UNIVERSITY OF SOUTHAMPTON

THE GEOGRAPHY OF HEALTH CARE IN SAUDI ARABIA: PROVISION AND USE OF PRIMARY HEALTH FACILITIES IN AL-QASSIM REGION

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A thesis submitted for the degree of
Doctor of Philosophy

June 1990

UNIVERSITY OF SOUTHAMPTON

ABSTRACT

FACULTY OF SCIENCE

GEOGRAPHY

Doctor of Philosophy

THE GEOGRAPHY OF HEALTH CARE IN SAUDI ARABIA: PROVISION AND USE OF PRIMARY HEALTH FACILITIES IN AL-QASSIM REGION

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This study provides a geographical contribution to the understanding of the use of health services in Saudi Arabia, a country which has experienced enormous economic and social development, including its health care, over the last two decades. It now has a level of health provision almost equal, in quantitative terms, to that in some advanced countries. The first part of the thesis examines the main features of the health care delivery system in Saudi Arabia, its recent development, and the variation in health provision and utilisation between the county's 14 health regions. The second and main part attempts to examine the provision and use of the health facilities, and the possible factors that influence the people's use of primary care, in one region, Al-Qassim, in the central part of the country. The analysis is based upon a sample of several health centres selected from five parts of the region and from interviews with 1375 users of the primary services.

The analysis has indicated that the demographic and socio-economic characteristics of the users varied significantly between the five areas. The ailments people use the services for are related particularly to age, social type, and level of education. Patterns of illness also varied between urban, rural and desert areas with gastric and chest complaints the most frequent cause for visits to health centres.

Rates of visits to primary health services appeared to be high amongst all categories of the sample. Age, level of education, social type, nationality, mobility and distance to centres explain these differences in use rates. Age, social type, and level of education are also important influences on attitudes towards use of folk healers. While the standard of primary care still varies between urban and rural areas, accessibility to health care is generally good, and individual factors of age, education and environment probably explain varying level of use and standard of health. More research is needed on people's use of health facilities at the local community level. Several recommendations are made for further research.

DEDICATION

TO

MY PARENTS,
MY WIFE LOOLWAH,
MY CHILDREN FARIS, ABDULLAH, AND HAJER.

I DEDICATE THIS WORK

ACKNOWLEDGEMENTS

Thanks, appreciation and gratitude are due to many individuals and organisations. Without their cooperation, understanding and encouragement this research would never have been completed. In particular, I am deeply indebted to my mentor and supervisor, Dr. Brian Birch, for his tremendous support, guidance and encouragement. His sincerity and strong commitment are surely reflected throughout the study. His patience and understanding during the difficult and more despairing periods was always a source for me in the process of developing this work. Equally, I also wish to express my deepest thanks to Dr. David Pinder for his encouragement, helpful comments and criticisms.

My thanks and appreciation are extended to all members of the staff and postgraduate colleagues in the Department of Geography at Southampton. In particular I wish to acknowledge my postgraduate and academic colleagues, Dr. F. Al-Fawzan and Dr M. Abu Helwa, for their assistance and encouragement. I also would like to thank Mr. A. Burn and the staff of the Cartographic Unit for their help, advice on cartography and for production of the maps.

This research could not have been conducted without the assistance and encouragement of many people in Saudi Arabia in general, and in Al-Qassim in particular. My indebtedness goes to all members of my family. My brothers, Fahd and Abdulaziz for their help in many ways; my brothers Ibrahim, Ahmad and Suliman, for their unlimited support, especially during the field survey for this research. In addition, I would like to express special thanks to the following individuals for their great help during the conduct of the field survey and the interviews of the patients at the health centres. These are: B. Al-Ribdi, A. Al-Audah, F. Al-Ahmad, A. Al-Shraydah, A. Al-Habdan, A. Al-Rukby, A. Al-Marshowed, M. Al-Othim, A. Al-Tawajary and A. Al-Munajam, all from Buraydah; M. Al-Khathiri (Dariyah); A. Al-Harbi (As-Samaurayah); H. Al-Fuhayd (Al-Asyah); H. Al-Hamdani (Ath-Thamriyah) and A. Al-Mutlak (Al-Mudnab). Additionally it is important to thank all other people of Al-Qassim who participated in this research and who were so cooperative and helpful.

My thanks are extended to those in the government offices who provided help and information. In particular, I am grateful to Dr Otman Al-Rabiah, the Assistant Deputy Minister for Planning and Research at the Ministry of Health, for his advice in the early stage of the study and his useful comments; Dr. Ibrahim Al-Fawaz (now the Health Director of Ha'il Region), for his help and encouragement; and Mr A.S. Al-Rawaf in Al-Qassim Governor's office.

In the office of Al-Qassim's General Directorate of Health Affairs, I am grateful to Dr. E. Abdullfatah Faraj, the Director of Primary Health Centres; to Mr. S. M. Al-Khidi, Mr. S. A. Al-Khidi, Mr. I. Al-Aosayli in the Department of Statistics; to Mr. S. Al-Zayd and Mr. A. Al-Haza in Buraydah Central Hospital and Mr. M. Al-Khathiri at Dariyah Health Centre. My thanks also extend to many other officers, physicians and other medical workers in the government and private health sectors in Al-Qassim, particularly to those workers at the health centres used in the survey. Also I would like to thank other institutions, particularly the General Directorate of Municipal and Rural Affairs in Al-Qassim for providing some useful reports, and the King Abdulaziz City for Science and Technology, Riyadh, for conducting an online literature search, at my request.

I want also to thank the Imam Mohammed Ibn Saud Islamic University, Riyadh, for giving me the opportunity to pursue my Ph.D, and for its financial support.

My sincere appreciation and gratitude goes to my father and mother, and my brothers and sisters for their personal support and encouragement. Finally, I owe a great debt to my wife, Loolwah, my sons Faris and Abdullah and my daughter Hajer, for their continual support, encouragement and patience they gave me throughout the years of my study. And it is to them that I dedicate this work.

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CHAPTER ONE

BACKGROUND TO THE STUDY

1.1 INTRODUCTION

The delivery of health care to the whole population as a basic human right is a major challenge to any government, particularly in selecting the best means to achieve the highest possible standard of health care at the lowest possible cost. Governments have tended to create systems to suit their own geographic, environmental, demographic, and socio-economic circumstances and political perceptions. A number of geographers have discussed different health delivery systems, and their effectiveness (Shannon and Dever, 1974; Joseph and Phillips, 1984; Rosenberg, 1986), but these studies have largely focused on systems used in the more developed countries. Pyle (1979a), for example, suggested that there are five basic types of health care systems: the free enterprise; the welfare state; the socialist; the transitional state; and the underdeveloped. Most geo-economic studies have concentrated on the health delivery systems in the capitalist (North American and West European) and the socialist countries (USSR and China). Much less has been written on the health systems in the Arab countries, especially Saudi Arabia.

Basic systems identified normally include the US health delivery system which is based on free enterprise, fee-paying and the freedom of choice. This system depends a great deal on local decision-making by the individual doctors and other bodies on where to provide health services, with limited assistance from the central government. In contrast to the American system is the British National Health Service (NHS), a nationalised care service controlled by the Government but decentralised in its planning and administration. Every

resident of the UK is entitled to these services free of charge by registering with a local general practitioner (GP) of his choice, who plays a major part as an entry point to any other part of the system. The GP also supplies some of the services or refers patients to specialists if needed. The NHS is parallelled by a much smaller private sector which has been encouraged by the central authorities over the last few years. But it still only accounts for 5 per cent of the total expenditure on health services in the UK (McGuire et al, 1988).

Health services in the USSR are an integral part of the national socio-economic plan for the country. The state administers, plans and finances these services, mainly providing them free to users. While the system includes preventive health, its main drawback is that the patient cannot select the physician he wants. Systems followed in other developed countries like Australia, Japan, Canada and the Scandinavian countries are often seen as a combination of features of these other systems to suit the requirements of the particular country.

Most studies of health systems in the Third World give less information due to a lack of data about their operation. Joseph and Phillips (1984) admit that the researcher of health care systems in the developing countries is usually faced with a number of problems, such as the shortage of the basic data on the demographic characteristics, health manpower, and the administrative-financial support for health care systems. Almost no information exists on how services are used because complete records are seldom available.

Health delivery systems in developing countries are often incoherent, complex and fail to reach much of the population. In a study on African health Dunlop (1983) identified five types of health systems in the continent and often different systems within one country. Rosenberg (1986) has indicated

that Dunlop's findings in Africa could well be applied to Asian and Latin American countries. These systems are often in competition with each other rather than organized into a coherent network of services. They may well include traditional healers that do everything from bone setting to attending births; modern physicians who have been trained in Western medicine and practice mainly in urban areas; clinics and hospitals operated by religious orders and private philanthropic organizations; and hospitals and clinics set up to serve only special groups in the population, such as the armed forces or a large private corporation. Finally there are the Government-run systems set up to serve the bulk of the population which may be excluded from the other systems. The Government system may range from large urban medical centres to small rural medical stations.

The existence of incoherent health systems is not the only problem the developing countries are suffering from in health care. Faced often with high mortality rates, especially amongst infants and children, the spread of communal diseases, malnutrition, the shortage of clean water, the lack of a healthy and safe environment, a shortage of manpower, funds and other resources, most of these systems focus on curative health and hospitals services, because the immediate need is to cure illnesses rather than seek to prevent new ones occurring. In turn this means most health care is found in the urban areas where most of the doctors and hospitals are to be found. Primary health care, especially in rural areas, has often been neglected. According to WHO estimates for the Middle East:

> "Up to 80 per cent of the 'rural communities' have no access to health services.... Over three quarters of doctors work in cities where three quarters of the health budget is spent; but three quarters of the population and three quarters of ill-health are in rural areas." (Simon, 1980, p. 83).

In an attempt by WHO in the 1970s to assist the developing countries to solve their health problems, and to reach the rural communities better, the Organization adopted the Primary Health Care (PHC) programme, with a target to provide comprehensive health care for everyone by the year 2000. At its Alma-Ata conference (September 1978), the WHO declared:

> "Essential health care (should be) made universally accessible to individuals and families in the community by means acceptable to them, through their full participation and at a cost that the community and the country can afford. It forms an integral part both of the country's health system of which it is the nucleus and of the overall social and economic development of the community" (WHO, 1978, p. 413).

1.2 AIMS OF THE PRESENT STUDY:

The present study is both exploratory and analytical in its nature. Its primary aim is to investigate the provision and use of primary health care services in Al-Qassim Province, Saudi Arabia, in relation to socio-economic and spatial variables of the users. No research of this type has been conducted before in Saudi Arabia. To put this research into context the development and regional pattern of health services across the whole country are examined. This is reported in Chapters 2-5, before the more detailed study of the situation in Al-Qassim is considered in Chapters 6-13. A simple conceptual framework (Fig. **1.1**) has been set up to guide the development and analysis of the field-based part of the research in Al-Qassim Province. In this framework the reasons for patients' use of health services, their frequency of use, and their other evaluations of the services are examined against a wide range of variables. These mainly include various demographic and socio-economic aspects of the patients interviewed at the health centres, and include such basic factors as their age, educational level, and housing conditions as well as aspects of their mobility.

Where each patient lives in relation to the health points is treated as an independent variable, particularly by selecting five sample areas ranging from urban to remote desert districts for the survey of patient behaviour. By examining a range of variables and aspects of the availability and quality of local health services, it was hoped to explain variations in use of health care facilities. In particular, various assumptions were tested, notably that use patterns vary according to location, accessibility and type of ailment common within different areas. It is also assumed that evaluations of health care services vary from one area to area in relation to the quality of these services and their degree of acceptance by the local population. It was also assumed different sub-groups of the users could be defined in relation to their patterns of utilisation of the modern health care and traditional folk healers.

To examine the differences between the sub-groups, various patients' characteristics such as age, marital status, educational level and nationality are considered as independent variables while the types of ailment, utilisation pattern of modern primary health care and attitudes to use of folk healers are considered as dependent variables.

In order to put the study into context and make clear the approach to the methods of data collection and analysis adopted in this study, it is first necessary to review the relevant literature.

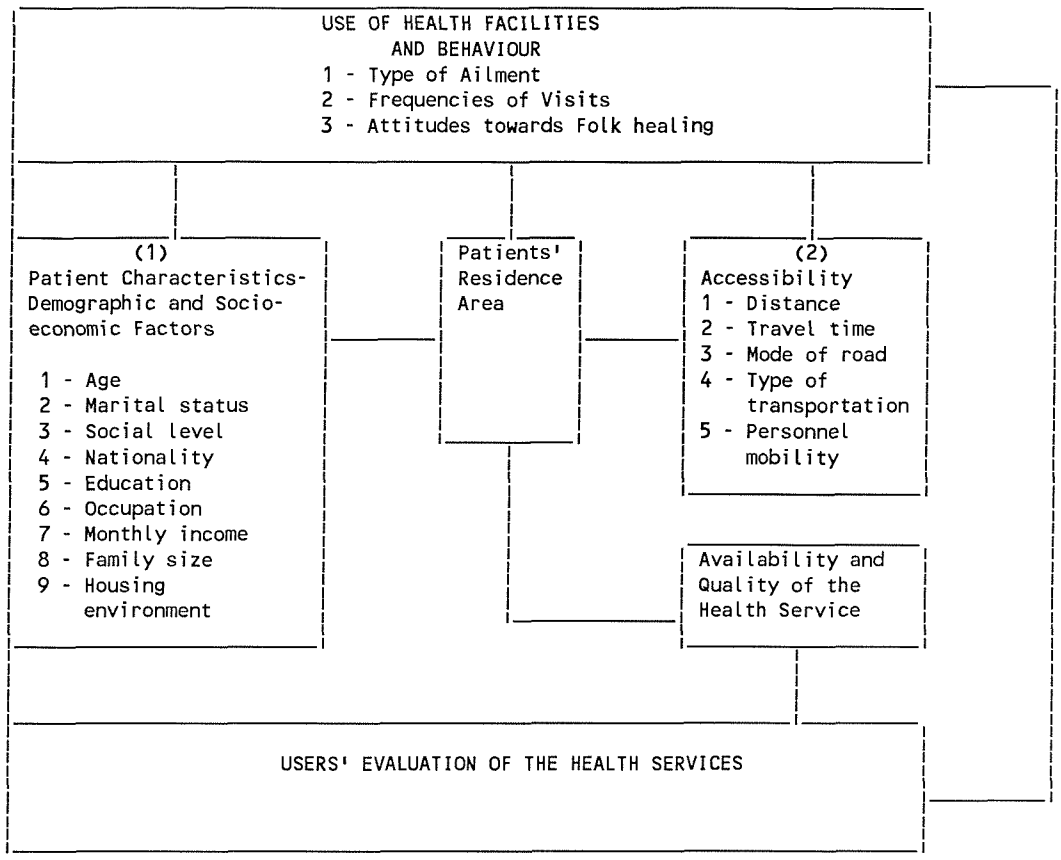


Fig. 1.1 Model Framework.

1.3 REVIEW OF LITERATURE IN MEDICAL GEOGRAPHY:

1.3.1 Introduction:

Medical geography has been described as "**...one of the oldest branches of geographical study...**" (Joseph and Phillips, 1984, p. 1). While an interest in the relationship between environmental conditions and human health problems go back to the Hippocratic school of healers (McGlashan, 1972) of the 4th century B.C., attempts to examine the spatial patterns of disease only date from the 19th century (Barrett, 1980). Even so this made the geographical study of ill health one of the longer established branches of geography and the use of the term "medical geography" is almost as old. Several researchers in this field have considered the historical development, concepts and definitions of medical geography, (see, for example, McGlashan, 1972b; Learmonth, 1978a, 1978b; Pyle, 1979a; Barrett, 1980, 1986; Meade et al, 1988). Phillips (1981) has produced a comprehensive review of the development, approaches, and concepts of contemporary medical geography or what he terms the "geography of health care".

Of more importance in the present context has been the rapid and sustained growth in medical geography since the Second World War. In many, especially Western, countries medical geography is now a well-established field (Jones and Moon, 1987) which investigates a wide range of health-related problems (Howe and Phillips, 1983; Meade et al 1988). In the 1950s and 1960s much research in medical geography focused on aspects of disease ecology, seeking out the environmental and social conditions which could account for spatial variations in the occurrence of disease. At that time little attention was paid to the study, on a spatial basis, of health care services and the utilisation of those services. It has mainly been since the mid 1970s that one has seen a shift away from disease ecology to focus "**...either on describing and optimizing distribution of health care facilities or on**

describing and modelling their use." (Joseph and Phillips, 1984, p.5; see also Phillips, 1981; Stimson, 1980; Howe and Phillips, 1983; and Jones and Moon, 1987).

It must be noted here there is a debate between geographers on whether medical geography or the geography of health care is a more accurate title for this subject area. These and other questions have recently been discussed by Barrett (1986). Phillips and Rothwell (1983, p.1) have claimed that:

> "...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."

However, this is not the case in some Western countries, like West Germany, where the subject of health care has

> "...for some considerable time been associated with the research areas of medical sociology, social medicine, social hygiene and health-care planning" (Jusatz, 1983, p. 61).

That this switch from disease ecology to focus on provision and use of health care services has occurred can be seen to be the result of several factors:

(i) An evolving interest in the delivery of health care services parallels in many ways the recent development of the welfare approaches in human geography, and the geographical study of public services generally (Jones and Moon, 1987; Joseph and Phillips 1984). This reflects the increasing importance of welfare provision which contributes to the quality of life of people (Howe and Phillips, 1983).

(ii) The analysis of health care systems and related matters, like the location of, and accessibility to, facilities are areas which often lend themselves better to measurement by geographers than do matters of disease ecology.

(iii) It is also an area which lends itself to study at a variety of scales, as Phillips (1981) states "... **from the aggregate scale of groups within populations to the level of the individual or household.**" (p. 2). Such a variety of scales suits the geographer and allows him to fit the purpose of the study to the types of data that can be made available. (iv) There is also a clear distinction between the analysis of the delivery systems and the level of use and satisfaction of consumers who use the systems. All such approaches often require geographical techniques.

The sociological approach of much recent medical geography has led some to refer to the field as the geography of health care or the geography of medical care or medical-social geography

> "... in recognition of the importance attached to social, economic and political aspects of the provision and use of medical and welfare facilities to counter human health problems. " (Phillips, 1981, p. 2).

Under this heading, therefore, studies can range from the examination of the nature and organization of systems of health care delivery in various countries under different political, economic, social, cultural conditions (Rosenberg, 1986, Joseph and Phillips, 1984), through to the operation and use of health care facilities at the very local level. Thus, at one end of the scale, Gesler (1984) has devoted a book to the study of health care delivery systems in developing countries, examining their characteristics, accessibility and levels of use. At the other end of the scale are micro-scale case studies by Phillips (1981) in West Glamorgan (UK), Stimson (1981) in Adelaide (Australia) and others who have examined GP facilities, each employing behaviourial approaches to better understand the influence of accessibility on levels of health care use.

The opportunity to examine the delivery of health care systems at different scales is also aided by the natural sub-divisions within the systems, and by the more ready availability of data for some parts of the systems. Thus many health care systems can be readily subdivided into primary (GP) and secondary (hospital) systems. Pacione (1986) points out that:

> "In order to fully understand the geography of health care in any country it is essential to appreciate the nature and organization of national systems of health care delivery".

This in turn means recognizing its hierarchal structure from primary health care centres through to hospitals, their spatial patterns of facilities and the range of personnel and specialisms included.

The literature on medical geography is now so large that it is the writer's intention to focus down on aspects relevant to the Third World, and to his research in Saudi Arabia, in particular. Therefore, much of the review which follows is concerned with behaviourial studies related to access to, and use of, health care mainly carried out in rural areas in the developing world. An emphasis is placed on the limited research already conducted in Saudi Arabia.

1.3.2 Medical Geography in the Third World:

While much progress has been made in recent years in the study of medical geography in Western countries, far less has been written about this field in the developing countries. The few articles which have appeared in the past were mostly written by western writers and nearly all were concerned with disease ecology. Some books on health care in developing countries have appeared in the last few years, notable that by Gesler. Others focused on health care in western countries have included sections on developing countries

(Joseph and Phillips, 1984). Major reasons for the limited growth in medical geography in developing countries has been the limited data bases on the sizes of the populations, and their demographic and health characteristics. Hellen's (1986) review of the recent progress in the study of medical geography in the Third World showed how little has appeared in English, German and French. Ramesh (1983), in a review of medical geography in India, also noted the limited literature available on health care delivery systems in spite of the scope for geographers to contribute to this aspect of medical geography.

This is not, however, to deny the importance of work in these fields conducted by health planners, health economists or medical sociologists and some geographers, mainly working for government or international organizations like the World Health Organization. The contribution of WHO in health studies, and especially public health, in the Third World is evident in publications such as Public Health Papers, Forum, and its regional publications series. For example, The WHO Regional Office for the Eastern Mediterranean in 1980 published Simon's Middle East Health which included general information on the health situation, health services and health manpower in the region, but very little information was included on Saudi Arabia.

1.3.2.1 Medical Geography in the Arab World and Saudi Arabia:

Health research in the Arab World has had a long and distinguished history, although until recently a formal area of medical geography hardly existed there at all. In the early Islamic period (7th and 8th centuries A.D), the Arabs adopted the Unani or Greek system for their scholarly work in medicine, and Arab Moslem scientists made major contributions to the development of medical knowledge during the European Dark Ages (see Pyle, 1979; Gesler, 1984; Meade et al, 1988).

Moslem Arab immigrants carried their ancient medical practices to others parts of the Islamic World where it remained important especially in India, Pakistan, Bangladesh, and in other areas of Moslem culture (Claquin, 1981; Ashraf et. al. 1982, Ramesh and Hyma 1981). Several Arab writers such as Ibn Hokal, and Al-Masawdi (10th century) and Ibn Khaldoun (14th century) identified relationships between diseases and their environment, as well as the links between human behaviour and climatic conditions (Sharaf, 1986). Unani medicine remained the principal system in use in the Arab World until the 19th century (Gesler 1984), although it then declined in the face of European approaches and before the recent rise of medical geography.

The study of medical geography made little progress in the Arab World as is seen in the limited number of medical geography texts in the Arabic language, such that in 1986 Sharaf could claim that his text Environment and Human Health: A Medical Geography was probably one of the first books in Arabic in medical geography, if not the first by an Arab. Even then much of it is concerned with the geography of diseases and takes most of its examples and approaches from Western authors.

Even less progress has been made in Saudi Arabia. Not only is the literature on medical geography very limited in Saudi Arabia but the whole field of Saudi medical research is still new. The author's literature survey, aided by a computer search, showed that most of the limited health research specifically aimed at Saudi Arabia is clinically-orientated. Outside of this field there have been only a few unpublished theses written by social scientists in the fields of public health, health and hospital administration, and health manpower. Even fewer studies exists in Saudi Arabia in the field of medical geography. Lack of data was, and has remained, a major reason for this. Just as early European

travellers, like Philby, could only make general observations on the local health and diseases, so even in 1954 Simmons et al in a survey of health in 17 Middle Eastern countries could provide only the most general overview of health in Saudi Arabia.

Only limited research has been done since then. Two standard papers by El-Bushra (1980; 1989) on medical geography in Saudi Arabia examined variations in the levels of provision of health facilities across the Kingdom based on hospital workload standards. Spaced out over an interval of eight years these studies demonstrated the enormous growth recently in health facilities in the Kingdom, but they are of limited value since they only compare across the five major planning regions and are not even detailed down to the current 14 health regions. Rather more of a regional approach was taken by Al-Kahtani (1988) in his study of public services provision in Asir region in the south west of Saudi Arabia, where he also examined the distribution of the primary health care centres at the sub-regional level (Sarat Abidah sub-region), and showed the importance of access on levels of health care sought by the local population. Also in the field of primary health Al-Ghamdi (1981) applied a linear programming technique to develop a model of optimum allocation of public health centres in the city of Jeddah so as to place a centre within 10 minutes travel time of every inhabitant in Jeddah City. Al-Sunai (1983) examined the distribution of health facilities in Makkah City and the characteristics of the users of the hospital outpatient clinics.

While much of the limited work on medical geography conducted in other developing countries has focused on disease ecology almost nothing have been done on this in Saudi Arabia. In fact the writer could find only one study specifically directed at this. Under the title The geography of human diseases in the Kingdom of Saudi Arabia, Al-Bauok (1982)

described the incidence of malaria, schistosomiasis, trachoma, and cholera, mostly from an epidemiological perspective. As a geographer she discusses the distribution of these diseases in relation to the environment, but there is often a gross lack of data to support her observations.

Following the lead set by some western studies of the relationships between common illnesses and social and environmental conditions, Al-Obeidy (1985) conducted a study on the incidence of infant mortality in a sample of households in Riyadh City in relation to the socio-economic status of the families. In general he found children born to illiterate mothers or in poorer housing had the highest incidence of infant and neonatal deaths.

There have also been a few studies of health administration and public attitudes to health care in Saudi Arabia. For example, Al-Bakr (1983) examined public attitudes towards public services in terms of their availability, accessibility and quality, but his sample was limited to Saudi students and their spouses temporarily living in the USA where they had another system to compare with. While the majority of his sample held favourable attitudes towards the availability and accessibility of the services in Saudi Arabia they were more critical of their quality. Haristany and El-Torky (1985) studied the waiting time of patients in outpatient clinics in some government hospitals in Riyadh, while Ghaznawi (1982) examined the management of hospitals in the western region. A few other Masters theses concerned with hospital administration have come from students on the health and hospital administration degree in the Department of Public Administration at the College of Administration Science, King Saud University. Some of these are listed in the bibliography at the end of this thesis. At the national scale Alshammasi (1986) used a socio-cultural approach to investigate the development of health services in Saudi

Arabia and suggested that these social factors need formal recognition in health policy decision making.

