently, the consumers are more interested in the quality of the services than location. This could be the most important reason why private services are distributed as they are at present (close to each other).





4.6 Conclusion

This chapter has introduced the study area (Medina) in relation to its geographical location, the population distribution across the residential districts and a commentary on Medina's land use, and health status. Also, the distribution of state and private health services was discussed and mapped.

Overall, despite the fact that Medina has higher ratios than the total Kingdom average in terms of bed/population and physicians/population, the capacity of state health services in Medina needs to be expanded as it was almost full in 1999 and has not kept pace with the increase of population. The rapid increase of Medina's population needs similar increase in health services to cope with the general development.

The total of 32 PHCCs serve a number of 858,653 people a ratio of 26,832/PHCC in 2000. The criterion of MOH is one PHCC for 5,000 to 10,000 people. By this criterion, there is a serious shortage of PHCCs. Not only this, but it seems that the PHCCs in Medina are distributed without consideration to the density of population or geographical distance.

In the private health sector, the services are concentrated close to the city centre, mainly north and south west and there is no clear explanation of such concentration. The geographical distribution of health care facilities in Medina is potentially significant, because the existing distribution seems likely to result in inequities of access. The geography of health services traditionally suggests that accessibility is a significant factor in service utilization, albeit not the only one.

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Chapter Five

Demographic and Socio-economic Characteristics of Health Services Users in the Study Area

5.1 Introduction

It is important to identify demographic and socio-economic factors of health service users, which could play a major role in influencing equity of health service provision, as well accessibility and utilization of such services. Since private services are most often unaffordable to people of low income, this chapter discusses some of the demographic and socio-economic factors of healthcare users in the study area.

Researchers who deal with accessibility and utilization of health services have identified two important factors that are believed to affect the attitudes of health service users. These are (1) "geographical" or spatial factors such as physical obstacles, and distance to reach health facilities, and (2) "non-geographical" ones, such as demographic and socio-economic factors. Whereas "geographical" factors may be less applicable with good service planning, "non-geographical" factors are found wherever the people live. Joseph and Phillips (1984) argue that "non-geographical" factors could exist in almost any place, and have been identified as influencing the use of health services from one part of a city or country to another. Such variables as gender, age structure, occupations, level of education and income, are very different from place to place within a city or between countries.

Utilization of health services has been linked to "non-geographical" factors in previous research. For example Joseph and Phillips (1984), Meade et al. (1988), Al-Ribdi (1990) and Tanner et al. (1998) linked utilization to a number of personal and demographic variables such as age, sex and socio-economic status. The influence of age and sex is to be expected, since certain health conditions are clearly related to age

and sex. There is considerable evidence, for example, that health services are used more by infants, older people and women than other groups. However, although the rate of use is mostly dominated by the population age pyramid, it cannot be generalized that old people usually use health services at a high rate compared to other age groups. Another relevant demographic factor is marital status. Married people, or those who have children, are expected to use health services more than unmarried (single), because they use them for pregnancy and childbirth, and on behalf of their children.

It is also important to identify the health users' socio-economic background. Many researchers, for example, Joseph and Phillips (1984), Al-Ribdi (1990), Bakhashwian, (1995) and Al-Kamshi (2000), have researched these factors. This may be important in deciding the kind of health services offered, and directing users to suitable health sectors. Also it may help to anticipate the type of users to be expected in future. Joseph and Phillips (1984) Elzahrany (1990), Kandrack et al. (1991), Bakhashwian (1995) and Al-Kamshi (2000) for example, noted that socio-economic status could affect the type of health services used, since high income or insured people can use private health care, while low income people have no choice except state health services. The income factor suggests that students, for example, can be expected to be major users of state health services. More educated people may be greater users of health services, because of greater awareness, but they may also earn high salaries and so be able to use the private facilities.

Overall, there is a need to examine more closely the relationship between "geographical" and "non-geographical" factors in health services use. This chapter examines demographic and socio-economic variables to see their effects on spatial patterns of health service use in Medina. The aim is to see whether the choice of type (public/private) of health facilities is related to the characteristics of the users, holding "place" variables constant.

5.2 Demographic and socio-economic variables

5.2.1 Age and Sex

Previous research suggests that age and sex are two of the most important factors affecting the use of health services. Some authors, for example Joseph and Phillips (1984), argue that the rate of health service utilization by old people is higher than in other age groups. This may be related to their health condition i.e. late onset of degenerative diseases which are found more often in elderly population or affect older people more severely. This may be true in theory; however, we should be wary of generalization, as it depends on the age structure of a particular society. In some studies, old people were found to be less frequent users of health services. Al-Ribdi (1990), in Alqaseem, Saudi Arabia, for example, found the lowest rate utilization among his survey sample was for old people.

In the present study sample, people in the age 16 to 20 years old category represented 6.6% of the health users, while the highest frequency age group was from 21 to 30, accounting for more than 43% of the total user sample. The second largest age group after 21 to 30 was from 31 to 40, with more than 33% of the total sample. Those aged from 41 to 50 represented only 13.8%, while the group from 51 to 60 accounted for less than 3% and of those more than 60 years old only 0.4% (see Table 5.1).⁶ If we look again at the table we find that more than 83% of the survey sample was aged from 16 to 40. Perhaps this reflects the age pyramid of Medina's population, with the exception of the under 15 age group, which represents 49.2% of the population but

⁶ The questionnaire survey was conducted over two months at different places and times.

was not included in the present study sample. Those aged between 15 and 44 represented 36.9% of the Medina population, while 10% were between 45 and 65, and only 3.9% were older than 65 years (Al-Ruwaythi, 1997). Given this population structure, the proportion of old people using the health services is likely to be low compared to young and middle age groups.

Other studies in Saudi Arabia showed similar results; that the highest healthcare users were either young or in their early middle age. For example, about half of Al-Ghamdi's (1981) sample was aged 20 to 29, Bakhashwain (1995) found that nearly 70% of his sample was aged from 20 to 40, and Al-Kamshi (2000) found that about 80% of his sample was from 20 to 40 years old. The reason is probably attributable to the Saudi population structure. There has not been much change in the general Saudi population pyramid for the last two decades. The age group from 15 to 39 constituted about 42% of the total Saudi population in 2000, while those aged more than 39 years old constituted about 17% in the same year (Statistical Yearbook, 2001).

With regard to gender, Table 5.2 shows that the proportion of males in the survey sample was higher than that of females; more than 72%, compared with almost 28% for females. However it could be argued that this distribution does not necessarily reflect frequency of use of health services. It must be kept in mind that in most cases females use health services more than males because of maternity and childcare. But in the study area, the ratio of utilization of health services may be affected by some religious and traditional factors. Elzahrany (1989 p. 28) points out that "the utilization of health care services by women in Saudi Arabia is hindered by some of the local traditions. Women are not allowed to drive at all, and are frequently unable to leave the house without a male escort." Therefore a woman in most cases should be

accompanied by her husband or adult male relative, for example, father. son, brother, uncle, etc, when going to see the doctor, or travailing in general. Hence, in a society like this, survey questionnaires handed in at health institutions are unlikely to reflect the gender distribution of actual users, since the presence of males in the health institute or in the waiting room does not necessarily mean that they are ill. Another reason why the proportion of females is much lower in most Saudi health service utilization studies, including the present research, may be the social culture in Saudi Arabia, where surveys have not been very common yet, especially among women. Therefore, many females would be wary of answering a survey questionnaire. Such points are confirmed by Bakhashwain (1995 p. 218) who commented that some third world societies are not yet quite familiar with survey or research procedures. People living in such societies are, to a great extent, reluctant to co-operate or participate in any research, for various reasons.

Previous research such as Thaddeus et al. (1994) indicates that women in many developing countries tend to consume more hospital beds, and many non Saudi studies, for example, Bay et al. (1997), observe that females use health services much more than males because of childbirth. This likely applies to female health service users in the present research context, but due to the above reasons, this was not reflected in the sample. The number of men might also be inflated by the fact that most non-Saudis who come to work in Saudi Arabia come alone, without their family or wives. Finally there is no significant difference between genders in terms of age distribution.

Table 5.1

	Respondents	Percent
More than 60 years	2	.4
51-60	13	2.6
41-50	69	13.8
31-40	167	33.4
21-30	216	43.2
From 16 to 20	33	6.6
Total	500	100.0

Respondents' Age

Source: researcher's fieldwork

Table: 5.2

		Se	ex	
		Male	Female	Total
From 16 to 20	Expected Count	23.8	9.2	33.0
	% of Total	5.0%	1.6%	6.6%
21 to 30	Expected Count	156.0	60.0	216.0
	% of ⊺otal	29.0%	14.2%	43.2%
31 to 40	Expected Count	120.6	46.4	167.0
	% of Total	24.4%	9.0%	33.4%
41 to 50	Expected Count	49.8	19.2	69.0
	% of Total	11.4%	2.4%	13.8%
more than 50	Expected Count	10.8	4.2	15.0
	% of Total	2.4%	.6%	3.0%
	Expected Count	361.0	139.0	500.0
	% of ⊺otal	72.2%	27.8%	100.0%
	From 16 to 20 21 to 30 31 to 40 41 to 50 more than 50	From 16 to 20Expected Count % of Total21 to 30Expected Count % of Total31 to 40Expected Count % of Total41 to 50Expected Count % of Totalmore than 50Expected Count % of Totalmore than 50Expected Count % of Total% of TotalExpected Count % of Total% of TotalExpected Count % of Total	MaleFrom 16 to 20Expected Count23.8% of Total5.0%21 to 30Expected Count156.0% of Total29.0%31 to 40Expected Count120.6% of Total24.4%41 to 50Expected Count49.8% of Total11.4%more than 50Expected Count10.8% of Total2.4%Expected Count361.0% of Total72.2%	Male Female From 16 to 20 Expected Count 23.8 9.2 % of Total 5.0% 1.6% 21 to 30 Expected Count 156.0 60.0 % of Total 29.0% 14.2% 31 to 40 Expected Count 120.6 46.4 % of Total 24.4% 9.0% 41 to 50 Expected Count 49.8 19.2 % of Total 11.4% 2.4% more than 50 Expected Count 10.8 4.2 % of Total 10.8 4.2 % of Total 2.4% .6% Expected Count 361.0 139.0 % of Total 72.2% 27.8%

DF. (4)

Sig. (0.125)

Age recoded * Sex Crosstabulation

Chi-square (7.214) Source: researcher's fieldwork

5.2.2 Marital status

The frequency result in Table 5.3 shows that most (74%) of the research sample, who use health services in Medina were married. Perhaps this may be attributed to the fact that this category needs health services much more than others because of childcare. Almost 24% of the respondents had never been married, 1.2% were widower(s) and 1% divorced. Unfortunately there were no statistical details on the marital status of Medina's population available for comparison. However, the 1996 Census for Medina and its region showed that the majority (59%) of people were married, about 37%

were never married, 0.54% were divorced and 3.35% were widows or widowers. A similar high rate of use of health services by married people was found by other researchers in Saudi Arabia. For example, Al-Ribdi (1990) reported that 70.5% of his sample was married and 29.5% unmarried; Albaz (1992) found 76% married; Bakhashwain (1995) found 86% married.

The high ratio of married people in these samples is consistent with the nature of the population in Saudi Arabia, which reflects Arabic culture and religious teachings. The family is one of the most important social institutions and early marriage is encouraged, particularly in rural areas, although in urban communities marriage is increasingly being deferred to allow the parties to compete their education and attain financial stability.

Thus, two issues could explain why married people in the study area utilize health services at a high rate: 1) married people represent the majority of the population of marriageable age; 2) they may have greater need for healthcare services, for themselves or for their children, than people in other categories, for example, for immunisations, antenatal and obstetric services.

Table 5.3

Respondents' Marital Status

	Respondents	Percent
Married	370	74.5
Never married	119	23.8
Widow(er)	6	1.2
Divorced	5	1.0
Total	500	100.0

Source: researcher's fieldwork

5.2.3 Education level

First, a brief explanation of the Saudi education system will be introduced, followed by analysis of the education level of the present study sample. Formal education in Saudi Arabia starts at age six, when pupils are enrolled at primary school. The duration of primary education is six years. This is followed by three years of middle school and three years of secondary school. Those who complete secondary school may go on to college or university. Since school attendance is not compulsory and, moreover, schooling was not always available when today's older generation were young, some people have had no formal education, although they may be able to read and write. In the categorization used in this study, undergraduate means the person has a university degree (first degree), while Diploma level means any certificate after secondary school but lower than university degree.

Education level has previously been found to be influential on utilization of health services in Saudi Arabia. This is demonstrated in the finding by the Central Department of Saudi Arabia concerning the uptake of anti-cholera vaccination which was found to vary directly with education (cited in Al-Ribdi, 1990). In the same regard, Elzahrany (1989 p. 32) argues that the "utilization rate of health services is usually influenced by the educational level of utilizers". Thus, it is necessary to examine the level of education in potential utilizers.

The descriptive analysis of the present study sample in Table 5.4 reveals that less than 2% of the respondents had no formal education⁷. About 5% had completed primary education, while more than 11% had received middle school education, and 24.6% had completed secondary level education. More than 22% had a diploma, more than

⁷ I.e. No formal education means that the person did not go to school, but learned at home or with a group, to read and write. This type of education no longer exists in Saudi Arabia.

32% were undergraduates and 3% were postgraduates. It appears that most of the respondents were people with undergraduate education. There was not significant difference between number of visits of health services and level of education.

Various arguments have been put forward regarding utilization of health services and its relationship to education level. Some researchers, for example Al-Sunai, 1983) and Al-Ribdi (1990), indicate that low educated people use health services at a high rate. In contrast, other researchers, for example Okafor (1983) and Phillips (1986), argue that highly educated people use health services at a much higher rate compared to low educated people. Both results could be true, because the low educated category may be exposed to disease more than others, because they do not know about precautionary procedures, or they may use health services even for simple problems. Another possibility is that the figures in Al-Sunai's (1983) and Al-Ribdi's (1990) studies were distorted by the high rate of illiteracy in Saudi Arabia. About 22% of the total population in 2000 were illiterate (UNESCO, 2004). A possible explanation for those who say more educated people use health services more than other categories may be that they are more interested in keeping themselves healthy, and more aware of the need for preventive health care, and respond more promptly to symptoms. Also schools may teach them about health issues.

However it cannot be assumed that high or low education level always influences the utilization of health services. In other words, there may not always be a significant difference between high and low educated people in terms of utilization of health services.

Table 5.4

	Respondents	Percent
Postgraduate	15	3.0
Undergraduate	163	32.6
Diploma	111	22.2
Secondary	123	24.6
Middle school	56	11.2
Primary	23	4.6
No formal education	9	1.8
Total	500	100.0

Respondents' Education lev el

Source: researcher's fieldwork

5.2.4 Occupation

The types of occupation in Saudi Arabia have rapidly changed since 1970s, in parallel with the improvement in economic status in the country. New jobs have become available since the production of oil in commercial quantities. Before that the majority of the population worked in agriculture and animal husbandry. Although now there is more occupational variety, the employment of Saudi citizens in the private sector is still lower compared with the government sectors, which may due to the low wages and longer working hours in the private sector.

Different occupation groups may utilize health services at different rates. Table 5.5 summarizes the distribution of respondents. It appears that the majority (55%) were government employed, while more than 14% worked in the private sector, only 2% were retired, 5% were self-employed, nearly 10% were students and nearly 14% were unemployed. There are some broad similarities in these patterns to those obtained in other studies. For example, the high proportion of government employees is consistent with other studies of utilization of health services in Saudi Arabia, whether in state health centres, e.g. Al-Ribdi (1990) in Alqaseem, or private health centres, e.g. Al-Kamshi (2000) in Riyadh. This may be because these cities are dominated by

government job opportunities, and there are fewer private jobs, so the majority of people work in the government sectors rather than in private sectors, and Medina is no exception. In contrast, in Jeddah as an industrial city, Al-Ghamdi (1981) found that the majority of those utilizing health centres were labourers. The smallest category in the sample was retired people, who constituted only 2%, although they were expected to make a greater proportion of the users, since they could need health services rather more than others. Perhaps other cultural factors might affect their use of services.

	T	·
	Respondents	Percent
Unemployed	69	13.8
Student	49	9.8
Self-employed	25	5.0
Retired	10	2.0
Private employed	72	14.4
Government employed	275	55.0
Total	500	100.0

Table 5.5

Respondents' Occupation

Source: researcher's fieldwork

5.2.5. Income

Many studies suggest that income plays a crucial role in the utilization of health services. Those with high incomes are expected to be more likely to use private health care, especially in countries when health services are mostly provided by the private sector, such as the US. Low income people probably use health services less than those of high income, because they might not be able to afford the cost or take out health insurance. In such systems affordability, up to a point, plays a major role in utilization. Low income could force consumers to use the services despite some difficulty. For instance, Monteire (1973), cited in Joseph and Phillips (1984), argued that low income families sometimes tend to use medical health care when it is free of charge, even if the services are less accessible. This is because there is no alternative

for low income people, except to consult the free or the cheapest health services, whatever the quality or accessibility of such services.

Low income might also lead to higher levels of morbidity. Health status, whether selfreported and measured, has been found to be approximately linearly related to the logarithm of income, in all except very high and low income categories. In this regard Ecob and Smith (1999 p. 693) observe that "increasing income is associated with better health, but that there are diminishing returns at higher levels of income". Similarly, Wilkinson (1992 and 1996) argued that disparities in income within a country or community are an important factor in the health of the society in question, in addition to absolute living standards. He also observed a curvilinear relationship between income and morbidity. On this basis he suggested that health is more responsive to changes in income among the lowest income group. Improving the income of this group would have significant health benefits, whilst redistribution away from the better off would not cause them to suffer by an equivalent amount.

High cost of medical care and low-income of people, may deter them from using health services. It was found in the US that those who could not afford the cost of health services used the emergency room in hospitals for primary health care (Bohland and French, 1982 in Joseph and Phillips, 1984). However, this does not apply to countries that provide free health services, such as Britain, China and Saudi Arabia. Nevertheless financial cost remains an obstacle in terms of transport to health services. In addition, income may determine the choice of type of health institutions, whether private or state. Furthermore, income plays an important role in prophylaxis and health education. As evidence of this, Al-Abdullatief (2002) for example, found a significant difference between levels of income groups; the higher the level of income, the more likely people were to buy simple health books, and provide a healthy diet and hygiene for their children.

In the present study sample, Table 5.6 reveals that 24.4% of the respondents had monthly household income of less than SR. 3000, (37.6%) from 3000 to 5999, (24.6%) had from 6000 to 8999, while only 8% had from 9000 to 11999 and a few (5.2%) had more than SR.12000. The following sections provide more details of the reasons of type of health services chosen and income.

However, income is a matter on which people are often reluctant to give exact data, because they are afraid to arouse the envy of the people who know them, or they do not want to disclose their economic status. Therefore it would be better to generalise the respondents' result into three categorises. As standards of living have been increased in Saudi Arabia, less than SR. 6000 (about £900) for the household would be low income, between 6000 and 9000 medium income, while 9000 and more is classified as high income. So we can conclude that the majority (62.2 %) of this study sample were in the low income category. Therefore, it could be argued that this low income would be likely to prevent people taking treatment in the private health sector. Commonly, those with low income use public healthcare, as many studies have shown, for example Elzahrany (1989), Al-Ribdi (1990), Al-Osimy (1991) Albaz (1992), Bakhashwain (1995), and Al-Magrabi (2001). On the other hand, high income people are more likely to use the private health sector, as they may be unprepared to wait for a long time at public healthcare and their income would give them more choice. Al-Kamshi (2000) in his study, 'Private dispensaries in Riyadh city', found the majority of his study sample had a monthly income of more than 6000 SR.

Table: 5.6

	Frequency	Percent
Less than 3000	123	24.6
From 3000-5999	188	37.6
From 6000-8999	123	24.6
From 9000-11999	40	8.0
12000 or more	26	5.2
Total	500	100.0

Household monthly income in Saudi Riyals

Source: researcher's fieldwork

5.3 The impact of demographic and socio-economic factors on type and frequency of healthcare services used

Demographic and socio-economic factors could be the main influence on the pattern of choice and frequency of utilizing certain types of health services. In some cases, age, gender, big family size and low income might lead people to use state health services. Low income could also make patients search for the cheapest private health services. Many researchers emphasise this point. Al-Dalgan (1993) for example argued that socio-economic variables such as income and family size are the most important influences on the utilization of health centres. Others, like Joseph and Phillips (1984), observe that people of low social class tend to receive less health care and spend less time with physicians.

5.3.1 Frequency of health services used and demographic and socio-economic variables

The Chi-square test showed no significant difference between the sexes in the frequency of using health services in Medina in the previous 12 months. The Chi-square significant value is greater than (.05) which means the distribution of number of visits is not significantly different to the distribution of sex (see Table 5.7).

Table 5.7 Number of Visits and Sex

% of Total				
		Se	ex	
		Male	Female	Total
Number of	Never	10.8%	5.0%	15.8%
visits in the last 12 months	1 or 2	23.6%	8.8%	32.4%
	3 or 4	15.8%	7.2%	23.0%
	5 or more	22.0%	6.8%	28.8%
Total		72.2%	27.8%	100.0%

Corosstabulation

Source: researcher's fieldwork

Chi-square value (2.578) DF. (3) Sig. (0.46)

Occupation and number of visits also did not show any significant difference, as the Chi-square probability value was 0.09. Thus, we conclude that the proportion of number of visits is not significantly different to the proportion of each occupation within the sample (see Table 5.8).

			Occupation					
		Government employed	Private employed	Retired	Self- employed	Student	Unemployed	Total
Number	Never	6.8%	3.4%	.2%	.6%	2.2%	2.6%	15.8%
of visits	1 or 2	17.6%	4.8%	.4%	1.4%	4.2%	4.0%	32.4%
	3 or 4	14.8%	2.4%	1.0%	.8%	1.2%	2.8%	23.0%
	5 or more	15.8%	3.8%	.4%	2.2%	2.2%	4.4%	28.8%
Total		55.0%	14.4%	2.0%	5.0%	9.8%	13.8%	100%
Total	5 or more	15.8% 55.0%	3.8% 14.4% DF. (1	.4% 2.0%	2.2% 5.0%	2.2% 9.8% Sig. (.0	4.4% 13.8% 9)	

Table 5.8 Number of visits in the previous 12 months and occupation Crosstabulation

Ownership of more than one car does not necessarily mean that health services will be used much more, as it appeared that those who had three cars or more used health services less than those who had one car (see Table 5.9).

Table 5.9 Number of visits and owning a car

% of Total						
		Do you or any member of your household have a car?				
	Three cars					
		INO	lotal			
Number of	Never	1.4%	9.0%	2.6%	2.8%	15.8%
visits in the	1 or 2	1.2%	21.6%	6.2%	3.4%	32.4%
last 12 months	3 or 4	1.6%	15.2%	4.4%	1.8%	23.0%
	5 or more	1.6%	20.6%	5.2%	1.4%	28.8%
Total		5.8%	66.4%	18.4%	9.4%	100.0%

Crosstabulation

Source: researcher's fieldwork.

Regarding income, Table 5.10 shows that there is no statistically significant association between income and number of visit to health services in Medina. This is probably due to the fact that state health services are provided free of charge to all people, whatever their social class.

This finding is corroborated by the interviews with PHCCs managers. Eight managers out of ten agreed that no citizen social group suffers more than others in receiving health services and that those services are provided to all Saudi citizens indiscriminately. Similarly, all interviewed state hospital managers indicated that health services in Medina are offered to all citizens, irrespective of their social class.

Table 5.10: Number of visits and income

Crosstabulation

% of Total							
			Monthly	ncome in Saudi	Riyals.		
		Less than 3000	From300 0-5999	From 6000-8999	From900 0-11999	12000 or more	Total
Number of	Never	4.2%	5.2%	4.0%	1.4%	1.0%	15.8%
visits in the	1 or 2	7.8%	13.8%	6.0%	3.0%	1.8%	32.4%
last 12 months	3 or 4	5.4%	9.2%	6.4%	1.2%	.8%	23.0%
	5 or more	7.2%	9.4%	8.2%	2.4%	1.6%	28.8%
Total		24.6%	37.6%	24.6%	8.0%	5.2%	100.0%

Chi-sq. value (9.134)

DF. (12)

Sig. (0.69)

In terms of age groups and number of visits, Table 5.11 shows a statistically significant difference between different age groups in the number of visits (p<0.05). Possibly this difference existed because of variation in health need between age groups. For example the elderly, children and females of reproductive age need healthcare much more than others. Also, the population pyramid could affect the research population, particularly given the high proportion of young people in the study area.

				Age g	roups rec	oded		
			From 16	21 to	31 to	41 to	more	
		-	to 20	30	40	50	than 50	Total
Number of	Never	Count	12	35	25	5	2	79
visits in the		% of Total	2.4%	7.0%	5.0%	1.0%	.4%	15.8%
last 12 months	1 or 2	Count	9	78	55	16	4	162
		% of Total	1.8%	16%	11.0%	3.2%	.8%	32.4%
	3 or 4	Count	4	51	40	17	3	115
		% of Total	.8%	10%	8.0%	3.4%	.6%	23.0%
	5 or more	Count	8	52	47	31	6	144
		% of Total	1.6%	10%	9.4%	6.2%	1.2%	28.8%
Total		Count	33	216	167	69	15	500
		% of Total	6.6%	43%	33.4%	13.8%	3.0%	100%
Chi-sq. value (26	5.101)]	DF. (12)			Sig. (0.	.01)	

Table 5.11: Number of visits in the last 12 month; age groups

Crosstabulation

Chi-sq. value (26.101)

The result in Table 5.12 shows that there is a significant association between number of visits and marital status (p < 0.05). It seems that married people used health services much more than unmarried people, which is not surprising, as they would use them for pregnancy and childcare.

Table 5.12: Number of visits in the last 12 months; Marital Status

			Marital	Status	
			Married	Unmarried	Total
Number of	Never	Count	45	34	79
Visits in the	<u> </u>	% of Total	9.0%	6.8%	15.8%
ast 12 months	1 or 2	Count	110	52	162
		% of ⊺otal	22.0%	10.4%	32.4%
	3 or 4	Count	94	21	115
	_	% of Total	18.8%	4.2%	23.0%
	5 or more	Count	121	23	144
· · · · · · · · · · · · · · · · · · ·		% of Total	24.2%	4.6%	28.8%
Total		Count	370	130	500
		% of Total	74.0%	26.0%	100.0%
Chi-sq. value (26.157)		DF. (3)		Sig. (0.000	

Crosstabulation

Table 5.13 shows that there is no significant association between number of visits and level of education. This suggests that the frequency of visiting healthcare facilities in Medina does not depend on the level of education.

Type of health service utilization, whether state or private, is also affected by demographic and socio-economic characteristic, which are examined in the next section.

 Table 5.13: Relationship between education level and using health services in Medina

 Number of visits in the last 12 months * Education level recoded Crosstabulation

			Education level recoded					
			Primary	Middle school	Secondary	Diploma	University	Total
Number of	Never	Expected Count	5.1	8.8	19.4	17.5	28.1	79.0
visits in the		% of Total	.6%	1.2%	4.0%	4.0%	6.0%	15.8%
last 12 months	1 or 2	Expected Count	10.4	18.1	39.9	36.0	57.7	162.0
		% of Total	2.6%	2.6%	8.2%	8.8%	10.2%	32.4%
	3 or 4	Expected Count	7.4	12.9	28.3	25.5	40.9	115.0
		% of Total	1.4%	3.8%	4.4%	4.4%	9.0%	23.0%
	5 or more	Expected Count	9.2	16.1	35.4	32.0	51.3	144.0
		% of Total	1.8%	3.6%	8.0%	5.0%	10.4%	28.8%
Total	- <u> </u>	Expected Count	32.0	56.0	123.0	111.0	178.0	500.0
		% of Total	6.4%	11.2%	24.6%	22.2%	35.6%	100%

Chi-sq. value (14.525)

DF. (12)

5.3.2 Type of health services utilized and demographic and socio-economic variables.

5.3.2.1 State services

The present research looked at the relationships between six demographic and socioeconomic variables as independent variables. These were: sex, age, marital status, education level, occupation and income. Their effect on type health services used was examined by using T-test and Analysis of Variance (ANOVA). The dependant variables are utilization of state and private health services because of: no charge or financial affordability, closeness to home, speed, availability of good doctors and availability of medical equipment.