Easily the greatest single contribution geographically to the study of health in Saudi Arabia has been made by a non-geographer, who has focused much of his research on community health. Since his study in 1967 of public health in the rural community of Turaba in the western region, Sebai (1981) has examined many aspects of the health of this community and the changes in its health conditions as health services have expanded. In particular he noted that over a 15 year period, as health facilities improved, there was a general improvement in the health of the community especially among the young children. He put this down to a variety of factors including better housing, nutrition, and education. The growth in the modern health services not only made them physically more accessible to the people, but the community got more accustomed to modern medical practices. Even so the expansion of health clinics still saw them mainly acting as points for curative care rather than promoting preventative medicine. Certain groups, especially the Bedouins, still sought out folk healing methods for many of their health problems such as bone fractures and mental disease.

Sebai's work on community health in various parts of Saudi Arabia led in turn to his two volume text on Health in Saudi Arabia. The first volume, published in 1985, included studies of the health problems in rural communities in Saudi Arabia, as well as studies of health manpower, and health education. The second volume followed in 1987 and focused on a number of health problems he had identified mostly from an epidemiological perspective. These included communicable diseases as well as those of modern societies such as schistosomiasis, viral hepatitis, diabetes, nutritional problems, cancer and road traffic injuries. He pointed out that this selection of health problems partly reflected his

areas of interest as much as their importance to health in the Kingdom.

Sebai has also written of the huge future needs of the Saudi health service for trained personnel if it is to become far less dependent than currently is on foreign staff. Although he was able to discuss the main features of the Saudi health service and its health manpower he could draw on few examples at the regional level because of the lack of information at that scale. His contributions to community health studies in Saudi Arabia have also included reports on his team project work as a member of the Faculty of Medicine at King Saud University, Riyadh. He and his colleagues have carried out several field projects including large health teams in different parts of the country as a means of teaching public health and community medicine to medical students (see Sebai (ed) 1982a; Sebai, et al 1980; Sebai et al, 1981a, Sebai et al 1981b). One of these projects was carried out in February 1980 in two villages, Ain Ibn Fuhayd and Khusayibah, in the Al-Asyah district of Al-Qassim Province. This area was also used by the present writer as one of his field areas.

The main issue investigated by Sebai's team in these two villages was the health status of the children. The study also covered other general topics such as the function of the two health centres, health manpower, and the activity of local healers. The main findings were the prevalence of ear, nose, and throat problems among the young children of the villages. Trachoma is endemic in the area. Other studies have also found trachoma is endemic in other localities (see Badr and Qureshi, 1981, 1982a, 1982b). The team report also showed that road accidents are a major problem in Al-Qassim as in other areas. Sebai's team also concluded:
(1) health facilities were generally both physically and financially accessible to the local people but rural services did not match up to the quality of those in the towns;

(2) while the daily work load of staff in the health centres was not high and waiting times of patients were not long, doctors only spent a short time on average with each patient;
(3) health services in Al-Qassim focused mainly on curative aspects of medicine because there was little training of staff in preventative medicine;
(4) no records were kept of patients from one visit to the next and there was no proper referral system from one health centre to another or to the hospitals; and
(5) the range of traditional folk healing activities still played an important role in these communities as has been shown in other studies in other communities.

1.3.3 Variations in Access to Health Care:

While governments may seek to make health care services, like other public services, equally available to all, it is clear that this is never fully attainable because some facilities, especially the more specialist hospital services, have to be centralized. This makes them less accessible to those far from the towns. Simple measures, based on the number of clinics, doctors and hospital beds to the size of the population in an administrative area, are often used to assess these spatial inequalities. Rates of use may be measured by hospital admission rates, number of patients at clinics and other crude indicators (see Pyle, 1979a; Gesler, 1984, and Meade et al, 1988). Because primary care is the way into the system, the number of visits to the GP or primary health clinics is a widely used measure of health service provision and use in a region. Geographers have in some cases examined not only the number, but also the distribution, of clinics and other facilities in a region in relation to the distribution of the population, to see how available they are to all the population. As Gesler has noted:

> "Of more interest to geographers than number of health personnel or facilities is the distribution

> of health care resources. The basic issue of distribution is inequality, how to measure it, and how to redress it."(1984, p. 42).

In the debate on how to measure this inequality there arises the question on what type of equality one seeks.

> "It is also unclear whether equality is to be in terms of (a) health care expenditures available for individuals, (b) the value of services actually used by individuals or (c) individual health outcomes (Fein, 1972, quoted from Joseph and Phillips, 1984. p. 52).

As a result, planners, geographers and decision makers might use different criteria to evaluate the usefulness of existing facilities.

1.3.3.1 Utilisation Measures:

Studies of the spatial distribution of, and accessibility to, these primary services using basic indices of utilisation have been made mainly at two scales. The macro-scale or regional scale uses political or administrative areas and often draws broad distinctions in use of facilities between rich and poor, or urban and rural areas (Joseph and Phillips, 1984). Most micro-scale studies have been confined to urban areas. Whatever the measures and scales used, most studies have revealed that inequalities in provision exist in all systems, as Phillips (1981) Haynes (1987) and Eyles and Woods (1983) have shown in Britain. Similarly inequalities have been revealed by Shannon and Dever (1974) in USA and Stimson (1980; 1981) in Australia. But commonly used ratios of population/facility cannot easily be compared from one country to another because of the different systems of health care adopted. For example, in Australia the ideal GP system should have about 1,600 patients per doctor (Stimson,1981) whereas in Britain a doctor with 2,500 patients would be considered under-used (Haynes, 1987; Joseph and Phillips 1984).

Similar studies in developing countries have shown even more extreme variations in basic provision from one area to another, especially with differences between urban and rural areas. As Bryant (1969) has noted:

> "In most countries this imbalance is most easily expressed in terms of the capital city and the rest of the country. In Jamaica the ratio of population to doctors is six times as high outside the capital city as inside; in Thailand the difference is seventeenfold. The ratio of hospital beds to population differs threefold between the capital cities and the areas outside in Senegal, sixfold in Jamaica (pp. 50-51).

Similar studies in Saudi Arabia by El-Bushra (1980; 1989), Al-Bakr (1983) and Sebai 1987 also show clear evidence of ill-distribution of provision. For example, Al-Bakr used 1980 data to show that the ratio of population per hospital bed was 1/2500 persons in Ha'il Province compared with 1/588 in the Western Region. The national average was 1/1000. Similarly ratios of population per physician in primary care varied from 1/4348 in Ha'il to 1/2222 in Central Region. Similarly and more recently, El-Bushra (1989) used different geographical data to demonstrate great variations between the five national planning regions.

But simple measures of doctors to population or hospital beds per population, indicate little of the actual needs of the population, nor the quality of the care offered. Some researchers have looked into various aspects of the quality of the services, such as physician quality, their work-load, and their attitudes to patients. Stimson (1981) used the average number of physician consultations per hour and the type of practice to assess physician availability. But often several factors interact to determine the quality of the service a patient gets. As Joseph and Phillips (1984) note:

> "...physicians may vary in innate ability, attitude to patients, and so on. Moreover, quality of service may depend also upon work-load. Therefore, in an underdoctored area, potential clients may suffer not only through undersupply but also because this undersupply compromises the effectiveness of the service that is available. Such differences in quality are difficult to quantify and rarely, if ever, are they included in availability measures. Of course, variations in quality can cause considerable problems for health services planners ..."(p. 96).

In a similar way measurement of the demand for health services is fraught with difficulties because some sectors of a population, such as the elderly, may have a more frequent need for care. But a whole series of social-cultural, economic and demographic factors may influence the utilization of the available health services. Bradshaw (1972) has distinguished between the four levels of needs as normative need, felt need, expressed need and comparative need. These has been discussed by authors such as Stimson, 1981; Eyles and Woods, 1983; Joseph and Phillips, 1984; Jones and Moon, 1987. Researchers have emphasised that <u>need</u> and <u>demand</u> for health services **"...must be differentiated from one to another..."** (Mayer, 1983, p. 224). But there are problems in measuring either of them. Haynes (1987) has pointed out that **"One of the difficulties is that 'need' cannot be measured in any useful way; indeed, it can hardly ever be defined."**(p. 21).

If need cannot be defined, some attempt to measure demand becomes necessary. Demand for health care is generally less than need because not all parts of a population have equal levels of access to services. Thus some will use services less than they really need to. Some researchers have argued that while it is impossible to measure the actual need for health care it may be possible to assess the perceived need for particular sectors of a population such as the elderly, or young children, who report more illness than other sectors (Haynes, 1987). That is, demand for primary care is much

influenced by the composition of a population, so that knowing the make-up of a population in an area can help to determine the likely needs for paediatricians, gynaecologists and other specialists.

However, there is much evidence from the literature that certain groups do not use care facilities as much as they should. For example, Joseph and Phillips have noted that while the poor minorities in the USA

> "...may experience more illness than non-poor and white groups, their utilization of health care services is not correspondingly higher" (1984, p.9).

The link between use levels or demand for health care and needs may not, therefore, be simple because some sectors of a population will use it whether it is necessary or not and others will underuse it. As Phillips (1986) notes:

> "Demand is associated with the wider concept of need but it is not synonymous with it... Some facilities for which there is no real 'need' may be in demand because they are cheap, accessible, considered to be appropriate or merely fashionable. Other facilities for which there is a great 'need' may not be in demand because their appropriateness is not recognised, they are inaccessible or they are simply not provided for financial or technical reasons." (p. 201).

Generally speaking, then, the purpose of studying health care provision and utilization of (or demand for) the existing health services on a geographical basis is to identify gaps in the services, or in some areas that need filling (Aggarwal and Bhardwaj, 1982). This is especially useful in rural areas where such gaps are more likely to exist. Such gaps might also be identified by comparing the effects of provision of services in one area on its mortality or morbidity rates with those in another area. Or, as Bodenheimer notes (1969):

> "Delivery systems should be evaluated...if such measurement cannot be made, change in utilization becomes a useful yardstick." (p. 151).

1.3.4 Behaviourial Research in Medical Geography:

Basic to a better understanding of the real need and demonstrated demand levels for primary health care is behaviourial research on why people use or do not use health facilities. Little attention has been paid by researchers in the field of the geography of health care even in advanced countries to study variations between individuals and groups in their attitudes and behaviour which will help determine their use of health care services. Although an interest in behaviourial studies in social sciences developed during the late 1950s and early 1960s (Eyles and Woods, 1983), much of the early geographical work was on retail consumer behaviour (Phillips, 1981; Eyles and Woods, 1983). Only later was consumer behaviour in the use of health and welfare services considered and little of this has yet involved a fully behaviourial approach (Phillips, 1981).

This work can, however, be expected to increase in the future if only because it is recognized that people, as consumers of health care, differ greatly in their attitudes to health care. As Stimson (1980) has pointed out:

> "A behaviourial approach to analysing the health care services is worthwhile because consumers of services will behave differently according to a variety of factors, such as their perceptions of the applicability of the services in the system, which may be fashioned by past experiences in using them; levels of socioeconomic status and stages of the life-family cycle, which relate to enabling factors and likely frequency of demand for specific services; and the accessibility of the services, which includes spatial and temporal dimensions." (pp. 896-7).

So far, the behaviourial approach in medical geography has mainly be used to study decision-making by the individual on whether to attend for treatment and the factors which may influence such a decision (Jones and Moon, 1987). Meade et al have pointed out that this behaviourial work can also examine which types of medical care they seek:

> "When several medical care systems are available, people will choose among them according to their perceptions of efficacy for particular health problems." (1988, p. 7).

An individual's response to illness will vary as much as his decision to seek out care. This response will be influenced by outside factors such as accessibility, and personal factors such as the individual's resistance to pain.

Some authors have divided factors influencing the use of health care services into demographic and socio-economic factors related to the patients, cost factors (including the cost of reaching the service), predisposing factors (such as known availability of the services) and attitudinal factors such as the patients' awareness of symptoms (Stimson, 1980; 1981. See also Phillips, 1981; Eyles and Woods, 1983). Various authors have examined use rates of facilities in relation to different sets of factors. In their study of the elderly in Swansea Herbert and Peach (1980) showed how their personal mobility affects their satisfaction with the community facilities. Stimson (1980) showed that in Adelaide immigrants from southern European countries made more use of hospital facilities than other groups.

In general terms the factors that are thought to influence an individual's utilisation of health care can be classified into three categories:
i) factors related to the individual himself, including his character and circumstances and his personal mobility;

ii) factors associated with the patient's accessibility to the services and the geographical location of the health services;
iii) factors associated with the health care system including the type and quality of the services, the physicians, the waiting time, and methods of payments (see Phillips, 1981, 1986; Stimson, 1980, 1981; Shannon and Dever, 1974; and Eyles and Woods, 1983). In fact the latter two sets of factors are considered the main groups influencing utilisation rates.

1.3.4.1 The Influence of Accessibility on the Use of Health Care Services:

Researchers have shown that optimal planning and distribution of health care facilities requires an understanding of the relationship between consumers and providers of health care facilities. That means seeking out the factors influencing the patients' behaviour and in particular the links between accessibility and utilisation (Gesler, 1984; Meade et al 1988). As Meade et al (1988) emphasized:

> "Health care planners attempt to provide accessibility by placing patient and practitioner in the best possible position in relationship to each other. Of course this position may not lead to utilization..." (p. 306).

It seems that the same factors are involved in assessing both accessibility and utilisation. In fact Joseph and Phillips (1984) considered that accessibility and utilisation **"are two sides of the same coin"** (p. 9).

Geographers who have taken an interest in the accessibility to, and the utilisation of, health resources have often distinguished between two main types of factors that influence utilisation behaviour and the patients' attitudes towards use of the health facilities. First they recognize the spatial or geographical factors such as the distance from

the patients' residential area to the health services point, and secondly the non-spatial factors such as age, sex, occupation and other characteristics of the users (Phillips; 1981, 1986; Joseph and Phillips, 1984; Eyles and Woods, 1983; Jones and Moon, 1987; and Meade et al 1988).
Researchers have expressed different views on what are the most important factors influencing the level and type of demand, although geographers have tended to emphasize the influence of spatial factors. On the other hand, others like Meade et al (1988) have warned that this factor of access or distance is distorted by:

> "...political, cultural, and economic considerations; it may be a surrogate for other variables or a mask for the importance of other variables." (p. 310).

Some authors have attempted to develop models of utilisation of health care facilities to attempt to determine the most important factors within this mixture of geographic and non-geographic influences. These models have been reviewed by several workers (Phillips, 1981, 1986; Stimson, 1980; Gesler, 1984; Joseph and Phillips, 1984; Meade et al 1988).

The particular mix of these factors influencing health care use probably varies from society to society. Some examples, from developed and developing countries are worth noting here. Unfortunately there is little work of this type reported for Saudi Arabia with which to compare the writer's own field results given later in this thesis.

1.3.4.2 Examples of the Role of Spatial Factors in Health Care Utilisation:

While a person's awareness of a problem with their health will be the main cause for him/her seeking attention, the actual decision can be influenced by several other factors, some of which are spatial in character. Since some degree

of movement to the health point is often necessary - at least in many countries like Saudi Arabia where doctors will seldom come to a person's house - physical distance and travel time are often regarded as important influences on the decision to seek medical health. Many previous studies suggest that persons who live close to a health services will make fuller use of it than persons who live further away. (Shannon and Dever 1974; Mayer 1982; Meade et al 1988; Smith 1982).

Studies of this inverse relationship between distance and utilisation rates of GP services, and other type of services, have been made in the UK by Phillips (1981) in West Glamorgan. Parkin (1979) in London showed that where patients live less than one km. from the GP surgery the average visit rates per year were 4.82 per person compared with 3.53 for those who lived further away (see Joseph and Phillips, 1984; Haynes, 1987). Shannon and Dever (1974), using data from Finland and the USA, took this a little further to suggest that the relationship was not that clear where greater distances are involved. This applied especially when comparing urban and rural users, where most people live further than one km. from the doctor. A study conducted in Finland in 1964 found that:

> "On average, persons living no farther than three kilometers away from the nearest physician consulted a physician about 50 per cent more frequently than did persons living at least twenty kilometers away" (Purola et al 1968, p. 51 quoted from Shannon and Dever, 1974, p. 98).

The drop off in use rates may be steeper over greater distances. Also a study in the USA noted that rural families in USA who live further from health care facilities may use them differently from those that live closer.

> "...families living at greater distances from physicians tend to limit their visits largely to curative rather than to preventive purposes" (Shannon and Dever, 1974, p. 97).

In the Danfa district of Ghana mothers who lived more than two miles from a child care clinic made little use of it (IDS Health Group 1981). Similar results were found in rural Bangladesh where 80 per cent of the users of a clinic came from within two miles (Ashraf et al, 1982). Jolly and King (1966) examined the effect of declining attendance at first aid posts, dispensaries, and hospitals as distances to them increased and found that the average number of attendances per person halved for every extra mile of travel involved.

It must be kept in mind that in most rural areas of developing countries distances to the nearest hospital or health care point may be much larger than in developed countries so that distance can be a real barrier rather than an inconvenience. In Tanzania 75 per cent of the population lives more than ten km. from any type of western style health care point (Gesler, 1984). In Kenya and Uganda 30 per cent live more than ten miles away from a health centre (King, 1966). Some households in rural Sierra Leone are 100 miles from the nearest government hospital (Joseph and Phillips, 1984).

Workers in less developed countries have also noted that the simple factor of distance is a less appropriate way of explaining utilisation rates because other factors such as the lack of roads, unsuitable transport and the poor quality of the health service, may cause people not to seek out care. As a result local health facilities may remain under-used by the surrounding population. For example, a study of rural health care use in some African countries revealed that people who live on or near main roads used the clinics more than those off the roads. (Gesler, 1984).

Actual distances to health care can became less important if there are other means of mobility available apart from walking so that journeys of different distances will often

involve different modes of travel. In Britain, for example, studies have shown that the majority of users of a surgery who live less than a mile away would walk to it but few walked more than two miles (Phillips, 1981 and Haynes, 1987). In contrast in most developing countries there is often little choice but to walk to a centre, no matter how far it is. In developed countries car ownership has often been used as an index of personal mobility to reach health points (Smith,1982) since, in rural areas, many would expect to travel some way to get health care and public transportation is unavailable (Bain, 1983). This choice does not exist for many people in developing countries.

Ownership of a telephone is also important in health care and Bentham and Haynes (1985) in their study of use of health services in rural Norfolk found that ownership of a car and a telephone appears to increase consultation rates in relation to needs.

> "Households in the city with a car and a telephone have consultation rates three times higher relative to their needs than households remote from the city with no surgery in the village and with no household car or telephone." (quoted Haynes, 1987, p. 166).

Telephones are rare in developing countries. It is believed that the majority of rural health centres in Saudi Arabia have no telephone, although telephones are more common in the towns. No statistics have been published, nor has any systematic research been done, in this area.

The type of settlement that people live in could also influence their utilisation rate of health care services. This can be illustrated by reference to various studies in Saudi Arabia. It seems that nomads behave differently in the use of health facilities from settled people in some rural parts of Saudi Arabia. Al-Kahtani (1988) in his study of the use of health provision in the Asir region of Saudi Arabia

showed that rates of use of the health services differed between the lowland Tihama area of southern Asir - where most of the population is nomadic with lower living standards - and the mountain area where village settlement is dominant and living conditions are less harsh. People in the mountains tended to use the health services more than in the Tihama, where he reported that people have to travel larger distances over rough roads to get to clinics.

He also found that one quarter of the visitors to the health centres he surveyed lived less than one km. from the health centres they visited and another 42 per cent lived between one to five km. so that the clinics mainly served villagers close to where they are located. He also found that cars were the main mode of transport people used to reach the clinics with about three quarters of his survey sample saying they travelled by the family car. On the other hand Al-Qahtani (1985) in a study of two health centres in Asir region (Al-Wadiyen and Tamnia) found there was no significant relationship between distance and rate of use of the health centres.

In another study of the Tamnia health centre which serves nine villages in Asir Sebai et al (1981) observed that it was used mostly by residents from the village where the centre is located rather than from the other villages in its official catchment. Distance and the rough roads were found to be the main obstacles to access to the health centre from the other villages. Similarly, in a study of the function of two health centres in Al-Asyah district (Al-Qassim region), Sebai (1982) reported that the majority of those attending the centres serving 12 rural communities in an area of about 750 sq km. came from a range of only five km. around the centre.

1.3.4.3 Demographic and Socio-economic Factors Influencing Utilisation of Health Care:

Many studies have produced a great deal of evidence to suggest that people's use of health facilities varies according to age, sex, socio-economic and other characteristics of the individuals. That age and sex are important is obvious because they affect the incidence of ill health and this needs little further consideration. Several studies have suggested that infants, older people and women - especially young mothers - use health care more often than other groups (Phillips, 1981, 1986; Joseph and Phillips 1984, Meade et al 1988). A study in Wisconsin, for example, showed that women made an average 2.9 visits per year to the physician compared with 1.2 visits by men (quoted from Phillips, 1986, p. 209). Most of the studies reviewed by Phillips, 1986, and Joseph and Phillips, 1984, in developed societies indicate that advancing age leads to a greater use of health care in general and specialist health services in particular. But again there can be much individual variation from the norm. This is especially clear in studies of developing areas. Okafor (1983) in Nigeria found that the female members of the household made more visits to hospitals than males. About 42 per cent of the females in the sample had visited hospitals three times during the previous six months compared with 36 per cent of the males. He also found the frequent users of hospitals were most common among the two extreme age groups (under 20 years and over 50 years of age), whereas the middle age group (20-50) tended to make less frequent hospital visits. Finding reasons for these differential rates of visits is less easy, although childbirth and contraception needs, apart from the normal range of illnesses, may help to account for the higher rates of female use.

The effect of age and sex on levels of health care use do not operate in the same way in all developing areas, but because

most studies are based on health district or aggregate data, variations in levels of use by groups within the population can be hidden. Thus not all old people are heavy users of primary health service. For example, a study of users of Danfa health centre in Ghana showed that, in general, there was a decline in its use with age. Most of the users were pre-school children, and young adult women. Even though adults reported they were more often ill than their children, they used the clinic less (Gesler, 1984). In a study of the Banshair health centre in Bangladesh, Ashraf et al (1982) found that the most frequent visitors were school students, not because they had more need for health care but because the health centre is located near two schools. The students would therefore come with minor ailments and at the same time may also seek medicine for their relatives at home. It was quite common for the patients to stay at home and get somebody else to tell the doctor of the complaints and request medicine for them.

In Saudi Arabia little is yet known about the variations in the use of health services in relation to age and sex, although a general random survey conducted in 1978 by the Central Department of Statistics (CDOS) indicated that older people of both sexes did not use the facilities as much as they needed to, possibly because of an aversion to modern methods of treatment. It also showed that women were more often in hospital than men, probably as a result of childbirth. On the other hand, men are more frequent users of primary health care facilities. In his study of two rural community health centres (Al-Wadiyen and Tamnia) in Asir province, Al-Qahtani (1985) found men used the health centres more than females. Similar results has been observed by Sebai (1981a, 1982a).

The level of education of patients also seems to be an important influence on utilisation by means of the way in which schooling allows persons to better understand their

health and this influences their behaviour and beliefs. Several studies suggest a direct relationship between the educational level of the individual or the family and the use of services (Stimson, 1980; Phillips, 1986; Lankford, 1974). In the USA Anderson (1968) long ago showed that better educated families know more about diseases and health care services and made more visits to doctors. Lack of education may result in less use of these services and especially of preventive medicine and follow-up attention after illness. Okafor's (1983) study of rural Nigeria confirmed this for one part of the developing world when he observed that people with a low educational level used the hospital less than those with secondary or post-secondary education.

The influence of education on health care has also been found to be of importance in Saudi Arabia. For example, in the field of preventative health care, the CDOS survey in 1978 found that there was a strong link between the uptake of anti-cholera vaccination and educational standard with more uptake by the better educated. 77 per cent of those who had spent less than six years in schools have been vaccinated against cholera compared with 93 per cent of those who had completed the elementary stage of their education and 98 per cent of those who had completed higher education. On the other hand the frequency of visits to doctors in Saudi Arabia can show an inverse relationship to educational level. A study of the utilisation of the outpatient clinic of a hospital in Makkah showed that illiterate people made more frequent visits to this clinic than those with university degrees (Al-Sunai, 1983). This may reflect the greater incidence of ill health among the illiterate or a failure to recognize the health problems not needing medical attention. The less educated may also use traditional methods more. This is also suggested by a study of infant mortality among a sample of households in Riyadh where Al-Obeidy (1985) found that parents with a low education level were more likely to make use of folk healers, whereas those with more education

used modern health facilities more. But their use of health services may be divided between public and private services.

Many studies have found that the socio-economic status of users of health care can have a strong bearing on their levels of use of services (Home and Phillips, 1983). Income is often used as the surrogate for socio-economic status. High income persons are more able to use different sources of health facilities, such as private medicine, to reduce their use of the public system and will often have a higher level of education and wealth to reduce the threat to their health by poor housing and other poor conditions. In the same way, although most countries now provide free health services for their population to reduce the impact of income on uptake, it is clear, as Phillips (1986, p. 214-15) points out, that: **"...there is still evidence to suggest that cost of attendance, of visiting and the like can inhibit the use of services by the poor".**

Studies in Britain show that unskilled workers and those in lower social classes in general are less inclined to consult their doctors, and are less concerned with preventive medicine (Konk, 1979a; Eyles and Woods, 1983). Much the same relationship has been found in studies of occupation of users in the developing countries. In Nigeria Okafor (1983) found that farmers and traders tend to use hospital services less frequently than civil servants, although this could partly be related to accessibility. Over half of the farmers and traders in his sample had used the hospital only once during the preceding six months compared with more than half of civil servants and teachers who had used the hospital three times or more. In a study of the use of the health services in rural areas of India Mrinaline et al (1981) showed that self-employed people used services much more than those working for a daily wage where they lost money to take time off to go to the health clinic.

While little data is available for Saudi Arabia on this, there is both confirmation and refutation of the link between level of use of health care and the occupation of users. Certainly some studies found the majority of the visitors to hospital outpatient clinics in Riyadh and Makkah were government employees. On the other hand Al Ghamdi (1981) found that labourers made up 40 per cent of users of health centres in Jeddah. The majority of these labourers were non-Saudis probably because many Saudis could afford to use private medicine.