ANOVA and T-Test show that there are statistically significant differences in some variables and not in others. Table 5.14 shows that there are significant differences between the sexes in four dependant variables, which are: using state health service because it is close to home, quick, has good doctors and medical equipment, with values of .04, .001, 000 and .004 respectively. There was no significant difference between the sexes in using the state health service because it is free of charge⁸.

Examining the relationships between age groups and state health services users variables, the ANOVA test gave a significant result for 'close to home'. Post hoc tests⁹ revealed that the main difference was between the age groups 16 to 20 and the age groups 21 to 30, 31 to 40, 41 to 50 and 51 to 60. This means the proportion of the age group 16 to 20 is significantly different from the proportion of the other age groups in terms of using state health services because they are close to home. Perhaps those young people faced problems with transport more than the other groups, as they

⁸ To be significant, the probability value must be 0.05 or smaller (p<0.05).

⁹ Post hoc tests are used to tell exactly where the differences among the groups occur, which only used after obtaining significant differences (see chapter three).

were mostly of study age. The remaining dependent variables did not show any significance difference with age groups, perhaps because they did not apply to state health services (see Tables 5.15a and 5.15b).

Table 5.14

Independent Samples Test, Using State Health Services & Sex

		Levene's Test for Equality of	t-test for E Me	Equality of ans
		Sig.	df	Sig. (2-tailed)
Use state health services because it is free of	Equal variances assumed	.680	408	.492
charge	Equal variances not assumed		185.932	.482
Use state health services because it is close to my	Equal variances assumed	.001	408	.054
home	Equal variances not assumed		206.222	.038
Use state health services because it is quick	Equal variances assumed	.389	408	.001
	Equal variances not assumed		167.409	.001
Use state health services because there are good	Equal variances assumed	.059	408	.000
doctor(s)	Equal variances not assumed		202.106	.000
Use state health services because of medical	Equal variances assumed	.133	408	.004
equipment availability	Equal variances not assumed		194.177	.003

Table 5.15a: Age groups and the reasons for using state health services

ANOVA

		df	Sig.
Use state health services	Between Groups	4	.995
because it is free of	Within Groups	405	
cnarge	Total	409	
Use state health services	Between Groups	4	.015
because it is close to my home	Within Groups	405	
	Total	409	
Use state health services	Between Groups	4	.073
because it is quick	Within Groups	405	
	Total	409	
Use state health services	Between Groups	4	.415
because there are good	Within Groups	405	
doctor(s)	Total	409	
Use state health services	Between Groups	4	.172
because of availability of	Within Groups	405	
medical equipment	Total	409	

Table 5.15b, Post hoc test

Multiple Comparisons

Dependent Variable: Use state health services because it is close to my home

LSD		
(I) age recoded	(J) age recoded	Sig.
From 16 to 20	21 to 30	.002
	31 to 40	.001
	41 to 50	.003
	more than 50	.019

In terms of marital status, a significant difference existed in use of service because it is quick (p<0.05) as shown in Table 5.16a. Post hoc tests revealed that significant differences existed between married and widow(er), between married and divorced, between never married and widow(er), and between never married and divorced groups (see Table 5.16b). Perhaps this is because few respondents were in the two categories, widow(er) and divorced, compared to the married and never married categories. There was no significant association between the remaining dependant variables and marital status.

			i
		df	Sig.
Use state health services	Between Groups	3	.320
because it is free of	Within Groups	406	
charge	Total	409	
Use state health services	Between Groups	3	.082
because it is close to my home	Within Groups	406	
	Total	409	
Use state health services	Between Groups	3	.014
because it is quick	Within Groups	406	
	Total	409	
Use state health services	Between Groups	3	.038
because there are good	Within Groups	406	
doctor(s)	Total	409	
Use state health services	Between Groups	3	.429
because of medical	Within Groups	406	
equipment availability	Total	409	

Table 5.16a: Reasons for using state health services and marital status

ANOVA

Table 5.16b: Post hoc test

Multiple Comparisons

Dependent Variable: Use state health services because its quick

LSD		
(I) Marital Status	(J) Marital Status	Sig.
married	never married	.817
	widow(er)	.011
	divorced	.044
never married	married	.817
	widow(er)	.010
	divorced	.042

Table 5.16c: Post hoc test

Multiple Comparisons

Dependent Variable: Use state health services because there are good doctor(s)

(I) Marital Status	(J) Marital Status	Sig.
never married	married	.100
	widow(er)	.055
	divorced	.041

Regarding education level, Table 5.17a shows that four dependent variables gave a significant association (p<0.05). These were 'close to home', 'quick', 'good doctors' and 'medical equipment'. Post hoc tests, as shown in Table 5.17b, indicated that the significant differences in the 'close to home' variable existed between secondary and university groups. No explanation for this can be given here; further research could be conducted to explore such difference. Table 5.17c revealed that significant differences in the 'quick' factor existed between the diploma level group and middle level, between diploma and secondary, between university and primary, between university and middle level and between university and secondary. This may be because highly educated people are more interested in and aware of time than those with lower low education levels, or more critical of the state health services.

Significant differences in the 'good doctor' variable existed between meddle level and diploma, and between middle level and university. Again, significant differences existed between high and low education groups. One group might think there were not always good doctor(s) in state health services, or use the services irrespective of doctors' quality (Table 5.17d).

With regard to medical equipment availability, significant differences existed between the middle level group and the diploma, and university level groups (see Table 5.17e). A possible explanation of that could be that low educated people have less experience to criticise such matters, compared to the more highly educated, so their utilization of state health services may not be influenced by the availability of medical equipment; thus the proportions between groups were significantly different. There was no significant difference between respondents of different levels of education in the 'free of charge' variable.

Table 5.17a: Reasons for using state health services and Education level

Α	Ν	0	ν	Ά
-		-	•	-

		df	Sig.
Use state health services	Between Groups	4	.728
because it is free of	Within Groups	405	
cnarge	Total	409	
Use state health services	Between Groups	4	.039
because it is close to my home	Within Groups	405	
	Total	409	
Use state health services	Between Groups	4	.000
because it is quick	Within Groups	405	
	Total	409	
Use state health services	Between Groups	4	.033
because there are good	Within Groups	405	
doctor	Total	409	
Use state health services	Between Groups	4	.029
because of availability of	Within Groups	405	
medical equipment	Total	409	

Table 5.17b: Post hoc test

Multiple Comparisons

Dependent Variable: Use state health services because it is close to my home

LSD		
(I) Education recoded	(J) Education recoded	Sig.
Secondary	University	.002

Table 5.17c: Post hoc test

Multiple Comparisons

Dependent Variable: Use state health services because it is quick

LSD

(I) Education recoded	(1) Education recorded	Sig
Dista	(5) Education recoded	Sig.
Dipioma	Middle school	.007
	Secondary	.015
University	Primary	.010
	Middle school	.000
	Secondary	.000

Table 5.17d: Post hoc test

Multiple Comparisons

Dependent Variable: Use state health services because there are good doctor

LSD

(I) Education recoded	(J) Education recoded	Sig.
Middle school	Diploma	.009
	University	.015

Table 5.17e: Post hoc test

Multiple Comparisons

Dependent Variable: Use state health services because of availability of medical equipment

LSD

(I) Education recoded	(J) Education recoded	Sig.
Middle school	Diploma	.013
	University	.005

With regard to occupations, Table 5.18a shows that a significant difference existed in the 'quick' variable (p<0.05). Post hoc tests, Table 5.18b, show that significant differences were found between two occupation groups, namely between the government employed group and the students group, and between the government employed group. It appeared that most government employees did not agree that they went to the state health service because of its speed, perhaps

because it is not quick in reality. The student group, however, had the opposite view; most of them agreed that they used the services because of speed. However, the unemployed were not very interested in the 'quick' factor. Thus the proportion of these groups showed significant difference.

Income groups, as in displayed in Tables 5.19a and 5.19b, also gave statistically significant differences, between the less than 3000 income group and the 3000 to 5999 group, and also between the less than 3000 group and the 9000 to 11999 group, in terms of the 'quick' variable scores. However, the result for income group may be unreliable, because income is a sensitive issue, and respondents often do not give accurate answers, as mentioned earlier. As a result there is no significant difference between the less than SR.3000 income group and those groups with in come of 6000 to 8999, and 12000 or more.

	·····	df	Sig.
Use state health services	Between Groups	5	.329
because it is free of	Within Groups	404	
cnarge	Total	409	
Use state health services	Between Groups	5	.096
because it is close to my home	Within Groups	404	
	Total	409	
Use state health services because it is quick	Between Groups	5	.026
	Within Groups	404	
	Total	409	
Use state health services because there are good doctor(s)	Between Groups	5	.155
	Within Groups	404	
	Total	409	
Use state health services because of medical equipment availability	Between Groups	5	.258
	Within Groups	404	
	Total	409	

Table 5.18a: Reasons for using state health services and occupation

ANOVA

Table 5.18b: Post hoc test

Multiple Comparisons

Dependent Variable: Use state health services because its quick

LSD

(I) Occupation	(J) Occupation	Sig.
government employed	private employed	.268
	retired	.162
	self-employed	.222
	student	.023
	unemployed	.004

Table 5.19a: Reasons fo	r using state health	services and	monthly Income
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			.
		df	Sig.
Use state health services	Between Groups	4	.388
because it is free of	Within Groups	405	
charge	Total	409	
Use state health services	Between Groups	4	.268
because it is close to my home	Within Groups	405	
	Total	409	
Use state health services because it is quick	Between Groups	4	.039
	Within Groups	405	
	Total	409	
Use state health services because there are good doctor(s)	Between Groups	4	.744
	Within Groups	405	
	Total	409	
Use state health services	Between Groups	4	.831
because of medical equipment availability	Within Groups	405	
	Total	409	

ANOVA

Table 5.19b: Post hoc test

Multiple Comparisons

LSD		
(I) Household monthly	(J) Household monthly	
income in Saudi Riyals.	income in Saudi Riyals.	Sig.
less than 3000	from3000-5999	.004
	from 6000-8999	.136
	from9000-11999	.019
	12000 or more	.402

Dependent Variable: Use state health services because its quick LSD

5.3.2.2 Private services

Different results were found for private health services. For the same questions, the statistical results are shown in the following tables. T-tests in Table 5.20 show that there was no significant difference (p>0.05) between the sexes on four dependent variables: 'financial affordability' 'services close to home' 'quick' and 'the cost is paid for the patient'. However, there were significant differences (p<0.05) for 'good doctors', which means the proportion of males and females using private health services, because they have good doctor(s), was significantly different. Further research could usefully explore which group (males or females) is more influenced, by this factor.

In terms of age groups, there was a significant difference (p<0.05), for only one dependent variable, 'the cost is paid' (Table 5.21a). Post hoc tests (Table, 5.21b) showed that the difference lay between the 16 to 20 age group and the 21 to 30, 31 to 40, and 41 to 50 groups. Perhaps this age group, i.e.16 to 20, is most often dependent on their parents, which is why they use private health services. There was no significant association between the remaining dependent variables and age groups (Table 5.21a). Therefore it could be said that the considerations of financial

affordability, closeness to home and speed are not significantly different for different age groups. This may be related to the high cost of private treatment, which means there must be a strong attractive factor(s) in the private health sector, such as good doctors to encourage its use. There were fewer significant differences for private services than for state services, suggesting a more homogeneous perspective among the age groups.

Education level in Table 5.22a showed a significant relationship with the 'good doctor' variable. Significant differences existed between primary and university, and also between secondary level against the other four education groups, namely, primary, middle level, diploma and university (Table 5.22b). These significant differences could be related to the different view of respondents, and the measure that was used for evaluation. Most often, patients' judgement of whether doctors are good or not is subjective and might be influenced by advertisement/ propaganda or other people's view. Some researchers, for example Albaz (1992), argue that patients are subjective in evaluating health services, and are influenced by psychosocial factors that are in general unrelated to the quality of services. There was no significant difference (p>0.05), for the remaining dependent variables, between groups with different levels of education (see Table 5.22a).

Table 5.23a shows that the occupation variable gave a significant result for two dependent variables, 'good doctors' and the 'cost is paid'. Post-hoc tests in Table 5.23b showed that the difference between occupation groups, for 'good doctors' lay between government employed and self employed and between government employed and self employed and between government employed and student; also between private employed and student, and between student and unemployed.

In terms of occupation groups and the 'cost is paid' variable, the differences existed between government employed and private employed; government employed and students; private employed and self-employed; private employed and unemployed; self employed and students; and students and unemployed (Table 5.23c). It seems that most occupation groups differ from each other in the importance of having their medical costs paid. This is probably because some private and government companies provide their employees with health insurance, while most students depend on their parents until they graduate from university. These considerations explain why the results showed significant differences for this variable. There was no significant difference for the remaining dependent variables (p>0.05); 'financial affordability' 'close to home' and 'quick', in relation to occupation groups (see Table 6.23a).

Income groups revealed significant differences (p<0.05) for two dependent variables: 'financial affordability' and 'quick' (Table 5.24a). Table 5.24b displays post hoc tests which showed that the difference for affordability was between those with monthly income of less than 3000 against all those with more than SR3000; also between the 3000 to 5999 group and those with 6000 or more. This suggests that people with monthly income lower than SR6000 have difficulty affording the cost of private health services in Medina.

For the 'quick' variable, the difference was between the income groups, with less than SR3000 against the 6000 to 8999 group, and also between the groups from 3000 to 5999 against the group with from SR6000 to SR8999 (see Table 5.24c). It seems that service speed played a crucial role in use of private health services between low and high income groups. The main reason for this difference could be to that low income people normally cannot afford and so do not use private health services, and when

some of them are forced to use such services, the fact that it is 'quick' compared to the state health services, could be the reason, especially in relation to dental services. However we should view this result with caution, because there was no significant difference between the 'lower than SR.6000' and 'more that SR.9000' groups.

		Levene's Test for Equality of Variances	t-test for Equality of Means	
		Sig.	df	Sig. (2-tailed)
Use private heath services because I can	Equal variances assumed	.552	361	.070
afford it	Equal varianœs not assumed		166.344	.067
Use private heath services becuase it is close to my home	Equal varianœs assumed	.437	361	.654
	Equal varianœs not assumed		1 70.4 15	.645
Use private heath services because it is	Equal varianœs assumed	.268	361	.361
quick	Equal varianœs not assumed		152.985	.378
Use private heath services because there are good doctor(s)	Equal variances assumed	.010	360	.020
	Equal variances not assumed		146.972	.029
Use private heath services because I don't	Equal variances assumed	.680	361	.474
pay, the costs are paid for me.	Equal varianœs not assumed		164.491	.472

Table 5.20: Reasons for using private health services and Sex

Independent Samples Test
Table 5.21a: Reasons for using private health services and Age groups

ANOVA

		df	Sig.
Use private health services	Between Groups	4	.134
because I can afford it	Within Groups	358	
	Total	362	
Use private health services	Between Groups	4	.524
becuase it is close to my home	Within Groups	358	
	Total	362	
Use private health services	Between Groups	4	.928
because it is quick	Within Groups	358	
	Total	362	
Use private health services	Between Groups	4	.381
because there are good	Within Groups	357	
doctor(s)	Total	361	
Use private health services	Between Groups	4	.001
because I don't pay, the	Within Groups	358	
costs are paid for me.	Total	362	

Table 5.21b: Post hoc test

Multiple Comparisons

Dependent Variable: Use private health services because I don't pay, the costs are paid for me.

LSD	
-----	--

(I) age recoded	(J) age recoded	Sig.
from 16 to 20	21 to 30	.001
	31 to 40	.000
	41 to 50	.000
	more than 50	.357

Table 5.22a: Reasons for using private health services and Education Level

ANOVA

		df	Sig.
Use private health services	Between Groups	6	.186
because I can afford it	Within Groups	356	
	Total	362	
Use private health services	Between Groups	6	.132
becuase it is close to my home	Within Groups	356	
	Total	362	
Use private health services	Between Groups	6	.173
because it is quick	Within Groups	356	
	Total	362	
Use private health services	Between Groups	6	.004
because there are good	Within Groups	355	
doctor(s)	Total	361	
Use private health services	Between Groups	6	.458
because I don't pay, the	Within Groups	356	
costs are paid for me.	Total	362	

Table 5.22b: Post hoc test

Multiple Comparisons

Dependent Variable: Use private health services because there are good doctor(s)

200		
(I) Education level	(J) Education level	Sig.
primary	no formal education	.186
	middle school	.227
	secondary	.001
	diploma	.034
	undergraduate	.017
	postgraduate	.139
secondary	no formal education	.293
	primary	.001
	middle school	.001
	diploma	.012
	undergraduate	.025
	postgraduate	.156

ISD

Table 5.23a: Reasons for using private health services and Occupation

ANOVA

		df	Sig.
Use private health services	Between Groups	5	.168
because I can afford it	Within Groups	357	
	Total	362	
Use private health services	Between Groups	5	.108
becuase it is close to my home	Within Groups	357	
	Total	362	
Use private health services	Between Groups	5	.594
because it is quick	Within Groups	357	
	Total	362	
Use private health services	Between Groups	5	.001
because there are good	Within Groups	356	
doctor(s)	Total	361	
Use private health services	Between Groups	5	.000
because I don't pay, the	Within Groups	357	
costs are paid for me	Total	362	

Table 5.23b: Post hoc test

Multiple Comparisons

Dependent Variable: Use private health services because there are good doctor(s)

130		
(I) Occupation	(J) Occupation	Sig.
government employed	private employed	.082
-	retired	.187
	self-employed	.046
	student	.000
	unemployed	.536
student	government employed	.000
	private employed	.033
	retired	.567
	self-employed	.303
	unemployed	.005

I SD

Table 5.23c: Post hoc test

Multiple Comparisons

Dependent Variable: Use private health services because I don't pay, the costs are paid for me.

LOD		
(I) Occupation	(J) Occupation	Sig.
government employed	private employed	.000
	student	.001
private employed	government employed	.000
	self-employed	.017
	unemployed	.010
self-employed	private employed	.017
	student	.031
student	government employed	.001
	self-employed	.031
	unemployed	.028

Table 5.24a: Reasons for using private health services and Income

ANOVA

		df	Sig.
Use private health services	Between Groups	4	.000
because I can afford it	Within Groups	358	
	Total	362	
Use private health services	Between Groups	4	.784
becuase it is close to my home	Within Groups	358	
	Total	362	
Use private health services	Between Groups	4	.033
because it is quick	Within Groups	358	
	Total	362	
Use private health services	Between Groups	4	.416
because there are good	Within Groups	357	
doctor(s)	Total	361	
Use private health services	Between Groups	4	.394
because I don't pay, the	Within Groups	358	
costs are paid for me	Total	362	

Table 5.24b: Post hoc test

Multiple Comparisons

Dependent Variable: Use private health services because I can afford it

LSD	_	
(l) The household monthly income in Saudi Riyals.	(J) The household monthly income in Saudi Riyals.	Sig.
less than 3000	from3000-5999	.042
	from 6000-8999	.000
	from9000-11999	.000
	12000 or more	.000
from3000-5999	less than 3000	.042
	from 6000-8999	.009
	from9000-11999	.024
	12000 or more	.001

Table 5.24c: Post hoc test

Multiple Comparisons

Dependent Variable: Use private health services because its quick LSD

	(J) The household	
(I) The household monthly	monthly income in Saudi	
income in Saudi Riyals.	Riyals.	Sig.
from 6000-8999	less than 3000	.009
	from3000-5999	.025
	from9000-11999	.942
	12000 or more	.950

5.4 Conclusion

The chapter has discussed demographic and socio-economic factors and their influence on the choice of type of health service in the study area. It is argued that the attitudes of health services' users are affected by two factors. These are (1) "geographical" or spatial factors such as physical obstacles and distance to reach health facilities (which are discussed in the next chapters), and (2) "non-geographical" namely demographic and socio-economic factors.

It appears that health services in the study area are influenced by non-geographical factors. The majority of respondents (about 83%) who used health services were

between 15 and 41 years old. However, this was not surprising, as it reflects the age pyramid of Medina population. Also, there was a significant difference between age groups in the number of visits, due to the difference in need for health services among age groups. The survey showed that females less frequently visited health services. However, this may not be an accurate reflection of use, as there are other social factors that could influence the ratio of females' participation in the questionnaire survey. Most of the respondents were married and consumed health care more frequently, which reflects the need of this group for healthcare, more than other groups. A weak positive relationship was found between higher educated people and using health services. However, it cannot be generalized that higher educated people visit health services more than less educated people and vice versa. This is because the level of education in the population as a whole was in general reflected in the sample. The sample showed that the highest rate of health service visitors was by government employees, which reflects the actual nature of the Medina situation, as there are few opportunities to find jobs in the private sector. Respondents who did not have private transport made less frequent visits to health services, which raises the issue of the importance of transport to get to the services.

Several studies observe that high income is associated with good health condition and the opposite is true. Low income people, who consume health services, use either free of charge (state/public) health services or the cheapest private health services. The present study found that most (62%), of the respondents were categorised as low income, which means they would consume public health services more than private.

Demographic and socio-economic factors influence the choice of health services, whether private or state. Variables that were chosen to identify the preference of

health services users were examined in relation to demographic and socio-economic factors. These variables were: (1) use state health services because it is free of charge; (2) because it is close to home; (3) because it is quick; (4) because there are good doctors; (5) because of availability of medical equipment. For the private sector: (1) use private services because of affordability; (2) because it is close to home; (3) because it is quick; (4) because there are good doctors; (5) because there are good doctors; (5) because of affordability; (2) because it is close to home; (3) because it is quick; (4) because there are good doctors; (5) because there are good doctors; (5) because the costs are paid for.

It appears that there was a significant association (p<0.05) between the demographic and socio-economic factors and some of the above dependent variables. This means that demographic and socio-economic factors strongly influence the choice between state and private health services.

Overall, "geographical" and "non-geographical" factors influence the choice of type of health services, whether state or private. Also, they play a major role in the frequency of visits to the health services. For example, the closer the services to where the consumers live, the more frequent the visits to such services, because of affordability. Furthermore, "geographical" and "non-geographical" factors affect each other. In terms of health service utilization, for example, distance of health services, mostly, can be an obstacle for low income people; however, it is unlikely to be so for those with high income.

Chapter Six

Inequity of Health Care Distribution

6.1 Introduction

In recent years, health services in Saudi Arabia have undergone quantitative expansion with an increase in the number of primary health care centres (PHCCs) and hospitals across all regions, and an increase in the total number of staff. They have also undergone a qualitative extension by upgrading services and training personnel. Nevertheless, some challenges still exist, which need to be taken into account by those who plan for health services. One issue is providing for equity of spatial distribution of health services, whether nationally or locally. Factors influencing equity include, for example, identifying new concentrations of population needing better services. Attention should be paid also to the range of new services intended to be provided. As an input to planning, it is helpful to identify the pattern of the existing services and the pattern of utilization in order to identify the areas of over-provision and under-provision.

Undoubtedly, the equity of health service distribution is one of the most important aims of decision-makers. Mirror (2005) argued that "Achieving equity in healthcare, in the form of equal use for equal need, is an objective of many healthcare systems". One way of achieving this equity of health services, to bring them within reach of all people, whatever their social-economic or education level, is via PHCCs or hospitals. the Ministry of Health (1991) indicates that the aim of primary health care is to rebalance spatial distribution to make it quicker for consumers/customers to reach health services, by establishing them as close to where the users live as possible; also, to make it easy and quick to reach higher medical services that patients could be referred to, for instance, hospitals. Despite the importance of the concept of spatial equity of access to health care, it is not easily defined. Much research has been conducted to examine the nature and magnitude of spatial inequities. but the findings are not always easy to interpret. Thus, this chapter considers to what extent the inequities in access constitute a significant policy problem, and how best to address them. To examine the equitable distribution of such services, it is important to identify the current distribution of health services in the study area, and the views and attitudes of users. Then we can attempt to work out how to make it more equitable, for instance by increasing the number of health institutions, or by improvement of the transportation network. The purpose of this chapter, therefore, is to examine factors contributing to spatial inequity of provision, distribution and access to health care in Medina.

Since spatial inequality may be caused by both human and physical factors, the emphasis here is on the policy underlying the current distribution. The causes of inequality in health service provision are expected to be different from one place to another. In this regard many measures can be used to assess the equity of healthcare facilities. These include time/distance to get to the services, and the proportion of consumers who visit a health institution compared with all the people who live in the same district/region. In this chapter, time and distance to health services were used to examine the frequency of respondents who faced problems with such factors. Such problems with time/distance lead to inequity of geographical distribution. Questionnaires and interviews with consumers and officials were employed to gather such data.

This chapter reports the finding that time/distance to PHCCs was not a major problem, as most of the consumers used their own cars to get to such services.

However, there was some inequity in getting to state hospital services, as 42% spent more than 21 minutes travelling by car to get to the nearest hospital.

6.2 Inequality of Health Resource Distribution

To garner an accurate understanding of inequity requires that a distinction be made between "need" variables, which ought to affect use of health care, and "non-need" variables which ought not. Inequality in use occurs when different individuals differ in the amount of services they utilize, but this is not the same as inequity in provision of care. There is horizontal or veiled inequity, causing individuals with the same needs to differ in the amounts of care they consume. However, if differences in consumption of care are related to and commensurate with different levels of need, a situation of vertical (obvious) equity exists. Vertical inequity would be identified if the differences in consumption were disproportionate to differences in need. This, however, is an issue that has received little attention in the health context, because it would necessitate value judgements about which variables are "needs" variables, and also about the way in which services consumption ought to vary amongst individuals with different needs (Sutton, 2002).

Researchers who have investigated equity of access to health care, such as Whitehead (1992) and Goddard and Smith (2001), have found that inequalities of access to health care often result from inequalities of distribution or provision of health services. Indeed inequality of treatment (for equal need) or inequalities of health outcome are different issues, which involve different factors (Mooney et al., 1991; Culyer et al., 1992 and Mooney et al., 1992). Goddard and Smith (2001) noted that equity of access is a supply side issue; it is concerned with whether equal services are made available to patients in equal need. This is distinct from variations in treatment which result

from the interaction between supply and demand; in other words, variations relate to the preferences, perceptions and prejudices of both services users and health care providers. Such variations, however, do not in themselves explain variations in health outcome, which may be influenced by many factors in addition to the receipt of health care. Research and policy often focus on the objective of providing access to health services, the concern being how best to develop a system for provision of biomedical services to the population. Consideration of equity means that biomedical services should be delivered in a way that corresponds to agreed criteria of need.

Many studies that have investigated health inequity ignore spatial inequity of distribution, even though the pattern of health service distribution indirectly affects the personal health condition. Sheldon (1994) and Curtis and Taket (1996) assert the beneficial effect of provision of resources on population health status, and express the view that populations need such services, even though they admit that there is little evidence for the impact of medicine on health status, and that there has been a shortage of evaluation of the benefit of modern medical care. Another problem is that even where evaluation does take place, the information obtained is not necessarily used to guide decisions on use of resources. For this purpose, assessment of the outcome of health services is needed.

A key feature in the debates over local health services provision is the assumption that resource allocation, especially that of the state, should respond effectively to differences in people's health needs. This applies especially to the distribution of state resources for health and welfare.

Studies of the distribution of health services among geographically defined populations, using a limited range of indicators, do appear to reveal some inequity in

access to health services, with poor populations in both rural and urban areas having less access. Moreover in Powell's (1990) study of primary health services in London, for example, areas with poorer health status also seemed to have poorer quality of care on some indicators. Powell (1990) and Curtis and Taket (1996), however, draw attention to the complex and difficult methodological issues faced in such studies. These differing interpretations of what constitutes a socially just distribution include: differing definitions of need for health services; shortcomings of existing indicators of population need; questions of how health services provision for the population of an area can be measured; the ecological fallacy; and difficulty in developing qualitative indictors, such as measures of services effectiveness (Curtis and Taket, 1996).

Although the importance of equity in health care use is acknowledged, there has been little systematic study of this issue in the UK. Moreover, Goddard and Smith (2001), in their analysis of research over the period 1990–1997, concluded that evidence for inequities in utilization for some types of care was undermined by methodological deficiencies, particularly in those related to the definition and measurement of need.

Van Doorslaer et al., (2000) in the UK found that outpatients' visits and inpatients stay varied with income. Their finding supported Goddard and Smith's (2001) argument that the measurement of need should be taken into consideration. When the crudest measure of need was used, poorer patients were found to make more GP visits; when more sophisticated measures were used, no significant association with income was found (*ibid*). For hospital visits, however, a positive, though not statistically significant, association was found between income and outpatient visits, and a significant positive association with inpatient stays.

Recently, Morris et al., (2005) found higher income to be associated with fewer GP visits, though the correlation was not significant at the 5% level. For outpatient, day case and inpatient treatment, higher income was associated with greater utilization with the effects for outpatient visits statistically significant at the 5% level. These findings give indications of pro-rich inequality for all types of hospital care and of pro-poor inequality in GP visits.

Research in other countries, such as South Africa, have found inequitable distribution of health services associated with social-economic and racial/ethnic division, with areas of white population better served than areas inhabited by black people. This inequality is compounded by the evidence of difference in health status, with the black population being significantly disadvantaged. For example, in 1992 in South Africa, the infant mortality rate in the black population was 52.8 /1,000 live births compared with 8.6/1,000 in the white population (Curtis and Taket, 1996).

From a collectivist ideological standpoint, provision of health services should be proportionate to need, rather than to ability or willingness to pay (Curtis and Taket, 1996). In other words, the criterion is health status, rather than wealth. Free markets have been criticised for failing to ensure such distribution. Collectivists thus argue that the state should intervene to control the distribution of health services, and that there is a general social responsibility to ensure that health care is available for those who need it. From this perspective, access to health services is not a reward of the productive and successful members of society, but a basic right of all citizens. Such a view favours the organisation of national health services, funded from the public treasury. In many countries, however, inequality of access to services has been found, often associated with under-development of rural areas. This in turn affects service utilization. In areas of lower access to health facilities, as Morris et al. (2005) found, individuals are less likely to visit their GP. Moreover, the incidence of outpatient visits is higher when waiting time for an appointment is less than 26 weeks. Day case treatment is more common in area of higher GP density, possibly reflecting the GPs' gatekeeper role, though the effect is insignificant. Greater distance to hospitals is associated with fewer inpatient stays.

Phillips (1990) and Phillips and Verhassele (1994) reviewed several studies in lowincome countries which reveal hospital provision to be much lower in rural areas than in urban areas, even though health in rural areas is often worse than in urban areas.

Such imbalance has been found in most countries. Meade et al. (1988) for example, reported a trend in the US over the twentieth century toward greater imbalance in access to physicians between urban and rural areas, although this trend may be lessening or reversing because the pressure of a greater supply of physicians is encouraging the establishment of more practices in smaller towns. One factor in the greater accessibility of urban health care facilities, even for rural populations, is the development of transport networks. In India, for example, villagers may be more easily able to get to the market town than to cross a river to another part of their rural district (*ibid*).

Disadvantage in health service provision, however, is not confined to rural areas, but is found also in deprived urban populations. Harpham (1994b) draws attention to the high rates of urbanization in low-income countries, where cities are now growing more rapidly than in wealthier societies/communities, and argues that, as a result, there is a large and rapidly expanding category of poor urban population with high levels of health risk for whom access to health services is inadequate. Latin America and parts of Asia and Africa, all now have major concentrations of poor people in urban settings (Harpham et al., 1988). They often live in urban slums lacking in essential infrastructure, including access to appropriate and affordable health care (Okafor, 1990; Rossi-Espagnet et al., 1991). Even in wealthy countries, such as Britain and the US, there are reports of relatively low levels of health service provision in deprived inner cities and in poor suburban housing estates (While 1989; Wallace et al., 1994 and Curtis and Taket, 1996).

6.3 The Policy behind Current Distribution of Health Services in Medina.

6.3.1 State services

One goal of an optimal distribution of services in general and health in particular should be to reduce the effort and cost involved in gaining access to the services. With this in mind, establishment of any service should be preceded by identification of the places where it is most needed.

Allocation of the distribution of services in different parts of the city according to population density or to the main transport network has many advantages. For example, it facilitates access to services and decreases traffic congestion.

In the case of Medina, no information was found to show the main reason behind the current health service distribution. The researcher asked the manager of the planning department in Health Administration Affairs about the policy behind the geographical distribution of state hospitals. The manager explained that it was not of major concern in the past and therefore the geographical factor took second place. There is, though, a target stated in the seventh development plan 2000-2004. The target is to secure 2.6

beds for each 1000 of the population in the whole Kingdom. The previous five-year plan had considered the geographical location when building hospitals; therefore, there is a plan to build a general hospital in the eastern part of Medina. However, he agreed there was a lack of public secondary healthcare facilities in the east part of Medina, and accepted that there is a need for a state hospital in that part of the city. However, even the geographical planning of health services envisaged in the sixth development plan (1995-1999), has still not come to fruition, in the eighth plan period. It seems that there is a big gap between intention and action. Such delays exacerbate the existing inequities, as in the meantime the population has increased. Even materialization of the planned provision, therefore, may not meet current need.

The decision for the establishment of a new hospital, and its location, requires study of the area in terms of such aspects as population density and the transport network, to correct imbalances. Imbalance of health services exists in both developed and developing countries, and work to solve such problems is advisable. For example Mohan (1983) in north-eastern England presented a project for Durham Area Health Authority (AHA) which studied the situation of health facilities, based on travel distance. The study recommended an additional 150-bed hospital to bring Durham health district to the national standard of hospital provision.

In answer to another question, the manager indicated that there is no reason behind the distribution of existing state hospitals, which were set up without thought to their spatial distribution, thereby creating difficulties for both users and providers, especially given the rapid urban growth. The provision of health facilities should be based on need and demand; however the measurement of need is complex. Powell (1990) highlighted some criteria which can be used to measure need, which include:

the birth rate, death rate, infant mortality rate, the percentage of population aged over 65, as well as the percentage of managerial and professional workers and semi-skilled and unskilled manual workers in the population. Other researchers used additional indicators to measure the need of healthcare services, such as: elderly living alone, single parent families, chronic diseases, and ethnic minorities. However, there is limited data in population health status on developing countries, which makes it difficult to identify population health status in each residential district. The study area is no exception. Indeed, the same problem is found in developed countries. In Britain, for example, Curtis and Taket (1996, p. 144) point out that, "the available information on population health status is limited. We often lack information on levels of morbidity in the population, or on risk factors which might make some populations more susceptible to disease than others".

Given the difficulty of measuring need for health services across the city, it is important to provide health services according to population density. Islamic principles confirm that equity in general is a fundamental requirement. Also discrimination between people according to their colour or race is prohibited. All humankind should be treated in the same way in countries that practise Islamic law. Sometimes the distribution of health facilities depends on the availability of empty land or the donation of land. Also, the structures of urban areas play an important role in mapping the public services. MacLafferty (1982, p. 348) argued that "the spatial structure of urban area determines a large part of the inequalities in geographical access to public services".

Inequalities of health services provision also existed in the developed world. Curtis and Taket, (1996 p. 139) argue that:

The system in the USA results in particularly strong inequalities of health services provision, with areas occupied by less privileged and less healthy populations being the worst served, while wealthy, healthy populations are better provided for.

The inequity in this case may result from the USA's dependence on the private sector as Meade et al. (1988) noted. This means that most health care providers are looking for profit. The choice of care and quality of treatment can thus depend on ability to pay.

Britain also has regional inequities in health service provision. Research evidence suggests that NHS spending is greater in the more privileged south and east of the country than in the north and west, where the population is poorer and health standards are generally lower (Noyce et al., 1974 cited in Curtis and Taket, 1996). Meade et al. (1988 p. 272) reported that "The goal of service equality in the United Kingdom has not met with complete success. Regional imbalances in the amount and quality of care exist in spite of attempts to redress them". Although these inequalities exist, however, they are lower than in developing countries, because of the difference in economic status. Health service expenditure in the developed world is higher than in developing countries, and service planning is more effective.

Hospital managers who were interviewed agreed that hospitals in Medina are not equally distributed¹⁰. One manager stated that the eastern parts of Medina badly need one or more hospitals, while another manager thought the city centre needs a big hospital because of the increased number of hajjis and visitors to the Prophet's Mosque located in the city centre. Almegat hospital's manager confirmed that

¹⁰The information came via face-to-face interviews, with three state hospital managers in October 2002.

hospitals in Medina need more accurate distribution, which means the current distribution did not serve all residents equally.

6.3.1.1 Primary health care centres (PHCCs)

According to Medina Municipality (2000), PHCCs in Medina are not equally distributed, although the criterion of the Health Ministry is one PHCC for 5000 to 10000 people. Thus it could be argued that establishment of PHCCs should be distributed according to two factors, density of population and distance to reach the services. Curtis and Taket (1996 p. 111) argue that:

Since primary health care is delivered mainly in the community and needs to be used by a large proportion of the population, it must be provided in close proximity to the places where people live, and the catchment areas of health centres are typically limited in geographical extent to rather local areas.

The researcher interviewed the general manager of primary health care centres in Medina, and asked him what is the main policy behind the geographic distribution of primary health care centres in Medina. He explained that the distribution of PHCCs in Medina is decided according to certain criteria planned by the Ministry of Health. The policy of the Health Ministry is to make the primary health care services (PHCS) available to all residents within a distance of not more than one hour's travel time, using normal transport. This answer raises many questions, for example, what does the Ministry mean by normal transport? Car, bus, train, bicycle...? By train, in half an hour it could be possible to travel a distance of more than 60 kilometres, but the distance would be much less using bus or car, taking the traffic into account. And does 'up to one hour' apply to rural areas or cities? If we assume that the car is what is meant by normal transport, it could be argued that a one hour journey for patients to

reach their PHCC in the cities is too much. Therefore, this plan needs re-thinking to bring PHCS within reach of all users. A journey of more than twenty minutes, walking in the city is generally not recommended. Some studies, for example Al-Ghamdi (1981) and Annimer (1993) which have surveyed the views of health service users in the cities, found people wanted their health centre to be provided within less than 10 minutes or a distance of less than two kilometres. A similar view was expressed by the Ministry of Health (1991) which indicated that close geographical location and ease of transport to PHCS are among the most important elements in the development of PHCS.

The manager was also asked about the criterion applied as regards distance between PHCCs in Medina. He explained that the distance between any suggested new PHCC and the nearest existing PHCC is one of the main points to be taken into account, but it is not the only thing. There are some other points to be considered, such as the number of people living in the area, their distribution, number of families, number of residential districts, and availability of labourers, availability of buildings suitable for the health centre and the location and rental value of the building. The distribution of PHCCs is not based on a distance criterion, he added. That means the impact of distance, in terms of establishment of new PHCCs, comes in the second stage. However, the head manager of Health Administration Affairs said that distance between PHCCs should not be more than two kilometres.

The explanations of PHC's managers were logical. However, when we look at the present distribution of PHCCs in Medina, a different story emerges. For example, the north Quba area has five PHCCs, with a total population of 93,490 and a built area of 470 hectares. Alalyah area, although it has 110,595 people, which is more than in the

north Quba, has two PHCCs. South Quba, Alauwn and Alnakeel, although they have more than 15,000, 11,000 and 7,000 people respectively, do not have any PHCCs (see chapter four). Not surprisingly, therefore, 31% of the respondents thought their residential district needed a PHCC (Table 6.1).

The main problem which causes inequity in distribution of PHCCs is that almost all PHCCs are located in rented buildings. Such buildings basically were designed for housing, not for PHCCs. What is more, the buildings which are available for rent normally are not centrally located in the area to be served. This is despite the fact that each residential plan provides for pieces of land, normally located in the middle, for health and other public services, such as schools, mosques and parks. The land set aside for health services remains empty, even after completion of all other public services. That leads to the question, why? The manager of the Planning and Development department was asked: 'In all residential plans in Medina, a piece of land is given for health services, but that land remains empty even after completion of all other public services, schools and markets for example. Are there any reasons for that? What are they'? He explained that lack of finance made it very difficult to purchase land and establish health facilities. He thought that to solve the problem, the Ministry of Health could benefit from the experience of the Ministry of Education by starting renting and gradually buying the properties it rents. In other words, it should ask business people to build hospitals and dispensaries and then rent them to the Ministry of Health and over time, gradually, the proprietorship of these buildings could be transferred to the Ministry. His suggestion in some cases could be useful; however, a look at the Health Ministry budget (Table 1.1) shows that it has increased since 1970 to reach more than S.R.13 billion in the year 2000, about twice the 1995 level. The share of Medina was 4.73% in 1998 and 2.76% in 2001 of the total Health

Ministry budget. It could be argued that with sound guidelines and rationalization of government expenditures¹¹, that budget would probably be sufficient to enable Health Administration Affairs to have their own buildings built for most PHCCs, rather than continuing to occupy rented buildings as at present.

Table 6.1 Need of a PHCC to be established in the neighbourhood

		Respondents	Percent
	Yes	95	31.4
	No	191	63.0
	Don't know	17	5.6
	Total	303	100.0
Missing	N/A	197	
Total		500	

Do you think your neighbourhood needs a primary health care centre?

Source: Researcher's Fieldwork

6.3.2 Private services.

In chapter four, the distribution of private services was discussed. To follow up this issue, the researcher asked the Deputy Manager of Medical Licences and Pharmaceutical Affairs the following question: When a private health institution is going to be founded, does the health authority in Medina decide where this health institution should be located or is it left to owners to set it up wherever they want? The deputy manager explained that there is a committee appointed for that purpose. The committee investigates and studies applications for licences from different angles; the kind of speciality, the places where such services are needed and so on. However, real life will tell a totally different story. The private health institutions are mainly concentrated in certain areas rather than others, so it could be argued that the distribution of private health institutions is not balanced across Medina.

¹¹ In Medina, for example, the rental cost of a PHCC located in the city centre was S.R. 1,500,000, whereas a new one could be built for that amount of money.

For example, two private hospitals, Addar Hospital and Azzahra Hospital are both located on Ali bin Aby Talib road, less than a kilometre apart, and also the Medina National Hospital is located on the same road, about two kilometres away from the other two (see Fig. 4.5). Moreover, there is no clear reason why the private clinics should be concentrated in only two places in Medina, Quba and Sultanah. The selection of these two places may be related to the low cost of rents of properties in these areas and the development that has occurred in these areas, so that large buildings are available. Another perspective was offered by the manager of the Saudi National Dispensary, who believed that the number of private health institutes in Medina is greater than needed.

From the above, we can say that there was no clear rationale behind the current geographical distribution of hospitals in Medina. One possible explanation, however, may relate to the transport network. In the early stage, in the 1970s, there was no good network of public transport across Medina, and development was extended horizontally to the west and north west of Medina, where most state hospitals are located, more than other parts, as already indicated. However, during the last fifteen years, the development of buildings and roads has been extended to other parts of Medina, as a result of residential plans for the empty land. As a result, the state hospitals are far away from the new residential sites.

In Medina's present health service plan, according to the development and planning manager, the geographical dimension will be taken into account. This would be a major breakthrough. However, when he was asked if a criterion has been set regarding the distance between a newly planned hospital and existing services, he explained that there was no such criterion. Indeed, a new hospital may be built near to an existing one, in order to benefit from the facilities of the old hospital, such as laboratories, Xray facilities and so on. This answer is clearly inconsistent with the claim that, under the Sixth Development Plan, geographical factors are taken into account. Moreover, whilst such a policy might be acceptable if existing hospitals were equally distributed, this is not the case in Medina. Therefore, there should be a certain distance between hospitals that provide the same services, whereas currently state hospitals are almost all in one part of the city.

Another aspect of the problem is hospital capacity. Almost all current state hospitals were full to capacity, as was seen in chapter two. The three state hospital managers interviewed were asked whether the capacity of hospitals is adequate for the number of users, given the need for equality of distribution, and accessibility. All agreed that the capacity of hospitals is not adequate. One suggested that about 40% additional capacity was needed to provide good services. Another indicated that the population continues to increase but the number of hospitals remains almost the same. The third manager argued that capacity is very inadequate, and more hospitals are needed. Hence we can see the answers suggest that the capacity of state hospitals is not adequate for the whole population in Medina and its region. Therefore, it is needs to be expanded by building more hospitals or expanding the existing hospitals. However, expanding the current hospitals would not solve problems such as inequity of distribution, distance, and physical access.

The head manager of Medina Health Administration Affairs asserted the need for coordination on the issue of PHCCs' location, keeping them about two kilometres apart. Similarly it could be argued that it is important that hospitals should be far enough from each other to serve a wide range of areas. In this case, establishment of a new one, providing the same services, beside the old one, when other parts of the city lack such services, would be a misdirected effort. This question of service location leads us to examine the time needed to travel to the current health services.

6.4 Time to reach state hospitals and PHCCs and its effect on utilization

The effectiveness and suitability of the distribution of health services most often depend on time to reach the services by users. Several studies examine the importance of time to get to the services. Al-Dalgan (1993) and Al-Kamshi (2000), for example, argue that time spent to reach the services is a very significant criterion in terms of place relationship measurement, which relates to a distribution of a service. Health services should match the distribution of population, so that they are in reach of most of the users at low cost and within a short time.

Respondents were asked about the usual time spent to reach their primary health care centre. Almost 53% of the respondents indicated that it would take less than 10 minutes to reach their PHCC, 39% said within 10 to 20 minutes, about 5% within 21 to 30 minutes, and only 3.4% indicated that it took more than 30 minutes to get to their PHCC (see Table 6.2). A similar result was obtained by Al-Ribdi (1990) in the Alqaseem region. He found that nearly 40% of his research sample could get to their PHCC within less than 5 minutes and a total of 88% within less than 20 minutes. The situation in Riyadh, for example, is much better. Al-Dalgan (1993) found the majority (57.5%) of his research sample reached their PHCC within less than 5 minutes, and the total of those who took less than ten minutes was 85.6%. Perhaps this may be attributed to the good transport network in Riyadh, as it is the capital of Saudi Arabia; alternatively it may reflect the balanced distribution of health centres. However, a different result was obtained by Al-Ghamdi (1981) in Jeddah, as 28% of Al-Ghamdi's

sample could get to their health centre within less than 10 minutes, 18% between 15 to 19 minutes, about 12% within 20 to 24 and 5% within more than 25 minutes. Two possible explanations could be given here. The first may be that the study was old. At that time, Jeddah, an industrial city which was developed early, still had few health centres, only seven, and the transport network was not good. A second factor could be that the registration health system, whereby everyone must be registered with the health centre located in his/her health area, had not been systematically introduced; a patient could go to any state health centre of his/her choice, which might be far from where he lived.

Distance is another measure of the distribution of services. Table 6.3 shows the respondents' views on distance to reach PHCC in Medina. It shows that 61% of them indicated that they disagreed or strongly disagreed that long distance is the main problem facing them when they go to their PHCCs, while 27% saw that long distance was a problem to them and 11% said they were not sure. The high proportion of those who did not face a problem with distance, was probably because most of them use a car to go to the PHCC. Another possibility may be related to the healthcare system¹².

Owning private transport is another factor that could cause people to be less concerned about the distribution or location of services. In the research sample, more than 81% indicated that they usually used their own car when they wanted to go to their PHCC, whilst about 14% went on foot. Few used other types of transport; only 3% went by taxi, 0.8% in a friend's car and 0.4% by ambulance (Table 6.4). It seems that owning a car makes people prefer to use it when they seek to go to health services, especially as other types of transport are not available in the study area, most

¹²Patient must register with the PHCC which is located in his/her health residential area. Perhaps this system reduces the general time spent to go to the PHCC.

of the time. On this subject Joseph and Phillips (1984 p. 137) commented that "... personal mobility can be important. Car ownership rates are almost always higher for the more well-to-do (although 'car availability rates' are more important for attending day-time services)".

For those surveyed in Medina who saw distance as a problem, 27%, this may be related to the fact that PHCCs in the study area are not always in the centre of the residential districts that they serve. This is the case in, for example Annasr, Alaws and Almatar (Alaquol) residential districts. Another possible reason may be the social-cultural norm that women do not drive, and it is difficult if they or their children need to go to the PHCC while the man of house is away. The final possible reason may be related to unavailability of public transport, especially inside the residential districts, which makes it difficult for the users to go to their PHCC in a short time. This suggestion is supported by the fact that only one respondent indicated that he/she went to his/her PHCC by bus and only 3% went by taxi.

Table 6.2: Time to reach PHCCs in Medina

How long does it take usualy to reach your primary health care centre?

	Respondents	Percent
Less than 10 minutes	263	52.6
Frome 10 to 20 minutes	194	38.8
From 21 to 30 minutes	26	5.2
More than 30 minutes	17	3.4
Total	500	100.0

Source: Researcher's Fieldwork

Table 6.3: Distance to PHCCs in Medina

	Respondents	Percent
Strongly agree	41	8.2
Agree	94	18.8
Not sure	57	11.4
Disagree	250	50.0
Strongly disagree	58	11.6
Total	500	100.0

Distance is the most important problem facing me when I go to my primary health care centre

Source: Researcher's Fieldwork

Table 6.4: Transports use

Type of transport	usually	use to	go to	the	primary
	health o	centre			

	Respondents	Percent
Walking	71	14.2
My own car	407	81.4
Taxi	15	3.0
Bus	1	.2
A friend or relative,s car	4	.8
Ambulance	2	.4
Total	500	100.0

Source: Researcher's Fieldwork

The researcher undertook interviews with the managers of ten PHCCs selected randomly from different places within the study area (see Fig. 4.3). Some of these PHCCs seemed quite distant from the areas they served. For example, Almatar (Alaquol) PHCC is located about 45 kilometres away from some of the people it is supposed to serve, such as Alhar, Arrathayaa and Arrasifa villages. These distant areas have not been given their own PHCC because of their small population. Often, PHCCs' services are not extended outside Medina, as in the case of Alaqoul PHCC, which serves some areas outside Medina. The second furthest distance was in the case of Algurf PHCC, which is up to seven kilometres away from some people's homes, followed by Alaws PHCC, five kilometres, Waeerah, four kilometres and Annasr, four kilometres. The other PHCCs, Alawaly, Ashuhada Alkeblatian, Arwah and East Harrah, serve areas in the range of one and a half to two kilometres.

Medina's hospitals, whether state or private, sometimes serve the whole region, as the hospitals in the main cities have better facilities than in the smaller towns. However, time and accessibility to reach them have been examined only for the residential districts of Medina. In other words, this study does not include people who came to use hospitals from outside Medina. Table 5.5 illustrates time to reach the nearest state hospital by car from the patient's home. About 10% would reach the hospitals within less than 10 minutes, while about 48% did so within 10 to 20 minutes and more than 29% took between 21 to 30 minutes and 13%, more than 30 minutes. From the above, 42% of the respondents took more than 20 minutes by car to get to the nearest state hospital, which seems hard for patients. This is despite the fact that Medina has a good network of ring roads, some of them free of traffic lights and without much traffic, especially in ring road two, and Universities Road, where most hospitals are located. The long time taken to reach hospitals might be attributed to the location of hospitals, most of which are located in one part of the city. Although there is an ambulance service to provide emergency services, the question arises, how much is it used? The next section examines such services.

	Respondents	Percent
Less than 10 minutes	48	9.6
From10 to 20 minutes	241	48.2
From21 to 30minutes	146	29.2
More than 30 minutes	65	13.0
Total	500	100.0

Table 6.5: Time to reach state hospitals in Medina

How long does it take by car to reach the nearest state hospital from where you live

Source: Researcher's Fieldwork

6.5 Use of the Saudi Red Crescent Society and Reasons for Non-use

The Saudi Red Crescent Society (ambulance emergency services) was established in 1963. The society's main responsibility, which it shares with the emergency departments of health ministry hospitals, is to transfer victims of road accidents and other emergencies to hospital as quickly as possible. Tables 6.6 and 6.7 show the percentage of respondents who did or did not use that service. The majority of respondents (72%) said they did not use the Saudi Red Crescent to take them or their patient to the health service. Only 28% answered 'Yes' they did.

Another question was asked to find out the reasons why respondents did not use that service. The highest percentage (34.3%) claimed that the service takes too long, while more than 17% answered that their home address (location) was not clear enough to be described¹³. About 8% said they did not know the Saudi's Red Crescent phone number, while more than 9% said they were unaware of the service. Almost 31% said they did not use such services because they did not need them. The last three reasons (don't know their phone number, unawareness and don't need it) accounted for a total of more than 48%, which may be related to the fact that most respondents (94.2%) had their own car. It could be confirmed that non-use of such services is, mostly

¹³ Almost all houses inside ring road two were built randomly and there are few straight roads. Also, not all buildings in Medina are numbered.

related to the availability of car ownership. Those who do not own a car can obtain help from relatives or neighbours, especially in emergency cases.

Table 6.6 Using Saudi Red Crescent car to take patients to health institution

Have you or anyone in your household called

a Saudi Red Crescent car to take y ou or your patient to the medical serv ices?					u or s?

	Respondents	Percent
Yes	140	28.0
No	360	72.0
Total	500	100.0

Source: Researcher's Fieldwork.

Table 6.7 Reasons for not using the Saudi Red Crescent car

		Respondents	Percent
	It takes too long	123	34.3
	Unclear of my address	62	17.3
	Don't Know its phone number	29	8.1
	Unawareness	34	9.5
	Do not need it	111	30.9
	Total	359	100.0
Missing	N/A	141	
Total		500	

We have not called the Saudi Red Crescent car because:

Source: Researcher's Fieldwork.

6.6 The problem facing PHCCs in Medina

Regarding the problems facing PHCCs in respect of their locations, the manager of Annasr PHCC explained that the health centre was not located in the middle of the area it served. Access to this centre is not easy for all the community it serves, because it is not located near to the more populated areas, which it is supposed to serve. For example, one of the areas it serves is Alkhalil, located four kilometres away from the PHCC. Sometimes, this PHCC faces crowding with patients, which makes it difficult for the patients as they need to wait too long to see the doctors. This crowding was a result of the system used whereby patients visit the PHCCs without an advance appointment and wait until it is turn to see the doctor. The manager of the PHCC added that sometimes the patients prefer to use the private sector services because the state institutions are far away from where they live. He suggested that the centre should be in the middle of the area it serves, and the consultation rooms should be on the ground floor to facilitate access for patients.

Almatar (Alaquol) PHCC is facing a problem because the road to the centre is rough and not paved. The patients find it very difficult to go to the centre, bearing in mind that, part of the area it serves is located outside Medina. The manager of Alaquol PHCC suggested that the centre should be moved to the area 5/36, where the population is more concentrated (Fig. 4.3). This suggestion could solve the problems faced by the customers close to the centre, but for those who come from outside the area the problem still exists.

The manager of Arwah PHCC did not complain about the location of the centre, even though there is a motorway passing through the residential area served by Arwah PHCC, but he complained about its capacity, because, as he said, the centre is too small and lacking in some health facilities. He was therefore looking for a more suitable place. The manager seemed more aware of the building itself, rather than the accessibility of the centre. The situation of the residential area, divided by a motorway, is complex. It could be argued that motorways which go through residential areas constitute a barrier facing people who live in that district when they need to use the services located beyond the motorway, especially when there are no facilities to aid crossing such as subways or bridges. Arwah residential area is not in this position. As there is no pedestrian crossing or bridge it is difficult for Arwah PHCC's users, who live on the other side of the motorway, to use it.

Regarding Ashuhada PHCC, its manager complained of temporary roadwork to the south of the centre, which may make it difficult for patients to find the health centre building. Other than this, he thought that his centre faced no problem regarding its location. However, in fact, the location of that PHCC is far from the residential area located to the west of Ohud Mountain, which is supposed to be served by that PHCC.

As far as Alaws PHCC is concerned, the manager explained that the area served by this centre is divided by the second ring road, which separates two parts of the area from the health centre. Therefore, the people who live in these parts find it difficult to get to the centre. The manager suggested that another health centre be opened in this area, which was still receiving more residents.

Arawh and Algurf PHCCs are located in an unorganised residential area, in terms of buildings and roads, and the health centres are located off the main street which makes it very difficult for the centres to be identified. Also, they lack a parking area for cars. The manager of Arawh suggested that the centre should be moved to a more convenient location, provided with a car park. Algurf PHCC's problem comes from its location among a lot of business buildings, which make it difficult for patients to find a parking place for their cars. Alawaly health centre shares the same problems as Arwah and Algurf centres regarding lack of parking facilities, and its manager said he had asked the authorities to provide parking places.