Groups with different ethnic, language and religious backgrounds in a society can also have different rates of health care use. In the USA, for example, black and other minorities groups use health facilities less than whites (Gesler, 1984; Eyles, and Woods, 1983; Meade et al, 1988). Religious groups may have their own hospitals as in the USA, and members of these groups may travel farther to get to their own hospitals rather than go to the nearest hospital (Morrill et al, 1970). Minority language group may also behave differently because of the language barrier. Abernathy and Moore (1972) found that Mexican-American families in the USA made less frequent visits to physicians. In Iran people in rural areas were less prepared to go to foreign doctors (Zeighami et al, 1978). There has been no study of the effect of the presence of doctors of different language and cultural backgrounds on patient use rates in Saudi Arabia.

Researchers have also found many other factors associated with the quality of the modern health services in developing countries which may deter people from using them. Various attempts have been made by different authors to measure the quality of modern care services such as the availability of equipment, of drugs, the physical conditions of the clinics, and length of time spent waiting for treatment. The apparent

skill of the personnel and their attitudes towards the patients have also been considered.

While quality considerations can be important in determining use levels in advanced countries, they could well have more influence in developing countries where health care standards are much poorer and where variability in quality of the care may be combined with its maldistribution and low accessibility. Bryant (1969) gave several examples from developing countries to demonstrate that most health units in rural areas are under-staffed and are short of qualified manpower. At a health centre in Jamaica, for example, one doctor saw 58 patient in 63 minutes. So poorly were some health centres rated by the local population in some areas that the services, though minimal, were underused. Even in poor areas patients are often not prepared to wait all day for a minimum of attention. No studies of this type have so far been done in Saudi Arabia.

Another problem identified by some researchers is the social distance between the provider and the consumer, so that the doctor seems unaware of the conditions under which his patients live. Bryant (1969) saw this as a cause for the low levels of use of government health facilities in Thailand. Many people therefore prefer to go to traditional healers because of the wide social gap between patients and the western trained doctors.

1.3.4.4 Use of Modern and Traditional Medicine:

Traditional medicine is still an important source for health care for many people in developing countries. This is especially so in the rural areas in developing countries. The literature shows that indigenous methods of treatment are still widespread in Africa, Asia and Latin America (Good, 1980, Gesler 1984; Eyles and Wood, 1983). Good et al (1979) estimated that traditional methods were the dominant system

of health care for over three-quarters of the population of the developing world. There have been several studies of the continuing role of traditional medicine. Authors such as Eyles and Woods (1983), Jones and Moon (1987), Meade et al (1988) point out that people's beliefs about the causes of illness and the appropriate treatment affect the kinds of help they seek. As a result people may consult a traditional healer for certain problems and western style physicians for another. Or they may use both for the same problem. But there have been few attempts by geographers to analyse how cultural and other factors may influence patients' spatial behaviour in seeking out treatment either from indigenous or western practitioners (Good 1980; Good et al, 1979). A recent concern to devote more study to traditional healers was prompted by the World Health Organization international conference on primary health care at Alma-Ata in 1978 which sought to increase cooperation between modern and traditional systems.

Some medical geographers have discussed the nature of traditional healer systems in particular countries and their contributions to overall health care. Some researchers have suggested that a patient's choice of traditional medicine is partly dependent on accessibility and on the other factors that influence the choice of modern therapy. For example, Lasker (1981) found that more rural people in the Ivory Coast used traditional healers than modern doctors. The situation was reversed in urban areas where modern treatment is more accessible. But where both traditional and modern healers were equally available, **"villagers used native healer first, and urban people used biomedical practitioners first."** (quoted from Meade et al, 1988, p. 310). But the factor of access or habit cannot alone explain these differences. The IDS Health Group (1981) in rural Ghana reported that a number of other factors, such as age, also affect people's choice of treatment. For example, for children up to one year old, home or commercial herbal remedies were usually used first.

If the child does not recover the next resort was to go to the modern facility. In the case of bone fractures, traditional bonesetters are often recognized as being able to deal with even serious cases well. On the other hand a TB case would go straight to hospital. In fact Ojanuga and Lefcowitz (1982) suggested that there were four patterns of choice for patients in Nigeria:

i) those who used either western or traditional medicine exclusively. This is most of the population;
ii) those who used traditional medicine first and then modern medicine;
iii) those who went from modern to traditional medicine and;
iv) those who used both simultaneously." (Gesler 1984, p. 66).

In Saudi Arabia the role of traditional medicine may have declined rapidly in recent years in the face of the vast expansion of western methods and facilities. Even so some recent studies have shown that the local healer is still active both in rural and urban areas in Saudi Arabia. Moloney (1982), in a study of local healers in Al-Qassim region, described several types such as those dealing with bone-setting, circumcision, and bleeding. He also discussed the methods and materials used by each type and the diseases each type treated. Sebai (1981) in his study of Turaba also found that patients' decisions to use modern health care or folk healing often depended on the kind of disease to be treated. The majority of the people in the villages used the health centre for treatment of some illnesses such as cough, diarrhoea and fever, while they preferred traditional treatment for some other illnesses such as Gamba, a severe, sharp stretching pain in the side of chest (see Sebai 1981. p. 107).

Several socio-cultural factors such as socio-economic status seemed related to the patient's decision whether to seek health care from traditional or modern health services. Many studies in other developing countries have concluded that

because traditional medicine is a part of the culture of the people and because folk healers are more aware of the attitudes of the patients, they can effect cures by relieving the mind in a way that western trained doctors cannot.

1.4 CONDUCT AND STRUCTURE OF THE THESIS:

1.4.1 Data Sources:

The process of collecting health data in developing countries present difficulties less often found in developed countries, and Saudi Arabia is no exception to this. There is a gross lack of detailed data on vital statistics for the population and their socio-economic characteristics. There is no central detailed source on health facilities and almost nothing on their patterns of use.

As a result several methods of data collection were used in this study. First, data on health resources was gathered from a wide range of Saudi statistical collections, WHO reports and various unpublished data sources in order to analyse regional variations in the Saudi health system.

Much of this work was done during the writer's first visit to Saudi Arabia in late 1986-early 1987 soon after registering at Southampton University. This involved visits to the main libraries in Riyadh including those at King Saud University, the Institute of Public Adminstration, the Ministry of Planning, the Ministry of Health, the Ministry of Finance and National Economy's Central Department of Statistics. The Statistical Year Book of the Central Department of Statistics, published annually since 1965, and the Annual Health Reports of the Ministry of Health, produced each year since 1980, provided a wide range of basic statistics on health activities. Unfortunately, neither of these data sources provide data at the sub-regional level so

that considerably more data was needed than could be obtained from these sources.

Secondly, the main body of data on Al-Qassim's health services was collected from provincial unpublished health reports in the Regional Health Affairs Directorate at Buraydah and by means of an extensive questionnaire survey in selected health centres and hospitals in the sampled areas of Al-Qassim. Additional basic data on Al-Qassim was obtained from the 1974 census of population, the Norconsult regional reports of 1984-86 to the Ministry of Municipal and Rural Affairs, and other lesser sources, as well as the writer's field knowledge.

Thirdly, the collection of national data also involved a literature survey based on three computer searches, at Southampton and London Universities, and via the US Dialog Information Service. Another computer search was conducted through the King Abdulaziz City for Science and Technology (Directorate of Information System and Technical Service), Riyadh during the author's visit in the summer 1987.

The intensive field survey in the selected study areas in Al-Qassim Province was carried out during the period May-August 1987. This included a questionnaire to obtain data on about 1400 users of the primary health care services, their characteristics, and behaviour in the use of the services. 23 health centres were used in this survey. The method used in the selection of the study areas, the health centres, the patient samples and the other field survey procedures are described in detail in Chapter Six.

1.4.2 Organization of the Study

The thesis falls into two main sections. After this first chapter which has reviewed the relevant literature and outlined the structure of the thesis, Chapter 2-5 use

national data to examine the development and spatial patterns of the provision and use of health facilities in Saudi Arabia. As far as the data allows this part of the study shows that attempts to equalise provision have not eradicated all the variations which exist in health care provision across the Kingdom. But the available data allows almost nothing to be said of regional variations in use of facilities. Chapter Two outlines the main features of the Saudi health care delivery system while Chapter Three considers its national growth. Chapters Four and Five examines geographical variations in availability and utilisation of health resources based on data for the Kingdom's 14 health regions.

Because published data only allows health facilities to be analysed at the widest scale, and allows no assessment to be made of use of facilities, the second part of the thesis is focussed on the regional scale.

Therefore Chapters 6-13 provide an examination of health facilities in Al-Qassim and the variations in provision at the sub-regional level. Field survey has also allowed an examination of the use of the primary health care facilities in the selected areas in the Province in relation to various characteristics of the sampled patients.

Chapter Six outlines the field methods to select the areas and health centres sampled in Al-Qassim Province and the choice of a patient sample for the questionnaire survey. Chapter Seven provide a geographical background to the Province. Chapters Eight and Nine examine the pattern of health facilities in the Province in general and in the selected study areas in particular. Chapter 10 analyses the demographic and socio-economic characteristics of the patient sample. Chapters 11 and 12 analyse the patterns of use of primary health care by the sample in relation to their demographic and other variables. Chapters 11 and 12 also

examine accessibility to the health services and the patients' opinions on various qualities of services. Chapter 13 presents some conclusions and recommendations for further research. As a first study at the sub-regional level within the national context, it is recommended that further research is conducted at the local level to better understand how primary health facilities are used by different sectors of the population in an area.

CHAPTER TWO

HEALTH CARE DELIVERY IN SAUDI ARABIA

In order to present a picture of the elements of the Saudi Health Care Delivery System, this chapter will deal with the following points:

- The main features of the health care delivery system and its development.
- The organization of health care and the dominant role of the Ministry of Health (M.o.H.).
- Economic influences and health expenditure.
- The network of health care services.

The next chapters will consider the development, the geographical allocation and spatial variations in utilisation of Saudi health services in some detail in order to lead into a study of the system at the regional and sub-regional scale.

2.1 THE HEALTH CARE DELIVERY SYSTEM IN SAUDI ARABIA:

Because the health system in Saudi Arabia is still immature, in that it is still undergoing expansion, improvement and modification, it is not possible to say it is largely based on other particular systems. Nevertheless it seems to combine features of several systems. Its major characteristics include:

i) Direct control by the state of the planning, organization and provision of the health services in order to ensure that access to care is available free to every citizen. At the same time the private sector is encouraged and subsidized by the Government and now provides an estimated 15 per cent of total health services to those prepared to buy health care. In these aspects the Saudi

Health system has similarities to the British NHS. However, the Saudi system differs from the NHS in other ways. For example, under the Saudi system there are 14 other government departments, apart from the M.o.H., which provide health services, each with its own policies and priorities and restricted clientele (Al-Ammari and El-Torky, 1984; M.o.P., 1985a).

ii) The planning, financial control and decision-making of the Saudi health System is strongly centralized. Although the country is divided into 14 health regions, the financial and administrative authorities of each of their directors are extremely limited. The major decision-making lies in the hands of the King as prime minister, and the princes as governors of the provinces. The local leading persons of each province also have a direct or indirect influence on health administration.

iii) A third feature, as in many Third World countries, is the concentration on the curative side of health care. This area of health care is costly to provide and its highly technical services consume the major part of the total health budget. Much less attention has been paid to the provision of preventive health services to deal with common diseases like Malaria, Bilharzia, and Leishmaniasis. Partly because progress has been limited in the field of health and safety education and preventive care, for example, the rate of mortality amongst infants and children remains high. Similarly, deaths and injuries from road accidents represent a major health care problem because of insufficient road safety education.

iv) In its concentration of health services in the urban areas and their relative paucity in rural areas the Saudi system is also akin to the situation in other developing countries. But some of these similarities with health

care development in other Third World countries are only superficial. For example, while expenditure on the health sector at 5 per cent of GNP is similar to the level in other developing countries, health expenditure per capita is at a much higher level in Saudi Arabia than in many fully developed countries because of the wealth of the Kingdom. As a result there is a far better level of provision of health care in rural as well as urban areas than in most developing countries, and access to it is easy. Even so, primary care has been relatively neglected.

v) In this respect the health system of Saudi Arabia shares several features with the other oil producing Gulf Countries. The Saudi system places a heavy reliance on foreign manpower at all levels due to the severe shortage of qualified and trained nationals. But the variable quality of this manpower leads to uneven health care reliability between the different health organizations. Yet, at the same time as part of the health care system is very advanced and technology based, traditional healing still plays a major role in the services available in the country. The system is, therefore, incoherent and it is useful to consider how it evolved to its present situation.

2.1.1 The Development of a Health Policy in Saudi Arabia:

In spite of the fact that Saudi Arabian remained a poor country for the first three decades after its creation in 1932 King Abdulaziz, soon after founding the Kingdom, ordered that all government hospital and health centres provide the population with free health care. Therefore the policy of the Saudi Arabian government "... **has always been to attempt to provide the finest health care services free to all inhabitants of the Kingdom.**" (M.o.P., 1980, p. 344). This

care is also available to many pilgrims who come to Saudi Arabia on the hajj to visit the Holy places of Islam.

The Saudi health system at first developed very slowly to meet this goal. Moreover its early growth was not guided by any specific development plan, or strategy. In 1926 there were only two small hospitals in the whole country. These were in Makkah and Jeddah mainly to provide curative health services to pilgrims where risk of disease was great during the Hajj. In 1927 these hospitals became the basis of the Directorate of Health and Ambulance. Its services were expanded but it remained entirely a regional service - in the west - with its attachment to the office of the Agent-Director in Hejaz. Over the next few years, however, as part of the Ministry of the Interior, its work spread to other parts of the Kingdom until it was formed into the Ministry of Health in 1951 (Sadiq, 1965; Simmons et al, 1954) to take responsibility nationally for the improvement of health by providing medical care and health services throughout the Kingdom.

It was not until the 1960s that the M.o.H. and the Central Planning Organisation (which became the Ministry of Planning in 1975) formulated a plan to provide comprehensive health services for all the people in the Kingdom with the technical assistance of the World Health Organisation. Also since 1970 there have been a series of five-year development plans to guide the expansion of the sectors of the economy. The health care sector has become one of the more important components in these national development plans.

The first development plan prepared in 1970 had three main objectives in the health care field. These were to:

> "(i) increase the number of doctors and technicians and expand health training programmes; (ii) expand preventive health service; (iii) commence the construction of new facilities and the reconstruction of old ones in accordance with the

> requirements of a general health network for the country that will provide health care throughout the Kingdom." (Central Planning Organisation, 1970, p. 146).

Although the first development plan (1970-75) had some success in improving health care as well as care in other social services, the programmes under this development plan were hampered by a number of factors such as the acute shortage of skilled manpower at all levels; organisational and management difficulties; insufficient information and research on the characteristics of the country and on the appropriate form and size of an effective health system; a lack of integration of the preventive, curative and educational components of the health system; and a low level of output from the Kingdom's medical training schools. For example, in the period 1970-1974, only 152 female nurses and 357 technical assistants graduated from the Kingdom's nursing schools and health institutes (M.o.P, 1975, p.375).

When the second development plan (1975-80) was launched several measures were adopted to rectify the shortages revealed in the first plan. These measures were intended to improve management and administrative arrangements in the health service; expand skilled manpower; increase the number of hospital beds and enlarge the network of dispensaries, health centres and health points; and improve health education.

For the first time an emphasis was placed on the integration of curative and preventive medical care. As the plan states:

> "A primary objective of the development of the health sector in the period 1975-1980 is to provide the Kingdom's population in all regions with a comprehensive range of preventive and curative health services so that the people may, through higher levels of health, both contribute to and

benefit from the socio-economic progress of the Kingdom." (M.o.P., 1975, p. 376-7).

While the second development plan made some progress in the integration of preventive and curative medical care at the health centre level, and in the hospitals, most of the emphasis in health services provision remained concentrated in the curative field rather than on preventive medical facilities and primary care. This was largely the result of the necessary priority during the first and second plan periods to provide immediate treatment for people suffering from disease.

As a result, by the end of the second development plan, health care remained one of the Kingdom's crucial problems. Al-Bakr (1983) noted that infant mortality and communicable diseases remained at a high level. There were wide discrepancies in accessibility to health services and facilities. Health manpower was being used inefficiently and was in short supply, and there was insufficient allocation of resources for preventive care.

The third and fourth development plans (1980-1990) gave priority to spread social development within the Kingdom with a major emphasis on health care in a wide sense. A broad range of health objectives were established. In summary these were:

1. To improve the health conditions of the population, in particular by ridding the country of endemic diseases;
2. To provide the population in every region with a fully integrated and comprehensive system of free medical services.
3. To strengthen primary health care as the basis of a comprehensive health service network, and to place greater emphasis on preventive medicine and environmental health programmes, including health education, maternal, and child health care, public immunisation and occupational health programmes;

4. To further develop emergency medical services with special attention to the requirements of the influx of pilgrims in the Hajj season;
5. To encourage the private sector to also provide medical services for citizens and foreign residents in the Kingdom;
6. To establish a National Health Council to determine the Kingdom's health policies, to guide the development and improvement of all health services in the Kingdom, to delineate the responsibilities of individual government health care agencies and the private sector, and to co-ordinate their activities;
7. To increase the number and improve the quality of medical manpower and, in particular, to encourage more Saudis to take up medical careers;
8. To expand exchanges of medical expertise between the Kingdom, the Gulf Co-operation Council and international health organisations. (M.o.P., 1980, pp. 347-8 and 1985a, p. 329).

A later part of this chapter and the next chapter will consider the rapid expansion of all aspects of health care in the Kingdom, including the facilities operated by M.o.H., other government agencies and the private sector during the period of these later development plans. In particular the third plan period (1980-1985) was a time of especially rapid development when oil revenues peaked.

As each plan period was completed the ensuing plan tried to recognise and deal with the major needs still remaining. As a result issues which emerged during the third plan period - a time of rapid expansion - merited special attention in the fourth plan period which is just ending. These were, firstly, the need to provide more medical manpower of high quality to operate the new health facilities and to support existing ones. A major aim for health care developments under the most recent development plan has, therefore, been to attract more

medical manpower from other countries and to increase the numbers of Saudis working in the health fields [1]. This aspect of the system will be considered further in Chapter Three.

Secondly, in order to spread the benefits of the developing health services to all the population the fourth plan recognised that primary health care must be brought to the level of the individual locality. This meant increasing the network of primary health centres and improving their services at the household level. A proper family health record keeping system and hospital referral system are now being introduced in this expanding network of health care centres linked to the hospital system. It was also recognised that special attention must be given to the increasing demand for infant and child health services where more co-ordination between the M.o.H. and other social agencies of the Kingdom is needed (M.o.P., 1985a).

2.1.2 Other Government Health Organisations:

The M.o.H. is the largest health organisation in Saudi Arabia and has the chief responsibility to provide and improve health care services for the whole population. But, as has already been pointed out, there are various other government agencies, apart from the M.o.H., which provide some medical and health services. Either they provide certain specialised aspects of health care to the whole population, or they only offer health services to their employees so providing a restricted access health service. Some of these agencies, such as the military, provide the full range of health and medical services to their staff, and make some of their facilities available to the rest of the population. None of these agencies offers as wide a range of services at as many locations as the M.o.H. Since they offer a less comprehensive service than the M.o.H. they can be dealt with first.

There are four groups of government agencies which provide a reasonably comprehensive set of health facilities at selected locations.

1. The Ministry of Defense and Aviation, the Ministry of Interior and the National Guard provide full health care at all levels for their personnel and dependents. Some of their facilities also treat ordinary citizens on a referral basis, but these services are only available at a limited number of points around the Kingdom.

2. The University teaching hospitals and university health units provide health services for university students and personnel and their families. They also provide some facilities for the general public, including both primary and specialised treatment but only in the few locations where the universities are located.

3. The King Faisal Specialist Hospital and Research Centre in Riyadh is funded separately from the M.o.H. to provide specialised treatment of selected ailments to the highest standards to anyone on a referral basis.

4. Lastly, there are other government ministries or quasi-government organisation which provide more limited health care. These are as follows:

a. The Royal Commission for Jubail and Yanbu provides general health care for employees in its own hospitals and health centres at the two industrial cities.
b. The Ministry of Labour and Social Affairs provides basic health services in some rural areas through community development centres.
c. The Ministry of Education and the General Administration of Girls Education provide some primary health care for students through the school health units.

d. The General Administration of Youth Welfare provides specialist treatment for sports injuries in a sports medical centre in Riyadh.

e. The Saudi Red Crescent Society provides emergency services across the Kingdom including roadside clinics and ambulances.

f. The Ministry of Municipalities and Rural Affairs and the Meteorology and Environmental Agency have a general responsibility for environmental health. This includes funding municipal water supply projects, but does not include treating individual patients.

g. The flying hospital services operated by the Ministry of Defence and Aviation has six planes equipped to carry out surgical operations on board, as well as six helicopters which act as flying ambulances to lift civilian or military patients to specialist hospitals from remote areas. 800 patients were lifted to hospitals in 1985.

With the exception of the rural community projects of the Ministry of Labour and Social Affairs and the Saudi Red Crescent, most of the facilities of this wide range of agencies are located in the main urban areas, especially in Riyadh and Jeddah, so that only the M.o.H. can reasonably be expected to provide health services to the small towns, villages and remote areas. It is estimated that the M.o.H. provides health care to approximately 80 per cent of the total population in the Kingdom, yet it takes only 49 per cent of the total health funding. The other half of the funding goes to this range of other agencies. This imbalance between the funding of health care by the M.o.H. and other government agencies, which is referred to again later, is further compounded by the inadequate coordination between the different agencies so that inefficiencies inevitably arise in the total system.

2.1.3 The Development of the Ministry of Health: an overview

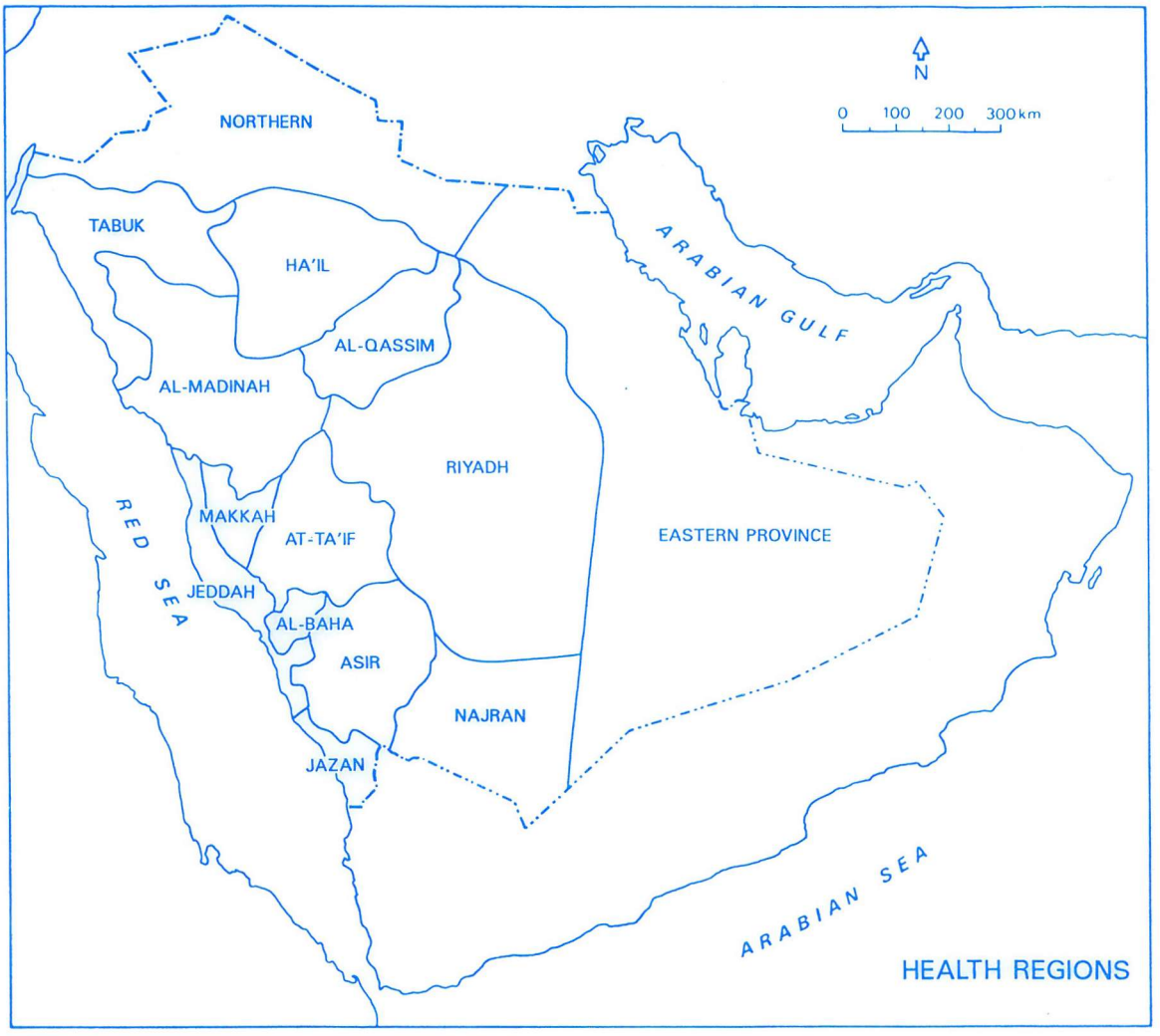
It is clear that over recent years Saudi Arabia has evolved a fairly elaborate, if incoherent, national health care system. This has involved not only an enormous expansion of facilities and a better definition of health policies, as outlined in the previous pages, but also an increasingly complex organisational structure made up of several agencies. But the M.o.H. is responsible for most of the health care. The M.o.H. was set up in 1951 to take national responsibility for the delivery of health care to the public. At first its headquarters remained in Makkah where its activities originated. As its programme of health care was expanded, and special disease control programmes were developed in co-operation with the World Health Organisation and the Arabian American Oil Company (Aramco), six regional health districts were defined (Simmons et al, 1954). But for several years the facilities in these health districts were limited. Throughout the 1950s most of the medical facilities in Saudi Arabia were still located either in the pilgrimage area of the western region, where health clinics were first set up, and in the eastern area to serve the employees of the oil industries. Most of the rest of the Kingdom still had little health care provision.

When the headquarters of the M.o.H. removed to Riyadh in 1953 the transfer signalled, as Alshammasi has noted: "**... a change in both the focus and scope of the Ministry's services from services to pilgrims in the main areas of the pilgrimage to health services to the public in all parts of the country.**" (1986, p. 256). In its new central location the Ministry was better able to administer its expanding services. The rapid rate of growth which followed led to major reorganisations in 1956, 1969 and 1983 (Al-Ammari and El-Torky, 1984). For example, the regional health districts have been re-organised several times. Whereas the Kingdom was subdivided into six

health regions in the 1950s, these had been increased to ten by the 1960s, rationalised down to eight in the 1970s but then in the 1980s expanded to 14. These are largely based on the 14 Provinces of the Kingdom (Fig. **2.1**) [2].

The ministry's structure also copies the political structure of the country in that there has been a strong bureaucratic and centralised control [3]. The organizational chart (Fig. **2.2**) shows how policy is fed down to the regions through several bureaucratic tiers. While this ensures that M.o.H. policy is co-ordinated at the highest level, it also creates inefficiencies because most decisions affecting individual regions can only be taken at or near the top of the organisation (Alshammasi, 1986). The problems resulting from this centralised structure in such a cumbersome organisation have been acknowledged but it is not easy to detect any consistency in the various programmes to reorganise the Ministry, although since 1980 some attempt has been made to decentralise it and to give more authority to regional directors [4]. The 1983 reorganisation was intended to decentralise management. 11 health regions were set up to replace the eight which previously existed and three more were added in 1985. Each region is headed by a regional health director with a fairly elaborate hierarchy beneath him. This thesis focuses on health care delivery in one of these regions, Al-Qassim. Fig. **2.3** shows the administrative structure for Al-Qassim Health Region to administer ten hospitals and 123 primary health centres.

In spite of this recent progress towards decentralisation, the regional health directors still have only limited influence over the health affairs in their region. Very largely they follow the policies and orders set by the M.o.H. in Riyadh, where most of the planning and decision-making still takes place. This is partly because health care planning remains centralised. At the regional level the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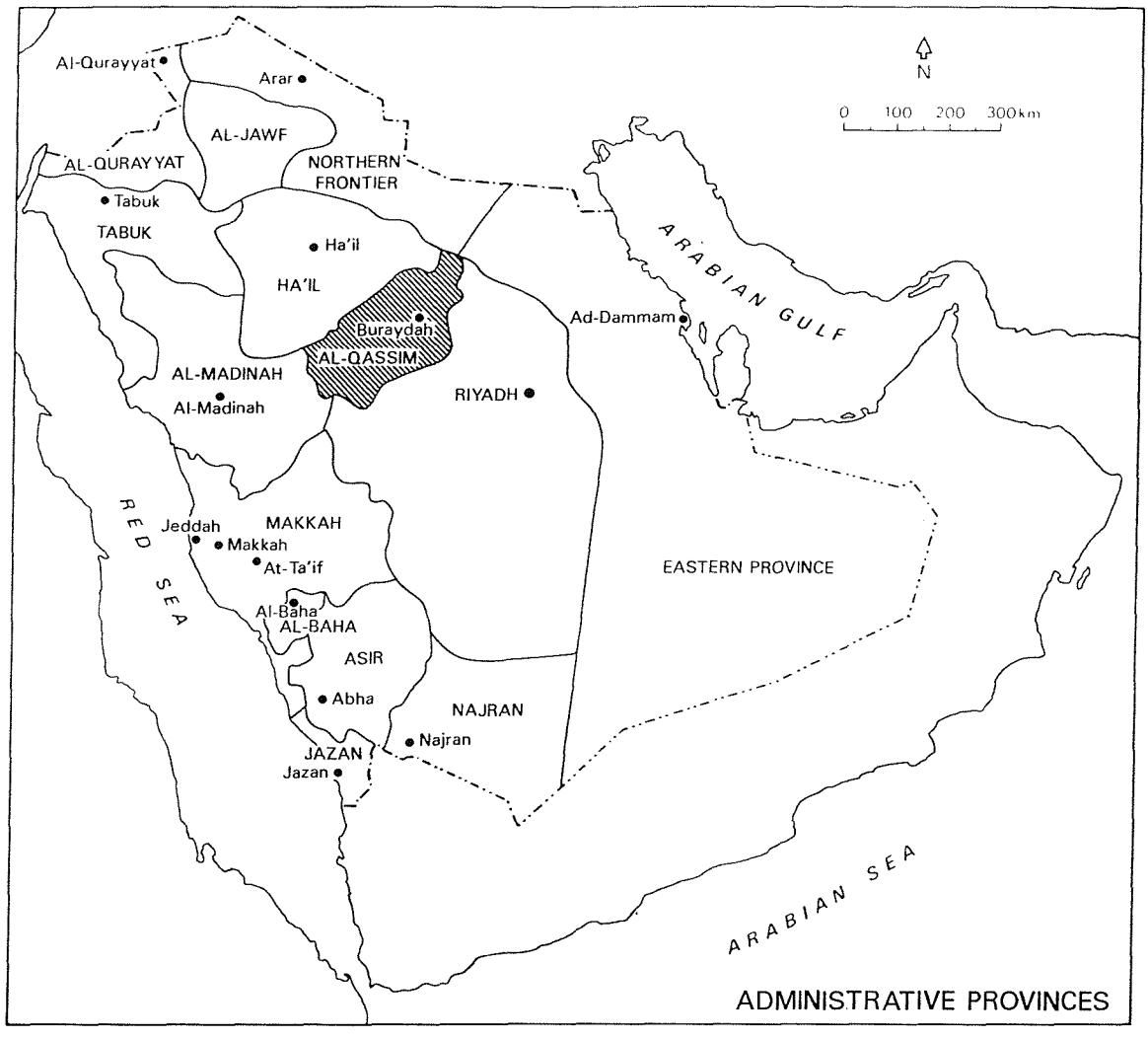


Figure 2.1 Administrative Provinces and Health Regions in Saudi Arabia and location of Al-Qassim

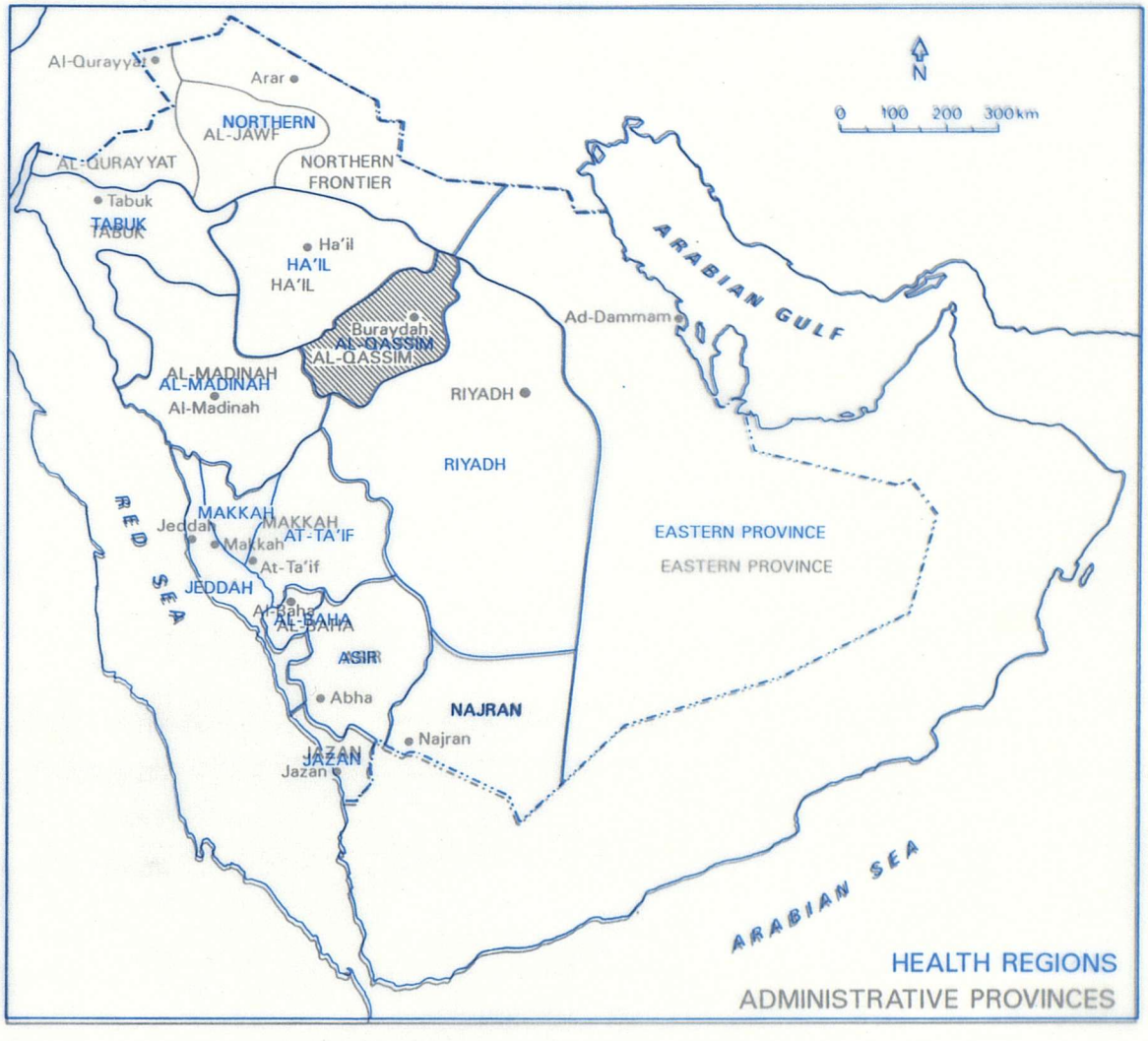


Figure 2.1 Administrative Provinces and Health Regions in Saudi Arabia and location of Al-Qassim

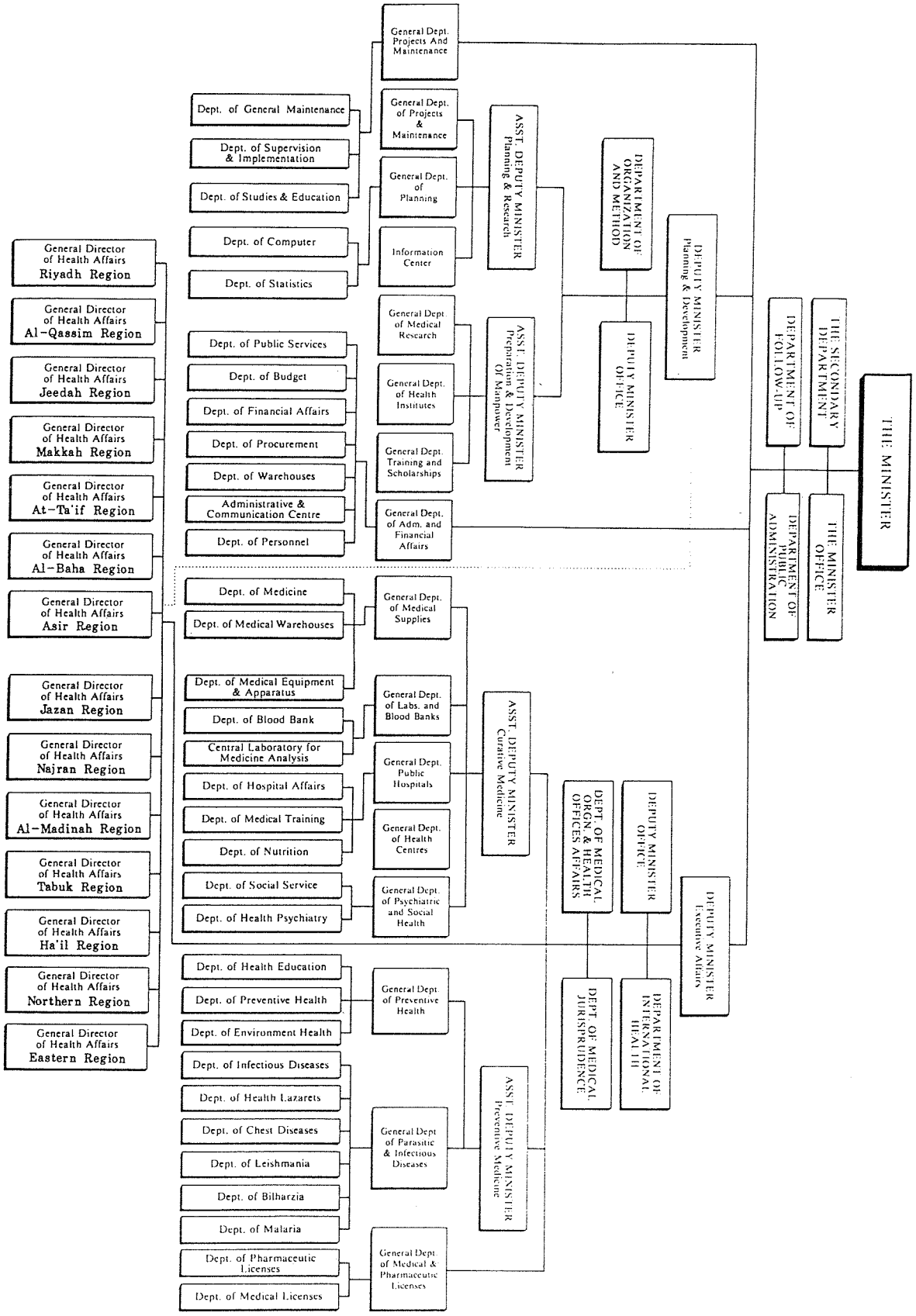


Figure 2.2 Ministry of Health Administrative Structure

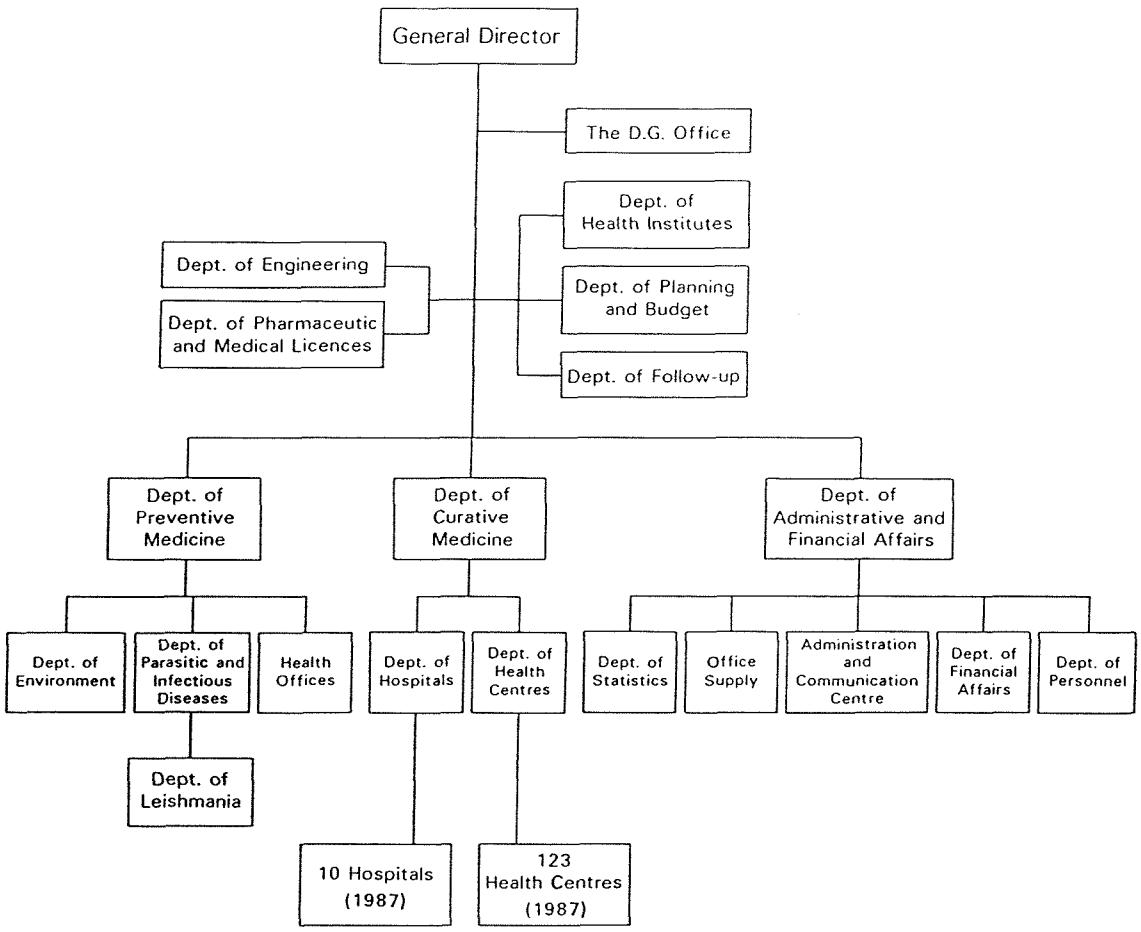


Figure 2.3 Administrative Structure of Al-Qassim Health Region

decentralised administration is mainly concerned with daily operation of the system.

It is not necessary to consider in detail the problems which follow from this failure to adopt a fuller decentralisation, but three points can be immediately identified.

i) Because planning for the provision of new facilities and staff remains centralised in Riyadh it is also a system that relies on personal contact at the highest levels. It is necessary for regional health directors to contact top people in the Ministry to get major decision made. Inconsistencies in decisions, and therefore in health provision, can result.

ii) With health planning centralised in Riyadh there is a general lack of trained manpower in the administrative branches of the health service at the regional level. In many cases hospitals are administered by physicians and pharmacists who were not trained in management. Resources are therefore often used inefficiently.

iii) The financial system of the M.o.H. and its relation to the government funding agencies is both centralised and complex. The M.o.H. cannot fund new facilities without full consultation with other interested agencies. As Alshammasi (1986) pointed out if, for example, the M.o.H. wants to build a new hospital, first it must get approval from the Ministry of Planning, the Ministry of Finance and National Economy which provides the funds, and from the General Civil Service Bureau, which provides the new staff. This greatly slows decision making.

2.2 ECONOMIC INFLUENCES ON THE DEVELOPMENT OF THE HEALTH SYSTEM:

This section traces out the pattern of increasing expenditure on the M.o.H. over the last 30 years and the emphasis in this expenditure on high cost projects. For 20 years after the Kingdom was created, the country remained very poor with 90 per cent of the population subsisting as nomads and peasant farmers. The government received revenues of less than 4 million US $ a year at the time, insufficient to provide adequate health services for the population. Oil had been discovered in the Eastern province in 1938, but the Second World War prevented immediate development. When oil development finally got underway in the later 1940s, government revenues rapidly expanded reaching 85m US $ in 1948 and to 5.7 billion SR (about 1.3 billion US $) in 1969-1970. After the oil price boom in the 1970s revenues peaked at 368 billion SR in 1981-1982 and allowed for a major expansion of spending on social welfare including health. Since then revenues have fallen quite sharply to 171 billion SR in 1984-1985 (M.o.P., 1980; 1985a) as the oil price and the level of production declined.

Table 2.1 Government Expenditure During the Development Plans 1970-1985

Period	SR billion	Rates of Growth %
First Plan	80	-
Second Plan	684	755.0
Third Plan	1209	76.8

Source: Computed from M.o.P., 1985a.

Linked to this rapid rise in the Kingdom's wealth has been a policy to spread the benefits of that wealth to all sectors of society by means of improved health care and other social services under the various five year plans. As Table **2.1** shows, government expenditure under the plans rose rapidly

from 80 billion SR in the first plan period (1970-75) to over 1200 billion SR in the third plan period (1980-85).

2.2.1 Expenditure on Health Care Services:

It is difficult to assess the total expenditure on health care that has been made over recent years because it is provided by several ministries, apart from the M.o.H., and also by the private sector. Figures can be obtained for M.o.H. spending which is the major part of total health expenditure but even this data is sparse. Other government ministries do not provide figures on money spent on health care provision because they consider the provision of health care as a secondary function (Alshammasi, 1986). Nevertheless, recently Sebai (1987) has estimated expenditure on health at 15.4 billion SR in 1985-1986. This, however, excludes expenditure on private sector health care.

Part of the reason for the lack of a reasonable amount of data on national health expenditure is that national budget data for recent years remains limited. The first national budget was not prepared until 1947-1948 and data for the early budgets was often unreliable. Budget data for the years since 1960 has been more readily available but still lacks detail. Even so it is clear that government expenditure on health, especially via the M.o.H., has grown rapidly and far out-paced the growth of population and inflation. For example, the first budget of the Public Health Director in 1948, before the M.o.H. was established, amounted to only five million SR. By 1960 this budget had passed 50 million SR a year and was rising rapidly, if somewhat erratically. As Table **2.2** shows the M.o.H. budget continued to rise rapidly during the 1960s when it only fell below that of the previous year on two occasions. Even so it never accounted for more than 4 per cent of the total government budget.

Table 2.2 Growth of the M.o.H. Budget, 1960-1987 (in Thousand Riyals)

Years Budget	M.o.H.	Per cent change of M.o.H. Budget	M.o.H. Budget as % of the total Budget
1960	58,000	-	3.3
1961	68,000	17.2+	3.2
1962	87,000	27.9+	3.6
1963	103,000	18.4+	3.9
1964	117,000	13.6+	3.8
1965	156,000	33.3+	4.0
1966	160,000	2.6+	3.2
1967	141,000	11.9-	2.9
1968	170,000	20.6+	3.1
1969	168,000	1.2-	2.8
% Change over the period		189.6+	
1970	177,000	-	2.8
1971	279,000	57.6+	3.6
1972	421,000	50.9+	3.2
1973	583,000	38.5+	2.6
1974	1,163,000	99.5+	2.5
% Change over the period		557.0+	
1975	3,197,000	-	2.9
1976	2,973,000	7.0-	2.3
1977	3,384,000	13.8+	2.5
1978	4,040,000	19.4+	2.8
1979	4,177,000	3.4+	2.2
% Change over the period		30.7+	
1980	5,656,000	-	2.3
1981	6,831,000	20.8+	2.3
1982	8,804,000	28.9+	2.8
1983	8,401,000	4.6-	3.2
1984	10,743,000	24.9+	4.1
% Change over the period		89.9+	
1985	8,815,000	17.9-	4.4
1986	8,815,000	0.0	4.4
1987	8,333,000	5.5-	4.9

Sources: Ministry of Finance and National Economy, (M.O.F.N.E), Central Department of Statistics, (CDOS), Statistical Year Book, various issues. Figures are rounded up.

This general growth in the health budget continued, as Table **2.2** indicates, during the five year plan periods from 1970 onwards, especially in the period of the first plan (1970-75) when the annual M.o.H. expenditure rose from 177 m SR in 1970 to 1,163 m SR in 1974, a 5 fold increase in only five years. Growth of expenditure was slower in the second and third plan periods, although this was on a much larger base. By 1984, at the end of the third plan the M.o.H. budget stood nearly 10 times larger than at the end of the first plan only ten years earlier [5].

The partial protection of the M.o.H. funds from the effect of recent declines in the national budget is in keeping with the principal aim of the fourth plan to develop the social sector of the economy rather more than the physical infrastructure. In the third plan the social sector of the economy, mainly health, education and welfare, received 5.8 per cent of total government expenditure. It was due to receive 9 per cent under the current plan. 69 per cent of the social expenditure in the fourth plans was targeted at health care. (Figures computed from M.o.P., 1985a; 1985b). In other words health expenditure is continuing to take a larger share of the Kingdom's resources.

As Table **2.3** shows, over recent years the Kingdom has moved from a situation of a low domestic product and low health expenditure per head of the population to a high level for both variables. The G.D.P. per head has risen from less than 1000 US $ in 1970 by 12 fold to over 12000 $ per year in 1984. This was a higher per capita G.D.P. than even such countries as the UK (6514$) and France (8115$) in 1984 (Willett, 1986). As a result Table **2.4** shows that health spending per head of population in Saudi Arabia had risen to a higher level than in some neighbouring countries in the Middle East by the early 1980s, although it was not the highest.

Table 2.3 GDP per Capita and Health Expenditure per Capita (M.o.H. only) in Saudi Arabia, 1970-1986

Year	1970	1975	1980	1981	1982	1983	1984	1985	1986
GDP per capita US $	926	5,612	12,916	15,780	11,800	12,330	12,094	-	-
Government Budget per capita US $	246	4,506	7,996	8,996	8,918	6,961	6,557	4,753	4,453
M.o.H. expenditure per capita US $	6.9	130	185	207	251	225	271	209	196

Sources: Computed based on data from: (1) Willett, (1986). (2) M.o.P., 1985a; 1985b
(3) M.O.F.N.E.,(CDOS), Statistical Year Book various issues.

* One US $ = 4.5 Saudi Riyals (SR) in 1970, 3.51 SR in 1975 and 3.75 SR in 1986.

Table 2.4 G.D.P. and Public Health Expenditure per Capita in Saudi Arabia Compared to other Arabian Peninsula Countries

Country	G.D.P. 1984 (*) (US $)	Health expenditure as % of total budget (1981) (!)	Public health expenditure per capita (1981-83) (!) US $
Saudi Arabia	12,094	4.1	271
Bahrain	15,351	6.1	263
Kuwait	12,709	4.9	246
Oman	7,480	3.0	25
Qatar	11,724	-	1,023
UAE	22,762	7.9	3,086
North Yemen	167	3.6	5.4
South Yemen	477	6.0	11.8

Sources: (*) Willett (1986).
(!) Ryan (1984).
Data for Saudi Arabia from Table 2.3.