There was only one PHCC (Alkeblatian) where the manager had no complaints about location. This may be because Alkeblatian PHCC had only recently been moved to its

current location, and it seems the health authority had succeeded in finding a suitable location that afforded equitable access to users.

Based on the above mentioned interviews and the researcher's observations, it could be said that 30 primary health centres in Medina, out of 32 centres, are located in rented buildings consisting of two floors or more and most have not got lifts. Moreover, most of them are not centrally located. These buildings were not originally designed to be used as health centres and the authorities would be well advised to move from them to suitable ones. Also, it was noticed that some of these centres serve some distant areas, as in the case of Alaquol health centre, which serves some areas located 45 kilometres away, outside Medina and Algurf health centre, which serves some areas located seven kilometres away. Those directly involved in health services have useful suggestion for developing the services, which the administrative authorities would do well to consider.

6.7 Conclusion

Inequality of service provision, distribution and quality exists in both developed and developing countries. However, the problem is greater in developing countries, because of many factors such as the low economic status and the lack of planning of services. Inequality could exist between regions in one country or between urban and rural or between the residential districts in one city. Urban and wealthier residential areas usually have better services.

In this study of health care in Medina, the research findings show that most respondents relied on their cars to get the health services, and the average distance to the PHCC was about 10 minutes by car. As regards hospitals, more than 42% of respondents spent more than 21 minutes travelling by car to the nearest state hospital.

This means that there was some inequality of the geographical distribution of state hospitals in Medina. Also, the findings show that the Saudi Red Crescent services are under-used, since most of the respondents did not use them.

Most private health institutions are located close to the city centre. This is related to the density of population. Such services, however, only serve a certain group of people, those who can afford the cost.

Planning in advance when establishing public services is one of the most important factors to avoid inequality in their use. It appears that the state hospitals in Medina were established in an ad hoc manner without adequate planning. Moreover, there are some problems facing PHCCs which could have an effect on equality. These include using rented buildings, lack of central location, and even in some cases the PHCC being out off from part of its catchment area by a motorway, as in the case of Arwah and Alaws PHCCs. All these findings suggest a need to re-think service distribution.

Indeed, the pattern of equitable spatial distribution of health services according to their need cannot be explained simply by lists of 'factors'. There are some challenges to identifying the geographical areas which need more health services and others which need less. Therefore, the geographical distribution of health services, within a city or health area, should be based on the density of population, with consideration of the distance and time spent to get to the services. Distance and time are the main influences on access and utilization of services. The next chapter discusses the accessibility and utilization of health services in Medina, to see what factors have more influence. Since the need for health care varies across socio-economic groups, studies of equity in the distribution of health care between socio-economic groups must compare levels of utilization with levels of need.

Chapter Seven

Accessibility and Utilization of Health Services in Medina

7.1 Introduction

Access to and utilization of health service facilities has been the concern of researchers for many years. Many studies in this field have been carried out by geographers, for example, Joseph and Phillips (1984), Meade et al., (1988), Powell (1987), Ricketts et al., (1994), Jones (1996) and Gatrell (2002). Following the discussion in the previous chapter of inequity of health care distribution in Medina, this chapter explores how services are accessed and used in practice, as this may shed light on the level of demand for health care. It might be expected that an increase of service provision would be accompanied by an increase in utilization, but the problem of demand needs to be unlocked. Therefore, such conclusions cannot be drawn without clear data.

There are several factors that may affect health service utilization. As was shown in chapter three, the most important of these is accessibility, and specifically, distance. The importance of distance as a variable in access to health care has continued to be of concern to geographers up to the present day. Joseph and Phillips (1984) and Meade et al. (1988) discussed research in this field in the 1980s. Then Gatrell (2002) reviewed studies in the utilization of secondary and tertiary health services. Gatrell argues that studying the use of and access to health services from a geographical perspective requires more than examining the effect of distance on use. According to one measure, utilization is inversely proportional to the squared value of distance between the consumer and the facility. The distance travelled or time taken for the journey to hospitals have been taken as the criteria for estimating likely use of health
care facilities by different communities, for example when considering the likely impact of reorganization of hospital services on access to services. For instance, Congdon (2000) argued that in the UK restructuring of hospital services is a major source of public and political debate, especially in terms of provision of emergency services. Thus, Congdon (2000) examined the regional importance of hospital closures in north London in terms of access to emergency and casualty services. These reduce patient accessibility to emergency facilities, meaning some patients have to travel a long distance to get the nearest emergency and casualty site.

Access to health care facilities affects by proximity, most likely in sparsely populated areas, where distances to be travelled are greater. Such problems exist in low income countries, especially in rural areas where there is often a low level of healthcare provision, greater poverty, and a lack of transport (see Phillips, 1990; Curtis and Taket, 1996; and Curtis, 2004). Research on access to healthcare facilities in rural areas has taken place in developed countries. This research has revealed uneven utilization of health services and outcomes caused by distance and travel time to the health services (see Gesler and Ricketts, 1992; Higgs, 1999 and Hayeenes et al., 1999). Hayeenes et al. (1999) for example, found distance from hospital makes a difference in hospital admission rates between urban and rural populations in East Anglia, UK. After controlling for population need and supply of services, population living furthest from hospitals were found to have acute hospital admission rates 17% lower than these in the area close to hospital. There was a decrease in using geriatric hospitals, psychiatric hospitals and emergency care even more markedly in proportion to distance to hospital.

Very little is known of the impact of the greater availability of health facilities, or the fact they are free of charge, on health service use in Medina. However, it is expected that distance and time to health services play a major role in accessibility and the frequency of utilization. Distance and time may also influence patient's choice of type of health services. This chapter, therefore, examines access to state health services in Medina and the influence of distance on the type of health services chosen. Furthermore, respondents' reasons for preference to use a particular type of health service in Medina, e.g. state, private, or traditional healer, will be analysed.

7.2 Access to primary health care centre (PHCCs) and state hospitals in Medina 7.2.1 PHCCs

PHCCs' services should be available within reach of all people, regardless of their social-cultural or socio-economic circumstances. The WHO's International Conference on PHC in Alma-Ata in 1978 under the title 'Health for All', declared firmly that health is a basic and universal human right, and emphasised the need to make health care as accessible as possible to everybody (WHO,1978). Similarly the Saudi Health Ministry has acknowledged that accessibility of health care must be one of the key features of the PHCC and that PHCC services should be located as near to the people as possible, as well as socially and functionally accessible.

Respondents' ratings of access to PHCCs in Medina are summarised in Table 7.1. Almost 29% of the respondents indicated that their PHCC is very accessible, more than 54% said accessible, above 9% answered inaccessible and only less than 3% said very inaccessible, and 5% were not sure. A total of about 83% of the respondents indicated that their PHCC was accessible or very accessible and only about 12% said it was inaccessible or very inaccessible. A similar result was found by Al-Magrabi (2001) in Jeddah, where most patients gained access to their PHCCs in less than 15 minutes, reflecting that the PHCCs were generally conveniently located for the majority of users. Also, Al-Dalagan's (1993) study, in Riyadh, showed that the majority of his sample thought that their PHCCs were accessible.

Table 7.1: Access to PHCCs in Medina

How would you evaluate the location of your primary health care centre from your home?

	Respondents	Percent
Very accessible	144	28.8
Accessible	272	54.4
Not sure	25	5.0
Inaccessible	47	9.4
Very inaccessible	12	2.4
Total	500	100.0

Source: researcher's fieldwork

Overall it seems that accessibility of PHCCs services in Medina was not a major problem to most respondents, even though some PHCCs are not located in the middle of the residential districts that they are intended to serve, as we have seen in chapter two, and their distribution does not correspond to population density, as we have also seen. Other writers, for example Al-Ruwaythi (1997) and Medina Municipality (2000) have claimed that there is some inequity of distribution of PHCCs in Medina. However, easy access to PHCCs, as perceived by most respondents in this study, may relate to the fact that the majority of health users in Medina use their own car to go to their health centres, which makes places more accessible. Thus, no problem faces them in terms of physical accessibility. Another possibility may be that those who have difficulty in gaining access to PHCCs facilities use them less, so their chance of participating in the questionnaire sample was low, because the questionnaire was distributed only in the health institutions. Carr-Hill et al., (1996) and Gatrell (2002) support the view that those living near to health centre are more likely to consult more frequently. Previous research also shows that those who live further away from the health centres used them less than those who live closer (Hayeenes and Bentham. 1982).

Ability to see the doctor whenever the patient wants to, within the PHCC's working hours¹⁴ could be another aspect of accessibility. Table 7.2 shows that 52% said "Yes" they could see their doctors, while above 38% answered "No" and less than 10% answered "Don't know".

Despite a free system in which anyone can go to his/her doctor without needing an advance appointment, the proportion of respondents who said they could not see their doctor whenever they like is relatively high. This may be related to the nature of respondents' time constraints, as most of them, about 80%, were employees or students. Thus, they could not take time off to take their children or parent(s) to the health centre during their work or study hours, unless the case was serious. Another possibility may be that patients wished to avoid the crowds that might be created at the PHCCs because of the absence of an advance appointment system and shortage of doctors. The crowding in PHCCs could be related to the shortage of doctors. This view would be consistent with Alfalh's (2002) claim that there has been no increase in the numbers of posts created in the Ministry of Health in general. This might lead people to switch to private health institutions, if affordable, because they are generally less crowded than state ones.

¹⁴ An appointment is not necessary to see the doctor at PHCCs in Medina and in Saudi Arabia in general. Patients simply go to their PHCC and wait until their turn arrives. However, doctors in state sectors do not make home visits; patients must go to the health institution.

Table 7.2: Ability to see doctor at any time

	Respondents	Percent
Yes	260	52.0
No	192	38.4
Don't know	48	9.6
Total	500	100.0

Can you see your doctor whenever you like in working hours?

Source: researcher's fieldwork

7.2.2 Hospitals

The survey questionnaire showed that hospitals in Medina are accessible in general to the majority of respondents, which was different from what had been expected. A total of 72% indicated that state hospitals are accessible or very accessible to them, while about 21% said inaccessible or very inaccessible, and almost 7% were not sure (see Table 7.3). Again, it is likely that ownership of private transport plays a major role in accessibility as cars make places more accessible. On the other hand, the ratio of those who struggled with accessibility should not be neglected. Up to a point, this finding is consistent with the claims made in interviews held with three state hospital managers in Medina, who all agreed that state hospitals in Medina were not equally distributed over the entire city, which might make access difficult for some users.

In terms of accessibility of hospitals to all the residential centres that they serve, two managers thought their hospitals are accessible to all the residents they serve, whereas the other manager said that his hospital, located in the west part of Medina, is not accessible to all residents in Medina; just seven primary health care centres can refer their patients to this hospital¹⁵.

¹⁵To be clear it should be mentioned that PHCCs are divided into groups and each group must refer their patients to a specific hospital. In other words, patients do not have the freedom to choose the hospital they want.

The manager's claim is consistent with the situation on the ground since, as we have seen in chapter two, most hospitals are located on one side of the city. Thus some difficulty is inevitable, despite the fact that most respondents had their own private transport, so getting to state hospitals services should be easy for them, and most patients were referred by PHCCs, so patients would know of their appointment in advance and could arrange transport.

hospital from where you live? Respondents Percent Very accessible 53 10.6 Accessible 307 61.4 Not sure 34 6.8 Inaccessible 87 17.4 Very inaccessible 19 3.8 Total 500 100.0

Table 7.3: Access to state hospitals in Medina

In your view, how accessible is the nearest state

Source: researcher's fieldwork

The rate of utilization of health services generally in Medina, as seen in Table 7.4 was relatively high. About 84% of the sample had used health services two or more times in the 12 months prior to the survey, while about 16% had done so only once. This high rate of use does not necessarily mean the health services were well distributed or within reach of all people, nor can it be taken as indicator of quality. People may have used them because of necessity, due to their health condition or their children's illness and immunization. Use of health services for children is common, since children under 5 years old represented about 14.5% of the total Saudi population and about 16% of the total Medina region population in 2000 (Statistical Yearbook, 2001). Most respondents, who indicated utilising health service more than ten times, were in the age groups from 21 to 40, representing more than 67% of all users. These visits might be for care of children, especially as the majority, 77.6%, among those who used

health services in Medina more than ten times, were married (see Table 7.30). Nevertheless, inaccessibility would be expected to affect the ratio of utilization of services and the type of health services chosen. This will be discussed in the next section.

	Respondents	Percent
Never	79	15.8
1 or 2	162	32.4
3 or 4	115	23.0
5 or 6	50	10.0
7 or 8	16	3.2
9 or 10	20	4.0
More than 10	58	11.6
Total	500	100.0

Table 7.4: Utilization of health services in Medina, 2002.

Previous to this visit, how many times in the last 12 months have you used health services in Medina?

Source: researcher's fieldwork

7.3 The impact of inaccessibility and distance on type of health services chosen

Inaccessibility, whether by distance, time or quality, affects the utilization of health services. Most people, if not all, seek a good quality of health services first. When services are provided at a similar level of quality and of a similar type (state or private), with freedom of choice, then users may compare time and distance to see which is the best way to reach the services. Affordability and availability of transports are mediating factors that affect this choice. Massan (1975) for example, argues that distance alone may not be an accurate indicator of the time, cost or effort needed to get from one place to another (cited in Mohan, 1983). The distance patients are willing to travel may depend on the level of services. In other words, the general inverse relationship between distance and type of service may be mediated by the variety and quality of medical services available. Patients may be willing to travel

further to avail themselves of exceptionally good facilities, or a service that is not available locally, than would otherwise be the case.

The inconvenient location of state hospitals sometimes causes people to switch to the private sector when affordable, especially in emergency cases, or for simple need, as very often, private services are located close to populated areas, as we have seen in chapter four. Thus, it could be said that the closer health services are to people, the more likely they are to use them and the opposite is true.

But, does inaccessibility of state hospitals influence patients in choosing whether to use private healthcare? Among the respondents to this survey, 22% said "Yes", while more than 39% answered "No", more than 36% indicated sometimes, and just fewer than 2% were not sure (Table 7.5). Thus, the percentage answering "No" was relatively high, meaning inaccessibility of state hospitals did not influence these patients in relation to using private care, even though more than half (about 57%), rated the quality of private hospitals as excellent or above average compared to about 34% for state hospitals. Therefore a possible reason for not switching to private care may be lack of financial affordability of the private health services, as most respondents about (78%) rated private health care as expensive. Al-Ahmadi (2001) agreed that many private hospital services in Saudi Arabia are very expensive. This is probably the most important reason why many patients used state care, even if they faced some difficulty in reaching it.

Table 7.5: Influences of inaccessibility

	Respondents	Percent
Yes	110	22.0
No	198	39.6
Sometimes	183	36.6
Not Sure	9	1.8
Total	500	100.0

Do you think inaccessibility of state hospitals influences you to use private health care?

Source: researcher's fieldwork

The effectiveness of distance upon utilization is another challenge for patients. Many writers have looked at distance and its impact on health services utilization. As we have seen in Chapter two, the consensus in the literature is that utilization of health services decreases gradually with distance. Generally, the finding in the present research was the same; the number of respondents (patients) decreased with increased time to reach PHCCs. A different result was found, however, when comparing time to reach state hospitals with utilization of general health services in Medina. Table 7.6 shows that utilization was not greatly influenced by time taken to reach state hospitals. Users who took between 10 to 30 minutes, to reach the hospital, used hospitals more frequently than those who took less than 10 minutes. Then the rate of frequency decreased for those who spent more than 30 minutes, but was still higher than for those in the 10 minutes category, in most cases. This is consistent with what the officials in the three state hospitals said, namely, that long distance did not cause patients to switch to private health care. It is also consistent with Gatrell's (2002) claim that distance may be an obstacle only when the illness is not so serious.

Table 7.6

	Number of visits in the last 12 months					
					5 or	
		Never	1 or 2	3 or 4	more	Total
Time to reach	Less than 10 minutes	.6%	4.0%	1.8%	3.2%	9.6%
the nearest	From10 to 20 minutes	8.0%	14.6%	12.2%	13.4%	48.2%
state hospital	From21 to 30 minutes	5.2%	9.4%	6.4%	8.2%	29.2%
	More than 30 minutes	2.0%	4.4%	2.6%	4.0%	13.0%
Total		15.8%	32.4%	23.0%	28.8%	100%

Time to reach the nearest state hospital by car and Number of visits in the last 12 months

Source: researcher's fieldwork

% of Total

Two interpretations could be drawn here: (1) people who lived close to hospitals, in the study area, did not necessarily need them as much as others who lived further away; (2) most state hospitals were located far from areas of population density, as we have seen already in Chapter four, and so using them, in the absence of a suitable/affordable alternative, became necessary when needed.

Despite this finding, some people believed that the location of hospitals plays a major role in frequency of visits, which could reduce the number of users. Table 7.7 shows that there was no clear concentration of response on this issue. More than 37% indicated "Yes", distance of state hospitals from concentrations of population reduces the number of patients, while almost 26% said "No" and more than 32% answered "Sometimes". Slightly less than 5% were not sure. Other researchers, for example, Muller et al. (1998), Carr-Hill et al. (1997) and Goodman and Fisher (1997) argue that long distance reduces the number of patients, and those who live close to health centres consult more frequently than who live further away. Also Al-Ribdi (1990) in Alqaseem, and Al-Dalgan (1993) in Riyadh found similar results that the number of health service visitors decreased with distance.

Overall, the highest proportion of respondents indicated that the distance of state hospitals from population concentrations reduces the number of users. This gives a significant idea that distance plays an important role in getting state hospitals' service in Medina, and suggests that their distribution within 20 minutes driving to all respondents in Medina would be desirable.

The managers of eight out of ten PHCCs, similarly expressed the view that distance can play a role in patients' decisions to go to private health centres. The managers of four of these centres believed that the location of a health institution is the only factor, which affects use by patients. The other four managers said that location may sometimes play a role. Therefore it seems that some patients seek private health centres, which charge, but this only applies to a limited proportion of cases, since not everyone can afford the cost of private centres.

	Respondents	Percent
Yes	188	37.6
No	129	25.8
Sometimes	161	32.2
Don't know	22	4.4
Total	500	100.0

Table 7.7 Effect of distance of state hospitals form the concentration of population Do you think distance of state hospitals from concentrations of population reduces the number of patients?

Source: researcher's fieldwork

7.3.1 The reasons behind preference for use of state health services

The decisions behind choice of a certain type of healthcare services could be influenced by a number of factors, when more than one healthcare service is provided. Some questions were asked in an attempt to identify such reasons. The questions focused on factors which we expected might be influential on preference, for instance, cost of services, location of health institutions, faster procedures, skill of doctors and availability of medical equipment. Out of 500 people surveyed, 410 answered those questions. This is because 90 respondents (18%) did not use state health services, so they are shown in the tables as missing-not applicable, and they are not included in the analysis of users.

As Table 7.8 shows, almost 87% of the respondents who use state health services were agreed or strongly agreed that they used health services because they are free of charge. This may mean users were forced to use such services as they had had no alternative, since private care was not affordable. Fewer than 9% disagreed or strongly disagreed that availability free of charge made them prefer to use state health services. Just under 5% were not sure.

The location of state health services is another factor that may influence patients' choice. The majority of respondents, almost 73% of those who used state health services, indicated that they preferred to use state health services because they are close to their home, while fewer than 19% did not believe this was a factor in their choice. More than 8% were not sure (see Table 7.9). The speed factor, in general, for example in procedures and waiting time, did not affect utilization. Statistically almost half (49%) of the respondents disagreed or strongly disagreed that they use the service because it is fast. About 30% preferred using it because it is quick, and more than 21% were not sure (Table 7.10).

Another reason for utilization might be the quality of doctors in state health services. Almost half of the respondents said existence of 'good doctors' made them use the services, while 25% did not see this as a major influence, and almost 26% were not sure (Table 7.11). In terms of medical equipment and its role in preference to use state health services, it was found that 51% of the respondents preferred to use the state services because they felt they are better equipped, while 21% did not agree that availability of medical equipment made them prefer to use this type of health services; 28% were not sure (Table 7.12). It is noticeable that there were particularly high concentrations of "not sure" responses in relation to doctors' skill and medical equipment. This may be because most patients do not have much experience to evaluate such things. Moreover they may accept a service, even it is of low quality, if they have few or no alternatives.

Overall there are two main factors that affect patients' preference for utilization of state health services rather than others. These are, their being free of charge and closer to home, which were affirmed by about 87% and 73% of respondents respectively. Possibly these factors came first because: (1) private health services, especially hospitals, are expensive and not affordable for most people (2) the utilization of health services decreases with distance from health centre; this second case applies much more to PHCCs. Saeed and Mohamed (2002), in Riyadh, found that offering free health services and location of PHCCs to users' home were the factors that most encouraged use of the services. Also, Kandrack et al. (1991) note that inaccessibility of the health services is directly related to ability to pay the services has been reported in many studies, which found the utilization to be greatest when travel distance is short; such a relationship was reported, for example, by Field and Briggs (2001) Gregory et al. (2000) and Fortney et al. (1999).

Table: 7.8

		Respondents	Percent
	Strongly agree	197	48.0
	Agree	159	38.8
	Not sure	19	4.6
	Disagree	25	6.1
	Strongly disagree	10	2.4
	Total	410	100.0
Missing	N/A	90	
Total		500	

Use state health services because it is free of charge

Source: researcher's fieldwork

Table: 7.9

Use state health services because it is close to my home

		Respondents	Percent
	Strongly agree	121	29.5
	Agree	178	43.4
	Not sure	34	8.3
	Disagree	60	14.6
	Strongly disagree	17	4.1
	Total	410	100.0
Missing	N/A	90	
Total		500	

Source: researcher's fieldwork

Table 7.10

Use state health services because it's quick

		Respondents	Percent
	Strongly agree	35	8.5
	Agree	87	21.2
	Not sure	87	21.2
	Disagree	136	33.2
	Strongly disagree	65	15.9
	Total	410	100.0
Missing	N/A	90	
Total		500	

Source: researcher's fieldwork

Table 7.11

		Respondents	Percent
	Strongly agree	62	15.1
	Agree	138	33.7
	Not sure	106	25.9
	Disagree	62	15.1
	Strongly disagree	42	10.2
	Total	410	100.0
Missing	N/A	90	
Total		500	

Use state health services because there are good doctors

Source: researcher's fieldwork

Table 7.12

Use state health services because of availability of medical equipment

		Responde nts	Valid Percent
	Strongly agree	61	14.9
	Agree	148	36.1
	Not sure	115	28.0
	Disagree	47	11.5
	Strongly disagree	39	9.5
	Total	410	100.0
Missing	N/A	90	
Total		500	

Source: researcher's fieldwork

7.3.2 The reasons behind preference for use of private health services

Private health services in Medina and in Saudi Arabia in general work separately from the state health sector. Five questions were asked to the users of private health care to identify the main reasons behind preference for using this service. The questions, which were similar to the ones that were asked to the users of state health services, were put to a sample of 500, of whom 363 answered those questions; the remaining 137 respondents (27%) did not use private health services. The result in Table 7.13 reveals that about 49% disagreed that affordability was a key consideration in their use of private health services, while 38% indicated they used that service because they could afford it, and more than 13% were not sure. Thus, perhaps some people used private care despite difficulty in affording it. In relation to proximity of the services to users' home, almost 47% said they used the service because it is close to their home, more than 39% said that they did not use private health services for this reason, and 14% were not sure (Table 7.14). Clearly, proximity of private health services to people's home could influence them to use such services, as nearly half of the survey sample indicated. This is in contrast to state health services, which about 73% of respondents used because they are close by. It could be argued here, that as patients have more freedom, compared to state health services, to be treated at any private health institution, they will use what they think will bring greater benefit. Gatrell (2002, p. 158) took this view when he argued that:

If patients see some prospects of great benefit from their treatment, they are more likely to make use of services. In this case distance may be less of a constraint, although this assumes an ability to pay the costs of overcoming such distance.

A remarkably high majority of respondents, above 84%, said their reason for using private health services in Medina was because of speed (in general terms, for example, procedures and waiting time), whereas about 30% in state health sectors gave this reason. Fewer than 6% disagreed or strongly disagreed with this proposition. Fewer than 10% answered not sure (Table 7.15). It was not surprising that consumers preferred not to spend much time, whether on a waiting list or in a queue, as a result

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of the fact that state health services in Saudi Arabia in general is slow in procedures compared to private ones (Al-Mana, 2001).

The reputation for good doctors in terms of quality or skill in the private health sectors could be another main reason to attract consumers¹⁶. As seen in Table 7.16 a relatively high percentage, 74%, agreed or strongly agreed that the availability of good doctor(s) in private health institutions was one of the most important reasons that made them use such services, compared to about 49% in state health services who answered in the affirmative to the same question. Only about 9% disagreed or strongly disagreed with this item, while almost 17% were not sure (Table 7.16).

Not many people had sponsors for health care; or at least, they did not use this type of health service because the costs were paid for them. Fewer than 16% indicated that they agreed or strongly agreed that they used private health care because the costs were paid for them, while more than 66% disagreed or strongly disagreed to this question, and 7% were not sure (see Table 7.17).

It appeared in general that there are two main factors in the preference to use private health services in Medina; that they are quick compared to state services, and the availability of good doctors. This finding is consistent with previous claims, especially regarding waiting lists of dentists or specialists, where state services take much longer than private ones. Al-Mana (2001) emphasised that although state hospitals provide good services, they are not as quick as in private hospitals. It takes a long time to see a doctor or specialist in state hospitals, whereas in private hospitals,

¹⁶ Doctor's quality in patient's view is related to many factors, and sometimes subjective. For example, 1) Consultant doctors most often are sought. 2) Patient experience with doctor, i.e. when a patient has been treated by a doctor and is satisfied with that doctor, he/she will prefer to see the same doctor in future. 3) Good reputation of doctor (s) or a specific health institution among local society. As Calnan (1988 p. 929) argues, "satisfaction was expressed in terms of the ability of the doctors to listen to the patients' wishes and to communicate information about what was wrong and what treatment was required"

patients can be seen immediately when needed, because there is no waiting list and because of the flexibility of procedures to cope with patients' needs. State hospitals cannot compete with private ones in this respect. Also, private health services, from time to time, invite some experienced doctors, whether domestic or foreign, to work in them for a while, which could attract patients. A similar preference could be found even in countries that provide health services via one sector, such as in the US, where health services are mainly provided by the private sector, since the ability to pay increases choice. This point was made by Meade et al., (1988 p. 273) who said: "The United States relies mainly on the private sector. This means that most providers seek profits; those who can pay have a wide choice of care and generally receive high-quality treatment". In the UK, most people contact the GP as the gateway to using health services, and then they can be referred to secondary private or state services.

		Respondents	Percent
	Strongly agree	22	6.1
	Agree	116	32.0
	Not sure	48	13.2
	Disagree	122	33.6
	Strongly disagree	55	15.2
	Total	363	100.0
Missing	N/A	137	
⊺otal		500	

Table 7.13

Use private health services because I can afford it

Source: researcher's fieldwork.

Table 7.14

		Respondents	Percent
	Strongly agree	36	9.9
	Agree	134	36.9
	Not sure	51	14.0
	Disagree	111	30.6
	Strongly disagree	31	8.5
	Total	363	100.0
Missing	N/A	137	
Total		500	

Use private health services because it is close to my home

Source: researcher's fieldwork.

Table 7.15

Use private health services because it's quick

		Respondents	Percent
	Strongly agree	160	44.1
	Agree	148	40.8
	Not sure	35	9.6
	Disagree	12	3.3
	Stronlgly disagree	8	2.2
	Total	363	100.0
Missing	N/A	137	
Total		500	

Source: researcher's fieldwork.

Table 7.16

Use private health services because there are good doctors

		Respondents	Percent
	Strongly agree	116	32.0
	Agree	152	42.0
	Not sure	61	16.9
	Disagree	25	6.9
	Strongly disagree	8	2.2
	Total	362	100.0
Missing	N/A	138	
Total		500	

Source: researcher's fieldwork.

Table 7.17

		Respondents	Percent
	Strongly agree	26	7.2
	Agree	31	8.5
	Not sure	27	7.4
	Disagree	121	33.3
	Strongly disagree	158	43.5
	Total	363	100.0
Missing	N/A	137	
Total		500	

Ues private health services because I don't pay, the costs are paid for me.