Health expenditure, based on the spending of the M.o.H. alone, has risen even faster per head of the population than GDP over these years. From a spend of only 7 US $ per head in 1970 it rose to 196 US $ per head in 1986, a 28 fold increase. This level of spending has been achieved in spite of an estimated doubling of the population over the 17 years from 1970 to 1986. Nor does this enormous growth in health spending by the M.o.H. take account of the health-related budgets of the other ministries or of the private sector [6]. Table **2.5** indicates that in 1986 the M.o.H. accounted for less than half of all health expenditure in the Kingdom and that health expenditure per head then reached over 400 US $ annually. This contrasts with per capita expenditures of under 7 US $ per year in 119 other developing countries. (WHO, 1981; Sebai, 1987). Yet Saudi Arabia's high level of spending on health, comparable to that in developed countries, takes only a small share (4 per cent) of the total government budget. It is largely for this reason that less urgency has been placed on limiting or reshaping health expenditure or making its use more efficient, than on making more rapid progress towards an effective and comprehensive health care system.

2.2.2 The Use of the Health Budgets:

The question immediately arises as to what all this vast and growing expenditure on health is devoted to. It is immediately clear from Table **2.6** that development projects, like hospital building, have taken a disproportionate share of health costs in the recent development plan periods. This is to be expected in the early stages of developing health care provision. During the second plan period over half of all the M.o.H. budget went on projects. This proportion has been smaller in later plan periods but the cost of providing new facilities still tends to dwarf recurrent costs such as salaries.

Table 2.5 Government and Private Sector Health Expenditure per Capita in Saudi Arabia, 1986

Agency	Health Budget		Total health expenditure per capita	
	SR (Thousand)	%	SR	US $ (*)
M.o.H.	8,815	48.7	738	196
Other Gov agencies	6,585	36.3	550	147
Sub-Total	15,400	85.0	1,286	343
Private sector	2,720	15.0	227	61
Total	18,120	100.0	1,513	404

Sources: The table was compiled from data on: (1) The total government expenditure on health in 1986 based on estimates made by Sebai, 1987, pp. 133-134. (2) The M.o.H. expenditure from Annual Health Report, 1986. (3) Estimation of private sectors spending at 15% of the total government expenditure on health.

(*) One US dollar equalled 3.75 Saudi riyals in 1986.

Table 2.6 Ministry of Health Expenditure by Development Plan Periods and Appropriations by Category of Expenditure. (Thousands SR)

Development Plan Period	Total health expenditure (M.o.H.) (000 SR)	Expenditure on projects (000 SR)	Expenditure on projects as % of the total budget
First Plan 1970-1975	2,623	593	22.6
Second Plan 1975-1980	17,771	9,234	52.0
Third Plan 1980-1985	40,435	15,708	38.8
Fourth Plan 1985-86 (first two years only)	17,630	4,420	25.0

Source: Computed from: (1) M.o.H., Annual Health Report, various issues.(2) M.O.F.N.E., (CDOS) Statistical Year Book, various issues.

A contributory factor to this imbalance is that project development costs are high and have risen rapidly because of the increasing cost of medical technology and the need to import most of the medical equipment and personnel. Alshammasi (1986) has estimated it has cost between 1.1 and 1.3 million SR to provide each additional hospital bed in the Kingdom during the most recent years, and that this cost has risen rapidly since the earlier plan periods [7]. Costs of running hospitals are also very high. For example, the M.o.H. estimated that it cost 364,000 SR per bed per year to run the King Fahd general hospital in Al-Baha. (M.o.H., 1986).

Saudi Arabia has had the income to establish these facilities and "...**to buy expertise in the form of expatriate health manpower to man these hospitals and clinics.**" (Gezairy, 1979, p. 141). But the question arises as to whether this is the best use of this vast amount of health expenditure when so much less is spent on other urgent health needs, such as primary health centres, preventive medicine, and environmental health. While the high costs of building and running hospital facilities takes up such a large share of the health budget, a situation that is little different to the situation in most developing countries, the development of primary health care is likely to be sacrificed. As Sebai has noted:

> "The high expenditure on health services does not seem to have had a maximum impact on health indices ... In a recent UNICEF study, Saudi Arabia was given as an example of a country with a high infant mortality rate (110 per 10,000 live births) and a high GNP per capita (US $ 12,600). According to the study the high infant mortality rate puts Saudi Arabia in the position of a country with GNP per capita of US $ 460." (1987,p. 134).

Thus in spite of the very high levels of health expenditure the Kingdom has enjoyed for several years, it could be argued that the level of health care of the population is not as high as it should be. Before this problem of balance is considered further it is necessary to outline the pattern of care services inside and outside of the M.o.H..

2.3 THE NETWORK OF HEALTH CARE SERVICES IN SAUDI ARABIA:

While the expansion of the network of both curative and preventive health services has been basic to Saudi government policy, the emphasis had remained right up to the present on curative medicine and secondary care via hospitals. This is seen, for example, in the administrative structure. There are two assistant deputy ministries; one for curative medicine and another for preventive. Although a Department of Preventive Care in the M.o.H. was set up when the M.o.H. was first established in 1951 it only deals with parasitical and infectious diseases, quarantine, health education, community and social health. It could be argued that its authority should be greater and include the local primary health centres network. Clinics, health centres and hospitals all come under the curative heading and this segregation is still clear in the recent reorganization of the M.o.H. (Fig. **2.2**).

General health services in Saudi Arabia are provided at two levels under the curative heading:- Primary health care centres (local centres) and general and specialized hospitals. These can now be outlined.

2.3.1 Primary Health Care Centres:

The primary health care centre provides basic health care and acts, in theory, as the first level of the health service. It is the means by which the patient enters the system and is referred up to the hospital, for further treatment, if necessary. But to make referral possible and to carry out other primary health care tasks, a patient record system is needed. This did not exist before the mid 1980s in the primary health centres. Not until mid 1984 did 12 health centres in different parts of the country test out a primary health care record programme. By the end of 1986, 1082 out of 1431 health centres in the Kingdom were said to be

applying it. The Provinces of Ha'il, Al-Qassim, Al-Baha and Najran were believed to have achieved most progress in this direction.

With a record and referral system in place national policy was intended by the late 1980s to expand the provision of a basic comprehensive primary health care to all communities in Saudi Arabia; to co-ordinate the services provided by the primary health care centres (at the primary level), with diagnosis centres, obstetric clinics and general hospitals (at the secondary level), and specialised hospitals (at the third); and to emphasise the care of 'high risk' groups, such as children under six years old and pregnant women. In turn the community's perception of the health centre as simply a place for dispensing medicine would be changed to that of a centre for diagnosing, treating and preventing much illness [8]. Medical teams from primary health care centres would carry out field studies in the community on its health and social problems and would combine preventive and curative services in cases like malaria, bilharzia, leishmaniasis, pulmonary tuberculosis and leprosy (M.o.H., 1987).

As more primary health care centres were opened, they reached down to smaller communities. The target during the First Five Year Plan had been to deliver basic health services to all communities of over 10,000 population. In the Second Five Year Plan the target had been to reach communities of over 5,000 population and to communities of over 1,000 population under the Third Plan. Under the Development Plan just finishing the target has been to deliver primary health services to communities of over 500 population. (M.o.P., 1985a).

Clearly smaller places do not warrant and cannot support as elaborate primary health care facilities as larger places. As a result primary health care centres were classified after 1980 into four levels according to the size and quality of

the provided services, and according to the size of population they serve. Grade 1 Centres serve communities between 500 to 5,000 population; Grade 2 serve communities of 5,000 to 10,000. Grade 3 serve communities of 10,000 to 20,000 population. Grade 4 usually serve communities of about 40,000 populations and are generally only found in the main cities. (M.o.P., 1980 and M.o.H., 1982b). More recently some of the primary health centres in the main rural settlements have been graded as Grade 5 centres (diagnostic and maternity centres). Hospitals are only found in regional centres and towns. But many towns less than 40,000 now have hospitals. In addition to the health centres, there are small mobile health units, created mainly to provide the services to the nomads, and other small communities where permanent facilities are not yet available.

The number of personnel, and the way each centre is equipped depends on the grade and the number of population to be served within these broad bands. Grade 1 (lowest grade) centres should have a minimum of one GP and four qualified aides, whereas a Grade 4 centre can have up to ten GPs, a dentist and 35 qualified aides. Out of 1431 operational primary health centres in the Kingdom in 1986, 25 per cent had dentistry units, 36 per cent had laboratories, and 19 per cent had X-ray units. Table **2.7** shows the normal staffing levels for health centres in the 4 main grades.

2.3.2 Hospitals:

The hospitals are the more specialized part of the health care system. There is no clear classification of hospitals in Saudi Arabia as there is for primary health care centres, but they can generally be grouped according to the number of beds in each, and according to their level of specialization.

Table 2.7 The Staffing Rate for Each Grade of Primary Health Centre

	Grades			
Name of the Post	Grade 4	Grade 3	Grade 2	Grade 1
-Preventive Physician	-	-	-	-
-General Practitioner	10	3	2	1
-Dentists	1	1	1	-
-Nurses	19	7	3	2
-Pharmacy Technician	4	1	1	1
-Lab. Technician	2	2	1	-
-X-ray Technician	2	1	-	-
-Operation Technician	2	-	-	-
-Health Inspector	4	2	1	1
-Statistical Assist.	1	1	1	-
-Social Specialist	2	1	1	-
-Head of the Admin. Section	1	1	1	-
-Accountant	1	1	1	-
-Clerk	4	2	1	-
-Typist	1	1	-	-
-Driver	5	2	1	1
-Servant	8	2	2	1
-Guard	2	2	1	1

Source: M.o.H. (unpublished data) cited by Al-Qahtani, (1985, p. 10)

Table **2.8** outlines a basic classification into five broad types compiled by the writer:

a) Rural or Small Local Hospitals:
There are 22 small hospitals with a total number of 763 beds giving an average of 34 beds each. This type of hospital is common in small towns of about 20,000 population, and similar units are also found in major cities where they are called districts hospitals. Many hospitals of this grade have no more than 30 beds. Several have been re-named diagnosis and obstetrician centres because of the limited services they provide.

b) Local General Hospitals:
This is the most common type of hospital in Saudi Arabia. There are a total of 55 hospitals of this kind with 7867 beds, giving an average of 143 beds each. Hospitals of this grade are mainly located in the middle sized cities of up to 50,000 population, although some can be found in certain areas of major cities, as in Jeddah and Riyadh, to supplement the large central hospitals.

c) Central General Hospitals:
Although there are only 15 of these larger general hospitals, together they contain almost as many beds as the local hospitals because each is a much larger unit. The smaller of these hospitals, with 250-499 beds, are in the smaller regional capitals like Buraydah, Ha'il, Abha, and Jazan. Hospitals with over 500 beds, and sometimes up to 1000, are mainly found in the major cities, like Riyadh, Jeddah, Makkah. The range and quality of services provided by each hospital depend on its size, the number of its personnel, and where it is located. The lowest grade central general hospitals can deal with simple hospital cases, provide an outpatient clinic and auxiliary services such as pathology tests, and X-ray services not usually provided by health centres. Higher grade general hospitals have wards for

Table 2.8 Classification of Hospitals in Saudi Arabia, 1986

Level of Hospitals	Size (beds)	No of hospitals	No of beds
a) Local small general hospitals or rural hospitals	- Less than 50	22	763
b) Local general hospitals	- 50 - 249	55	7,876
c) Central, or regional general hospital	- 250 - 499	8	2,734)
	- over 500	7	4,661)
Sub-total		92	16,034
d) Specialised regional hospitals	- Less than 50	5	129
	- 50 - 249	31	3,309
	- 250 - 500	3	1,112
	- over 500	2	1,570
Sub-total		41	6,120
e) National specialised hospitals	- Leprosy H. (Makkah)	1	200
	- Chest Diseases H. (At-Ta'if)	1	600
	- Psychiatric H. (At-Ta'if)	1	645
	- King Khalid Eye Specialist H. (Riyadh)	1	263
	- King Faisal Specialist H. and Research Centre (Riyadh) (K.F.S.H)	1	458
f) University Teaching hospitals	Riyadh (2) Jeddah (1) Ad-Dammam(1)	4	1,425

Sources: Raw data on the numbers of hospitals and hospital beds compiled from M.o.H., Annual Health Report 1986.

general surgery, gynaecology, obstetrics, ENT, children's diseases, urology and ophthalmology, in addition to outpatients' clinics. Advanced and sophisticated forms of surgery such as neurology, cardiology and plastic are available in only a few of these hospitals, mainly in the major cities.

d) Specialist Regional Hospitals:
This type of hospital, of which there are now 41, has become more common in recent years in keeping with the health policy that each region should have specialised hospitals as well as general hospitals to provide the services for patients in need of prolonged care for chest, mental and other illnesses, or for particular groups of patients needing special care such as maternity, children, ophthalmic and communicable diseases. The size of these hospitals varies greatly depending on the specialization. Some maternity hospitals in some parts of major cities only contain 30 beds. Others, like the Children and Maternity Hospital in Riyadh, have 1000 beds.

e) National Specialist Hospitals:
Finally the M.o.H. runs four specialist hospitals which receive patients from all regions because they provide more specialist facilities than the specialist regional hospitals. They include the Leprosy Hospital in Makkah (200 beds), the Psychiatric Hospital (645 beds), and the Chest Diseases Hospital (600 beds) both in At-Ta'if, and the King Khalid Specialist Eye Hospital (263 beds) in Riyadh. In a category of its own, because it is run by an independent government agency is the King Faisal Specialist Hospital in Riyadh with 458 beds which provides several specialist health services, including open heart surgery, kidney transplants, cancer treatment and test tube baby and infertility procedures. This hospital receives referrals nationally often when the disease is in an advanced stage.

f) The University Teaching Hospitals and some hospitals of the Armed Forces and the National Guard can also be considered within this group, as they provide highly specialised services and can also receive certain cases referred from M.o.H. hospitals. The Teaching hospitals and King Faisal Specialist Hospital also have their own research centres.

2.3.3 The Referral System:

Health services in Saudi Arabia, in theory, were planned to be hierarchial so that a patient is referred up the system from the first level primary health care centres or outpatient department of a hospital, to the second level in the general hospitals, then the third level specialist hospital, until the patient gets the treatment needed. However, the system available at the moment is not that clear cut and allows any patient to visit several health establishments. To enter the system he can go to his local primary health centres, or to any other health centre, or to the outpatients' department of the local hospital, or to any other hospital if he feels he will get better treatment there. This random choice can easily lead patients to the wrong part of the system and certainly causes inefficiency by overburdening hospital outpatient departments and leading to underuse of some local primary health centres. It also hold dangers because patients can easily visit several clinics for the same complaint. It means that patients in urban areas, where there is a wider choice of health care services, have the opportunity of better care than those in rural areas. Fig. **2.4** illustrates how a patient in an urban area (eg. Riyadh or Buraydah) has a much greater choice of health care mainly because the referral system does not restrict point of entry to the system. Urban patients also have easier access to private care not found in rural areas. There are, then, several reasons why the referral system to

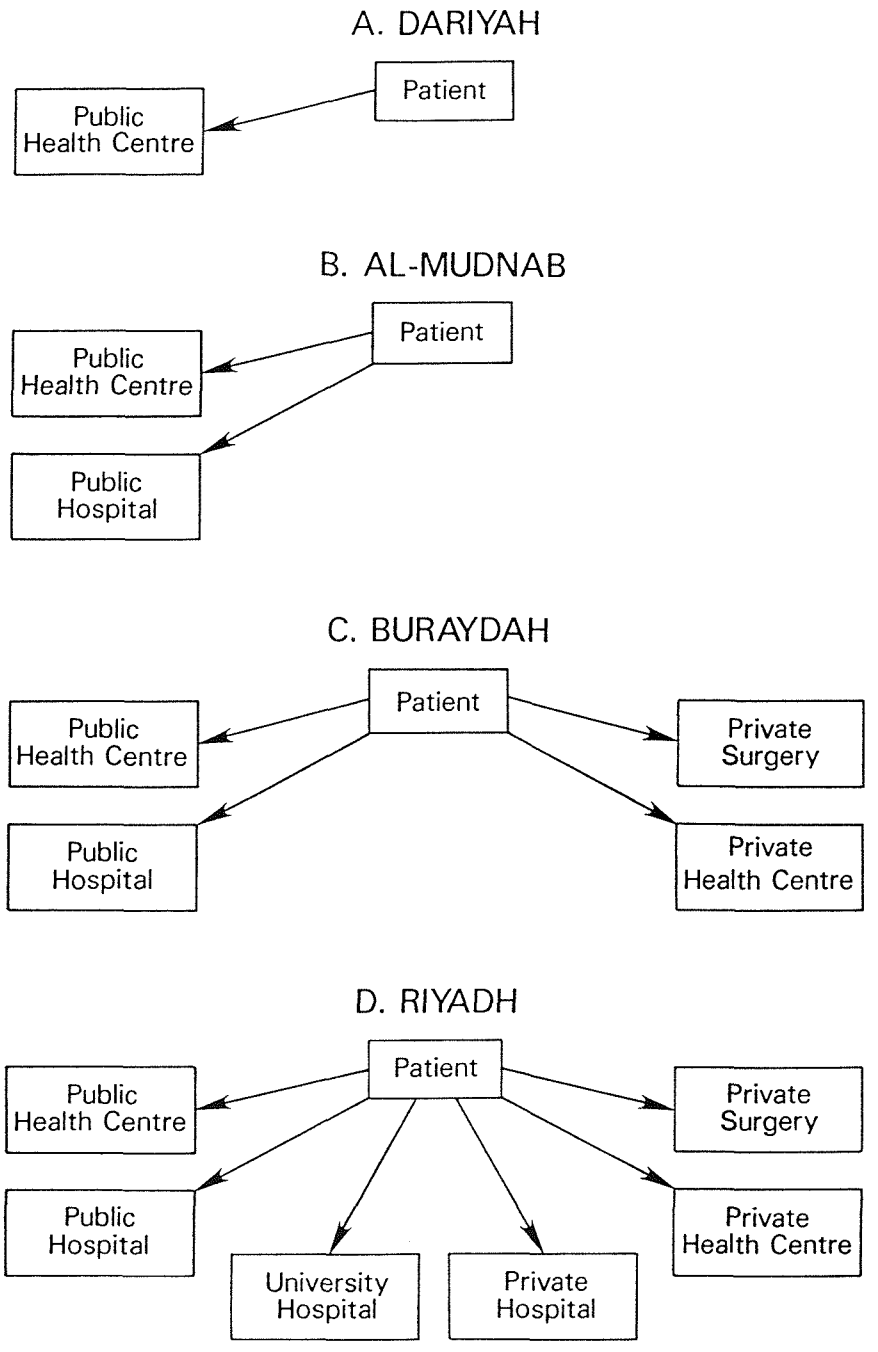


Figure 2.4 Choices of health care available to patients in different areas

control patients' use of the health care hierarchy does not work. Briefly these are:
i) There is no set of general rules to guide doctors in primary health centres how to use the referral system. ii) A doctor cannot officially refer a patient up the system without a long complicated administrative routine [9]. As a result of the bureaucracy of the referral system, some patients try to get to see specialists directly using irregular methods, or they chose private treatment, or the patient turns to the traditional folk healers. iii) Because primary health care was originally developed through hospital outpatient departments many patients still look first to the hospital if there is one closeby rather than to the local clinic. iv) No attempt is made to prevent people going direct to the local hospital outpatient department because there is no coordination between hospitals and primary health centres. In an area on how to share out the basic health care work.

2.3.4 Traditional Medicine:

In addition to the care sources provide by M.o.H., the partial system provided by other government agencies, and the private sector, there still a thriving set of folk healers using traditional methods. These deserve a mention here because the writer found they are widely used in Al-Qassim. Several studies in Africa and Asia have examined the practice of traditional healing alongside modern medicine, and some writers consider this is now accepted as part of the health system in some developing countries. Folk healing was the only medical and health service available in the Arabian Peninsula until the early part of this century and it is still widely practised.

No data is available on the number of practising healers, but indications are that there are a great number of both sexes, and different age groups and backgrounds, and they claim to

treat a wide range of illnesses. There has, so far, been no official view given on the role of folk healing in the modern health system of the country. Nor are there any laws or restrictions on their practice for which reason the practice has actually spread with the rise of modern medicine, as many small time healers found it an easy way to become rich without any knowledge or experience when more people sought better health at a time of increasing wealth.

Sebai (1981) in his study of Turaba (Western region) noted that the 'bedouin doctor' plays an important role in the provision of health care in that area. He classified healers into three categories:

i) Specialists in bone-setting, cautery, treatment with herbs, and treatment of mental and psychiatric patients.

ii) Specialists in the treatment of the common diseases.

iii) The oldest people in the community who often act as sources of advice on health care by traditional means and treat illnesses by cautery and herbs. They do not attempt to treat serious illnesses.

Folk healing is popular amongst people of all walks of life including the educated, although the rural people, bedouins, illiterates, and women make up the majority of the clients. In a study of folk healing in Al-Qassim, Moloney (1982) noted that healers are still used by some of the urban as well as the rural population. In a study by the Pharmacology and Medical Faculties of King Saud University the main methods used by Saudi healers were listed as: cautery; bone-setting; bleeding; the use of herbs, drugs and medical vegetation; and reading phrases from the Holy Koran or the Prophetic Tradition (Hadith). The report also concluded that some drugs and herbs used by traditional healers can have a positive effect in the treatment of certain diseases. Some are diuretic, others are helpful for diabetics or are good analgesics and reduce temperature. (Al-Athal, Director of K.A.C.S.T., Al-Yamamah, 11 Nov 1987). The study recommended

that the expertise of some healers should be applied in the university's Faculty of Medicine and in certain hospitals to assess its effectiveness.

CHAPTER THREE

THE DEVELOPMENT OF HEALTH RESOURCES AND MANPOWER

3.1 AN OVERVIEW:

The previous chapter briefly outlined the main features and the development of the health care system in Saudi Arabia. The purpose of this chapter is to consider that development more systematically using basic indicators on numbers of facilities, patient and staffing levels. The emphasis will be on the development in the last 20 years when progress has been most rapid.

Few indices can be gleaned on health facilities in the Kingdom before 1970 because there is almost no data on the few facilities which then existed. For example, according to Al-Homidan and Al-Eysa (1985), the only two hospitals which existed in the country in 1926, at Makkah and Jeddah, admitted only 1152 inpatients in that year and dealt with another 54,000 outpatients. By 1948 the number of inpatients had increased more than 4 fold to 5545, and outpatients to nearly a quarter million, but the hospital system remained very small and largely out of reach of the population. Even in 1952 when there were 11 hospitals and 55 dispensaries and health points in the Kingdom, the whole system was staffed by only 36 physicians. Faster growth followed in the later 1950s and 1960s but it was not until after 1970, when the first national plan was launched, that the main period of growth took facilities to all parts of the Kingdom [10].

Table **3.1** lists the growth in all categories of hospital-based facilities in the Kingdom between 1970-86. It can be seen that the number of hospitals increased from 74 in 1970 to 212 in 1986, an increase of 186 per cent. The number of hospital

beds increased from 9039 to 34,619 during the same period (a 283 per cent increase). This was a faster rate of growth than the increase in the number of hospitals because many of the newer hospitals were larger than the older ones, and some of the older ones were expanded. Whereas the average size of a hospital was 122 beds in 1970, it had become 163 beds by 1986. Hospitals operated by other government agencies were even bigger than M.o.H. hospitals because they tended to be more modern. In contrast private hospitals tended to be smaller than the average with a mean of 109 beds, although the private hospital sector also expanded rapidly in these years.

By 1986 the M.o.H. was still running two thirds of the 212 hospitals in the Kingdom. It also accounted for 69 per cent of all available hospital beds. 30 hospitals were operated by other government agencies, mainly by the Ministry of Defence and Aviation, the National Guard and the Ministry of Higher Education through the university teaching hospitals. There were 41 private sector hospitals in 1986 which provided 13 per cent of the total hospital beds [11].

Table 3.1 Development of Hospitals and Hospital Beds in the Kingdom, 1970-1986

Year		1970	1975	1980	1986	percent change
Facilities	Agency	No	No	No	No	1970-1986
Hospital	M.o.H.	47	62	66	141	200
	other Gov. agencies	8	14	17	30	275
	private sector	19	22	25	41	116
	Total	74	98	108	212	186
Hospital beds	M.o.H.	7,165	9,250	11,968	23,862	233
	other Gov. agencies	930	1,666	3,096	6,283	576
	private sector	944	1,195	2,483	4,474	374
	Total	9,039	12,111	17,547	34,619	283
Percent of hospital beds by agencies		%	%	%	%	
	M.o.H.	79.4	76.4	68.2	68.9	-
	other Gov. agencies	10.3	13.7	17.6	18.2	-
	private sector	10.4	9.9	14.2	12.9	-
	Total	100.0	100.0	100.0	100.0	-

Sources: Computed from:
1. M.o.P., (1985b), Achievements of the Development Plans 1970-1985.
2. M.o.H., Annual Health Report, various issues.
3. M.O.F.N.E.,(CDOS), Statistical Year Book, various issues.

3.2 HEALTH RESOURCES:

3.2.1 Hospital Beds per Population:

This rapid expansion in the number and size of hospitals in Saudi Arabia has greatly improved the bed/population ratio, one crude measure of a country's health care programme. In 1965 the ratio was 1 bed per 1377 people. As Table **3.2** shows the ratio had fallen to 1 bed for every 636 persons in 1970. By 1986 the figure was down to 1 bed for every 346 persons, (or 2.9 beds per 1000 population). Even so this impressive rate of growth in bed provision always lagged behind what had been laid down in the various five year plans. The second plan had aimed to provide 2.5 beds/1000 population by 1980 but this level of provision was not achieved until about 1984. The national target is to have 4 beds/1000 population by the end of the fourth plan in 1990 (M.o.H., 1986), but this will be an illusive target because of the rapid population growth. CK Health Planners has estimated that the Kingdom's population is growing at the rate of 3.7 per cent per year (1980-2000) so that it will reach 15 million by 1990, and 20 million by the year 2000 (CK Health Planners, 1984). This means that the number of hospital beds must grow rapidly over the next few years just to maintain the current ratio of about 3 beds per 1000 population. To meet a national target of 4 beds/1000 population by 1990, the number of beds must increase by 72 per cent over the number in 1986. This is about 25,000 extra beds. Another 20,000 beds would be needed by the year 2000 to maintain that ratio.

Increases in beds on this scale involve several major new hospital projects. But it is not, of course, simply a matter of building hospitals but staffing them as well. Aiming to further improve the bed/person ratio may also take staff from health centres, health education and training programmes where there are also massive needs. In 1987 there were 18 more hospitals under construction, with a total bed capacity of

4040. This will raise the M.o.H. beds to nearly 28,000 and the total beds in the Kingdom to 38,000 when these hospitals open. But it is difficult to see how other government agencies and the private sector could add another 7000 beds by 1990 just to maintain a 1986 ratio of about 3 beds per 1000 population. A target of 4 beds per 1000 population by the year 2000 now looks completely unrealistic. It may even be impossible to reach the 3 bed target by the year 2000. In effect current population growth requires a virtual doubling of the 1986 number of beds by the year 2000.

Table 3.2 Growth of Ratio of Beds per 1000 Population, 1970-1986

		No. of beds	Ratio of beds per 1000 population
1970	M.o.H.	7,165	1.2 (802) per bed
	Total	9,039	1.6 (636)
1975	M.o.H.	9,250	1.3 (758)
	Total	12,111	1.7 (579)
1980	M.o.H.	11,968	1.3 (771)
	Total	17,547	1.9 (526)
1985	M.o.H.	20,797	1.8 (554)
	Total	30,959	2.7 (372)
1986	M.o.H.	23,862	2.0 (502)
	Total	34,619	2.9 (346)

Sources: Number of beds computed from M.o.P., (1985b), M.o.H., Annual health reports, various issues, and M.O.F.N.E., (CDOS), Statistical Year Book, various issues, using an estimated population for ratio of beds.

* Figures in brackets give bed/persons.

Table 3.3 Ratio of Beds per 1000 in Saudi Arabia Compared to GCC Countries, 1984

Country	No. of population (000)	No. of bed	Beds per 1000 population	
Saudi Arabia	11,093	26,811(*)	2.4	(414)
Bahrain	400	193	2.9	(360)
Kuwait	1,787	5,523	3.1	(323)
Oman	1,193	2,587	2.2	(461)
Qatar	295	900	3.1	(327)
U.E.A.	1,267	4,853	3.8	(261)
Total	16,029	41,770	2.6	(383)

Sources: (excluding Saudi Arabia), the figures for population and beds from: Gulf Cooperation Council, Economic Report, No. 2, 1987.
(*) Number of beds in Saudi Arabia includes public and private sectors.

Compared with that in most developing countries, Saudi Arabia's bed/population ratio has been rapidly improving, but the Kingdom is still far behind the ratios of some developed countries. For example, there is 1 hospital bed per 111 population in England and Wales, and 1:152 in the USA. Sweden has enjoyed a ratio of 1:66 for several years. While these may be unrealistic comparisons, even the other Arab Gulf states have seemed to have, as far as data can be relied on, a better level of bed provision than Saudi Arabia. Table **3.3** shows that the Gulf Cooperation Council (GCC) states had 2.6 beds/1000 population in 1984 which placed them some way ahead of Saudi Arabia.

3.2.2 Health Centres:

The need to rapidly expand other parts of the system just to maintain current level of provision also applies to primary health care centres although all additions to this system help to bring care closer to many remote communities which were often neglected in the past. As the system of primary health centres has expanded the level of facilities they provide has become more sophisticated. The last chapter outlined the

current 4 fold grading with different levels of staff and equipment to serve settlements of different sizes. Until this classification was established in 1980 there were basically two types of health centres in Saudi Arabia. The health point was a very simple centre, located in rural and remote areas and usually run by male nurses to provide very basic health care. More elaborate were dispensaries each of which was run by a doctor assisted by a few paramedical staff, the number depending on the importance of the dispensary. Dispensaries were usually found in towns and more important rural centres. After 1980 all health points and dispensaries became primary health centres of four different grades. If we group all health points and dispensaries together, including non M.o.H. centres, over the period 1970-1986 their total number increased from 591 to 1982, which represents a 235 per cent increase. This has done much to bring basic health care closer to the population and as the number of health centres has increased, the average number of people served from each has fallen. The figure for M.o.H. centres stood at 11,069 per centre in 1970 but was down to 8372 per centre in 1986 (Table **3.4**).

About 73 per cent (1431) of these health centres were provided by the M.o.H., the remainder by other government agencies or by the private sector. In 1986 the Ministry of Education was providing 113 health units and the private sector was providing another 226. Privately run health centres have increased very rapidly in recent years. In 1981 private agencies only ran 25 health centres. Table **3.4** shows the increase in the number of centres and the decline in the average number of people served by each centre as the system developed between 1970 and 1986.

Table 3.4 Growth of Health Centres and the Number of Population Served by Health Centres, 1970-1986

Year	No of health centres	Average number of population served by each centre
1970 M.o.H.	519	11,069
1970 Total	591	9,720
1975 M.o.H.	631	11,112
1975 Total	782	8,966
1980 M.o.H.	889	10,381
1980 Total	1,185	7,788
1985 M.o.H.	1,306	8,828
1985 Total	1,828	6,307
1986 M.o.H.	1,431	8,372
1986 Total	1,982	6,044

Sources: Number of health centres computed from M.o.P. (1985b), M.o.H Annual health reports, various issues and M.O.F.N.E.,(CDOS), Statistical Year Book, various issues, using an estimated population for health centre/population ratios.

3.3 HEALTH MANPOWER:

3.3.1 Development of Health Manpower and Population Ratios:

Considerable efforts were made to increase the numbers, as well as the standards, of health personnel during the first three development plans to meet the increasing demands on the expanding health service. In 1970 the total number of professional health workers in the kingdom was 6174, of whom 1172 were physicians, 3261 were nurses and 1741 were technicians. By 1986 there were 73,665 professionals working in the various health sectors in the Kingdom. In those 17 years the number of physicians had grown by 1395 per cent and the number of nurses by 1068 per cent. Appendix **3.I** presents more detailed information about the increase in the numbers of health personnel by sector during the development plan periods.

Not only have most of these professionals been employed by the Ministry of Health, as to be expected, but the dominant position of the M.o.H. has actually increased as the health system has expanded. Whereas 59 per cent of all health service personnel in the Kingdom in 1980 were employed by the M.o.H., their proportion had grown to 63 per cent by 1986. Appendix **3.II** shows that most of this increase resulted from a major expansion in the number of nurses employed by the M.o.H.

The rapid rate of increase in health personnel in Saudi Arabia allowed the Kingdom to overtake other Middle Eastern countries in this aspect of its health service in this period. In the 1960s and the early 1970s the Kingdom ranked bottom when compared to most developing Arab countries in terms of numbers of medical personal. Mujahid (1978) in his study of the development of Saudi Arabia's health sector between 1964 and 1974, provided some interesting comparisons between 12 Arab

countries and Iran, based on 1970 data for the ratio of physicians and nurses to the populations. Table **3.5** is partly based on this data. Saudi Arabia ranked only above Morocco for numbers of physicians to population. The situation in Saudi Arabia improved rapidly during the 1970s, however. Using data for M.o.H. doctors only the ratio of physicians rose from 1:10,050 in 1970 to 1:1760 in 1980. In fact the level of provision rose faster in Saudi Arabia in the 1970s than in all the other countries listed in Table **3.5**. This gave a ratio of 6.7 physicians per 10,000 people in 1980, significantly above the planned target of 5 physicians to 10,000 population laid out in the Second Plan. Table **3.6** shows that Saudi Arabia compared favourably with its neighbours in terms of its numbers of physicians in 1984.

More recent development plans aimed to continue the rapid expansion of the health care system and its personnel and these targets were generally met. Between 1980 and 1985 the target was nearly to double the number of physicians, nurses and technicians. So successful was the plan that by 1984 (one year before the end of the third plan) almost all staffing targets had been achieved or surpassed. The number of physicians had been increased by 118 per cent, nurses by 96 per cent and medical technicians by 74 per cent (M.o.P. 1985a). With 17,528 physicians (including dentists) now working in the Kingdom, the ratio of physicians to populations in 1986 was one doctor per 638 persons. There were, however, still shortages of particular skills. There are, for example, only 1292 dentists in the Kingdom, a ratio of 1 per 9272 population. Table **3.7** gives further details of the level of staff by type in 1986 and estimates for 1990.

Table 3.5 Numbers of Population per Physician in Saudi Arabia, 1970 and 1980, compared to Selected Arab Countries and Iran

Country	Population per physician 1970(1)	1980(2)
Saudi Arabia	10,050	1,670 (*)
Algeria	786	2,680
Egypt	1,910	970
Iran	3,300	6,090
Iraq	3,270	1,800
Jordan	2,680	900
Kuwait	1,070	570
Lebanon	1,470	540
Libya	2,650	730
Morocco	13,270	10,750
Syria	3,850	2,240
U.A.E.(**)	1,700	910

Sources: (1) Mujahid (1978, p. 43). (2) Willett (1986).
(*) Number of physicians in Saudi Arabia, only including physicians working in the M.o.H.
(**) Figure for 1970 was for Abu Dhabi only.

Table 3.6 Population per Physician in Saudi Arabia Compared to GCC Countries, 1984

Country	Population per physician (1984)
Saudi Arabia	798
Bahrain	871
Kuwait	599
Oman	11,179
Qatar	547
U.A.E.	689
Total (GCC)	773

Source: (excluding Saudi Arabia) figures are computed from GCC, Economic Report No. 2, 1987.

Table 3.7 Population per Physician, Nurse, and Technician in the Kingdom 1986 and 1990, (M.o.H. and total)

	M.o.H.(only)		Total	
	1986	1990 !	1986	1990 !
Physician (including dentists)	1,156	900	683	555
Physician (excluding dentists)	1,242	Na	738	Na
Dentist	16,850	Na	9,272	Na
Nurse	488	Na	315	320
Technician	961	Na	663	533

Sources: Computed from M.o.H.,(1986) and M.o.P., (1985a). Figures for 1990 from Hashem et al (1986).
(!) Figures for 1990 is an estimated target for the number of population per physician, nurse, and technician to be achieved by 1990.
Na: not available.

The fourth plan currently being completed at the time of writing aims to increase the number of physicians to 22,745, and other staff by proportionate amounts. On this basis there should be one physician for every 555 people by 1990. With these levels of staffing Saudi Arabia has achieved comparability with many advanced countries. For example, in 1980 the U.S.A. had one physician for every 809 people. France had one to every 935 and Japan one to every 950 persons. The UK had one to every 1030 of the population (Willett, 1986). Thus while it has been difficult to keep to targets set for hospital expansion, the staffing levels have been met.

3.3.2 Dependence on Foreign Manpower:

The level of health personnel provision, comparable with advanced economies, has only been achieved through a heavy dependence on a foreign labour force. The effect of this,

and the severe shortage of Saudi nationals trained to work in the health field, needs further consideration. The share of Saudi nationals in the total labour force in the Kingdom is low, and especially low in the health field. Even in the total labour force in 1984/85 only 40 per cent was Saudi and it was only expected to increase to 51 per cent by 1990 (M.o.P., 1985a).

The level of Saudization in the health workforce falls well below even these levels. This is because health services have expanded faster than the country can train more than a very small proportion of the health personnel it has needed. To provide a fully integrated and comprehensive health care system as rapidly as possible it was accepted that trained health personnel would be welcomed from all over the world. As a result no more than 12 per cent of most types of health workers were Saudis in 1986, and these proportions have steadily declined as the health services grew. Thus Saudis made up a much larger proportion of the nurses and technicians in the 1970s, when the workforce was much smaller, than they do in the late 1980s, although the proportions of doctors and other highly trained personnel which was Saudi was never large. According to Sebai and Baker (1976), in 1974 only 12 per cent of the 2074 physicians in Saudi Arabia (excluding dentists) were Saudi nationals. By 1986 when there were 17528 physicians in the country, only 10.6 per cent were Saudi nationals. Much the same pattern was seen in other areas of skill. The percentages were even lower if one considered only those employed by the M.o.H. Table **3.8** shows the decline between 1971 and 1986 in the proportion of Saudis in all three parts of the health workforce of the M.o.H. as the service grew faster than the Kingdom could train Saudis to do the jobs. Table **3.9**, which provides details for health personnel in the Kingdom in 1986 by agency, nationality and specialization shows that the Saudis only make up a large proportion of M.o.H. administrators. Saudi physicians are also more common in the non M.o.H. agencies.

Table 3.8 Development of Number of Saudi Health Manpower Workers in the M.o.H. and their Percentage of the Total Health Manpower

	Physicians		Nurses		Technicians		Total	
	No	% of total	No	% of total	No	% of total	No	% of total
1971	103	12.6	596	26.3	933	60.5	1,632	35.3
1975	140	6.2	974	20.6	1,428	48.9	2,542	25.6
1980	173	4.6	995	14.5	1,496	34.8	2,664	17.8
1985	709	7.7	1,670	8.1	2,691	26.7	5,070	12.7
1986	846	8.2	1,980	8.1	3,133	27.2	5,959	12.8

Sources: Figures computed from:
1. M.o.H. Annual Health Report, various issues.
2. M.O.F.N.E., (CDOS), Statistical Year Book, various issues.

Table 3.9 Saudi Health Manpower as a Percentage of the Total Health Workers According to their Place of Work in, 1986 and 1990

	Saudis as % of the totals				
	1986 (*)				1990(!)
Agencies	M.o.H.	Other Gov' agencies	Private	Total	
Physicians	8.2	25.1	1.8	10.6	12.1
Nurses and Technicians	14.2	11.3	3.7	12.1	16.1 46.2
Total	12.8	14.3	3.1	11.8	23.1
Administrators	81.9	Na	13.4	Na	Na

Source: (*) Computed from, M.o.H., Annual Health Report, 1986.
(!) Figures for 1990 from Hashem et al (1986), as an estimate of the percentage of all Saudi health manpower in relation to total health workers by 1990.
Na= not available.

Little change can be expected in this heavy dependence on expatriate skills over the next few years. Saudization can be expected to proceed rather faster at the lower skill levels. It was forecast in 1986 that about 46 per cent of medical technical jobs would be filled by Saudis by 1990, and 16 per cent of nurses might then be Saudi but this will only return the system to the type of balance which existed in the late 1970s before the latest phases of rapid growth.

The M.o.H. has recruited health personnel mostly from developing countries because they **"...can provide the large numbers wanted and at a relatively low cost"** (Alshammasi, 1986, p.156) [12]. On the other hand one finds the Ministry of Defence and Aviation, the National Guard and the King Faisal specialist hospital mainly recruit their expatriate medical staff from Europe (especially U.K.)and North America , a pattern repeated in some of the new hospitals set up by the M.o.H. The M.o.H. policy of recruiting health personnel from a wide range of developing countries means that many nationalities are now represented in most Saudi hospitals. For example, in Buraydah Maternity and Child Hospital, the writer, on his survey in the summer 1987, found professionals from 13 different nationalities on the staff working as physicians, nurses and technicians. The nationalities represented included Egyptian, Sudanese, Syrian, Palestine, Lebanese, Pakistani, Indian, Bangladeshi, Sri Lankan, Afghan, Philippino, Nigerian and Ghanaian apart from Saudi personnel.

The small number of Saudi physicians and other staff that are found are poorly distributed around the country. Most of them are in the urban areas, particularly in the main hospitals in the major cities and especially in non M.o.H. hospitals. As recently as 1986 less than half of all Saudi physicians were working in the M.o.H. because conditions were better for them than in other government agencies such as in the Ministry of Defence and Aviation hospitals, and in the university teaching hospitals. The lack of a strong Saudi presence amongst health

workers is particularly a problem in rural areas and smaller centres, and the large number of expatriate health workers throughout all sections of the health system can only be considered as a short term solution to the needs of such a rapidly expanding service. The fact that many of the expatriates are so alien to the local culture creates problems, especially at the lower levels in the health care system and in the rural areas. Al-Swilim (1985) has noted:

> "This state of dependence on non-Saudi physicians is not a desirable condition. For highly specialised operations such as brain surgery or organ transplants the expertise rather than the nationality of the physician is of overriding importance. But for general family practice in which the doctor is relating to the husband, wife and children, it is important to understand the culture and be fluent in the language of the people being served." (1985, p. 72).

In particular the main problems created by this expatriate dominance in predominantly rural areas like Al-Qassim can be listed under several headings:

i) Many foreign doctors lack an adequate knowledge of the particular health problems, diseases, and socio-economic background of their Saudi patients. Medical personnel can gain some of this knowledge through experience but few stay long enough to build this up. Sebai et al (1982) in their study of health manpower in Al-Qassim stated that many of the health service personnel there had received a basic but adequate medical training but lacked experience in the needs and conditions of the region. Because of the rapid growth of the service a substantial number of expatriate health workers were new arrivals in Al-Qassim and know little about the health problems of the people. Over a third had worked there for one year or less, and many did not stay long [13]. Long term relationships between patient and the local physician can seldom be built up as is more normal in many western countries. Furthermore most of the expatriate staff in Saudi

Arabia are young because the short contracts and good salaries tend to attract newly qualified, unmarried staff. These lack the experience which is especially needed for working in rural health clinics where there may be no older and more experienced colleagues the young doctor can turn to for advice.

ii) This lack of local experience is compounded by the many physicians and staff who are non-Arabic speaking [14]. The writer found in his survey in Al-Qassim Province that many villagers wished to be seen by an Arabic speaking doctor. When the writer interviewed the Amir of Buqaya'a in south west Al-Qassim about the immediate needs for his health centre, his main request was that the Indian physician be replaced by an Arabic one. Frequently villagers there turn to the assistant pharmacist (a Sudanese) because the physician could not make himself understood. In another village (As-Samaurayah) the physician, an Indian, often had to call in the more educated people to help him communicate with patients.

iii) This wide diversity of nationalities of medical staff is also paralleled by wide variations in skill, especially at the general practice level and a general loss of confidence of patients in the overall abilities of medical staff. There is a tendency for individual doctors to quickly gain a good or bad reputation. This is probably one reason why many patients choose to go to hospital outpatient departments rather than the local health centre where there are fewer staff to choose from. These problems all tend to reduce the level of efficiency in the system making it impossible to fully benefit from the high doctor/population ratio that has been achieved.

iv) This high degree of dependence on short contract and diverse expatriate staff limits medical research geared to

the particular needs of the Kingdom. Nasser (1985) has noted:

> "The benefit of medical research cannot be achieved unless physicians stay long enough and have time to complete the research work they started. With an average one year of stay in Saudi hospitals, it will be impossible to get any results that could be relevant to the promotion of health in Saudi society." (p. 73).

At the hospital level, some treatments such as prosthetics, require a consistent approach to the patient, but the high staff turnover makes this difficult. Similarly at the level of public health in a rural area, doctors need over a long period of time to build up experience of spatial, seasonal and other patterns of ill-health to suggest the most effective preventive programmes.

v) Lastly, this overdependence on expatriate skills makes worse the shortage of female doctors because they are more difficult to recruit from other countries. In Saudi society, it is very important for females to be treated by one of their own sex and this is often not possible in the M.o.H. health centres. For this reason a woman will often prefer to pay to use the private sector for herself and her children where female physicians are more readily available. Not only is there a shortage of female physicians in the M.o.H. but also in the particular specialist fields like obstetricians and gynaecologists. In 1986, of the total number of physicians working in the M.o.H., only 17.7 per cent were females and only 33 per cent of the M.o.H. obstetricians and gynaecologists were female.

3.3.3 The Training of Saudi Manpower:

The major goal of Saudi planners is to have the health delivery system staffed with a majority of Saudi citizens. Considerable efforts have been made in the last ten years to

increase the output of skilled Saudi medical manpower at all levels, especially for physicians. Because the health care system has grown so rapidly it might appear that little progress has been achieved in Saudization of medical manpower. But considering the problems of setting up medical training programme, much has been achieved. For example, whereas there were only 252 Saudi physicians working in M.o.H. in 1981 there were 846 by 1986. The oldest medical schools only opened in 1969 and the first faculty of dentistry dates from 1975.

Various studies on medical training for Saudis have come up with different findings depending on the estimates of future population, the target ratio of doctors per 1000 population, and the likely rate of growth in the medical training system to allows Saudis to replace some of the expatriate staff. But estimated needs also vary because there is not even accurate data available on the total number of health workers employed by the various government ministries and the private sector at the present time.

For example, reference was earlier made to the particular shortage of female doctors because it is difficult to recruit them from other countries. In the long term this problem of a shortage of female doctors can only be solved by training more Saudi girls as doctors. Some studies expect the female recruitment into the Saudi medical field to be rapid in future (Searle and Gallagher, 1983), and there is some evidence to support the view that women are now entering the medical field in larger numbers. In 1981 there were only 32 female Saudi physicians working in the M.o.H., but by 1986 there were 314 (or 37 per cent of all Saudi physicians). But for a country with over 20,000 physicians, of which half need to be women, a vast training programme will be needed to train sufficient Saudi women as doctors. Table **3.10** shows that the female part of the nursing and technician workforce

is also gaining an increasing share of Saudis, but the number still needed for training is large.

Table 3.10 Distribution of Medical Staff Working in the M.o.H., by Sex and Nationality, 1981 and 1986

	1981		1986	
	No	Female as % of total	No	Female as % of total
Physicians				
Total	4,618	15.7	10,359	17.7
Saudi	252	12.7	846	37.1
Nurses				
Total	8,881	77.9	24,528	81.3
Saudi	994	35.5	1,980	44.3
Technical Staff				
Total	3,307	14.6	11,513	18.4
Saudi	1,646	.7	3,134	5.3

Source: Computed from M.o.H. Annual Health Report, 1981 and 1986.

In brief, much progress has been made in a few years to create a level of health provision almost equal, in quantitative terms, to that found in advanced countries. This is particularly the case in terms of manpower although its dependence on expatriate skills present several problems especially in the field of primary health care and the provision for women. Hospital provision is well advanced while the primary health care area has also expanded rapidly.

CHAPTER FOUR

AN ANALYSIS OF THE GEOGRAPHIC ALLOCATION OF HEALTH SERVICES

So far the provision and various problems of health resource development in Saudi Arabia have only been considered at the national scale. But big variations in the availability of health facilities and staff, between rural and urban areas, and between different regions of a country, can be a major obstacle to raising the general level of development and well-being of the population. Hence, proper planning of health services must be done within a regional framework to get a balanced geographical allocation of resources. Health planners must therefore take into account the requirements of each region against the available health resources, and seek to get a reasonable allocation of hospitals, doctors, health centres and other facilities. This must be done in keeping with the needs for some facilities, like specialist hospitals, to be centrally located while local primary health care centres may have to be kept small to allow their fullest dispersal to meet the needs of local communities and the rural population. Several problems confront the health planner in this. There is often a scarcity of basic data on the population of different regions, and their health needs. Even if unfair allocations are identified there is often a shortage of the financial resources and manpower to quickly correct the imbalances. Medical manpower tends to concentrate in the urban areas because doctors prefer to practice in the towns, making it difficult for health planners to get adequate medical services to rural communities.

It could be argued that these imbalances are less of a problem for the Saudi health planners than for planners in other developing countries because the oil wealth has allowed a high level of health provision. The huge recent expansion of the

infrastructure, including the construction of roads and other communications, has also enabled health care to penetrate once very remote parts of the country. Even so, the question remains as to whether the allocation of health facilities in Saudi Arabia still displays undue geographical imbalances.

Because data on health facilities at the regional scale was very scanty until recent years, this chapter only examines these regional aspects of health facility allocation for two recent years, 1980 and 1986. Furthermore, only facilities provided by the M.o.H. will be considered because data on the other medical services are either not detailed enough for analysis in the same way, or the data are not provided on a basis comparable with M.o.H. data.

Even M.o.H. data for 1980 and 1986 is difficult to compare because the health regions, which are here used as the data base, were modified between these two years and the complexity of the statistics forced the writer to spend a great deal of time to unravel them [15]. This analysis of regional trends is therefore based on the allocation of health services in the 14 M.o.H. health regions (Fig. **2.1**). It could be argued that the two years selected for analysis are too close together for proper assessment of trends. Nevertheless it should be emphasised that major growth in health services took place between 1980 and 1986 and levels of provision in 1980 had more or less doubled by 1986.

4.1 GEOGRAPHIC ALLOCATION OF HEALTH SERVICES AND POPULATION:

A proper allocation of the health services should closely reflect the geographic distribution of the population. In Saudi Arabia the last population census was made in 1974 and there are few recent estimates either for the Kingdom's total population or at the provincial level. For this reason we have to rely on the 1974 data. At that time the Kingdom's

population was 7,012,642. Fig **4.1** based on the 1974 census gives an average population density for the Kingdom of 3.2 persons per sq km. Of course this crude density varies considerably from one region to another and even within regions. For example, the density of population in Al-Qassim was 5.2 persons per sq km in 1974, but the central part of the region, including the Province's capital Buraydah, had a density of 14 persons per sq km, while a remote area like Dariyah in the southwest of Al-Qassim had a density of only 1.7 persons per sq km. (Al-Ribdi, 1986b).