Source: researcher's fieldwork

7.3.3 Reasons to receive treatment from traditional healer

Despite availability of health services provided by state or private sectors in Saudi Arabia, there are traditional healers still practising in rural areas and cities as well, although this is gradually decreasing. Traditional healing is deeply embedded in the Arab culture. Al-Ribdi (1990) reports that until the early twentieth century, this was the only form of health care available in the Arabian Peninsula, and is still widespread. These traditional skills are practised and used mainly by middle aged or old people. Traditional healers are not viewed as being in competition with modern medical practitioners, but rather as providing an alternative approach to health care. However, it is believed that patients who choose traditional medicine often have special health problems or features, or they seek traditional cures as a last resort, having tried modern medicine and not experienced the hoped for improvement. It could be that people have recourse to traditional healers for psychological and other conditions when they despair of modern medical services. Those who consult traditional healers believe there are some diseases that cannot be cured or diagnosed by modern medicine, because they are caused by the evil eye or Jinn. Epilepsy is

attributed to such causes. Traditional medicine has been found successful in dealing with such diseases, as traditional healers take a holistic view which encompasses not only the physical aspects of the problem but also the psychological, whereas in modern medicine the physician is usually only concerned within the physiological side of the disease (Bakhashwian, 1995). Risalat Al-Jameah (1991) confirmed that many studies found that psychological patients mostly visit traditional healers (cited in Albaz, 1992). As most of these healers are practising illegally, little is known about this service. In general, traditional forms of healing in Saudi Arabia could be categorized into spiritual, for example reading phrases from the Koran or Prophetic rubric, herbalism, bone- setting, cauterizing, bleeding and cupping.

This research is not concerned with the practices of traditional healers or the diseases that they deal with, but rather what are the main reasons that make people interested to go to them. In order to identify such reasons, questions on this issue were included in the survey. Also, cross-tabulation was used to show the relationship between respondents' socio-economic characteristics and frequency of visits to traditional practitioners, and chi-square to show the level of significance. The frequency result shown in Table 7.18 reveals that 26% of the respondents had received treatment from traditional healers in the previous 12 months. This is evidence that this service is still quite common, even though the majority, 74%, had not received such treatment. The question was then posed, whether people sought this type of treatment for medical reasons, or non-medical reasons, for example location in relation to the patient, or dissatisfaction with conventional medicine. Only a small proportion, 5.8%, cited a non-medical reason, that is, that proximity made them use this service. More than 26% indicated that they were unhappy with modern medical services, which made them use a traditional healer. The majority, almost 68%, of the respondents, cited

good reputation of the traditional healer in terms of medical treatment as the main reason that made them go to such services (see Table 7.19).

The good reputation of a traditional healer as effective in treating certain diseases is mentioned by some researchers. For example Bakhashwian (1995) in Jeddah, Saudi Arabia, found that traditional medicine is still widely preferred for treating some diseases that cannot be cured by modern medicine. His survey sample indicated that about 75% agreed or strongly agreed that traditional healers are better than modern medicine in curing some diseases. Al-Mubark (1989) also found that 75% of his respondents indicated the success of traditional medicine in success of curing diseases. Also, Bakhashwian (1995) indicated that there are two main reasons why patients use traditional healers: personal experiences of traditional medicine and its ability to cure diseases that modern medicine cannot successfully treat.

Overall, it appears that the main reason for consulting traditional healers was not "geographical" reason. Mostly the reason was the reputation of such healers as able to cure some diseases that modern medicine has not been successful in treating. Does this mean that demographic and socio-economic factors make no difference in the utilization of traditional healers? This will be discussed in the following section.

Table 7.18 Use of traditional healers/herbalist

In the last 12 months have you received treatment from a traditional healer /herbalist?

	Respondents	Percent
Yes	130	26.0
No	370	74.0
Total	500	100.0

Source: researcher's fieldwork.

Table 7.19

		Respondents	Percent
	Close to my home	8	5.8
	Unhappy with formal medical services	36	26.3
	Good repution of medical treatment	93	67.9
	Total	137	100.0
Missing	N/A	363	
Total		500	

Reasons for using a traditional healer/herbalist

Source: researcher's fieldwork.

7.3.3.1 Gender and consulting traditional healers

Table 7.20 shows that the incidence of women consulting traditional healers was lower than that of men. A similar finding was obtained by Bakhashwian (1995), that most users of traditional healers in his survey sample were males. However we cannot reliably conclude that most users of traditional healer are men, as there is no significant difference in the mean score between males and females, for use of such services. Also, a contrary result was found by Al-Khouly (1984) and Al-Saaty (1984), that females made far more visits to traditional healers than males. So the extent of the influence of gender as factor in the utilization of traditional healers is difficult to assess. The gender usage of traditional healers may be affected by culture or religious belief. As we have seen, most traditional healers are consulted for psychological reasons. It could be that in societies where the man is the breadwinner, he may be at risk of psychological problems caused by pressures he cannot cope with.

Table: 7.20

in tr	le last 12 months	s hav e you i	receive	d treatment from a
t	raditional healer	/herbalist?	* Sex C	rosstabulation

		Se		
		Male	Female	Total
In the last 12 months have you received treatment	No	51.8%	22.2%	74.0%
from a traditional healer /herbalist?	Yes	20.4%	5.6%	26.0%
Total		72.2%	27.8%	100.0%
Chi-square (3.432)		DF. (1	.)	sig. (0.064)

% of Total

Chi-square (3.432) DF. (1) Source: researcher's fieldwork.

7.3.3.2 Age and consulting traditional healers

Some studies, for example Al-Ribdi (1990) and Bakhashwian (1995), found a difference between age groups in use of traditional healers. This study, in contrast, found no significant difference between age groups in this respect. Possibly, as mentioned above, users of traditional healers mostly consulting for certain types of diseases, which do not affect a specific age group. In other words, there is no age group more likely than others to be affected by the diseases usually treated by traditional healers, for example, psychological problems. A further explanation is suggested by the fact that the studies of Al-Ribdi (1990) and Bakhashwian (1995) found the main difference to lie between old, more than 60 years, and young users. Elderly people had long been users of traditional medicine and they did not go to modern medical facilities unless they have lost faith in traditional medicine, and the opposite is true for younger people. In this study, respondents aged more than 60 years were a very small proportion of the sample, which might have affected the result (see Table 7.21 and 5.1).

Table 7.21

				Age recoded				
In the last 12	Vaa		From 16 to 20	21 to 30	31 to 40	41 to 50	more than 50	Total
months have you	res	Expected Count	8.6	56.2	43.4	17.9	3.9	130.0
received treatment		% of Total	1.6%	12.0%	8.6%	3.0%	.8%	26.0%
from a traditional	No	Expected Count	24.4	159.8	123.6	51.1	11.1	370.0
healer /herbalist?		% of Total	5.0%	31.2%	24.8%	10.8%	2.2%	74.0%
lota		Expected Count	33.0	216.0	167.0	69.0	15.0	500.0
		% of Total	6.6%	43.2%	33.4%	13.8%	3.0%	100.0%

In the last 12 months have you received treatment from a traditional healer /herbalist? * Age recoded Crosstabulation

Chi-square (1.068) Source: researcher's fieldwork

DF. (4)

Sig. (0.899)

Sig. (0.622)

7.3.3.3 Education and consulting traditional healer

Table 7.22 shows that about quarter of respondents in each of the five education groups had consulted a traditional healer in the last 12 months before the survey. There is no significant difference between respondents of different education levels, in use of traditional healers. This mean the proportion of those who use traditional healers is not significantly different from those who did not use them.

In view of the evidence of inequity of health care distribution, accessibility and utilization, discussed in this chapter and the previous one, the next section discusses views of the future of health services in Medina.

Table 7.22

			Education level recoded					
			Primary	Middle school	Secondary	Diploma	University	Total
In the last 12	Yes	Expected Count	8.3	14.6	32.0	28.9	46.3	130.0
months have you received treatment from a traditional healer /herbalist?		% of Total	1.6%	2.8%	6.4%	7.0%	8.2%	26.0%
	No	Expected Count	23.7	41.4	91.0	82.1	131.7	370.0
		% of Total	4.8%	8.4%	18.2%	15.2%	27.4%	74.0%
Total		Expected Count	32.0	56.0	123.0	111.0	178.0	500.0
		% of Total	6.4%	11.2%	24.6%	22.2%	35.6%	100%

DF. (4)

Number of using traditional healers, and Education level recorded Cross tabulation

Chi-square (2.625) Source: researcher's fieldwork.

7.4 The outlook for health services in Medina

Regarding the future of the health services in Medina and how they are envisaged, the analysis focused on the attitudes of health services managers. Most of the interviewed managers agreed that they were witnessing a continuous improvement. The assistant manager of Medina National Hospital expected a good and bright future for the services. The manager of Almowasah Hospital agreed, explaining his optimism in terms of the great attention given to the state hospitals, as well as the competition between the private hospitals to develop their services. Several managers commented on the rate of development of health services. For example, the assistant manager of Al-Eglal hospital explained that there is an obvious and fast development in health services in Medina as a result of the establishment of more health centres and hospitals, whether private or state ones, and anticipated that this development would have a positive effect on the future of the health services in Medina.

On the other hand, the manager of the Saudi National Dispensary believed that there are more private health services, such as hospitals, dispensaries and clinics, than needed in Medina and this may not be in the interest of patients. Other interviewees acknowledged the progress achieved but pointed out that shortcomings remain. For example, Dr. Majid Sagr, the owner and manager of Majid Sagr clinic, agreed that the health services in Medina are developing in both quality and quantity, but warned that in his view, the level of health services in the area is still low compared to the developed countries. In this regard, Alfalh (2002) for example argued that despite the progress made in the development of the health services, there are still some deficiencies¹⁷. Dr. Mohamed Niazi, the owner and manager of Dr. Mohammed

¹⁷ Indicators of these are: a) the mortality rate of infants still high (21/1000 population), compared to similar countries b) lack of hospital beds in general over all Saudi regions, with a ratio of 2.3/1000 compared to 4/1000 in similar countries and 7/1000 in advanced countries. c) Malaria is still endemic -

Niazi's clinic, agreed that there has been good development and that new branches have been opened, adding some new specialities and some new medical institutions, but criticised the shortage of medicines, as well as long waiting periods in some hospitals, for example King Fahd Hospital. To safeguard service quality, Dr. Abdalhaleem Marzoog, the owner and manager of Dr. Abdalhaleem Marzoog's clinic, suggested a need for the government to exercise a close supervision and control over the private health sector. He particularly noted the range of charges applied in all private health services and suggested that charges should be made uniform across all private health services. Dr. Marzoog's idea was that the private hospitals should be classified in categories, say A, B, etc, and charges determined accordingly. Another area in which a need for development was perceived, according to Dr. Izeldin Galal, was the importance of putting more effort into developing preventive medicine rather than focusing on curative services. The state hospital managers both agreed that services are improving, but one of then saw health services in Medina as not commensurate with the rapid increase in population, which has outstripped health service development, whether in terms of technology or in number of hospitals and doctors.

The general manager of the PHC saw the future of primary health care services as bright, especially now that specialised development programmes have been put into practice, for example, chronic disease, primary psychological care ...*etc*, and as a result of a policy of 'good type quality' (high quality with less cost) in primary health care centres services.

⁻in the south west of Saudi Arabia; in 1998, 13000 cases were recorded. d) Lack of personal services in hospitals and PHCCs, which leads to consumers' dissatisfaction.

Consumers also were asked an open ended question about the way to improve the geographical distribution of health services in Medina. Their answers were varied and some did not relate to distribution. Most of them emphasised that the PHCCs should be located on the middle of the health areas they serve. Also, state hospitals should be in the reach of all Medina inhabitants, and their capacity expanded. In relation to private services, they focused on the high cost of treatment and thought it should be reduced and controlled by the health authority. Also, their establishment should be based on population density and need.

From what is mentioned above, it can be noticed that the future of the health services is expected to be good in general. This view is supported by achievement in the area. In precautionary services, for example, the PHCCs covered more than 96% of primary immunisations, 99% of tetanus vaccine, and 85% of antenatal, obstetric and paediatric and babyhood care in 1999 (Medina Chamber of Commerce and Industry, 2000).

In the same regard, a question was asked to the general manager of PHCCs "To what extent do you think the government's general aim of 'health for all by the year 2000'" has been achieved in the whole Kingdom and in Medina in particular? The manager said there is no doubt that Saudi Arabia is one of the countries which has made the most progress in respect of health for all. In Saudi Arabia, contagious diseases are under control. Also, the Kingdom is about to eradicate poliomyelitis. Moreover, infant mortality has been reduced to a low level. All these achievements show to what extent the Kingdom has succeeded in its efforts to develop the health services for all.

Despite that achievement, however, some drawbacks were felt to exist, which should be addressed in the future. Examples of these are: 1) the need for firm and close control on the private sector by deciding on unified charges; 2) concentrating on protective medical services; 3) securing the needed medicines and reducing patients' waiting time; 4) the problem of inequitable distribution of health institutions, and 5) most health institutions occupy rented buildings. In conclusion, the future of health services in Medina was perceived with optimism in view of the rapid development achieved, but a need was identified for further improvements in quality, close government supervision, and a uniform system of charges in the private sector.

7.5 Conclusion

This chapter discussed access to and utilization of state health services and traditional healers; and the effect of distance upon users' choice of the type of health services provided. It appears that PHCCs were physically accessible to the majority of respondents (83%). Perhaps such accessibility is attributable to car ownership by most respondents. In terms of hospitals, however, 21% faced problems with access to state hospitals. This is probably related to the fact that almost all general hospitals are located in one part of the city. The rate of health service utilization was high in general, because most of the users were people who are more likely to need healthcare, such as the married group.

Physical inaccessibility of state health services does not necessarily cause patients to switch to private services according to most respondents, as confirmed by three hospital managers. The reason for that could be the un-affordability of treatment in the private health sector. However, distance in general, reduces the number of state hospital visitors. People who lived close to hospitals, in the study area, did not necessarily need them as much as others who lived further away.

Reasons for preference between health services providers varied among respondents. In terms of the variables examined, it appears that the two most important factors that caused people to use state health services were: 1) it is free of charge and 2) when it is close to the user's home. Factors encouraging use of the private sector were 1) it is 'quick' compared to state provision and 2) the availability of good doctors.

Traditional healers are still used; mostly for diseases that it is thought cannot be diagnosed by modern medicine, for example, psychological diseases which are thought to be caused by the evil eye or Jinn. There was no significant difference between genders, age groups and education levels in using traditional healers.

Generally speaking, it is true that geographical distance influences the rate of health service utilization. However, its influence declines with the availability of transport, particularly private transport. In addition to the distance problem, there are other variables that affect utilization of health services. These are 'affordability', 'availability of good doctors' and the 'speed of services, which should be taken into account when studying health service utilization.

The outlook for health services in Medina was perceived with optimism by most managers in view of the rapid development achieved, but a need was identified for further improvements in quality, close government supervision, and a uniform system of charges in the private sector.

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Chapter Eight

Factors Affecting Users' Satisfaction with Health Services in Medina

8.1 Introduction

Research on consumer satisfaction with medical care has burgeoned since the early 1970s (Hall and Dornan, 1988). Getting a high rate of consumer satisfaction is one of the most important considerations that all planners and providers, including health services planners, keep in mind and work to achieve when they want to establish any type of service. Newson and Wright (1999 p. 161) argue that "satisfying patients has become a key task for all healthcare providers". The delivery of health care involves patient satisfaction as both an aim and a means to achieve other aims. Many studies, for example Calnan (1988) Hall and Dornan (1990), Alhamad and Alshuhaib (1990), Albaz (1992) and Al-Makdom (1996), have indicated that patients who are satisfied are much more cooperative and compliant with doctors and medical staff advice in general than those who are less satisfied. Moreover, services that produce less satisfaction are less effective. This chapter will analyse and investigate users' satisfaction with health services in Medina in terms of geographic measures, accessibility and quality. It also compares state and private health services in terms of level of satisfaction. The cost of treatment in the private sector will be discussed. Also, the evaluation of the health services in consumers' views will be examined.

Evaluation of health care services has generally been investigated through studies of patient satisfaction. In other words, the patients' (consumers') view is used as a type of evaluation. This approach is considered, up to a point, a fairly new phenomenon. "Satisfaction studies started to appear in the literature about half a century ago with the growing awareness of the patient (consumer) as an evaluator of health care and with time became more sophisticated and specialized and multidimensional scales for

measurement of satisfaction were suggested" (Al-Doghaither and Saeed, 2000 p. 447). It is mostly found in the countries which provide health services mainly via the private sector, such as the US. This is because profit is the main factor in the continuation and improvement of such services. So, there is likely to be strong competition between providers.

In developing countries, no similar competition exists between state health service institutions, due to the fact that health services are provided free of charge, and the main target is not profit (Alhamad and Alshuhaib, 1990). In Saudi Arabian research, the views of patients, whether they are often satisfied or not, are ignored, such as noted by Albaz (1992). Despite the rapid development of health services in Saudi Arabia during the last three decades, the interest in studying patient satisfaction with health services has been limited. The small number of such studies may be attributed to unawareness of the importance of consumers' views, or because of the recent introduction of modern health services in such developing countries.

There are a number of reasons why patient satisfaction is important to be examined. Calnan (1988), for instance, introduced three main reasons that lead to interest in patient satisfaction. First, it is believed that health care should be evaluated not only on clinical effectiveness and economic efficiency, but also on social acceptability. This means the community or the public's perceptions of health care. Another reason for measuring patient satisfaction is the belief that it has an influence on health status and medical outcomes. From this perspective, patient satisfaction is seen as part of the process of health care that might be significant in two ways. One is that people who are more satisfied are more likely to use medical services and to comply with medical advice and treatment regimes. Clearly, those who do not use health services or comply with treatment might be at greater health risk (Calnan, 1988; Hall and Dornan, 1990).

The politics of health service delivery has been a further reason for studying patients' views on health care. Taking into account the perspective of the patient is necessary in order to democratise the health services and provide a balance to the powerful interests of the professions and the state. Another politically motivated reason is the emphasis on consumer sovereignty and the notion that the supply of health care should respond directly to patient preferences and demands.

There are also considerations related to professional ethics or humanitarian concerns. From this perspective, the focus is on the idea that doctors operate basically to serve the needs and wishes of the patient and to benefit the patient. Such a patient centred view demands an understanding of patient concerns and interests. These reasons are not wholly distinct, and overlap, but each has been used to justify investigating patient perceptions of health care (Calnan, 1988).

Researchers have used patients' perceptions to measure overall quality and as an outcome for evaluating consultations and other encounters between providers and consumers, especially doctors and patients. For instance, Aspinal et al. (2003 p. 324) observed that "satisfaction levels have been used widely in palliative care to assess quality". Patients are a relevant source of information on certain aspects of care (Bensing, 1991).

Studies of public services in general, and health services in particular, have been the concern of geographical writers since the second half of the twentieth century; these works have varied, covering, for instance, services distribution, size, spread, and level of satisfaction. Such factors often affect the choice of the users. Also, studying patient

satisfaction in a geographic context gives important information about the structure of the health care setting and the process of delivering health care and it assists agencies in improving their performance (McNesse, 1988; Wagner, 1988). Furthermore. satisfaction surveys help health administrators to plan for new programmes or services by giving an indication of likely consumer demand in particular locations. This chapter evaluates the health services in Medina using patients' satisfaction as a main factor of people's attitude toward health services.

Looking at levels of satisfaction in a geographic context can be a useful way of gauging the advantages or disadvantages of services, in order to identify the problems faced, and develop ways to alleviate them. This could be applied to assessment of the geography of health service quality and quantity (Al-Kamshi, 2000). For instance Saeed et al. (2001) report that satisfaction with ambulatory care, particularly physicians' care, is a significant determinant of consumer behaviour in searching for health care, complying with treatment and making return visits. Even though some researchers, for example, Penchansky and Thomas (1981), argued that patients with longer travel times are less satisfied with accessibility, satisfaction could outweigh inaccessibility, i.e. when the consumer is satisfied with a service, he/she may use it even if it is far away. This may explain why many patients, when they move to a new residential area, continue to consult their old GP service, even if it is further away and there is opportunity to register with a nearby GP, because they are satisfied with the old GP. In addition, satisfied patients maintain continuity of treatment, accept treatment outcomes and recommend health care services to others.

8.2 The Main Factors that Influence Satisfaction

Many factors could affect consumers' satisfaction. Some of these are "geographical", such as location of the services, and others are "non-geographical", for example, social or economic factors and others. In this context, Alhamad and Alshuhaib (1990) argue that there is no absolute agreement about the main factors that influence satisfaction or dissatisfaction with health services. While some, for example, Saeed et al. (2001), see the contact between doctors and patients as the most important factor in these equations, others argue that the nurses' care is the main influence on patient satisfaction, especially for inpatient services (Carey, 1981 cited in Alhamad and Alshuhaib, 1990). Also important could be the type of hospital used, for example specialist or general or educational, while demographic and socio-economic factors could have a role in satisfaction.

It is difficult to find an accurate measurement of satisfaction with services. Different studies used different measurements; for example Saeed et al. (1992) suggested that the frequency of utilization of a particular type of health centre, when other health centres were available free of charge, signalled satisfaction with the service. A different view was put forward by Al-Shamekh (1992), who found that characteristics of primary health care, for example, type of dispensary and frequency of visits, did not much influence patients' utilization and satisfaction. Geographical location affects satisfaction towards hospitals, for most respondents, in terms of distance, traffic and noise, according to Alhamad and Alshuhaib (1990). Others, for example Albaz (1992) argue that the service delivery system and socio-demographic variables could be the main factors affecting patient satisfaction with primary health care services. Overall satisfaction with health services, from a geographical perspective, is mainly restricted to the location of health institutions from where the consumers live. Also, socio-

economic factors could be limited to the geographical access to the services, for example, un-affordability and ownership of private transport, as seen in the previous chapters.

Consumer satisfaction with healthcare and health facilities is varied and complex, as it depends on the consumers' knowledge and background about such services. Thus, here, the issue is quality examined from a general perspective which enabled patients to express their view, i.e. consumers were not asked in details about technical matters, which most people normally do not have experience of, for example, the type of X-ray used. Yet, as locational issues are intimately connected to other aspects of quality, the two themes were not artificially separated.

Generally it can be said that satisfaction with the geographic provision of health services could be affected by three elements: (1) the interactions between staff, including doctors, and patients; (2) the actual service offered, such as type of services, spatial distribution, accessibility, affordability, medical equipment *etc;* (3) the consumers themselves, for example, their demographic and socioeconomic factors.

8.3 Satisfaction with accessibility of state health services

Getting access to health services is very important to the users, as inaccessibility wastes time and effort, which leads to dissatisfaction. Access to health care, according to Ricketts et al. (1994 p. 317), "may be "potential" indicating physical proximity or ability to use services, or "realized" indicating actual or effective use of services". One measure is geographic access, which "refers to the time and physical distance that must be traversed to get care, usually measured in distance or travel time from a person's residence to a source of care" (*ibid* p. 320).

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In this study, respondents' response frequency was used as an abstract tool to measure satisfaction with health services. The analysis in Table 8.1 shows that more than 21% of the respondents were very happy with the accessibility of state health service in Medina, more than 36% were happy, while about 14% were unhappy and above 5% were very unhappy. However, more than 23% were not sure. Focusing on general differences in level of satisfaction, the Chi-square test (Table 8.2) shows that there was no significant difference between males and females in terms of satisfaction with the accessibility of state health services (p>0.05). This suggests that males and females have similar levels of problems with access to health services.

In general the total proportion of respondents who answered 'happy' or 'very happy' was almost 58%. This may be considered acceptable, but a higher proportion of satisfied users is to be preferred.

Nearly 19% of the respondents were unhappy or very unhappy with the accessibility of state health services. Inconvenience of location and the distance or time to the health institution from the patients' home may have played an important role in that dissatisfaction, or it may have been the types of service provided themselves.

		Respondents	Percent
	Very happy	107	21.6
	Нарру	179	36.2
	Not sure	115	23.2
	Unhappy	68	13.7
	Very unhappy	26	5.3
	Total	495	100.0
Missing	N/A	5	
Total		500	

 Table 8.1

 Satisfaction with accessibility of state health services

Fig. 8.1



Satisfaction with accessibility of state health service

Satisfaction with accessibility of state health services

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Sausiaction with accessibility of state health services " Sex Crosstabula	Satisfaction with accessibility	y of state health services '	* Sex Crosstabulation
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			Se	ex	
			Male	Female	Total
Satisfaction with	Very happy	Expected Count	77.4	29.6	107.0
accessibility of		% of Total	14.5%	7.1%	21.6%
state nealth	Нарру	Expected Count	129.5	49.5	179.0
Services		% of Total	26.9%	9.3%	36.2%
THE ALCONG IN	Not sure	Expected Count	83.2	31.8	115.0
		% of Total	16.6%	6.7%	23.2%
In the second	Unhappy	Expected Count	49.2	18.8	68.0
		% of Total	9.9%	3.8%	13.7%
the best set to be a set	Very unhappy	Expected Count	18.8	7.2	26.0
		% of Total	4.4%	.8%	5.3%
Total		Expected Count	358.0	137.0	495.0
		% of Total	72.3%	27.7%	100.0%

Chi-square value (3.729) Source: Researcher's Fieldwork. DF. (4)

Sig. (0.444)



Satisfaction with accessibility of state health services

8.4 Satisfaction with Accessibility of Private Health Services

With regard to private health services, the frequency analysis shows that 40% of the respondents were happy and about 21% very happy with the accessibility of private health services. A total of about 9% were not happy, or were very unhappy. However, more than 30% were not sure (see Table 8.3). The level of satisfaction is higher than was expected, because the distribution of private health services in Medina, as we have seen already in Chapter Two, is concentrated in some areas only. A possible explanation is that the users of private health services are interested much more in the type or quality of the services, which may be not available in the state services, than anything else. The fact that they left the free, state health service, to go to the private health services, for which a charge is made, suggests the location of the services in any part of Medina probably did not cause many problems for the users, or use does not reflect levels of satisfaction. Another explanation may be that, because the private health services in Medina are located closer to concentrations of population than the

state ones, they are accessible to most users. Or more prosaically: people who can afford private health care can afford cars and taxis to get to the facilities.

The Chi-square test revealed no significant differences between the sexes in terms of satisfaction with access to private health services. This means the proportion of males is not significantly different to the proportion of females who were satisfied with the accessibility of private health services.

Tabl	e	8.	.3

Satisfaction with accessibility of private health services

		Respondents	Percent
	Very happy	102	20.7
	Нарру	197	40.0
	Not sure	149	30.2
1000	Unhappy	36	7.3
	Very unhappy	9	1.8
	Total	493	100.0
Missing	N/A	7	
Total		500	

Source: Researcher's Fieldwork.

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50 40 40 30 30 20 21 10 Percent 7 0 very happy unhappy not sure happy very unhappy

Satisfied with accessibility to private health service

Satisfied with accessibility to private health services

Table 8.4

			Se	ex	
			Male	Female	Total
Satisfaction with	Very happy	Expected Count	74.1	27.9	102.0
accessibility of		% of Total	15.0%	5.7%	20.7%
private nealth	happy	Expected Count	143.1	53.9	197.0
Services		% of Total	29.0%	11.0%	40.0%
	Not sure	Expected Count	108.2	40.8	149.0
		% of Total	22.9%	7.3%	30.2%
	Unhappy	Expected Count	26.1	9.9	36.0
		% of Total	4.1%	3.2%	7.3%
	Very unhappy	Expected Count	<u>6.5</u>	2.5	9.0
		% of Total	1.6%	.2%	1.8%
Total		Expected Count	358.0	135.0	493.0
	-	% of Total	72.6%	27.4%	100.0%

Satisfaction with accessibility of private health services * Sex Crosstabulation

Chi-square value (7.247)



Sig. (0.123)

Source: Researcher's Fieldwork.



Fig. 8.4

Satisfaction with accessibility of private health services

8.5 Satisfaction with Quality of State Health Services

The statistical frequency result of satisfaction with quality of state health service in Medina is shown in Table 8.4. Almost 13% were very happy, nearly 30% happy, more than 20% were unhappy, more than 7% very unhappy and more than 29% were not sure. It is apparent that a total of almost 43% of the respondents were happy or very happy with the quality of state health service. This rate of satisfaction is considered low in comparison to other studies, especially as the question about the quality was general, where the satisfaction rate should be higher. When questions are specific and focus on particular aspects, the proportion of satisfied users is expected to be lower than when the question is asked in general terms. It is rare to find a high rate of satisfaction with every single variable, but when the evaluation is general, the result could be different. Many studies, for example, Al-Kamshi (2000), Al-Dalgan (1993) and Williams and Calnan (1991) have found that the percentage of consumers satisfied with health care was high. It was more than 90%, when the question was general, but when the questions were focused, for example, satisfaction with doctors', or nurses' treatment, medical equipment, waiting list ...etc., the rate of satisfaction with the quality of state health services in Medina was not in general high.