Significant changes have occurred in the populations of different regions since 1974 for which only general estimates can be given to allow comparisons with the distribution of health facilities. In 1986 the total estimated population of Saudi Arabia was 11,980,000 [16] to give an average density of 5.3 persons per sq km., but population concentrations occur in the fertile agricultural areas like Al-Qassim, in the more humid south west highlands, in the western areas like Jeddah, and the Holy cites of Makkah and Al-Madinah, in the Gulf oil producing areas and in the Kingdom's capital, Riyadh. In particular, the provincial capital cities are important population centres. According to the census of 1974, there were 9 cities with populations of over 50,000 (Riyadh, Jeddah, Makkah, At-Ta'if, Al-Madinah, Ad-Dammam, Al-Hufuf and Al-Mubraz, Tabuk and Buraydah) which accounted for over a third of the Kingdom's total population. Urbanisation since 1974 greatly accelerated this population shift towards the cities. By 1980 the M.o.P. estimated that 42 per cent of the population lived in cities with populations of over 100,000, 12 per cent lived in small towns and 46 per cent remained in rural areas (M.o.P, 1980). A 1987 estimate indicated that the urban population accounted about 67 per cent of the Kingdom's total population. According to this estimate Riyadh and Jeddah had a population of over a million each, Makkah and Al-Madinah had more than half a million. Another nine cities had

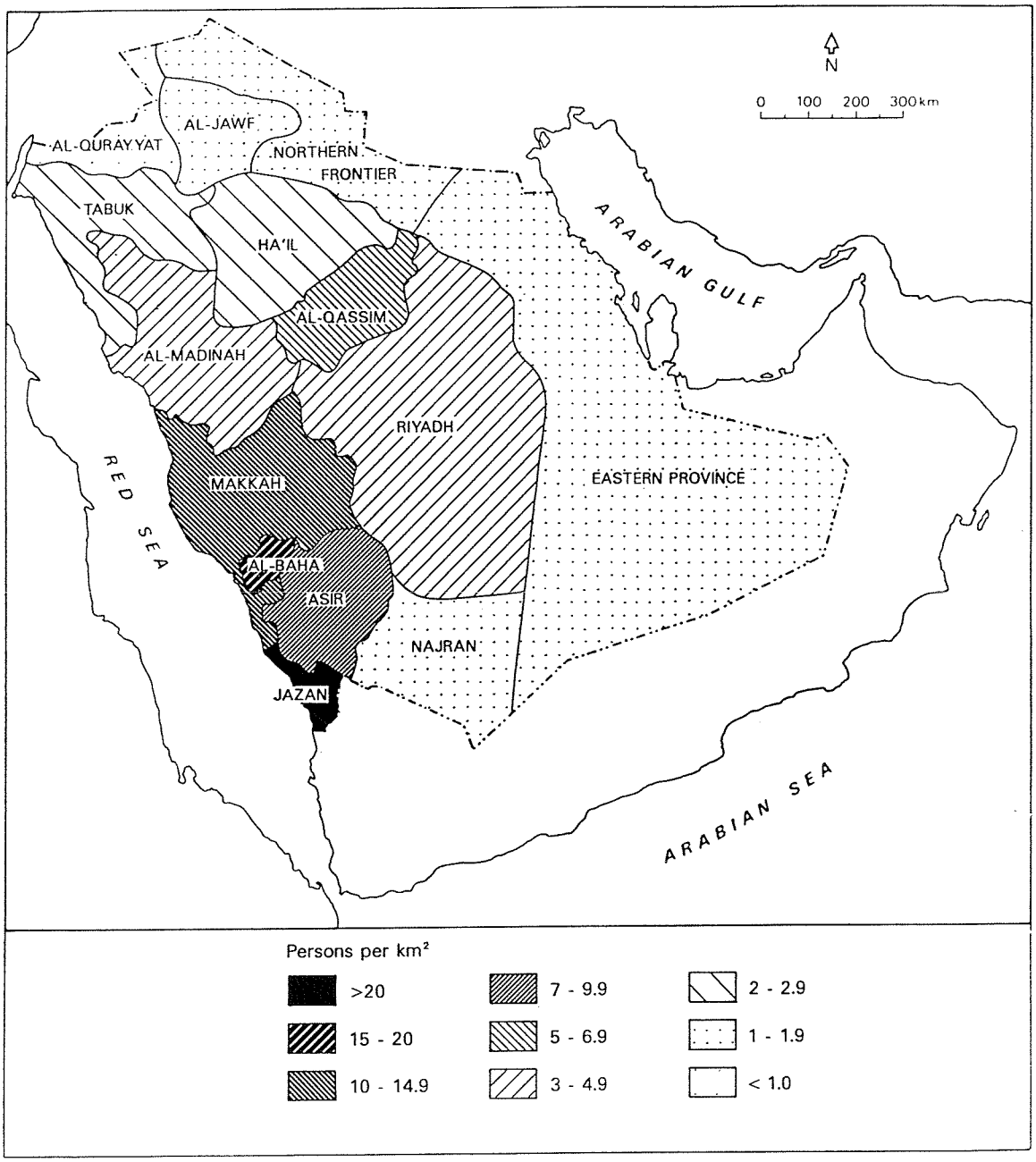


Figure 4.1 Density of population in the Kingdom's provinces, 1974

Source: 1974 Census

populations of over 100,000 and ten cites were between 50,000 and 100,000 (Ministry of Municipal and Rural Affairs, 1988).

This rapid urbanisation has been due to several factors, particularly the emphasis on developing the cities at the expense of the rural areas under the early national development plans. This encouraged major internal migrations towards the cities, where better educational and health facilities are available, and where higher incomes could be obtained. Secondly, the encouragement for bedouins to settle down drove many into the cities rather than keeping them in the rural areas. Many of the foreign workers in the Kingdom are also found in the cities where the projects they work on are based. In actual fact, the increasing concentration of population in and around urban areas had its advantages at least in the early stages of health development because it allowed the concentration of facilities in these areas so making better health provision possible more quickly. But increasingly, the small rural communities have rightly demanded similar facilities. These are more difficult to provide at many scattered locations.

4.2 REGIONAL ALLOCATION OF HEALTH SERVICES PROVIDED BY M.O.H:

As the main health provider the M.o.H. attempts to spread its facilities to reach as large a share of the population as possible, in keeping with its aim in the third development plan **"...to provide the population in every region with a fully integrated comprehensive system of medical care services... free of charge."** (M.o.P, 1980, p. 347). To examine the degree to which this aim is achieved M.o.H. data for 1980 and 1986 on its regional facilities will be examined within various categories of facilities and manpower.

4.2.1 Regional Allocation of Health Facilities, 1980:

4.2.1.1 Hospitals:

All 14 health regions had general hospitals in 1980, but the number varied from a single 123 bed unit in a small region like Al-Baha, to 11 hospitals with a total of 1361 beds in a much more populated region like Riyadh. Table **4.1** summarises the number of beds, by type of beds, for every 10,000 population in each region of the country in 1980 and 1986. It is clear that some regions in 1980 were much more poorly served than others. For example, Al-Baha had five general hospital beds for every 10,000 population compared with 12.7 per 10,000 in Al-Qassim and Makkah. Eight regions fell below the national average of 7.5 general hospital beds per 10,000 population but these included regions like Jeddah which had a high level of provision of specialist hospitals. In the case of specialised hospital beds, five regions had no specialist hospitals - Al-Baha, Jazan, Tabuk, Ha'il and the Northern region. In contrast these facilities were concentred in the East, West and Central regions with At-Ta'if acting somewhat as a medical centre for the nation with 43 specialised beds for every 10,000 populations.

In total this pattern clearly showed a lack of a regionally balanced allocation of specialist and general hospitals with major cities like Riyadh, Jeddah, Makkah and Al-Madinah having most of them. The six main cities of the Kingdom, with about one third of the Kingdom's total population, had 24 hospitals, and two thirds of the total hospital beds available in the whole country. In contrast a province like Al-Baha without a large town had only one general hospital in 1980 with a capacity of 123 beds, to provide health services to a total population of 249,000. Similarly Ha'il had one 204 bed hospital to serve 351,000 people. Clearly this distribution did not reasonably reflect the size of population of those health areas. Asir, also lacking a large city, had 905,000

Table 4.1 Number of Hospital Beds per 10,000 Population, by Health Regions, in 1980 and 1986

Health Regions	1980			1986		
	General H. beds	Specialized H. beds	All H. beds	General H. beds	Specialized H. beds	All H. beds
Riyadh	8.1	4.5	12.3	14.0	9.5	23.5
Al-Qassim	12.7	1.4	14.1	16.9	6.8	23.7
Jeddah	3.6	10.1	13.7	8.6	6.9	14.5
Makkah	12.7	4.9	17.6	18.6	9.0	27.7
At-Ta'if	10.5	43.1	44.6	9.9	17.4	27.2
Al-Baha	4.9	0	4.9	19.6	4.6	24.3
Asir	7.3	1.2	8.4	10.8	4.4	12.5
Najran	7.2	2.6	9.8	15.4	3.2	19.6
Jazan	6.3	0	6.3	15.2	4.2	18.3
Al-Madinah	5.5	5.6	11.1	16.1	8.7	24.8
Tabuk	5.1	0	5.1	16.2	2.4	18.6
Ha'il	5.8	0	5.8	13.9	1.3	15.2
Northern	11.0	0	11.0	25.3	3.8	29.1
Eastern	8.7	0.4	9.1	11.8	3.3	15.1
The Kingdom (average)	7.5	5.4	13.0	13.4	6.5	19.9

Source: Computed by the writer based on: number of hospital beds from data in Appendices 4.I and 4.III, and on an estimated population for health regions.

population in 1980 but only had the same number of hospital beds as Al-Madinah region which had a population of only 692,000 to serve. Makkah region had more hospital beds than Eastern region, which had 40 per cent more population. Many, but not all, of these disparities were the result of the concentration of the specialist hospitals in certain areas so that At-Ta'if had 98 per cent of the Kingdom psychiatric beds, and 74 per cent of the chest hospital beds. Many psychiatric or chest patients could therefore be, for example, placed in hospitals hundreds of kilometres from their home areas and families. As a result many in the more remote regions would chose not to seek hospital treatment if at all possible.

Even more important was the lack of a proper distribution of child and maternity hospitals. Ten of the 14 regions had no specialist maternity hospital in 1980 and had to rely on maternity facilities in general hospitals not able to deal with difficult maternity cases [17]. In 1980 some communities were over 1000 Km. from the nearest paediatrics hospital. This might help to account for the high rates of infant deaths. In his study of child health care in Saudi Arabia, Al-Yousef (1982) recommended a much wider allocation of child and maternity facilities so that:

> "In every town or rural area, with a population of 30,000, the hospital must include a specialised, properly equipped and staffed paediatric section of not less than 30 beds... A number of paediatric hospitals should also be developed throughout the country. Each of these hospitals should have 200 beds and while certain areas of high population density such as Riyadh and Jeddah will require several such hospitals, they should also be distributed widely across the country, not more than 500 km. apart." (pp. 6-7).

4.2.1.2 Health Centres:

Until recently, most rural settlements were out of reach of even minimal health services, in the form of health centres. Money had not been found to set up the system and there were simply insufficient trained staff to man them. The main purpose of the health centre is to provide basic health care close to where the patient lives. Hence the allocation of health centres is subject to rather different factors to the allocation of hospitals to which some patients are expected to travel considerable distances. To get primary health care close to the population, important constraints are the number of settlements in the area, their sizes, and the distances between them, so that the more scattered the settlements the more health centres are often needed to serve a given size of population. For this reason the process of allocation of health services across the regions in a balanced way becomes more difficult than the process of allocating hospital beds mainly to the large towns. In a town a few larger primary health care centres can often serve a population better than a large number of a small centres can across a rural area. Furthermore, because hospital outpatient departments also act as health centres - to which people can come without referral -the more urban provinces often need a smaller number of health centres to serve the population than does a more rural province.

Table **4.2** gives details on the average number of personnel of different categories working in health centres in 1980 and 1986. It shows that in 1980 considerable variations existed between the regions in the number of people served on average by each health centre. Figures varied from only 5183 people per centre in Al-Qassim to 26,744 in Jeddah, with a national average of 10,381. Apart from Al-Qassim five other regions had a smaller number of people served by each health centre than the national average but it is also worth noting that health centres in these regions tended to employ fewer

Table 4.2 Average Number of People Served by Health Centres and Average Personnel Working in Health Centres, by Health Regions, in 1980 and 1986

Health Regions	1980			1986		
	Average No. of people served by H.C.	Doctor/ H.C.	Nurse/ H.C.	Average No. of people served by H.C	Doctor/ H.C.	Nurse/ H.C.
Riyadh	11,111	2.6	3.3	9,448	2.6	4.0
Al-Qassim	5,183	0.8	1.7	4,630	2.6	5.1
Jeddah	26,744	1.8	3.6	19,623	3.4	6.9
Makkah	12,687	1.8	3.3	14,364	2.8	5.5
At-Ta'if				9,722	2.1	4.2
	11,987	1.3	2.6	7,395	2.1	4.3
Al-Baha				4,486	2.1	4.4
Asir	5,691	0.5	1.0	5,486	1.5	3.6
Najran	8,083	0.7	1.7	5,600	2.1	5.2
Jazan	6,359	1.0	3.1	6,683	1.7	3.8
Al-Madinah				8,891	2.9	4.7
	11,446	0.7	1.1	9,709	2.7	4.4
Tabuk				12,885	1.7	3.1
Ha'il	8,357	0.6	0.7	5,833	1.7	3.0
Northern	8,000	1.6	2.8	5,739	1.2	2.1
Eastern	12,642	1.3	2.0	8,472	2.3	5.1
The Kingdom (average)	10,381	1.2	2.2	8,372	2.2	4.3

Sources: Computed by the writer based on: (1) number of health centres from data in Appendix 4.II., and on an estimated population for health regions. (2) Number of doctors and nurses computed from M.o.H., Annual Health Report, 1980 and 1986.

doctors, indicating that they were the smaller more rural centres set up to serve smaller and more scattered rural populations. In 1980 half of the health centres in Asir, and 40 per cent in Ha'il, had no resident doctors. In contrast health centres in more urban dominated regions like Riyadh averaged three doctors per centre.

4.2.1.3 Manpower:

One would expect the geographic pattern of health manpower to reflect the pattern of health establishments so that regions with the bigger share of hospital beds, or health centres, would have more manpower. However, the statistics in 1980 do not entirely indicate this. Although Riyadh region had only 17.4 per cent of the hospital beds and 17 per cent of the health centres in 1980 it had over quarter of the manpower in the major categories, including 25.7 per cent of doctors and 29 per cent of technicians. The eastern region had a similar concentration of skills in excess of its share of hospital beds and health centres. On the other hand, Asir had 17.9 per cent of the Kingdom's health centres but only 6.4 per cent of the hospital beds and 6.9 of the doctors. Similarly At-Ta'if had 25 per cent of the total number of the hospital beds of the Kingdom, against 9.9 per cent of the doctors (see Appendices **4.I-4.IV**). These variations in allocation of various types of health facilities and manpower clearly reflect the higher level of staff needed to support specialist hospital beds and larger health centres in the more populated regions. As a result, as Table **4.3** shows, the average number of doctors per 10,000 population varied widely across the regions in 1980 ranging from 6 per 10,000 in Makkah to only 2.6 in Ha'il. In this ranking Al-Qassim, the subject of more detailed study later, along with Riyadh, the Northern regions and Makkah, had an above average number of doctors and other staff.

Table 4.3 Average Number of Health Care Professionals per 10,000 Population, by Health Regions, in 1980 and 1986

Health Regions	All doctors			Nursing staff			Technicians		
	1980	1986	% Change	1980	1986	% Change	1980	1986	% % Change
Riyadh	5.8	9.2	59	9.0	21.7	141	7.5	9.5	27
Al-Qassim	5.1	13.7	169	9.6	31.3	226	5.2	14.1	171
Jeddah	3.4	8.1	138	6.0	17.1	185	3.4	8.1	138
Makkah	6.0	9.4	57	9.9	23.7	139	6.4	9.9	55
At-Ta'if		7.9	-		19.3	-		7.9	-
	4.1	8.9	117	9.0	22.4	149	4.7	8.9	89
Al-Baha		11.4	-		30.7	-		11.6	-
Asir	3.0	6.8	127	4.3	17.8	314	2.9	8.4	66
Najran	3.4	10.8	218	5.5	28.0	409	4.6	12.1	163
Jazan	3.7	9.1	146	8.1	23.3	188	4.2	12.4	195
Al-Madinah		10.3	-		22.3	-		11.8	-
	3.6	9.2	156	5.9	19.5	230	3.9	11.0	182
Tabuk		6.0	-		12.1	-		5.3	-
Ha'il	2.6	5.9	127	4.1	16.2	198	2.2	8.5	286
Northern	5.1	8.8	73	8.8	20.2	129	6.3	10.3	39
Eastern	3.9	8.7	123	7.9	21.0	166	5.4	9.7	80
The Kingdom (average)	4.1	8.7	112	7.3	20.5	181	4.8	9.6	100

Sources: Computed by the writer based on: number of doctors, nurses and technicians, from data in Appendix **4.IV**, and on an estimated population for health regions.

4.2.2 Regional Allocation of Health Facilities, 1986:

Lastly, in this analysis, it is useful to see what changes occurred in the spatial allocation between 1980 and 1986. Certainly the data presented for 1986 in the previous tables suggest that attempts were made to reduce the disparities [18]. At the same time all regions of the Kingdom benefited from the huge growth of health services and manpower. Between 1980 and 1986 several smaller hospitals were opened in those areas which appeared poorly provided in 1980. In Ha'il, for example, the number of general hospitals rose from one to five between 1980 and 1986. Three of these were small hospitals with a capacity of 30 beds each and built in small towns outside of the provincial capital to serve rural areas. Much the same happened in Asir, At-Ta'if, Jazan and Al-Qassim. New health regions were created in Al-Baha and Tabuk, and in Al-Baha the number of hospitals increased from one to four, so that Al-Baha's share of hospital beds nationally rose from 1 per cent in 1980 to 3.2 per cent in 1986. Similar rises were seen in Ha'il and Tabuk.

As was mentioned earlier psychiatric and chest hospital beds, until 1980, were concentrated in the Western region, particularly in At-Ta'if. Between 1980 and 1986 no less than 12 psychiatric hospitals and eight chest hospitals were opened to cover nearly all health regions. Maternity and paediatric hospitals also increased in numbers from four to 17, although by 1986 there was not yet one in every region. The only types of hospital which in 1986 did not change their 1980 pattern was that of infectious diseases, - where the number of beds was reduced - and leprosy, because neither was an expanding health problem. (Appendix **4.III**). With a major expansion of specialist beds outside the former leader regions, their share of beds declined. Thus, whereas At-Ta'if had 88 per cent of the beds for chest and psychiatric cases in 1980, its share had fallen to 43 per cent by 1986 as new chest and psychiatric hospitals were opened elsewhere.

Table **4.1**, which shows the ratio of beds to every 10,000 population in 1980 and 1986, demonstrates that the regional differences had been reduced. The ten regions which in 1980 had less beds than the national average were reduced to seven by 1986, and most regions had ratios closer to the national average.

The total health manpower rose in all regions between 1980 and 1986, but here it was not a simple process of lagging regions catching up with the leaders. Najran, a backward region, had the highest rate of growth in the number of doctors (317 per cent) but was followed by Al-Qassim (252 per cent), one of the better-off regions. On the other hand, Ha'il and Asir had the highest rate of growth in the numbers of nurses and technicians. It is worth noting that some of the areas that grew faster in manpower were those less well provided by the private sector and other government agencies.

In order to better categorise the level of care reached in 1986 at the regional level and to see where Al-Qassim stands in this, the writer selected three ratios of health provision to population for each region. These three are general hospital beds, total doctors and total number of nurses. Details are shown in Table **4.4**. The ratio for general hospital beds was chosen in place of total hospital beds because specialised hospital beds are still concentrated in certain areas and one would still expect to go some distance to one of these areas for specialist treatment. Doctors and nurses are two important factors to measure the standard of services anywhere and both are included because, together, they better represent the provision of primary health care outside of the hospital sector. Regions with good hospital provision are not necessarily equally well off for doctors and nurses. For example, Northern region is in the first position in the number of hospital beds per population, but is only eighth in the number of doctors per population, and ninth in the number of nurses. Najran is seventh in the

Table 4.4 Classification of Health Regions by Ratio of Health Provision to Population, in 1986 (*)

Health Regions	General hospital beds		All doctors		Nurses		Groups
	population per bed	class	population per doctor	class	population per nurse	class	
Riyadh	713	B	1086	B	461	B	4
Al-Qassim	593	A	728	A	319	A	1
Jeddah	1160	C	1241	B	585	B	5
Makkah	537	A	1059	B	422	B	3
At-Ta'if	1014	C	1263	B	517	B	5
Al-Baha	509	A	629	A	355	A	1
Asir	930	C	1492	B	561	B	5
Najran	649	B	930	A	357	A	2
Jazan	660	B	1101	B	429	B	4
Al-Madinah	621	B	967	A	448	B	3
Tabuk	618	B	1650	C	825	D	6
Ha'il	720	B	1685	C	616	C	6
Northern	395	A	1135	B	494	B	3
Eastern	846	B	1143	B	476	B	4
Total	747	B	1156	B	488	B	4

(*) See note [19], at end of thesis.

number of beds, but third in the number of doctors and nurses per population.

Table **4.4** groups regions into one of six classes on the basis of their level of provision in these three indicators. Thus a region that is in the top class for the provision of hospital beds, doctors and nurses is put into group one overall, but if it is in a lower class on one of these indicators it slips down to group two, and so on. It can be seen that Al-Qassim and Al-Baha fall into the top group followed by Najran (group two), Al-Madinah, the Northern region and Makkah (group three). All other regions do less well. While this is only a crude method of ranking it is clear the massive expansion of health provision between 1980 and 1986 has benefited laggard regions considerably, while Al-Qassim also did well.

In conclusion the massive expansion of M.o.H. facilities in the early 1980s helped to even out inequalities across the health regions of Saudi Arabia, but well-endowed regions, like Al-Qassim, continued to do well in their provision.

CHAPTER FIVE

THE UTILISATION OF HEALTH SERVICES

Having considered the regional pattern of health resources, it is sensible to try to examine their levels of use as an indication of the demand for health care. Many factors can influence the demand level for health care but lack of data prevents their detailed analysis. Clearly as more facilities have been provided so their level of use has risen indicating that a greater degree of demand has been unlocked. But almost nothing is known of this in Saudi Arabia or of the relative importance of easier accessibility on use of health facilities or the fact they are free of charge. The influence of changing demographic and educational conditions, and other factors like the role of the media, can influence spatial and temporal patterns of health care use. Furthermore, it is not possible, because of cultural factors, to assume the changing use of health facilities in other countries as they develop will necessarily also be seen in Saudi Arabia. For example, a survey of the use of health facilities by rural and urban people in selected Saudi regions in 1978 found that the urban population generally had a higher rate of utilisation of the health services than the rural population on the basis of uptake of vaccinations. These rates were also strongly related to educational levels with more of those who had completed secondary education or above being vaccinated against cholera than those with little education (CDOS, 1978). This reflects what is happened in other developing countries.

On the other hand, the frequency of visits to doctors in Saudi Arabia can show an inverse relationship to educational level. A survey on the utilization of the outpatients clinics of the hospital in Makkah showed that illiterate people were the most frequent visitors to these clinics, whereas the least frequent visitors were people with university degrees (Al-Sunai, 1983).

5.1 THE INCREASE IN DEMAND FOR HEALTH SERVICES:

In the absence of more useable demand data Table **5.1** lists the total number of recorded visits to outpatient clinics in hospitals and health centres of the M.o.H., other government agencies and the private sector in 1986. The second part of the table gives totals of hospital admissions. Over 73 million outpatient visits were made, giving an average of over six visits to the doctor per person per year. 79 per cent of these visits were to the M.o.H. hospitals and health centres. 11 per cent were to the clinics run by other government agencies, and 10 per cent went to the private sector. The number of inpatients in Saudi hospitals in the same year reached nearly one and a quarter million. 73 per cent were in M.o.H. hospitals, 15 per cent in hospitals run by the other government agencies, and 12 per cent went in the private sector. Thus over 10 per cent of the total population spent some time in hospitals in 1986, but this is not a particularly high rate when compared to the rate in advanced countries. In West European countries, for example, one expects to find 15-18 per cent of the population spends time in hospital in any one year (CK Health Planner, 1984).

Almost no data is available on the level of use made of non M.o.H. facilities, so that it is only possible to consider in any more detail the use made of the M.o.H. facilities. To examine regional variations in their use and the increase in the demand for these services, two indicators can be calculated from the data. They are: the average number of visits per person per year to the outpatient clinics of hospitals and health centres; and the proportion of the population in a region which spends some time in a hospital in a year, expressed as patients per 10,000 persons. Fig. **5.1** show the number of users of M.o.H. outpatient clinics in hospitals and health centres and the number of inpatients for three recent years from 1971-1986. These indicate the big increase in the use of outpatient and clinic services from 12

million visits in 1971, to 58 million visits in 1986, a 4.6 fold increase. Fig. **5.1** shows also the number of inpatients and surgical operations increased even faster over the same period by about 500 per cent each. Even allowing for the considerable increase in population over this period, it means that people, on average, were making twice as many visits to outpatient clinics in 1986 as in 1971, and were three times as likely to spend time in hospital and have surgical operations in 1986 as in 1971. The rate of use of health centres for outpatient visits grew much faster than the increase in use of hospital outpatient departments, as more health centres were provided closer to the population. This particular aspect of growth needs further consideration.