Table 8.6 shows that there was a significant difference (p<0.05) between males and females in terms of satisfaction with the quality of state health services. Looking at the percentages, and comparing actual and expected counts, it can be said that males were less satisfied than females. The difference in view between the sexes regarding quality of state health services might have many explanations; further research is needed on this matter. Dissatisfaction with quality of health services in general could be related to many factors, for example experience and characteristics of physicians, waiting time to see the doctor, the way the doctor interacts with the patient; giving them time to describe their cases, listening to and diagnosing them, and also availability of medical equipment. Other researchers, for example Albaz (1992), Desisher et al. (1965) cited in Alhamad and Alshuhaib (1990) have found that some barriers between doctor and patient, including not giving the patient enough time to

explain his/her situation, or the doctor not asking the patient in detail about his/her illness. Doctors' misunderstanding of the patient's complaint may be related to language barriers, or because the doctor is busy with other things. Some of the doctors in Saudi Arabia are non-Arabic speaking and some speak in different accents, which could impede communication between doctors and patients. In a survey questionnaire, Moustafa (1984) found that 22% of respondents felt very successful in explaining their health state to doctors, while 44% said they succeeded sometimes and 28% felt they failed to explain their health situation to the doctor.

Patient dissatisfaction with the quality of state health care can have undesirable consequences, such as patients having to seek other health care providers, which could be costly. Evidence for this, is that in the UK for instance, in the early 1980s there was an increase in consumer demand for private medical insurance, which was mostly related to the claim that there has been an increase in dissatisfaction with National Health Services (Laing, 1985; Taylor-Gooby, 1986).

Gausic	Calibration with quarty of state notatil services						
· · · ·		Respondents	Percent				
	Very happy	64	12.9				
	Нарру	148	29.8				
	Not sure	147	29.6				
	Unhappy	101	20.4				
	Very unhappy	36	7.3				
	Total	496	100.0				
Missing	N/A	4					
Total		500					

Table 8.5

Satisfaction with quality of state health services



Satisfaction with quality of state health services

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Satisfaction with quality of state health services * Sex C	Crosstabulation
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			Se	ex	
			Male	Female	Total
Satisfaction	Very happy	Expected Count	46.3	17.7	64.0
with quality of		% of Total	7.7%	5.2%	12.9%
state nealth	Нарру	Expected Count	107.1	40.9	148.0
361 11063		% of Total	20.0%	9.9%	29.8%
Bennet hereite	Not sure	Expected Count	106.4	40.6	147.0
		% of Total	22.8%	6.9%	29.6%
an palakate dara	Unhappy	Expected Count	73.1	27.9	101.0
		% of Total	15.5%	4.8%	20.4%
Citized The ine	Very unhappy	Expected Count	26.1	9.9	36.0
		% of Total	6.5%	.8%	7.3%
Total		Expected Count	359.0	137.0	496.0
		% of Total	72.4%	27.6%	100.0%

Chi-square (14.787) Source: Researcher's Fieldwork.

DF. (04)

Sig. (0.005)



Satisfaction with quality of state health services

8.6 Satisfaction with Quality of Private Health Services

Satisfaction with quality of private health services seemed higher, from the patients' perspective, than with state services. This might be attributed to the competition between health institutions in the private sector to offer better services. Such competition does not exist between state health services, as Al-Mana (2001) noted. Probably the competition is found when the service is for profit and the opposite is also true.

The distribution of responses shown in Table 8.7 shows that about 38% of respondents were happy, and more than 15% were very happy with private health services, while the total of unhappy and very unhappy did not exceed than 11%. However, 36% were not sure. This high rate of "not sure" answers could be due to the fact that some people did not use private health services regularly, and so would find it difficult to assess whether the service was good or not. The proportion of respondents 'happy' and 'very happy', which was 53.3%, with the quality of private

health services is higher than for the state services (42.7%). But, 53.3% is not considered satisfactory, as it means the other half of the survey sample were unhappy with or at least were not sure about the services. Perhaps the previous reasons could apply here as well, that is, patients might be happy with some staff or features and unhappy with others, so that the average rate becomes low. Furthermore, it is difficult for patients to judge the technical quality of health care, as noted by Hall and Dornan (1988).

This view of consumers' satisfaction is consistent with what private hospital managers explained. Interviews were undertaken with three managers and deputy managers of three private hospitals in Medina city. They were asked why some people prefer to use private health services over state services. The assistant manager of the Medina National Hospital thought that the first factor is the high quality of health services that people find in private hospitals. Other factors are the location of the private hospitals in close proximity to the populated areas and the speed with which patients are seen and treated. The manager of Almowasah Hospital, located at Almatar (Airport) Street in the north east of Medina, as well as the manager of Al-Eglal hospital, shared the opinion of the assistant manager of the Medina National hospital that the high standard of the health services is the main reason which attracts patients to the private sector hospitals. Nevertheless, private health services serve a certain group of people, those who can afford the cost or have insurance.

The previous question was also asked at nine private health institutions. Six of the nine interviewed doctors agreed that the main reason for patients to visit private health sectors for treatment is the good quality of health services provided. Three doctors, however, gave different reasons. Dr. Abdalhaleem Marzoog believed that the bad

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health service in state hospitals was the main reason why patients prefer to be treated in private health institutions. In contrast, Dr. Mohammed Niazy, in response to the questionnaire, identified location rather than service quality as the more important factor in shaping consumer satisfaction or preference. He attributed patients' preferences to the fact that most private hospitals and clinics are located near to highly populated areas. A different explanation was offered by Dr. Izeldin Galal, who thought it was the long waiting period at the state hospitals which prompt patients to choose private hospitals in preference to state hospitals. For a patient to see a consultant at a state hospital, he/ she should be referred by his/her health centre, and then wait for a while until his/her turn arrives, while a patient can see a consultant the same day if he/she visits a private health institution. Dr Majid Sager agreed with Dr Galal's opinion that the ease with which a patient can see a consultant at private health institutions is the main reason which encourages patients to prefer private sector health services to the state ones.

It could be concluded that all those factors play a significant role in patient satisfaction with private health services. However, the good quality of private health services was the main reason on which most consumers and doctors agreed.

A Chi-square test showed that there was no significant difference (p>0.05), between the sexes in satisfaction with the quality of private health services. This means there was no difference in the mean score between males and females in terms of satisfaction with quality of private health services, which is different from the situation in the state sector, which could be an area for future research (see Table 8.8).

Table 8.7

		Respondents	Percent
	Very happy	76	15.4
	Нарру	187	37.9
6	Not sure	176	35.7
	Unhappy	44	8.9
	Very unhappy	10	2.0
	Total	493	100.0
Missing	N/A	7	
Total		500	

Satisfaction with quality of private health services

Source: Researcher's Fieldwork.





Satisfaction with quality of private health services

Satisfaction with quality of private health services

Table 8.8

Satisfaction with quality of private health services * Sex Crosstabulation

			Sex		
			Male	Female	Total
Satisfaction with	Very happy	Expected Count	55.2	20.8	76.0
quality of private		% of Total	11.2%	4.3%	15.4%
nealth services	Нарру	Expected Count	135.8	51.2	187.0
		% of Total	28.4%	9.5%	37.9%
	Not sure	Expected Count	127.8	48.2	176.0
		% of Total	25.8%	9.9%	35.7%
	Unhappy	Expected Count	32.0	12.0	44.0
		% of Total	5.9%	3.0%	8.9%
	Very unhappy	Expected Count	7.3	2.7	10.0
		% of Total	1.4%	.6%	2.0%
Total		Expected Count	358.0	135.0	493.0
		% of Total	72.6%	27.4%	100.0%

Chi-square value (1.527)

Source: Researcher's Fieldwork

DF. (4)

Sig. (0.822)



Satisfaction with quality of private health services

8.7 The Influence of Demographic or Social-economic Factors on Consumers' Satisfaction

Demographic and social economic factors might influence patient satisfaction. To see if this was the case, Chi-square and analysis of variation (ANOVA) tests, with other tests, were used. Eight independent variables were used to see their significance relation to satisfaction with access to and quality of state and private health services in Medina.

The ANOVA test showed that there were significant differences (p<0.05) between age groups in satisfaction with quality of state and private health services, with a probability value of 0.016 for state health care and 0.001 for private health care (Table 8.9). Post hoc tests showed that the significant difference was between the 16-20 age group against the 21 to 30 and 31 to 40 age groups, in the case of state health services. However, in the private health sector, the significant differences lay between the age group from 16 to 20 against all age groups from 21 to 60 (see Tables 8.9b and 8.9c). This is evidence that level of satisfaction varies with age. Further research is needed to examine the difference between age groups. It might be that young people are most often less satisfied with the quality of health services compared to older ones. This result is consistent with the findings of other studies such as Hall and Dornan (1990). Williams and Calnan (1991), and Al-Makdom (1996). Hall and Dornan (1990 p. 817) observed that "older patients may be more satisfied because they become generally mellow and accepting, or because they feel more reluctant than younger patients to pass negative judgment on their care".

The varying level of consumers' satisfaction, in relation to age groups, could exist because of differences in the health state of consumers. Evidence was provided by Albaz (1992) that there is a difference between patients with good and bad health status in terms of satisfaction with health services. It might be that older people's views are influenced by different health problems and experiences of health care associated with ageing. Another possibility is that younger and older patients have different norms about health. There may also be ideological (believing/thinking) differences in the approach to health care between elder and younger people. However, there was no significant difference between respondents of different age groups, in satisfaction with accessibility of state and private health services respectively.

Table 8.9a

Age groups and satisfaction with quality and accessibility of health service in Medina

ANOVA

	Sig.
Satisfaction with quality of state health services	.016
Satisfaction with quality of private health services	.001

Table 8.9b Post hoc tests

Multiple Comparisons

Dependent Variable: Satisfaction with quality of state health services

LSD

(I) Age	(J) Age	Sig.
from 16 to 20	21-30	.002
	31-40	.001

Source: Researcher's Fieldwork.

Table 8.9c Post hoc tests

Multiple Comparisons

Dependent Variable: Satisfaction with quality of private health services

(I) Age	(J) Age	Sig.
from 16 to 20	21-30	.000
	31-40	.000
	41-50	.001
	51-60	.004
	more than 60 years	.784

Source: Researcher's Fieldwork.

Marital status gave a significant difference only in satisfaction with quality of private health services. There was no statistically significant difference in terms of quality of state service and satisfaction with accessibility for both types of service. Post hoc tests showed the differences lay between the never married group and the married group, and between the never married and divorced group (Tables 8.10a and 8.10b). Differences between married and unmarried people in terms of satisfaction is to be expected; married people are more often satisfied with the quality of health services than unmarried according to studies such as Albaz (1992) and Al-Makdom (1996). No clear reason can be suggested here why married people are more satisfied. However, the difference may be related to the fact that married people tend to use health services more than unmarried, so over time they may became familiar with the operation of the services. In this research more than 52% of married respondents were happy or very happy with the quality of private health services. In this context the significant difference between never married and divorced, might be because never married patients, as they are usually teenagers or young people, may have more need for psychosocial support from PHCCs, and are more upset when they do not get it. Or it may simply be a statistical anomaly, given the fact that the divorced group represented a small number (1%) in the sample, whilst the never married category comprised about 24%.

Regarding education level, significant differences were found in satisfaction with quality of state health services, between the primary level group and the diploma, undergraduate, and postgraduate groups; between the middle level and diploma and undergraduate groups, and between the secondary level and diploma and postgraduate groups. The trend indicates that greater satisfaction is associated with lower levels of education. A similar result was obtained by Hall and Dornan (1990) Al-Makdom (1996) and Albrait, 1987 cited in Alhamad and Alshuhaib (1990). There was no significant difference between respondents of different levels of education for the other dependant variables (see Tables 8.11a and 8.11b).

 Table 8.10a

 Marital status and satisfaction with quality and accessibility of health service in Medina

	Sig.
Satisfaction with accessibility of state health services	.630
Satisfaction with accessibility of private health services	.798
Satisfaction with quality of state health services	.746
Satisfaction with quality of private health services	.026

Table 8.10b Post hoc tests

Multiple Comparisons

Dependent Variable: Satisfaction with quality of private health services

LSD

(I) Marital Status	(J) Marital Status	
never married	married	.059
	widow(er)	.065
	divorced	.030

Source: Researcher's Fieldwork.

Table 8.11a

Level of education and satisfaction with quality and accessibility of health service in Medina

ANOVA

	Sig.
Satisfaction with accessibility of state health services	.247
Satisfaction with accessibility of private health services	.238
Satisfaction with quality of state health services	.000
Satisfaction with quality of private health services	.102

Source: Researcher's Fieldwork.

Table 8.11b Post hoc tests

Multiple Comparisons

Dependent Variable: Satisfaction with quality of state health services

LSD

(I) Education level	(J) Education level	Sig.
primary	secondary	.082
	diploma	.001
	undergraduate	.001
	postgraduate	.024
middle school	diploma	.001
	undergraduate	.001
	postgraduate	.066
secondary	primary	.082
	diploma	.005
	undergraduate	.003

Regarding occupation, Table 8.12a shows that significant differences existed in two dependent variables: satisfaction with quality of state and private health care. Post hoc tests showed that the differences for the quality of state health care, lay between government employees and each of the retired, and student, and unemployed groups; and also between the private employment and unemployed groups (Tables 8.12b and 8.12c). The difference between occupation groups was that the students, retired and unemployed groups were more satisfied with the state services than the other groups. This is probably due to their financial position, as low income people are more satisfied with the health services. This result agrees with other research, for instance Saeed, et al. (2001) and Al-Makdom (1996). In terms of satisfaction with the quality of private health care, significant differences existed between the students and each of government employees, private employees, self employed, and unemployed groups. Why students showed a different level of satisfaction is not clear. We can only speculate here. Students usually have low income, so they do not use private health services very much, so perhaps when they use them they are satisfied with the service quality, despite its un-affordability. Further research would be needed to explain this finding. There was no significant difference between occupation groups in satisfaction with access to the health services.

Income groups showed significant differences for two dependent variables: satisfaction with accessibility of private health and quality of state health care. Post hoc tests showed the difference with accessibility to private health care existed between those with monthly income of less than 3000 SR. and the 6000 to 8999 monthly income, and between less than 3000 and more than 12000 SR. No explanation can be found for that difference (Table 8.13b). As regards quality, the difference as shown in Table 8.13c lay between the less than 3000 SR. monthly

income group and all other groups except for the highest income groups (SR.12000 and above). Perhaps low income people are usually more satisfied with the services than high income people, as they lack choice and are used to accepting whatever level of quality is offered. However, in terms of private health sector, when the services are not free, are low income patients satisfied with the services? The following section introduces the cost of private health care and its impact on satisfaction.

Satisfaction with accessibility of health services and type of transport showed a significant difference, for state health services (Table 8.14a). The Post hoc test showed that the differences lie between 'other type of transport' and 'my own car' and walking, also between 'my own car' and 'walking'. The significance here could be related to the fact that the most important factor in getting a service when it is far away is transport, as this makes the service accessible. Many studies carried out in Saudi Arabia have shown the importance of transportation to get health services and the lack of it as impeding visits to health services. The fact that the majority respondents of this study had cars, suggests that people who do not have transportation could be less likely to use the services. But in private health services the situation is different, as even if transport is available, the affordability factor stands as another barrier.

Table 8.12aOccupation and satisfaction with quality and accessibility of health service in Medina

	Sig
	Sig.
Satisfaction with accessibility of state health services	.076
Satisfaction with accessibility of private health services	.401
Satisfaction with quality of state health services	.000
Satisfaction with quality of private health services	.006

Table 8.12b Post hoc tests

Multiple Comparisons

Dependent Variable: Satisfaction with quality of state health services

LSD

(I) Occupation	(J) Occupation	Sig.
government employed	retired	.029
	student	.019
· · · · · · · · · · · · · · · · · · ·	unemployed	.000
private employed	unemployed	.001

Source: Researcher's Fieldwork.

Table 8.12c Post hoc tests

Multiple Comparisons

Dependent Variable: Satisfaction with quality of private health services LSD

(I) Occupation	(J) Occupation	Sig.
student	government employed	.000
	private employed	.034
	self-employed	.033
	unemployed	.012

Source: Researcher's Fieldwork.

Table 8.13a

Income and satisfaction with quality and accessibility of health service in Medina

ANOVA

	Sig.
Satisfaction with accessibility of state health services	.908
Satisfaction with accessibility of private health services	.020
Satisfaction with quality of state health services	.016
Satisfaction with quality of private health services	.088

Table 8.13b Post hoc tests

Multiple Comparisons

Dependent Variable: Satisfaction with accessibility of private health services

LSD

(I) Monthly income	(I) Monthly income	
in Saudi Riyals.	in Saudi Riyals.	Sig.
less than 3000	from 6000-8999	.002
	12000 or more	.027

Source: Researcher's Fieldwork.

Table 8.13c Post hoc tests

Multiple Comparisons

Dependent Variable: Satisfaction with quality of state health services

LSD

(I) Monthly income	(J) Monthly income	
in Saudi Riyals.	in Saudi Riyals.	Sig.
less than 3000	from3000-5999	.009
	from 6000-8999	.002
	from9000-11999	.020

Source: Researcher's Fieldwork.

Table 8.14a

Satisfaction with accessibility of health service in Medina and type of transports recoded

ANOVA

	Sig.
Satisfaction with accessibility of state health services	.000
Satisfaction with accessibility of private health services	.100

Table 8.14b post hoc tests

Multiple Comparisons

Dependent Variable: Satisfaction with accessibility of state health services

LSD

transport recoded	transport recoded	Sia.
Others	My own car	.001
	Walking	.000
My own car	Walking	.036

Source: Researcher's Fieldwork.

8.8 Treatment Costs in the Private Health Sector

The previous section was about the effect of demographic and socio-economic factors on consumer satisfaction. This section discusses the cost of the private health sector as a major issue in the evaluation of private health. The cost of private health services is one of the main problems that face patients, especially in countries that have not introduced health insurance yet, like Saudi Arabia. Satisfaction with private health treatment cost is difficult to ascertain, as incomes vary from one to another. Table 8.26 shows that the clear majority, almost 78%, of the respondents rated the cost of private health services in Medina as expensive, and only 21.2% said they are reasonable and 1% thought them cheap. Consistent with this finding, few people (8%) wanted the health services provided by the private sector only. This low proportion is probably because of the treatment costs, which would not be affordable to most users, especially as most respondents (about 62%) had a monthly income of less than SR 6000 (\$US1600) for the entire household. This income is considered small, bearing in mind that family size is big in Medina and in Saudi Arabia in general (Al-Ruwaythi, 1997). The average yearly income per Saudi person was SR 25,083 (\$US 6,688.8) which means \$US 557 monthly in 1999 (Saudi Arabian Monetary Agency, 2001). The householder (usually the man) is responsible, by Islamic law, to support his family, and provide at least a minimum standard of living. Different studies in Saudi Arabia for example Elzahrany (1989), Al-Ribidi, (1990) and Bakhashwain, (1995) reveal that average family size in Saudi Arabia is between 6 to 8 members, so this could be a significant burden and make service cost a real issue. While 37% of respondents preferred that the services be provided by the government sector only, the majority (47%) preferred the services to be provided by both government and private sectors. as is the situation at the present time. Only about 8% said they wanted the service provided by an international organisation (see Table 8.18).

The problem of un-affordability of private care suggests a need for health insurance, but this would need to be supported by the government, with special consideration for those on low income, people under 20 years old and more than 60 years, also students and people with chronic diseases and unemployment. In this case, the satisfaction with the cost of private health services would probably become high, as there would be greater equity between those with low and high income, more need and less need of healthcare facilities.

As far as the charges at the private hospitals are concerned, they differ from one hospital to another, and from one speciality to another. Table 8.15 shows the charges in Saudi Riyals in three selected hospitals for four different groups of doctors. The table indicates that the fees are not the same in all private sector hospitals. The charge tariffs for analysis and X-rays are also different from one hospital to another. Therefore, patients with low income most often go to the private hospitals which charge less, regardless of the services they provide. It is worth noting that a lower charge does not always mean lower service quality. It could be a way to attract consumers to the service, or a conscious effort to help patients with low income. For

example, some private group clinic managers and owners, such as in the Kulam and Al-Ahmadi group of clinics, claimed that their clinics offered lower prices in some fields compared with other clinics, for a similar level of service¹⁸. At the same time, higher charges do not always mean better service quality.

Regarding the cost of seeing doctors in private dispensaries or clinics, Table 8.16 shows that the charges are similar to a large extent. We could refer to the difference in dentists' charges between Saudi National Dispensary (40 SR.) and Dr. Mohammed Niazi clinic (20 SR.) and 30 Riyals in other dispensaries and clinics. Also, it could be noticed that the charge for consultants is 100 SR. in all institutions, except Dr. Majid Sagr's clinic (70 SR.), because he runs it himself and he decides the charge.

	Table 8.1	5
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Charge to see doctors in private sector in some selected hospitals in SR. in Medina in 2002^*

		2002	
	Medina National Hospital	Almowasah Hospital	Al-Ejlal Hospital
The general practitioner	50	30	50
The specialist	50	50	70
The consultant	100	100	100
The dentist	50	50	100

¹⁸ Informal interview with the manager and owner of Al-Ahmadi group clinics the official and on duty in the Kulam group clinic.

^{*} The charge on Tables 8.24 and 8.25 only for check out.

Table 8.16 Charges in private sector in some selected dispensaries and clinics in SR. in Medina in 2002

	General	Specialist	Consultant	Dentist
Institution	practitioner			
Al-Ameen	30	50	-	30
Dispensary				
Dr. Al-Ogali	30	50	100	30
Dispensary				
Saudi National	40	50	100	40
Dispensary				
Dr. Mohammed	-	50	-	20
Niazi clinics group				
Dr. Abdalhaleem	30	70	-	-
Marzoos clinics				
group				
Dr. Mohammed	30	50	100	30
Alhumaidi clinics				
group				
Dr. Izeldin Galal	-	50	-	-
clinic			70	
Dr. Majid Sagr	-	-	/0	-
clinic				
Dr. Faris Alwan	-	50	-	-
clinics				

Source: Researcher's Fieldwork.

Table 8.17 Cost of medical treatment

How do you rate the cost of private health services in Medina?

	Respondents	Percent
Cheap	5	1.0
Reasonable	106	21.2
Expensive	389	77.8
Total	500	100.0

Table 8.18 The best section to provide health services

	Respondents	Percent
Government sector	186	37.2
Private sector	40	8.0
Government and private	235	47.0
International organisation	39	7.8
Total	500	100.0

Would you like health services to be provided by

Source: Researcher's Fieldwork.

8.9 The Evaluation of Health Services in Medina

To evaluate health services or any type of services that are offered direct to consumers, the consumers should take part in such evaluation. Based on their view of the services, ideas for improving the services can be worked out. Ignoring patients' opinion, when they are the main target for health service provision, is a big mistake, as the healthcare facilities are basically established for them, so their view should not be ignored.

The consumers were asked to evaluate health services in Medina, on a scale from 'less than average' to 'excellent'. A 'Don't use it' column was added, because those who do not use the services may give a misleading assessment. A high score on evaluation indicates satisfaction with the services assessed.

It is evident in Table 8.19 that almost 11% rated the quality of state hospitals as excellent, about 23% assessed them as above average, while the highest proportion, nearly 36%, said average and 29% rated them as less than average. Fewer than 2% did not use state hospitals. In general, a total of about 69% assessed the quality of state hospitals as average or greater. It could be argued that this rate is somewhat low, and needs to be improved. Many studies in Saudi Arabia and elsewhere found that the satisfaction rating of health services is high, more than 90%, when the question is

general. Such studies, for example Al-Dalgan (1993) and Al-Kamshi, (2000). in Riyadh found the general rate of satisfaction with private and state health centres was greater than 90%. Williams and Calnan, (1991) in England found a similar result. However, as the question of assessing quality in the present research was general, a score of 69% suggests a need to improve the quality of state hospitals in Medina.

By contrast, the quality of private hospitals appears better, as about 20% rated them excellent, 37% rated them as above average, while more than 28% said they were average, only less than 8% said less than average and 7% indicated that they did not use private hospitals (see Table 8.20). Overall, more than 85% assessed the quality of private hospitals as average or greater, compared to 69% to the state hospitals. This means the quality of private hospitals services in general seemed better compared to state ones in the view of respondents. This might be attributed to the competition between private sector institutions. In contrast, competition is poor or does not exist in the state health sector. Also, in addition to the permanent doctors, private hospitals occasionally invite other experienced and high qualified doctor(s), which gives an advantage to private hospitals. Moreover, they presumably have better patient facilities, e.g. single rooms rather than wards.

With regard to PHCCs, Table 8.21 shows that more than 9% of the sample indicated that the quality of PHCCs was excellent, over 21% said more than average, while 34% answered average. Thirty-one percent rated them as less than average and less than 5% did not use them. Thus, PHCCs were perceived slightly less favourably than state hospitals in terms of quality in the view of respondents. About 65% of the respondents assessed their quality as average or greater, compared to more than 69%

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for state hospitals. This may be related to the low effectiveness of PHCCs, which have not kept pace with the rapid increase of population (Medina Municipality, 2000).

In relation to private dispensaries, the data in Table 8.22 show that 16% indicated that the quality was excellent, more than 32% said more than average, while almost 31% saw it as average. More than 11% rated it less than average, and 9.4 % did not use such services. Those rates were better compared to state hospitals and PHCCs, since a total of more than 79% assessed the quality of private dispensaries as average or greater, compared to about 69% for state hospitals and 65% for PHCCs. This may be related to the fact that patients in the private sector had freedom of choice to use whichever health institution they preferred. There is less or no freedom in this respect in the state sector.

Regarding the quality of private clinics (private doctors) 23% indicated that the quality was excellent and, more than 34% said it was above average, while 20% answered average. Only less than 7% said less than average and 16.6% did not use such services. Thus, a total of about 77% assessed the quality of private clinics in Medina as average or greater. This was the lowest proportion for private services, as it compares to 85% for hospitals and 79% for dispensaries. However, private clinics had the highest number of responses in the 'excellent' category (23%) and the lowest in the 'lower than average' category (less than 7%). This may be because patients in private clinics deal with the doctor directly without having to go through routine procedures. Also, doctors who work in private clinics are usually the owners, so it is very important to them to keep a good reputation. But other barriers remain in private clinics, such as availability of X-ray and laboratories, since by observation it appears that most private clinics did not have such services (See Table: 8.23).

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Table 8.19

	Respondents	Percent
Excellent	54	10.8
Above average	114	22.8
Average	179	35.8
Less than average	145	29.0
Do not used it	8	1.6
Total	500	100.0

Assessment of the quality of state hospitals in Medina

Source: Researcher's Fieldwork.

Table 8.20

Assessment of the quality of primary health care centre in Medina

	Respondents	Percent
Excellent	46	9.2
Above average	107	21.4
Average	170	34.0
Less than average	155	31.0
Do not used it	22	4.4
Total	500	100.0

Source: Researcher's Fieldwork.

Table 8.21

Assessment of the quality of private hospitals in Medina

	Respondents	Percent
Excellent	101	20.2
Above average	185	37.0
Average	141	28.2
Less than average	38	7.6
Do not used it	35	7.0
Total	500	100.0

Table 8.22

	Respondents	Percent
Excellent	80	16.0
Above average	163	32.6
Average	154	30.8
Less than average	56	11.2
Do not used it	47	9.4
Total	500	100.0

Assessment of the quality of private dispensaries in Medina

Source: Researcher's Fieldwork.

Table	8.23
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Assessment of the quality of private clinics in Medina

	Respondents	Percent
Excellent	115	23.0
Above average	171	34.2
Average	100	20.0
Less than average	32	6.4
Do not used it	82	16.4
Total	500	100.0

Source: Researcher's Fieldwork.

8.10 Conclusion.

Satisfaction of consumers is a way to evaluate health services, as agreed by many geographical and non-geographical studies. It is found that factors that influence consumers' satisfaction attitude mostly relate to the following three points (1) the interactions between staff including doctors and patients; (2) the actual service offered, such as type of services, spatial distribution, accessibility, affordability, medical equipment *etc;* (3) the consumers themselves, for example, their demographic and socioeconomic factors.

Generally speaking satisfaction with accessibility and quality in private and state health services in Medina was not high. Nevertheless, the private health sector had greater satisfaction than the state sector, although, the treatment cost in the private health sector was high. The percentage of satisfaction with accessibility of state health service was lower than for private services, at 57.8% and 60.6% respectively, with no significant difference between the genders. In terms of satisfaction with quality, the levels were lower, but consumers were still more satisfied with the private health sector than the public, with 53.3% and 42.7% respectively.

The level of consumers' satisfaction with quality of health services in the study area varied with age groups. There was a significant difference between age groups, (p<0.05), in terms of satisfaction with quality of state and private health services, which may related to the difference in health condition of consumers age groups. This matter needs further research. Marital status also gave a significant difference, (p<0.05), in terms of consumers' satisfaction with quality of private health services. Satisfaction with the quality of state health services was affected by level of education, as there was a significant difference between education level groups. The indicators showed that levels of satisfaction increased with a decrease in education level.

There is a significant difference (p<0.05) between occupation groups in perceptions of the quality of both state and private health services. It appeared that the groups of students, the retired and the unemployed were more satisfied than other occupation groups with the quality of health services, state and private. This may be related to the income factor, as low-income people are normally more satisfied with the services compared to those with high income.

Low income affected consumer satisfaction with access to private healthcare and quality of state health services. There was a significant association between type of transport used and satisfaction with the accessibility of state health services.

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It appeared that the cost of treatment in the private sector was expensive in most respondents' view, and unaffordable. Hence, the preference was for health services to be provided by both state and private sectors. Also, it appeared that the quality of private sector facilities was perceived more favourably than that of state services. Private hospitals were highest rated, then the private dispensaries, then the private clinics.

Patients' evaluation of health services depended on their background and experience about such services, and such experience varied from one socio-demographic group to another, which could affect the results. Another issue is that satisfaction level tends to be higher when the question is asked in general terms, than when the focus is on individual items. Allowance should be made for this before drawing the conclusions and implications.

Chapter Nine

Conclusions

9.1 Summary

The main aim of this study was to investigate the new geography of consumption of health services in Medina city, Saudi Arabia. The study is the first substantial piece of research on in the geography of health services in Medina; it will be a gateway to further research in this field in the study area, since the findings could inform policy making with evidence of the need of such services in different places. This study, therefore, contributes to the debate about the geography of health services in Medina including their spatial distribution, provision, accessibility, and utilization including consumers' satisfaction with such services.

Providing health services in a pattern that does not match the actual need creates something of an imbalance of such services. Studies of geographical differences in using health services generally focus on spatial distribution as well as the efficacy of the system. This research is also interested in consumption, and in this respect it emphasizes the social and geographical context of health care consumption. It has shown how characteristics of location and demographic and socio-economic factors are reflected in, and strengthened by, individual consumption practices affecting health services. One of the key innovations in this thesis involves the decision to look at both private and public facilities and the way in which their provision and usage are inter-related. This produced some interesting findings regarding how patients choose between public and private health care and the lack of co-ordination between the two sectors. These issues were addressed by attempting to answer the following research questions:

- 1. What are some emerging spatial patterns of health care provision in the Saudi urban context and how do these compare with the western context?
- 2. What is the relationship between the urban geography of health care provision and that of consumption in the specific context of Medina?
- 3. What contextual, local factors are important in shaping services equity in the Saudi urban context and how can health care be restricted to take account of such factors?

In order to answer the above questions, eight subsidiary questions are explored empirically follows:

- 1. What are the main underlying assumptions guiding policies on the geographic distribution of hospitals, primary health care centres and clinics, state and private, in Medina?
- 2. Are hospitals and primary health care centres equitably distributed over all the city of Medina?
- 3. How accessible in terms of time and distance are health services in Medina?
- 4. Is there a relationship between demographic and socioeconomic factors in terms of utilization of health care, and type of health services provided?
- 5. Are services provided by hospitals, primary health care centres and other health centres satisfactory, i.e. to what extent are people satisfied with services provided by the health sector?
- 6. Is the current capacity of hospitals adequate for the population of the city?

- 7. How can hospitals and primary health care centres be re-structured in order to ensure that all people have easy access to the services?
- 8. Does the distance from state health care institutions cause people to switch to private services? What are the main factors which make patients prefer to use private health services or the reverse?

The following is a summary of the main findings:

1) There was not a clear plan behind the current distribution of either state or private hospitals. They were set up without adequate thought to their spatial distribution. One reason for this is that the MOH is not able to buy the land that was allocated to it in each residential plan to build its own health institutions. As a result, almost all PHCCs are in rented buildings, which often are not in the centre of the residential districts they are intended to serve.

2) The distribution of state hospitals is heavily concentrated in the west and south west of Medina, on one road. Whilst that part of Medina has three out of four general hospitals, the east of Medina remains without such services.

3) Five (more than 70%) of the private hospitals are concentrated in the south and south east of the central Medina area, in a circle of about two kilometres in diameter. Most private dispensaries and group clinics are located within the second ring road; the dispensaries are much more concentrated north and the north west of central area; on Abu Bakr Assudeek road and Assuba Almasajjed road, while 41% of the group clinics are located in two areas south of the central area: Prince Abdulmhsen road and Quba road, in a circle of about 500 metres in diameter.

All private clinics (doctors) are located inside the second ring road, although about 25% of Medina's population live outside that area. The private clinics are more concentrated in two areas south of the central area and north; at the beginning of Abu Bakr Assudeek road. These two areas contain about 76% of the private clinics in Medina. What is more, car parking facilities are poor.

4) Despite the inequity in spatial distribution of health care facilities, most of the respondents (61%) did not see distance to their PHCC as a major problem and only 27% saw it a problem. Those who saw distance as a problem did so, probably as a result of the fact that some PHCCs are located quite far from the area that they should serve. For instance Almatar (Alaquol) PHCC is located about 45 kilometres distant from some villages that it is supposed to serve. Similarly Algurf PHCC is seven kilometres from some of the residential areas it serves.

Most of the respondents relied on their cars when they used health services in the study area. That could be because car ownership is widespread and petrol reasonably priced. The average time taken for respondents to reach their PHCCs was about 10 minutes drive on average. However, 42% of the respondents spent more than 21 minutes travelling by car to reach the nearest state hospitals. Long travelling time and distance can reduce usage of facilities. It appears that the Saudi Red Crescent Society services are under-used, the main reasons being: a) they take too long to come; b) many of the potential customers did not need them.

5) The majority of respondents (83%) thought that their PHCCs were, in general, accessible or very accessible, whereas 21% of respondents faced problems of access to state hospitals.
6) Consumer satisfaction was affected by low income in terms of access to private care and quality of state health services. It appeared that the cost of treatment in the private sector was regarded as expensive in most respondents' view, and unaffordable. Hence, the preference was for health services to be provided by both state and private sectors. Also, it appeared that the quality of private sector services was perceived more favourably than that of state services. Private hospitals were highest rated, then the private dispensaries, then the private clinics.

7) It appears that consumers' satisfaction with accessibility and quality was higher for private health services than state ones in the study area. This could be attributed to the competition in the private institutions, which makes them review and improve their services occasionally. The study also showed that satisfaction with accessibility and quality of health services varied with some variables of socio-economic characteristics. There were significant differences (p<0.05) related to age and occupation, in perception of quality of state and private health services and satisfaction.

8) Although the Medina region has a better ratio of physicians and beds/population, than the total Kingdom average, this does not mean these rates are adequate compared to the rapid population growth, especially since the ratios for the Kingdom as a whole are low compared to other similar countries, for example, Kuwait. The numbers of PHCCs/population are very far from the health ministry target, which is one PHCC to serve a group of people between 5,000 and 10,000. Even to achieve a 1=10,000 ratio, more than double the existing PHCCs are needed. Furthermore, the distribution of these PHCCs is not based on population density, but on district names.

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9) The bed capacity of state hospitals, which is 1,772, seems inadequate, as they were almost full in 1999.

10) About 84% of the respondents had used health services in Medina twice or more during the 12 months before the questionnaire survey. Many of these multiple visits were probably related to maternity or child care. Accessibility issues had little effect in making health care users switch to private hospitals. It appears that there were two important factors that influence the utilization of state health services; that they are free of charge and proximity to the users' home. However, for private services, different factors are influential, namely where these are 'fast/quick' and 'availability of good doctors'. There were variations in terms of preference between demographic and socio-economic variables and utilization of private versus state health service institutions.

Traditional healers are still used, mostly for diseases that it is thought cannot be diagnosed by modern medicine, for example, psychological diseases thought to be caused by evil eye or Jinn. However, distance does not affect the utilization of traditional healers, since the most important factor making people use such services was the good reputation of the traditional healer.

The future of health services in Medina was perceived by administrators with optimism in view of the rapid development achieved, but a need was identified for further improvements in quality, close government supervision, and a system to reduce the treatment charges in the private sector to bring them within the reach of most consumers, as the majority (77.8%) of respondents rated them as expensive.

It should be said that the results, in general, may be affected by the limited data available and the methods used. The sample design, however, brought good information, which enabled the matter of equity distribution in healthcare services and its importance when planning such services to be identified. Also, the results have provided useful insights into some of the factors which may have an impact on health care utilization.

Overall, the results tend to support previous studies in geography of health care and take them forward. Although not all the factors that have been highlighted are geographically uniform, the findings suggest nonetheless that these factors should not be treated individually. Also, they should not be viewed in isolation. Rather, they interact in a complex way that varies from one district to another. In order to ensure healthcare that genuinely meets the need of clients in an equitable and effective way, these complexities need to be taken into account in healthcare planning. Therefore restructuring of the health facilities in Medina is needed to improve the balance between the residential districts. The following section contains some suggestions for decision-makers in the Medina health authority.

9.2 Suggestions to improve the spatial distribution of health services in Medina

Planning for health services is not confined to what is needed for the future or the establishment of different health services, but extends beyond that to development and improvement of the existing services by provision of good staff and high technology equipment. In addition to that, they should be equally distributed to ensure equity in welfare between users.

It appears from the study that there were some residential districts with much higher population density than others, such as Alkandag and Alkazrag, which had 829 and 391 population/hectare respectively, probably because those areas have been extended vertically more than horizontally, or because development started in those areas. Others have small populations, for example, Alkabah and Alhufiyh with 22 and 15 people /hectare respectively, perhaps because those areas have few modern buildings. Public services need to take account of such uneven population distribution. However, in Medina they do not do so. The PHCCs are widely scattered, whereas the general hospitals are concentrated in one part of the city. This means the distribution of PHCCs is not in line with the distribution of population. In other words, there are some areas that have high population density yet are served by only one PHCC, for instance Alkiblatian and Alawaly which had 5,720 and 4,330 registered families respectively in 2002. Other areas have small populations but have the same number of PHCCs, such as Arwah and Almatar (Alaqoul) which had 1,380 and 988 registered families in 2002. The number of doctors in a PHCC most often does not exceed three, and sometimes a mobile dentist.

As we saw in chapter six, about 52% of respondents said they could reach their PHCCs within less than 10 minutes, and more than 47% within more than 10 minutes. This seems acceptable to some degree. However, when it is known that most people go to their PHCCs by car (about 81% of the respondents indicated that they went to their PHCCs by car) and in addition, all PHCCs' patients must be registered with the PHCC in their own residential district, it could be argued that for many patients still a PHCC which is more than 10 minutes drive away is too far away. This may be related to the location of PHCCs, which are sometimes found at the end of the residential district that they serve, for instance Annaser, or in districts that are divided by a motorway, such as Alaws and Algurf PHCCs.

In the light of these findings, some factors should be taken into account to make the distribution of PHCCs more adequate in Medina. They include: (1) decisions on

distribution should take more into account the density of population, taking physical and human barriers into account; (2) the PHCC should be located at the centre of the residential(s) district that it serves, to make it within the reach of all users within a similar time; (3) physical and human obstacles such as mountains and motorways must be taken into account in the distribution. For example the residential district south of the Ohud Mountain should have a PHCC and the other parts west and north west need another one, irrespective of the population density. The same is true in Alaziziah, Alaws, and Arwh residential districts, which are divided by motorways, and where there is no walk bridge; (4) the number of doctors and other employees of PHCCs that serve high population density districts such as Alawaly, Quba and Algurf should be increased in case of difficulty in establishing other new PHCCs; (5) providing a car park at each health institution is also recommended. This would help improve increase the accessibility of the services, and increase satisfaction with them. Also, improving public transport, for example buses, would be another way to improve physical access to such services.

Regarding hospitals, as we have already seen, three out of four general state hospitals are located in the west part of Medina. The other three parts lack such services. This pattern of geographic distribution may be attributed to the fact that development was extended to that part of Medina more than in others, or may have occurred by coincidence. The manager of the development and planning department for health administration affairs in Medina was interviewed to give reasons why most state hospitals are located in the west of Medina. He replied that there were no specific reasons behind the geographical distribution of hospitals in Medina. Their sites were decided early, without considering distance from populated areas, and also the availability of wide areas of state land played a role in establishing these hospitals. He added that the Almegat hospital, which is a state hospital now and located in the south west part of the city as well, used to be a special one to receive patients with infectious diseases. Similarly, all three interviewed state hospital managers agreed that the distribution of state hospitals is not equitable, due to their location in one part of the city, as mentioned earlier. This is evidence that health service in Medina set to meeting aggregate urban health care need in the city more than local demand.

If the distribution was coincidental, and did not take geographical factors into account, it is time to re-think the distribution and try to make it equal over the entire city, especially since the population has increased but the number of hospitals has remained the same since 1983. Therefore, the interview findings confirm that the establishment of more hospitals in Medina is required.

It could be argued that new hospitals should be founded in the east or south east of Medina, since these areas are poor in such services. To make them more accessible, they should be built on or close to the second ring road; a motorway road surrounding the main city. Also, in those parts, there is available land which could be suitable for establishing hospitals, for example Shoran plans and north or south King Abdulaziz road; outside the second ring road or others.

The requirement for new hospitals to be established is not only because the current distribution is mostly on one side of the city, but also because the capacity of beds currently is not adequate for the whole population of the area. All three interviewed state hospital managers indicated that other state hospitals need to be built in Medina, since the capacity of state hospitals currently is full (see Table 4.3 in chapter four). Since basically the existing facilities they are not equally distributed, establishment of

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new ones in different areas, to improve distribution and access, would be a preferable option to extending the capacity of the present hospitals.

In relation to private health institutions, which are basically founded for profit and work entirely independent of state health institutions, in the study area, these can be used without requirement of a referral. Therefore, their location most often follows the density of population. In the study area, private health services, as mentioned earlier, are concentrated in two parts of the city, in the north and south of ring road one. There is no clear reason behind that concentration.

Despite the claim of the deputy manager of medical licence and pharmaceutical affairs that licences are granted based on criteria such as need for services, it has been shown that in reality the private health institutions are mainly concentrated in certain areas. For example, there are two private hospitals located on one road at a distance of less than one kilometre; Addar and Azzahra Hospital located at Ali bin Aby Talib road and also the Medina National Hospital is located at the same street, about two kilometres away from the other two mentioned above. Moreover, there is no clear medical reason for the private clinics to be concentrated in only three places in Medina, Quba, Prince Abdulmhsen road and Abu Bakr Assudeek road.

There are some factors that could play an important part in the selection of these three places, such as (1) population density, (2) reasonable level of rents for these properties in these areas, (3) rejuvenation of the area inside the first ring road (the main core of the city centre) and (4) historical reasons, because the development occurred first in these three areas, where large buildings are available. The concentration of other public services, for instance markets and banks in the same area, with a lack of car parks, causes serious traffic congestion and could deter people from using such

services. Thus, ideally they should be distributed in different places served by a good network of transport and car parks. In such a case, benefits would be received by the consumers and the providers; the consumers could get to the health services more quickly and easily. In turn, the number of users is likely to increase, when they find the services much more accessible.

To bring this into force, the licence committee in the health administration affairs in Medina should not confer new licences for these three places Quba, Prince Abdulmhsen road and Abu Bakr Assudeek road, but should favour applications for other areas that lack such services, for example Alsalam and Suaid Alshuhada road.

9.3 The limitations of the study

There was little information available on health services in Medina, especially about private health care, for example, its history, statistical data about numbers of staff and visitors, and the private health care contribution to the state in terms of providing primary health care. As far as I am aware, no official studies have been done in this field in Medina. As a result, comparison between the two sectors, i.e. private and state, was limited.

The survey sample also was limited to users aged 16 years and older and settled in Medina, who were interviewed at the health institutions: hospitals, PHCCs, clinics *etc.* This means non-users and those under 16 years old were not included in the survey.

The available statistics, whether about census or patients, were usually for Medina as a region, so I had to work out the share of Medina as a city. Finally this study is limited to the urban area.

9.4 Implications

Despite the limitations of the study, it contributed to understanding of the use, access and distribution of health services in Medina, on which very little data had been available. It also contributed by mapping the private health institutions and is the first work, to my best knowledge, to do so. In addition to that, the study has highlighted the importance of equity in spatial distribution of health services, and the influence of distance on the utilization of health services. Such findings should encourage rethinking of the current distribution of health services in Medina.

As demographic and socio-economic factors are influential in the choice and use of the various types of health service institutions (state/private/traditional healers), such factors should be taken into account when planning to provide health services. Furthermore, the high indication of satisfaction with health services in general does not necessarily mean that the service is good in every individual aspect.

The empirical data obtained in the study, it is hoped, will be a good starting point for further research in health services in general and in medical geography in particular. Meanwhile, however, certain policy implications can be derived.

The capacity of state hospitals in Medina needs to be expanded. This can be done by expanding the present hospital buildings, in the case of specialist hospitals, where it is difficult to provide another new one, so the new can benefit from the old in terms of facilities and equipment. However, for general hospitals, establishing a new one in another area would be much better than extending the current ones, since most state hospitals are located in one part of the city.

The ratio of physicians and nurses per population also needs to be increased to meet the requirement of the MOH, and to reach a similar level to that of developed countries. This could be done by increasing the numbers of enrolments in medical or health schools or colleges, consistent with the rapid increase of population, as the numbers are very low compared to the numbers of applicants.

The number of PHCCs should be increased to meet the general MOH average which is PHCC/10000 people. The increase in the number of physicians and nurses, extending evening working hours in PHCCs and requiring at least 20% of the existing PHCCs to work longer hours would increase the availability of the services, end crowding, and reduce the use of emergency rooms in the hospitals. There might be an additional benefit of reduced overcrowding at the hospitals, if arrangements were made for consultants or specialists from the hospital, to hold occasional clinics at the PHCCs. Patients might also be more inclined to trust PHCC doctors.

The MOH should build its own PHCC buildings instead of continuing to rent villas or blocks of flats which were not designed for health services, and most often, as we have seen, are not located in the middle of the residential district that they should serve¹⁹. This could be achieved by introducing a clear policy to build health services on the land set aside in each residential plan. That does not seem very difficult, with the continual increase in MOH budget. Such buildings would hopefully reduce the difficulty which faces some patients with access to primary health services.

As virtually no formal interaction exists between state and private sectors, it would be beneficial to establish stronger links between them, in order to benefit from each

¹⁹ It should be pointed out that in each residential area, private and state developers are required by law to designate small lots for public facilities, such as health centres and schools, in exchange for governmental services. In the beginning, most developers designated areas for such purposes and used them as a ploy to attract potential purchasers of real estate. However, when most of their land is sold, the area supposedly designated for public facilities is sometimes sold to real estate purchasers or given away to influential people. Then, when the area is populated and the people petition the MOH for a health centre, the MOH is forced to rent a villa or block of flats in the area and is burdened by high rents due to inflated real estate prices. The MOH should take corrective measures to deal with this problem.

other's facilities. For example, private dispensaries and some hospitals do not have high technology equipment, but by arrangement with the state sector, such problems would be overcome. The same could apply in terms of advice and consultation between doctors, and exchange of doctors.

Strict regulations should be established to decide the reasonable distance that should exist between private health institutions which provide similar services. At least two kilometres between them is recommended. Such a regulation would lead to a well-organized distribution pattern and reduce the distance and time of travel to the health services. Also it could bring about a better overall balance between residential districts. Furthermore, particular attention should be paid, when private institutions especially, dispensaries and group clinics are being established, to make sure that they will be served by a good network of roads, and have car parks.

As traditional healers still practise and treat patients, consideration should be given to allowing traditional healers to practise from the PHCCs, where they would be under the surveillance of qualified medical practitioners. Conventional and alternative healers might then co-operate for the benefit of the people.

Many of the respondents said they did not use the Saudi Red Crescent Society's ambulance service inside the city, because they did not need it, and it was unknown to some others, even a few who may need it. This service therefore needs to be made more effective. Also, it should be better publicised via the PHCCs, so more people could benefit from the services provided.

The above changes need additional financial resources. Therefore, the Health Ministry budget should be increased to meet the high healthcare cost, and rapid population growth, and to enable health regions such as Medina to establish their own PHCC buildings instead of continuing to use unsuitable rented buildings. Such financial increase would be able to include the improvement in the health services in Medina.

The cost of treatment in the private sector is expensive and different from one centre to another. It is recommended to introduce a system to enable those who want to use private services to do so, by introducing a health insurance scheme, or by government subsidy of treatment costs.

The study recommends undertaking a survey occasionally to find out consumers' views and satisfaction with healthcare services in the area. Such surveys should help to improve the services in different ways.

A database needs to be established, especially for the private health sector in Medina, to provide information on capacity of hospitals, and number of staff, and to keep upto-date records on the locations of facilities in the city, which were mapped for the first time in the present study. Then, such information should be available for researchers whenever needed.

The planning and development department in the Administration of Health Affairs in Medina should be encouraged to conduct more studies to improve the health services from different perspectives. Also the statistics unit needs to be strengthened to provide annual detailed statistics about health services in Medina as a city and as a region. Furthermore, the statistical unit should cooperate with the planning and development department to carry out health studies. They could also coordinate future health planning with other agencies such as urban planning, to help with service distribution and thus avoid future problems.

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There is a need for coordination between the medical licensing and planning and development departments, as regards the issue of new medical licences for new health institutions or pharmacies, in order to make sure their location is suitable and corresponds with actual needs.

Similar studies in other Saudi cities are recommended and these could then be used to compare with the situation in Medina. A further recommendation is to study the utilization of PHCCs in rural areas and the satisfaction with them, and compare them to the same services in the urban area.

It is to be hoped, too, that geographers will show more interest in spatial analysis of public services in general and health services in particular, and conduct more studies into the geography of services, and public services distribution in the study area and in Saudi Arabia in general, in order to identify weaknesses and improve their distribution.

This study has contributed to the academic knowledge of health geography by using some of the advances made in western approaches and especially by integrating quantitative and qualitative techniques, to help in mapping the geography of healthcare in Medina, Saudi Arabia. It addresses the need of studying state (public) and private health facilities together, to highlight the inter-relationship and the possible complementarity between them.

There is no international health system that can achieve absolute equity and satisfaction for all people. Differences in society, cultures, economic level, education level, and the development of transport and roads all affect the provision and access to health care services. Therefore, provision of health care service equally and satisfactorily to all patients seems to be challenging, complex and could be impossible. Similar evidence was produced by Curtis (2004, p. 139) when she introduced the difference between three national health systems: Britain, France and the United States. She argued that:

"All of these systems have potential for inequality of access to primary care. In Britain and France these arise mainly from variation in the services provided by GPs and uneven geographical distribution of GPs. These national systems are intended to provide cover for the whole population, though in practice some marginalized groups are not well served. In the USA there are greater inequalities in entitlement to care and its cost, due to differences in insurance plans covering different groups of patients. MCOs have a significant influence over access to primary care".²⁰

It appears that the current structure of the health delivery system in Medina was not organised to reflect local demand. It was set up in a state plan based on national consumption, other than meeting aggregate urban health care needs in the city. However, uneven spatial distribution in the provision of health services needs careful attention and further studies.

The study also highlights the importance of social and economic context for the way in which private and state health services are provided. The provision of health services in Saudi Arabia relies mainly on the state sectors, mainly the MOH. However, the rapid increase in demand for health facilities in Saudi Arabia, due to a combination of population growth and wealth, makes it very difficult for the provider to achieve a high level of quality, and to maintain a balanced distribution of services. Thus, the issues faced are different from those in developed countries, in the UK, for

²⁰ MCOs: Managed Care Organizations.

example, where the debates are much more focused on replacing or updating the old health facilities more than building additional ones, perhaps, because the infrastructure in the UK was built a long time ago and the rate of population increase is lower than in the Saudi context. Moreover, because of financial constraints, the big health care projects, in the UK, are provided by the Private Finance Initiative (PFI), since "for new hospitals and substantial rebuilds, the PFI is often the only option available" (Mohan, 2002 p. 205). Such services are seen as a way to close the gap between supply and demand of health services and save public money. These issues of replacement and updating of old facilities are not yet dominant in Saudi Arabia.

Population expansion makes the location of new healthcare facilities remain an important issue that cannot be ignored in a city such as Medina. Moreover, in a developing world context, holding other factors constant, proximity to health care facilities remains important, especially for lower income groups, even when 'better' private facilities are available elsewhere.

For the contemporary researcher then, we should not treat the study of spatial access issues as an "old fashioned" approach to geography, but rather use contemporary geographical ideas to re-think and re-work how we examine access and distribution of facilities. The present findings also suggest that high levels of car ownership may necessitate a re-conceptualization of issues of access, although in a society such as that of Saudi Arabia, where women are not allowed to drive and there is also a lack of public transport, women's access to health services becomes more complex. Further research could look more explicitly at women's access to healthcare facilities, given their reliance on men for driving and car access. This might be best done in conjunction with female researchers, given the sensitivities in Saudi culture.

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Further research in the geography of health should continue to clarify how inequity of health care and spatial distribution is influenced by local conditions, and how health care policy can respond better to meet the local health care demand. Although good evidence has been produced that distance and time are important to patients to get health care services, more evidence is needed from evaluation of health services to explain the causal pathways of health need in the study area and attempt to reduce unevenness of spatial distribution.

Inequity of spatial distribution, provision and physical access to services reflect the varying importance of 'place matters' as the main new issue in the contemporary research in human geography. Therefore further study should continue to address why place is important in discussion about equity of provision and access to health facilities. This would provide a more coherent body of evidence on which to base future action to reduce health inequity of spatial distribution and provision in different settings.

Overall, the findings of research in medical geography and geography of health services inform policy making and practice to reduce inequity of health facilities provision, and have continued to contribute to the debate about equity of physical access to medical services. Therefore, 'Geographical research' continues to be important in explaining health care use and accessibility in Medina as it has done in developed countries. In highlighting this fact, the present study illustrates the importance of culturally and place sensitive studies such as this one.

Appendix A

	A			.	Non Saud	i				% of the
Age Groups		Saudi		- <u>-</u>				Total	,	Total
(in years)	Male	Female	Total	Male	Female	Total	Male	Female	Total	
Less than 1	16088	16813	32901	3863	3060	6923	19951	19873	39824	2.9
1-4	83126	73251	156377	11798	12328	24126	94924	85579	180503	13.1
5-9	91034	83292	174326	14390	15590	29980	105424	98882	204306	14.8
10-14	72119	65806	137925	10392	10634	21026	82511	76440	158951	11.5
15-19	57349	55277	112626	6468	8008	14476	63817	63285	127102	9.2
20-24	41561	39890	81451	8615	6474	15089	50176	46364	96540	7.0
25-29	35593	40076	75669	22023	7648	29671	57616	47724	105340	7.6
30-34	30686	34504	65190	46782	12714	59496	77468	47218	124686	9.0
35-39	23432	25359	48791	35916	10739	46655	59348	36098	95446	6.9
40-44	22896	20618	43514	25252	4493	29745	48148	25111	73259	5.3
45-49	14125	18546	32671	17927	2582	20509	32052	21128	53180	3.9
50-54	10220	11631	21851	7866	1864	9730	18086	13495	31581	2.3
55-59	9635	10240	19875	2861	1178	4039	12496	11418	23914	1.7
60-64	8781	8078	16859	2301	804	3105	11082	8882	19964	1.4
65-69	8151	4774	12925	583	292	875	8734	5066	13800	1.0
70-74	6807	4424	11231	199	282	481	7006	4706	11712	0.84
75-79	4852	3213	8065	616		616	5468	3213	8681	0.63
80-84	2874	1131	4005	607	315	922	3481	1446	4927	0.36
85+	4504	335	4839		315	315	4504	650	5154	0.37
Total	543833	517258	1061091	218459	99320	317779	762292	616578	1378870	100

Table A1: Population by Age Groups, Sex and Nationality in Medina Administrative Region in 2000

Source: Statistical Yearbook (2000).

	Total cases		Saudi			Non Saud	li	Age group (years)				
Region		M	F	Т	M	F	Т	>1	1-4	5-14	15-44	45+
Riyadha	554	128	98	226	222	106	328	-	11	21	346	176
Makkah	252	57	71	128	53	71	124	-	5	12	162	73
Jeddah	516	171	112	283	130	103	233	-	10	37	338	131
Ta`if	71	25	24	49	12	10	22	-	1	1	37	32
Medina	127	29	31	60	30	37	67	-	-	5	90	32
Qaseem	82	28	23	51	19	12	31	-	1	1	32	48
Eastern	205	51	35	86	92	27	119	-	1	2	136	66
Al-Ahsa	33	6	5	11	13	9	22	_	-	-	29	4
Hafr Al-Baten	23	9	7	16	7	-	7	-	-	-	10	13
Aseer	71	25	30	55	12	4	16	-	-	1	33	37
Bishah	15	3	5	8	7	-	7	-	-	-	8	7
Tabouk	56	18	22	40	11	5	16	-	-	2	23	31
Ha`il	46	19	12	31	6	9	15	-	-	1	20	25
Northern	26	6	11	17	7	2	9	-	-	-	17	9
Jazan	147	59	62	121	18	8	26	-	1	19	87	40
Najran	15	4	4	8	4	3	7	-	-	2	6	7
Al-Bahah	24	13	2	15	6	3	9	-	-	1	11	12
Al-Jouf	20	4	5	9	3	8	11	-	-	-	16	4
Qurayyat	11	6	2	8	2	1	3		-	-	4	7
Qunfudah	28	10	12	22	5	1	6	-	-	-	11	17
Total	2322	671	573	1244	659	419	1078	-	30	105	1416	771
Incidence rate												-

 Table A2: Pulmonary Tuberculosis by Region, Age, Sex and Nationality 200

100000 /Pop.11.14Source: Health Statistical Yearbook (2001).

	Total	Sauc	li		Non S	Saudi		Age g	Age group (years)				
Region	cases	M	F	T	M	F	Τ	>1	1-4	5-14	15-44	45+	
Riyadha	5	-	2	2	3		3	-	-	-	4	1	
Makkah	12	6	3	9	3	-	3	-	-	-	5	7	
Jeddah	3	-	-	-	2	1	3	-	-	-	2	1	
Ta`if	3	2	-	2	1	-	1	-	-	-	2	1	
Medina	1	1	-	1	-	-	-	-	-	-	1	-	
Qaseem	1	-	-	-	1	-	1	-	-	-	1	-	
Eastern	8	4	-	4	3	1	4	-	-	-	8	-	
Al-Ahsa	1	-	-	-	1	-	1	-	-	-	1	-	
Hafr Al-Baten	1	-	-	-	1	-	1	-	-	-	1	-	
Aseer	4	2	-	2	2	-	2	-	-	-	3	1	
Bishah	1	-	-	-	1	-	1	-	-	-	1	-	
Tabouk	1	-	-	-	1	-	1	-	-	-	1	-	
Ha`il	3	-	-	-	3	-	3	-	-	-	3	-	
Northern	-			-	-	-	-	-	-		-	-	
Jazan	9	1	4	5	3	1	4	-	-	2	5	2	
Najran	3	-	-	-	3	-	3	-	-	-	3	-	
Al-Bahah	-	-	-	-	-	-	-	-	-	-	-	-	
Al-Jouf	1	-	-	-	1	-	1	-	-	-	1	-	
Qurayyat	1	-	-		1		1	-	-	-	1	-	
Qunfudah	-	-	-	-	-	-	-	-	-	-	-	-	
Total	58	16	9	25	30	3	33	-	-	2	43	13	
Incidence rate		[

Table A 3: Leprosy Cases by Region, Age, Sex and Nationality 2000

Incluence full100000 /pop0.28Source: Health Statistical Yearbook (2001).

				Saudi			Non Sa	audi		Age	group (y	ears)	
Region	Examined No.	Cases	Positive %	M	F	T	M	F	T	>5	5-14	15-44	45+
Riyadh	288576	27	0.01	3	1	4	23	-	23	-	2	19	6
Makkah	14083	93	0.66	53	33	86	7	-	7	4	45	27	17
Ta`if	172538	198	0.11	35	-	35	163	-	163	-	9	152	37
Medinah	187189	36	0.02	-	-	-	35	1	36	-	1	21	14
Aseer (Abha)	129896	150	0.12	72	30	102	46	2	48	-	32	75	43
Aseer(Mahayal)	41812	76	0.18	59	5	64	12		12		38	32	6
Aseer (Sabt Al- Alya)	28579	80	0.28	48	30	78	2	-	2	2	22	33	· 23
Bishah	51072	167	0.33	32	21	53	110	4	114	-	23	100	44
Ha`il	137582	11	0.01	-	-	-	10	1	11	-	-	8	3
Jazan	76894	216	0.28	132	24	156	43	17	60	-	183	26	7
Najran	142523	6	0.00	4	1	5	1	-	1	-	-	4	2
Al-Bahah	120013	108	0.09	77	25	102	6	-	6	-	48	45	15
Al-Jouf	23309	9	0.04		-	-	9	-	9	-	-	5	4
Total	1414066	1177	2.13	515	170	685	467	25	492	6	403	547	221

Table A4: Reported Bilharzias Cases by region in 2000

Source: Health Statistical Yearbook (2001).

		Saudi	Non -	M	F	Residence Age group (years)						
			Saudi					>1	1-4	5-14	15-44	45+
Region	Total cases					Resident	Non resident					
Riyadha	142	43	99	121	21	142	-	1	8	22	101	10
Makkah	24	12	12	13	11	16	8	2	1	5	15	1
Jeddah		-		_	-	-		-	-	-	-	-
Ta`if	148	117	31	98	50	132	16	1	12	54	71	10
Medina	361	163	198	281	80	351	10	10	34	72	229	16
Qaseem	863	558	305	589	274	863	_	36	159	253	369	46
Eastern	45	26	19	37	8	38	7	5	4	12	22	2
Al-Ahsa	1956	1144	812	1402	554	1956	-	60	258	471	1088	79
Hafr Al-Baten	1	1	_	1	-	1	-	_	-		1	-
Aseer	456	379	77	310	146	456	-	5	53	190	162	46
Bishah	12	8	4	7	5	12	-	1	1	4	6	
Tabouk	166	103	63	112	54	166	-	1	20	53	82	10
Ha`il	399	298	101	234	165	399		32	79	99	165	24
Northern	-	-	_	-	_	-	-	-		-		-
Jazan	66	65	1	42	24	66		1	12	30	19	4
Najran	19	15	4	16	3	19	-		3	5	11	
Al-Bahah	-	-	-		-		-	-	_	-	_	
Al-Jouf	94	77	17	63	31	94	-	-	12	27	37	18
Qurayyat	-	-	_		-	-	-	-	_	-	-	-
Qunfudah	1	1	-	1		1	-	-	-	-	1	-
Total	4753	3010	1743	3327	1426	4712	41	155	656	1297	2379	266

 Table A5: Reported Cases of Coetaneous Leishmaniasis by Region, Nationality, Sex, Residence and Age

 in 2000

		Positive	Classifica	ation		
	No.	cases	local	Imported		Others
Region	Examined			Internal	External	
Riyadha	9328	241	-	107	134	-
Makkah	23397	417	203	66	142	-
Jeddah	19104	536	311	61	164	-
Ta`if	17533	139	9	27	102	1
Medina	234412	218	4	5	207	2
Eastern (Dm.)	92576	241	-	53	187	1
Al-Ahsa	29914	70	-	6	64	-
Hafr Al-Baten	6731	7	-	4	3	-
Qaseem	28544	57	-	6	51	-
Aseer	187502	606	472	48	86	1
Bishah	13449	19	1	1	12	5
Tabouk	14274	41	9	5	27	-
Ha`il	9809	53	-	4	48	1
Northern	6759	4	-	-	4	
Jazan	83584	3528	2756	213	559	-
Najran	21536	59	-	13	43	3
Al-Bahah	45513	187	150	16	21	-
Al-Jouf	10236	8	-	1	7	-
Qurayyat	4756	10		-	10	-
Qunfudah	9400	167	164	1	1	1
Total	868357	6608	4084	637	1872	15

Table A6: Notified Malaria Cases by Zone and Classification 2000

Region	Total cases				Non S	Saudi	·	Age	e group ((years		
		Μ	F	Т	M	F	T	>1	1-4	5-14	15-44	45+
Riyadh	590	134	112	246	237	170	344	3	4	8	393	182
Makkah	283	93	85	178	50	55	105	-	1	19	175	88
Jeddah	446	138	88	226	130	90	20	1	5	21	297	122
Ta`if	58	22	13	35	16	7	23	-	-	-	38	20
Medina	136	36	20	56	42	38	80	-	-	2	90	44
Qaseem	66	15	26	41	21	4	25	-	-	3	40	23
Eastern	194	44	43	87	82	25	107	-	1	3	146	44
Al-Ahsa	53	6	8	14	31	8	39	-	-	-	42	11
Hafr Al-Baten	17	6	5	11	5	1	6	-		-	10	7
Aseer	32	10	11	21	7	4	11	-	-	-	19	13
Bishah	11	4	4	8	3	-	3	-	-	-	6	5
Tabouk	49	19	19	38	8	3	11	-	-	2	27	20
Ha`il	12	4	2	6	4	2	6	-	-	-	8	4
Northern	11	2	5	7	3	1	4	-	-	-	8	3
Jazan	201	66	67	133	47	21	68	1	6	29	155	50
Najran	29	5	10	15	14	-	14	-	1	-	13	15
Al-Bahah	43	22	18	40	1	2	3	-	-	2	13	28
Al-Jouf	13	3	4	7	5	1	6	-	-	1	8	4
Qurayyat	13	5	5	10	2	1	3	-	-	-	8	5
Incidence rate 100,000/Pop.	11.97											

 Table: A7 Pulmonary Tuberculosis by Region, Age, Sex and Nationality 1997

N

	Total	Saud	li	.	Non Sa	audi		Age g	roup (y	ears)		
Region	cases	Μ	F	Τ	M	F	T	>1	1-4	5-14	15-44	45+
Riyadha	13	2	-	22	11	-	11	-	-	-	13	-
Makkah	11	2	-	2	8	1	9	-	-	-	8	3
Jeddah	7	1	1	2	5	-	5	-	-	1	4	2
Ta`if	5	2	1	3	2	-	2	-	-	-	2	3
Medina	4	-	1	1	2	1	3	-	-	-	4	-
Qaseem	3	-	-	-	3	-	3	-	-	-	2	1
Eastern	8	-	-	-	7	-	8	-	-	-	7	1
Al-Ahsa	-	-	-	-	-	-	-	-	-	-	-	-
Hafr Al-Baten	2	-	-	-	2	-	2	-	-	-	2	-
Aseer	4	2	1	3	1	-	1	-	-	-	1	3
Bishah	-	-	-	-	-	-	-	- 1	-	-	-	-
Tabouk	6	-	-	-	6	1	6	-	-	-	6	-
Ha`il	4	-	-	-	3	-	4	-	-	-	4	-
Northern	-	-	-	-	-	-	-	-	-	-	-	-
Jazan	5	1	3	4	1	-	1	-	-	-	4	1
Najran	4	1	-	1	3	-	3	-	-	-	4	-
Al-Bahah	-	-	-	-	-	-	-	-	-	_	-	-
Al-Jouf	-	-	-	-	-	-		-	_	_	_	-
Qurayyat	-	-	_	-	-	-	-	-	-	-	-	-
Total	76	11	7	18	54	4	58	-	-	-	61	14
Incidence rate												

Table A8: Leprosy Cases by Region, Age, Sex and Nationality 1997

Incidence rate100000 /pop0.40Source: Health Statistical Yearbook (1997).

	Framinad	Casa		Saudi	i		Non Sa	audi		Age	group (y	ears)	
Region	No	No	Positive	М	F	T	М	F	T	>5	5-14	15-44	45+
Riyadh	246956	56	0.02	11	2	13	36	7	43	-	-	37	19
Makkah	8315	16	0.20	6	-	6	9	1	10	-	6	3	7
Ta`if	123478	214	0.20	52	4	56	153	5	158	-	13	105	95
Medinah	179976	51	0.03	-	-	-	49	2	51	-		39	13
Aseer (Abha)	153606	219	0.10	99	56	155	62	2	64	-	105	80	34
Aseer (Mahayal)	29446	48	0.20	34	7	41	7	-	7	-	24	15	9
Aseer (Sabt Al- Alya)	17125	106	0.60	50	13	63	43	-	43	-	75	20	11
Bishah	49725	184	0.40	43	13	56	124	4	128	-	17	124	43
Ha`il	142244	15	0.01	2	_	2	13	-	13	-	3	3	9
Jazan	65716	179	0.30	108	18	126	47	6	53	-	113	60	6
Najran	159577	38	0.02	14	4	18	17	3	20	-	2	28	8
Al-Bahah	146658	145	0.10	99	28	127	17	1	18	-	38	75	32
Al-Jouf	31552	1	0.00	-	-	-	1	-	1	-	-	1	-
Total	1353774	1272	0.09	518	663	663	578	31	609	-	396	590	286

 Table A9: Reported Bilharzias Cases by region in 1997

		Saudi	Non -	M	F	Resid	dence	Age group (years)				
			Saudi				• • • • • • • • • • • • • • • • • • •	>1	1-4	5-14	15-44	45+
Region	Total cases					Resident	Non resident					
Riyadha	1058	523	535	806	252	1057	1	22	102	229	631	74
Makkah	8	3	5	5	3	8	-	-	-	1	5	2
Jeddah	8	4	4	7	1	3	5	-	1	-	7	
Ta`if	231	188	43	164	67	230	1	4	29	93	90	15
Medina	672	267	405	521	151	654	18	20	70	112	434	36
Qaseem	918	520	398	600	318	918	-	46	191	233	406	42
Eastern	126	73	53	96	30	45	8 1	1	12	40	64	9
Al-Ahsa	1342	852	490	890	452	1342	-	51	213	394	634	50
Hafr Al-Baten	69	51	18	52	17	69	-	-	6	25	30	8
Aseer	455	399	56	300	155	455	-	5	66	202	142	40
Bishah	102	60	42	75	27	102	-	-	10	40	50	2
Tabouk	178	115	63	130	48	17 8	-	4	23	52	85	14
Ha`il	275	174	101	180	95	275	_	13	77	36	142	7
Northern	7	4	3	3	4	7	-	_	2	1	4	-
Jazan	164	161	3	98	66	163	1	3	26	78	49	8
Najran	50	37	13	31	19	50	-	4	8	16	18	4
Al-Bahah	342	293	49	218	124	342		4	50	125	105	58
Al-Jouf	2	-	2	2	-	-	2	-	-	-	2	-
Qurayyat	2	2	-	2	-	2	-	-	-	1	1	-
Total	6009	3726	2283	4180	1829	5900	109	177	886	1678	2899	369

 Table A10: Reported Cases of Coetaneous Leishmaniasis by Region, Nationality, Sex,

 Residence and Age in 1997

		Positive	Classificat	tion		
	No.	cases	local	Imported	· · · · · · · · · · · · · · · · · · ·	others
Region	examined			internal	external	
Riyadha	8481	245	-	86	119	40
Makkah	33617	2096	1447	392	257	-
Jeddah	14499	1457	969	82	401	5
Ta`if	23432	356	138	80	136	2
Medina	150320	267	7	38	204	18
Qaseem	3181	61	-	2	59	-
Eastern (DM)	120530	709	-	121	550	38
Al-Ahsa	35387	181	-	8	173	_
Hafr Al-Baten	8636	20	-	8	12	-
Aseer	58023	2781	2374	365	42	_
Bishah	15597	32	5	1	26	-
Tabouk	11423	37	3	11	21	2
Ha`il	6200	68	_	2	64	2
Northern	4422	17		6	11	
Jazan	101552	11041	10003	359	679	-
Najran	19589	198	5	52	132	9
Al-Bahah	54158	328	310	-	18	-
Al-Jouf	8492	15		1	14	
Qurayyat	167	5		1	4	-
Qunfudah	4181	717	476	1	17	223
Total	681887	20631	15737	1616	2939	339

Table: A11 Notified Malaria Cases by Zone and Classification 1997

Appendix B

The Questionnaire

Dear Respondent,

This survey is about health services in Medina. It is conducted under the supervision of Prof. Graham Haughton, Dr. Suzanne Reimer and Dr. Andrew Jonas at the University of Hull. Your answers will be kept confidentially, and used only for research purposes, so you don't need to write your name. Please feel confident to answer all questions.

We thank you for your co-operation.

Abdullah H. Al-Ahmadi. King Abdullaziz University (Medina branch) Ph.D. student, University of Hull, UK.

Part one: State Health Services

A-Primary Health Care Centres

1. How would you evaluate the location of your primary health care centre from your home?

\Box Very accessible	□ Accessible	□ Not sure
□ Inaccessible	□ Very inaccessible	

2. What do you think about the following statement: The most important problem facing me when I go to my primary health care centre is the long distance?

□ Strongly agree	□ Agree	\Box Not sure	🗆 Disagree
□ Strongly disagree			

3. What type of transport do you usually use when you go to your primary health centre?

Walking	□ My own car	🗆 Taxi	🗆 Bus
\Box A friend or relative's car	□ Ambulance		

4. How long does it take usually to reach your primary health care centre?

\Box Less than 10 minutes	\Box From 10 to 20 minutes
□ From 21to 30 minutes	\Box More than 30 minutes

5. Can you see your doctor whenever you like in working hours?

□ Yes	🗆 No	\Box Don't know

6. Does your neighbourhood have a primary health care centre?

\Box Yes \Box No \Box Don

7.	. If the answer to question 6 is NO, do you think it needs one?							
	□ Yes	\Box N	o 🗆	Don't know				
	What is your resid	dential centre	s name?					
B -	Hospitals							
8.	In the last 12 mor	iths, have you	u been referred to a state	hospital?				
	□ Yes (Go to que □ Can't remembe	stion 9) r (go to ques	□ 1 tion 10)	No (Go to question 10)				
9.	Are you free to ch	oose the hos	pital that you want to be	referred to?				
	□ Yes	🗆 No		on't know				
10.	10. How long does it take by car to reach the nearest state hospital from where you live?							
	□ Less than 10 m	inutes		rom 10 to 20 minutes				
	\Box From 21to 30 n	ninutes	\Box M	ore than 30 minutes				
11.	In your view, how	v accessible is	s the nearest state hospita	l from where you live?				
	□ Very accessible	e	□ Accessible	e 🗆 Not sure				
	□ Inaccessible		□ Very inac	cessible				
12.	Do you think inac care?	cessibility of	state hospitals influences	s you to use private health				
	□ Yes	□ No	□ Sometimes	□ Not sure				
13.	Do you think dista number of patients	nce of state l s?	hospitals from concentrat	ions of population reduces the				
	□Yes	□ No	□ Sometimes	□ Don't know				
14.	Have you or anyo you or your patien	one in your h at to the medi	nousehold called a Saudi cal services?	Red Crescent car to take				
	□ Yes (Go to ques	stion 16)		No (Go to question15)				
15.	We have not called	d the Saudi R	Red Crescent car because:					
	□ It takes too long□ No awareness	g □ M □ D	y address is not clear on't need them	□ Don't know its phone number				

16. Previous to this visit, how many times in the last 12 months have you used health services in Medina

□ Never	\Box 1or2	□ 3 or 4	□ 5 or 6
□ 7 or 8	□ 9 or 10	\Box More than 10	

17. If you use **state** health services, please tick the appropriate box from the following table to specify why you like using them. If you don't use them go to question 18

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
A. Because it is free of charge					
B. Because it is close to my home					
C. Because its quick					
D. Because there are good doctor(s)					
E. Because of medical equipment					
availability					

Part two: Private Health Sector

18. Are you prepared to pay more to get good medical care?

□ Yes

🗆 No

19. How do you rate the cost of private health services in Medina?

 \Box Cheap \Box Reasonable \Box Expensive

20. Would you like health services to be provided by

- \Box Government sector \Box Private sector
- □ Government and private □ International organisation
- 21. If you use **private** health services, please tick the appropriate box from the following table to specify why you like using them. If you don't use them go to question 22

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
A. Because I can afford it					
B. Because it is close to my home					
C. Because it is quick					
D. Because there are good doctor(s)				<u> </u>	
E. Because I don't pay, the costs are paid for me.					

Part three: Level of Satisfaction with Health Service in Medina

22. How do you assess the quality of health services in the following types of medical institutes in Medina?

	Excellent	Above average	Average	Lese than average	Do not used it
A. State hospitals					
B. Primary health care centre					
C. Private hospitals					
D. Private dispensaries					
E. Private clinics					

- 23. How happy are you with the rule that you should use the primary health care centre located in your residential centre only?
 - $\Box Very happy \qquad \Box Happy \qquad \Box Not sure \qquad \Box Unhappy$

□ Very unhappy

24. In the last 12 months have you received treatment from a traditional healer /herbalist?

 \Box Yes

🗆 No

- 25. If your answer to questions 24 is Yes, why did you go to the traditional healer/herbalist?
 - $\Box \text{ Close to my home} \qquad \Box \text{ Unhappy with formal medical services}$

 \Box Good reputation of medical treatment

26. In general how satisfied are you with state and private health services in Medina in respect of:

		Very happy	Нарру	Not sure	Unhappy	Very unhappy
A. Quality→ {	State					
	Private					
B. Accessibility→	State					
	Private					

- 27. Do you have any suggestion to improve the geographical distribution of state and private health services in Medina?
 - A) State.....B) Privates....

Part four: Personal Information

28.	Sex	□ Male	□ Female						
29.	Age	□ From 16 to 20 year □ 51-60	rs □ 21-30 □ More than	□ 31-40 60 years	□ 41-50				
30.	30. Did you emigrate to settle in Medina (whether internal or external emigration)? □ Yes □ No								
Soc	ial Sta	tus:							
31.	□ Mar	ried 🗆 Neve	married 🗆 Wi	dow(er)	□ Divorced				
Edu	ucation	level:							
32.	🗆 No f	formal education	□ Primary □]	Middle scho	ool 🗆 Secondary				
	🗆 Dipl	oma 🗆 Underg	graduate 🗆	Postgraduat	te				
Oc	cupatio	en:							
33.	□ Gov	ernment employed	Private empl	oyed	□ Retired				
	□ Self	-employed	□ Student		□ Unemployed				
34.	Do you	or any member of you	ır household have a c	ar?					
	□ No	\Box One car	\Box Two cars	\Box Three ca	ars or more				
35.	From t monthl	he following, please tio y income in Saudi Riy	k the appropriate box als.	to specify	your household				
	□ Less	than 3000	□ From 3000-5999		From 6000-8999				
	□ Fron	n 9000-11999	□ 12000 or more						

Interview Schedules

Questions answered by the manager of planning and development department in the Health Administration Affair in Medina.

- 1. Most state hospitals are located in the west of Medina along one road, for example King Fahad, Ohud and Al-Megat hospitals. What do you think are the reasons behind this distribution?
- 2. Does the health authority in Medina provide transport for patients who need regular treatment, e.g. those whose illnesses require them to see a doctor twice a week?
- 3. What is the main policy behind the geographic distribution of hospitals in Medina?
- 4. When a new hospital is going to be founded is there any rule about the distance between it and existing centres? If so, what?
- 5. In all residential plans in Medina, a piece of land is given for health services, but that land remains empty even after completion of all other public services, schools and markets for example. Are there any reasons for that? What are they?
- 6. What do you think could be done to improve health services in Medina in order to ensure that they are accessible for everyone in Medina?

Questions answered by the head manager of the Health Administration Affair in Medina.

- 1. Some users of state health services complain of the distance from their home, and unavailability of medicine. Do you have any comment on this?
- 2. Do you think some social groups suffer more than others from poor access to range of good quality medical services? Which groups? Why? E.g. migrant, workers, poorer families, women, older people and the disabled.
- 3. How do you envisage the future of health services in Medina?

Questions answered by the duty in the department of Medical Licenses in the Health Administration Affair in Medina.

- 1. When a private health institution is going to be founded, does the health authority in Medina decide where this health institution should be located or is it left to the owners to set it up wherever they want?
- 2. Most private clinics are located in only two parts of Medina, Quba and Sultanah road (Abu Bakr Assudeek Road) although most patients come from outside those areas. What is your explanation of this phenomenon?

Questions answered by the assistance of the head manager the Health Administration Affair for primary health care centres in Medina.

- 1. What is the main policy behind the geographic distribution of primary health care centres in Medina?
- 2. When a new primary health care centre is going to be founded, is there any rule about the distance between it and existing centres? If so, what?
- 3. Do you think primary health care centres are or should be equally distributed over all Medina?
- 4. To what extent do you think the government's general aim of "health for every one by year 2000" has been achieved in the whole kingdom and in Medina in particular?
- 5. Do you think some social groups suffer more than others from poor access to range of good quality medical services? Which groups? Why? E.g. migrant, workers, poorer families, women older people and the disabled.
- 6. What do you think could be done to improve health services in Medina in order to ensure that they are accessible for everyone in Medina?
- 7. Some users of state health services complain of the distance from their home, and unavailability of medicine. Do you have any comment on this?
- 8. How do you envisage the future of health services in Medina?

Questions answered by state hospital managers

Hospital name:....

- 1. From your experience as a hospital manager do you think the capacity of state hospitals in Medina is adequate for Medina region population?
- 2. Is there complementarity between this medical centre and the states' in respect of referring patients and exchanging doctors? If so, to what extent?
- 3. Do you think state hospitals are or should be equally distributed over all Medina?
- 4. In your view is this hospital accessible for all residential centres that it serves?
- 5. Do you think long distance from state medical centres makes patients use private care as an alternative?

 \Box Yes \Box No \Box Sometimes \Box Don't know

- 6. What do you think could be done to improve health services in Medina in order to ensure that they are accessible for everyone in Medina?
- 7. Do you think some social groups suffer more than others from poor access to a range of good quality medical services? Which groups? Why? E.g. migrant, workers, poorer families, women older people and the disabled.
- 8. When you make suggestion(s) that may improve health services, do the health authority in Medina listen to your view?
- 9. How do you envisage the future of health services in Medina?

Questions answered by administrators of private hospitals, dispensaries and clinics

- 1. Name of health institution.....location.....
- 2. What do you think are the reason(s) why some patients use the private health services very often?

□ Closer to areas of population density	□ Low cost
□ Poor quality of state health services	□ Others, specify

3. Is there complementary between this medical centre and the states in respect of referring patients and exchanging doctors? If so, in what extent?

4. In this health institution, how much does it cost to see the following doctors, in Saudi Riyals

GP......Dentist.....Dentist.....

5. What do you think of the future of health services in Medina? Questions answered by the administrator of primary health care centres

- 1. Name of the primary health care centre.....
- 2. How many families are registered with this health centre?.....
- 3. Do you think this health centre is accessible to all the residential centres that it serves?
- 4. Which is the furthest area served by this medical centre? How far is it in km?
- 5. Does this medical centre face overcrowding of patients?
 □Yes
 □ No
 □ Sometimes
- 6. Do you think long distance from state medical centres makes patients use private care as an alternative?

 \Box Yes \Box No \Box Sometimes \Box Don't know

- 7. Do you think some social groups suffer more than others from poor access to range of good quality medical services? Which groups? Why? E.g. migrant, workers, poorer families, women older people and the disabled.
- 8. When you make suggestion(s) that may improve health services, do the health authority in Medina listen to your view?
- 9. What are the main problems facing this medical centre in respect of its location and accessibility for most patients?

.....

10. What is the optimal solution, in your view to reduce these problems?

.....
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