Table 5.1 Numbers of Visits to the Primary Health Care Centres and Hospital Outpatient Clinics, and Numbers of Admissions to Hospitals, by Agencies, in 1986

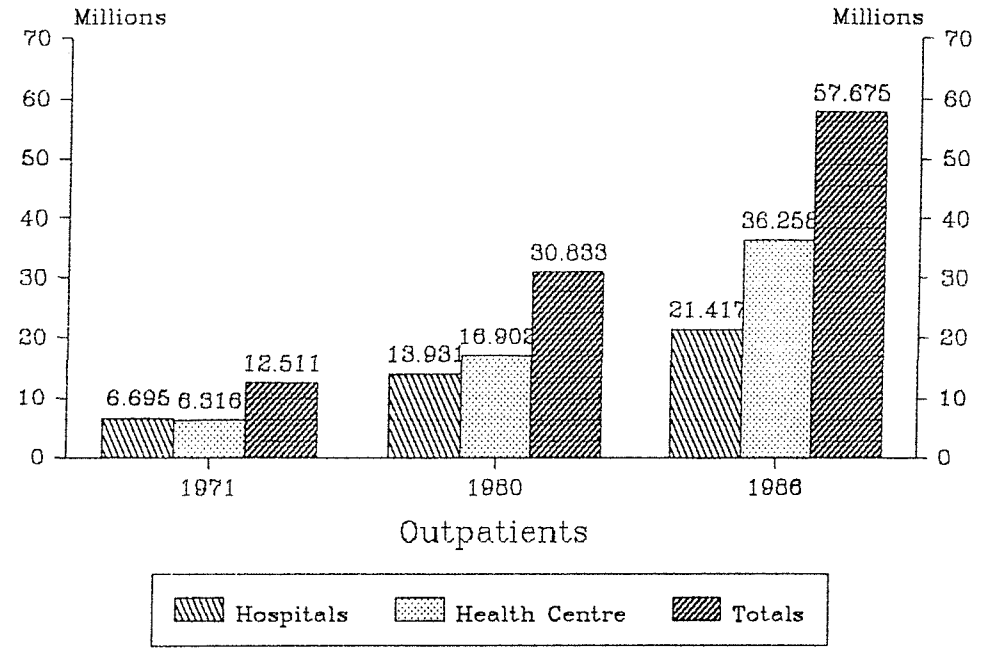
A: Outpatients:

Agencies	Number of visits in (000,000)	Percent	Average number of visits per 100 persons
M.o.H	57.7	79.0	482
Other Gov' Agencies	8.2	11.1	68
Private Sector	7.2	9.8	60
Total	73.1	100.0	610

B: Inpatients:

Agencies	Number of admissions in (000)	Percent	Average number of admissions per 10,000 persons
M.o.H	909	73.0	759
Other Gov' Agencies	189	15.0	158
Private Sector	149	12.0	124
Total	1,247	100.0	1,041

Source: Computed by the writer based on: number of visits and admissions from M.o.H., Annual Health Report, 1986, and on an estimated population. Figures are rounded up.



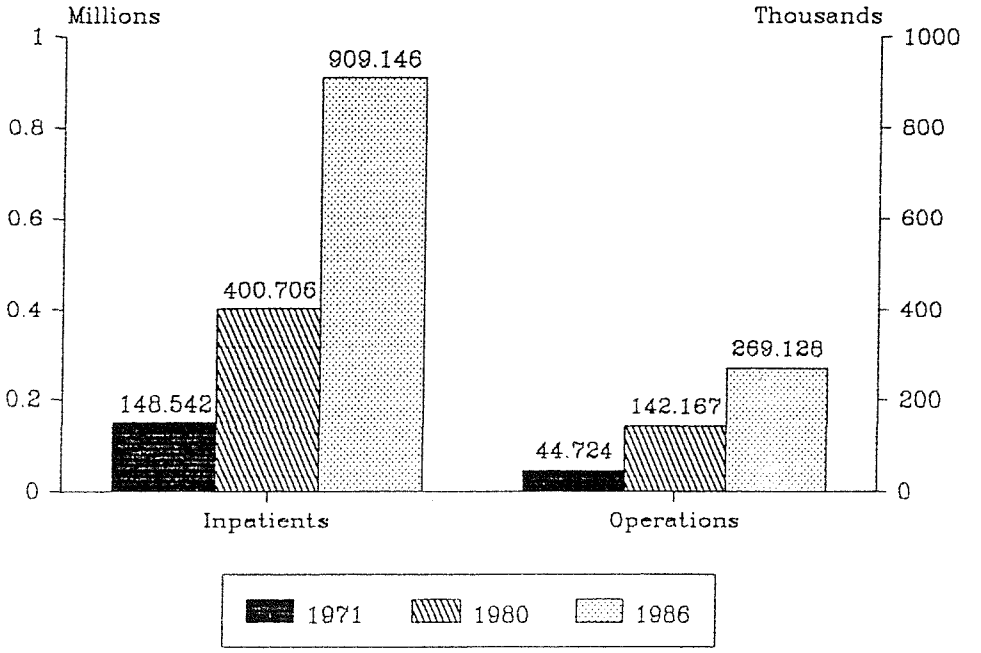


Figure 5.1 Number of visits to M.O.H. Hospital Outpatient Departments and Health Centres, and Number of Hospital Inpatients and Operations, 1971, 1980 and 1986

Source: M.o.H. Annual Health Reports and (CDOS) Statistical Year Book,various issues

5.2 OUTPATIENTS NUMBERS:

As mentioned in Chapter Two, in Saudi Arabia the outpatient facilities in hospitals, as well as the health centres, offer primary care so that a patient can go to either as the first contact between the patient and the doctor. This clearly differs from the system in other countries such as the UK where the hospital outpatient clinics are limited to emergencies and to cases referred by GPs in health centres. Outpatients clinics of hospitals deal with many more patients than the hospital inpatients departments and, until the pattern of primary health centres expanded, they dealt with the bulk of all primary treatment in Saudi Arabia. This put particular pressure on the largest regional hospitals. In Al-Qassim, for example, in the 1970s hospital outpatient departments dealt with 80 per cent of the total outpatients of the region. Although the percentage had declined to 36 per cent in 1986, in that year Buraydah Central Hospital received 420,000 outpatient visits, representing 12 per cent of all outpatient visits to the ten hospitals and 119 health centres in Al-Qassim. These numbers are far larger than would visit an outpatient department of an American or west European hospital. For example, Kirkpatrick (1967) showed that the average numbers of patients visiting the outpatients department of the 1,000 bed Boston City Hospital was 1300-1400 patients daily, a hospital three time as large as that at Buraydah which also averaged 1400 outpatients a day [20].

These high levels of use of hospital outpatients departments result partly from the increasing urbanization of the population, but more because no referral system has operated and people often believe they will get better treatment at the hospitals than at the primary health centres. They therefore go direct to the hospitals. In comparison, many health centres appear underused, although it is expected that their rate of use will increase and pressure can be reduced on the hospital outpatient units as a referral and record system is

developed. This was outlined under the fourth development plan to:

> "...ensure that primary health centres, clinics and hospitals in the Kingdom are linked in a carefully structured referral network, using suitable standards of referring patients from primary health centres to diagnostic/maternity centres and to hospitals..." (M.o.P., 1985a, p. 330).

5.2.1 Utilisation By Health Regions 1980 and 1986:

The total number of visits to all hospital outpatients departments and health centres increased from approximately 31 millions in 1980, to 58 millions in 1986 an 87 per cent increase. There was a great variation in this growth, however, between the regions. The northern region had the highest increase in the number of visits (128 per cent), but the adjacent province of Ha'il had the lowest (48 per cent). It is not easy, in the light of the available data, to explain variations like this because both regions received a fair share of the growth of the health facilities, and have similar community structures. Other regions with limited urban settlements like Asir and Najran were seen to have had a higher rate of increase in outpatient visits than the urban regions like Riyadh, Jeddah and Makkah. This can be attributed to these less urbanized regions catching up with the urban regions in their use of health care facilities as more facilities were provided. Al-Qassim region also had a much higher growth rate of patient visits, although Al-Qassim does have a large urban population as well as extensive rural areas.

There was a more rapid increase in the number of visits to health centres between 1980 and 1986 (115 per cent) than to outpatients' departments of hospitals (54 per cent), as many additional health centres were opened [21]. In Jeddah region the number of outpatient visits to hospitals actually dropped by 1.6 per cent, but the outpatient visits to the health

centres in the same period increased by 166 per cent. Many of these health centres are well manned grade 3 and 4 centres, and so attracted more of the local population than did health centres in other regions. Appendix **5.I** gives details on the increase in patient visits to hospital outpatients departments and to health centres between 1980 and 1986.

5.2.2 The Ratio Of Visits Per Person Per Year:

The shift in the balance between the number of visits made to hospital outpatient departments and to the increasing number of primary health care centres has occurred as the total number of visits has climbed. So most hospitals have not been relieved of existing pressure. It has simply not got as bad as it could have got. In 1980 roughly equal numbers of visits were made to hospital outpatients departments and to primary health care centres. At that time each person made an average 3.34 visits per year for primary care. The average annual number of visits increased by 1986 to 4.82 per person but visits to primary health care centres were by then almost twice as common as to hospital outpatient departments.

The average number of visits varied from region to region for both years, and much bigger increases occurred in some regions. In some regions the population was making an average of six visits per person per year for primary care in 1986 (Fig. **5.2**). There was a high rate in Makkah which could be related to the Hajj, but this was not the cause in Northern or Al-Qassim regions which also had high rates of visits.

Regions like Makkah, Northern, Riyadh and Al-Qassim, with high visits rates in 1980, still remained leader regions in 1986, but other regions like Al-Baha and Najran greatly increased their level of use of clinics. Table **5.2** shows

Table 5.2 Average Number of Visits to Doctors in Primary Health Centres and Hospital Outpatient Clinics, by Health Regions, per 100 Population, 1980 and 1986

Health Region	1980 Health Centre *	1980 Hospital	1980 Total	1986 Health Centre	1986 Hospital	1986 Total
Riyadh	237 (3)	164 (6)	401 (3)	317 (8)	193 (7)	510 (9)
Al-Qassim	231 (4)	169 (4)	400 (4)	400 (3)	228 (5)	628 (3)
Jeddah	110 (12)	124 (11)	234 (12)	226 (12)	094 (14)	320 (14)
Makkah	171 (8)	297 (1)	468 (1)	309 (9)	307 (1)	616 (4)
At-Ta'if				191 (13)	155 (11)	346 (13)
	171 (9)	128 (9)	299 (11)	260	167	427
Al-Baha				440 (2)	194 (8)	634 (2)
Asir	178 (7)	128 (10)	306 (10)	354 (6)	160 (10)	514 (8)
Najran	171 (10)	186 (2)	357 (6)	346 (7)	242 (4)	588 (5)
Jazan	247 (1)	132 (8)	379 (5)	362 (5)	196 (6)	558 (6)
Al-Madinah				394 (4)	141 (12)	535 (7)
	159 (11)	166 (5)	325 (8)	333	184	517
Tabuk				170 (14)	300 (2)	470 (11)
Ha'il	224 (5)	121 (12)	345 (7)	273 (11)	121 (13)	394 (12)
Northern	238 (2)	170 (3)	408 (2)	447 (1)	267 (3)	714 (1)
Eastern	181 (6)	138 (7)	319 (9)	290 (10)	189 (9)	479 (10)
The Kingdom	183	151	334	303	179	482

Source: Computed by the writer based on: numbers of visits from M.o.H., Annual Health Report, 1980 and 1986 (see Appendix 5.I) and on an estimated population for health regions. Figures are rounded up.

* Number in brackets are the region's rank.

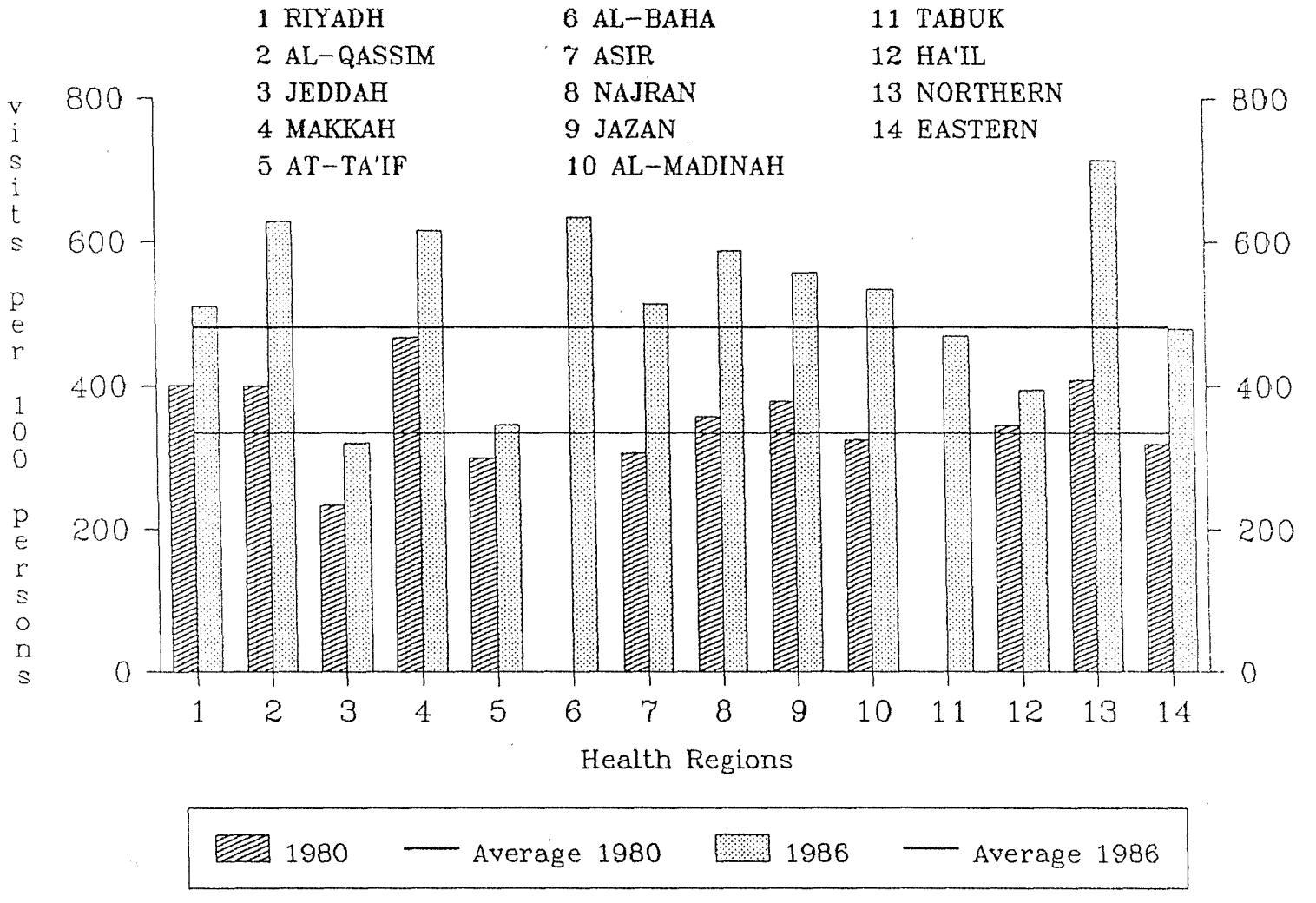


Figure 5.2 Average number of visits to Hospital Out-patient Departments and Health Centres by Health Regions (per 100 persons), 1980 and 1986

Source: data from Table 5.2

(Note: no data for Al-Baha and Tabuk in 1980 because they then formed parts of At-Ta'if and Al-Madinah regions)

that in four regions in 1980 the number of visits to hospital outpatient departments exceeded those to primary health centres whereas by 1986 visits to primary health centres exceeded those to hospitals in all but one region. While there was a general move away from almost total dependence on the hospital outpatients department this shift was more marked in some regions, such as Jeddah, the only region were total numbers of visits to hospitals actually fell.

The high levels of primary health care visits now being achieved could have both negative and positive effects on the service. One benefit of increased use of doctors is that it indicates an enhanced awareness of health education and the need for health care, but the negative side is that many patients come to the clinics who have no need for treatment and only consume the doctors' time which should be given to treat people who really are sick.

So great has been the increase in use of facilities that average visit rates to individual health centres grew in spite of the opening of many new centres. Taking a standard of 300 working days a year, the national average number of patients visiting primary health centres in 1980 was 63 per centre per day, but this increased to 84 per day in 1986. Table **5.3** shows the variation in these levels of visits between health regions. Part of the variation seen was a result of the different size of population in each region, so that one expects more patients to visit an urban health centre than many rural ones. The average number of daily patient visits to health centres in 1986 was highest in the major urban regions and lowest in the rural regions. Even so, the pressures on doctors working in health centres has generally fallen in recent years, as more doctors were recruited, but the situation was far from improved everywhere. Table **5.4** shows that the daily number of visitors to doctors in health centres generally dropped to below what it was in 1980. In Ha'il region it fell from an

average 105 visitors per day to only 32 between 1980 and 1986. At the national level it fell from 51 to 38 visitors per day, and 38 patients /day does not seem a high average in an eight hour working day.

Table 5.3 Average Number of Patient Visits to Primary Health Care Centre, by Health Regions, 1980 and 1986

	1980		1986	
Health Regions	Average number of visits to health centres (per day)	Rank	Average number of visits to health centres (per day)	Rank
Riyadh	88	2	100	4
Al-Qassim	40	11	61	13
Jeddah	98	1	148	1
Makkah	72	4	148	1
At-Ta'if			62	12
	69	5	-	-
Al-Baha			66	9
Asir	34	12	65	10
Najran	46	10	65	10
Jazan	69	5	80	7
Al-Madinah			117	3
	61	9	-	-
Tabuk			73	8
Ha'il	62	8	53	14
Northern	63	7	85	5
Eastern	76	3	82	6
The Kingdom	63	-	84	-

Source: Computed from M.o.H., Annual Health Report, 1980 and 1986, based on 300 working days per year. Figures are rounded up.

Table 5.4 Average Number of Patients Seen Daily by Doctor in Primary Health Care Centres, by Health Regions, 1980 and 1986

	1980		1986	
Health Regions	Average number of patients seen by doctor	Rank	Average number of patient seen by doctor	Rank
Riyadh	34	11	38	8
Al-Qassim	49	8	25	14
Jeddah	53	7	43	4
Makkah	41	9	52	2
At-Ta'if	-	-	29	13
	54	6	-	-
Al-Baha	-	-	33	10
Asir	70	2	43	4
Najran	69	3	31	12
Jazan	68	4	46	3
Al-Madinah	-	-	41	7
	30	12	-	-
Tabuk	-	-	43	4
Ha'il	105	1	32	11
Northern	40	10	73	1
Eastern	61	5	36	9
The Kingdom	51	-	38	-

Source: Computed from M.o.H Annual Health Report, 1980 and 1986 on the basis of the number of doctors working in the health centres in each region and the number of visits to the health centres.
Average 300 working days per year.
Figures are rounded up.

5.3 INPATIENTS:

Regional variation could also be seen in the number of inpatients in M.o.H. hospitals in 1980 and 1986. Overall they increased by 127 per cent, but some regions, like Al-Baha (314 per cent) and Tabuk (287 per cent) much exceeded this as those areas enjoyed major expansions in their hospital systems. Rates of inpatients admitted to hospitals per 10,000 population varied widely across the regions as Table **5.5** shows. The national average in 1986 was 759 per 10,000, but it reached 1229 per 10,000 in Makkah partly as a result of the use of hospitals by visiting Muslims for the Hajj (pilgrimage) and Umrah. Al-Qassim was in the second place with 958, and Asir was the lowest with 543 inpatients per 10,000 population in the year.

Little data is available on the average levels of occupancy of hospitals beds, or the average length of patient hospitalisation in Saudi Arabia. Using 1982 statistics 57.5 per cent of hospital beds were occupied at any one time and the average length of stay in hospital was 5.7 days [22].

Some data was also collected on the number of surgical operations performed because this can be a useful indicator of the quality of health services. In 1971, Saudi hospitals carried out less than 75 operations per 10,000 inhabitants. This rate rose to 154 per 10,000 in 1980, and to 225 per 10,000 in 1986. Table **5.5** shows the wide range regionally in this rate in 1986. The number of operations per 10,000 inhabitants was at its highest in the Northern region (555 per 10,000) in 1980. This contrasted with only 32 per 10,000 in Jazan, and 36 per 10,000 in Al-Baha. Such a wide range is hard to explain. It could have partly resulted from error in the statistics in the Northern region, because the number of operations in that region appeared to dropped by 40 per cent between 1980 and 1986. The number of operations performed in 1980 and 1986 per 10,000 people increased markedly in Jazan,

Al-Baha, Najran and Asir because of the opening of a number of new, highly equipped hospitals with more specialists and surgeons than they had before.

Table 5.5 Ratios of Inpatients and Surgical Operations Performed by M.o.H. Hospitals per 10,000 Persons, by Health Regions, 1980 and 1986

Health Regions	Ratio of inpatient admissions per 10,000 population		Ratio of operations per 10,000 population	
	1980	1986	1980	1986
Riyadh	646	824	260	350
Al-Qassim	508	958	340	346
Jeddah	308	600	105	229
Makkah	540	1229	250	179
At-Ta'if	409	734	98	164
Al-Baha	293	907	36	205
Asir	404	543	75	160
Najran	445	772	57	196
Jazan	228	612	32	218
Al-Madinah	542	835	99	203
Tabuk	322	920	170	334
Ha'il	260	688	113	142
Northern	465	662	555	255
Eastern	426	871	81	167
The Kingdom	434	759	154	225

Source: Computed by the writer based on: number of inpatient and operations from M.o.H., Annual Health Report, 1980 and 1986 and on an estimated population for health regions.
Figures are rounded up.

In summary the limited Ministry data on utilisation rates of health facilities does suggest that there are considerable variations in these, not all of which are readily explained. It also shows that as more facilities were provided the more they were used. It is, therefore, reasonable now to focus on health provision and use in one region to examine these patterns in more detail. Al-Qassim, the chosen region, has been shown to be a well-favoured region for health facilities where rates of use of those facilities are well above the national average. An examination of how those facilities

have been provided and how they are used could be instructive.

CHAPTER SIX

THE FIELD SURVEY

Al-Qassim Province was chosen for several reasons as the study area to examine in more detail the provision and use of health care services. Being a native of Al-Qassim the writer already had some knowledge of the area and an understanding of the people. His Master's degree thesis on the urban geography of Buraydah city had already introduced him to the recent urban growth and regional development of the province.

Al-Qassim Province is one of the smallest of the administrative and health regions of Saudi Arabia. Its total population in 1986 was estimated at 550,000 of which 48 per cent lived in only five main towns. In addition there are about 350 other settlements and more than 170 bedouin watering points. All of this makes it possible to consider an examination of its health facilities on a representative sample basis. This is also confirmed by the scale of its facilities. In 1987 there were ten hospitals, with a total capacity of 1944 beds, and 123 primary health centres run by the M.o.H. in the province, apart from a smaller number of facilities provided by other government agencies and the private sector.

In some ways Al-Qassim Province is fairly representative of other central regions of the Kingdom. Its population is very homogeneous in its cultural background and thinking because it mainly originated from several nomadic tribes. In recent years considerable numbers of non-Saudis, mostly from Arab countries, have come into the region, as in other regions, attracted by the development going on there. Changes in the Saudi economy have clearly affected Al-Qassim in terms of increasing urbanization, in the settlement of nomads, and the

expansion of agriculture based on modern groundwater irrigation techniques. While general economic development has brought wealth and modern influences to all parts of the region, great variations still exist between different parts, in terms of levels of education, types of occupation, and the living standards and attitudes of the people to their health care.

Al-Qassim, like the rest of the country, has experienced a substantial growth in the provision of health care services in recent years. An exploratory investigation of primary regional data of the M.o.H. by the writer in early 1986 showed that Al-Qassim in general has a better level of health facilities provision than other health regions. As a result people in Al-Qassim tend to use the health care facilities at a higher level than people in other areas, but almost nothing is known of likely variations in use between different parts, or different sectors, of the Al-Qassim population. It is also clear that much use is still made of traditional medicine but no data has so far been collected on who uses these folk healers and whether modern and folk medicine are used by the same people, or are seen as two separate systems of provision.

While an examination of Al-Qassim Health Directorate data could indicate some of these spatial and temporal patterns, it was clear that a proper analysis of the use of the primary health care services would require a field survey by the writer. The rest of this chapter describes the field survey method used. The results of the field survey are reported in Chapters 9-13, after the region and its health services have been further outlined in the next two chapters.

6.1 SELECTION OF SAMPLES:

6.1.1 Sub-emirates Samples:

It was decided that questioning users of primary health centres would provide the best way of collecting data on

levels of use of health facilities and the characteristics of users. For this, ideally, one should sample at all health centres. But with 123 M.o.H. health centres this was clearly impossible. To sample the primary health centres the choice was made in three stages. First, it was decided to select all the sample of centres from only a limited number of the 15 sub-emirates in the province. Even then it was necessary to focus on only some of the clinics in the chosen sub-emirates. A final step involved deciding on how to get a reasonably representative sample of visitors to each chosen health centre.

To select a sample of sub-emirates it was decided to choose ones which would be as typical as possible of the different areas of the region. To achieve this at an early stage in his research, the writer used the 1974 Census of Population, and other government reports, to examine the variations in the population characteristics, settlements patterns, and other characteristics of the 15 sub-emirates. He also used his own knowledge of the varied environmental conditions and levels of development in each area to help in the selection. As far as data was available on health care facilities, the number and types of these in each area were considered to help choose representative sub-emirates.

Having registered in Southampton University in late 1985, the preliminary fieldwork was begun between October and December 1986. During mid December Dr. B.P.Birch, the thesis supervisor, spent five days with the writer and in this short period many parts of the region were visited to help select representative sub-emirates. Several health centres of different grades, and hospitals, were visited and short interviews were had with physicians and administrators. Several photographs were taken and published data sources discussed.

It was finally decided to focus the fieldwork on five sub-emirates, one third of the total sub-emirates in the region. The main criteria used in their selection were that each should represent different parts of the region and should be well distributed across the region to include examples of the main urban areas, the rural farm areas as well as the remote nomadic areas. This seemed important in order to ensure that the effect of variations in accessibility to health services, as well as different levels of provision of facilities, should be highlighted. It was also thought that by choosing varied areas differences in levels of utilization, behaviour and attitudes between patients towards modern and traditional medicine would be revealed.

The five sub-emirates selected were (1) Dariyah (2) Al-Mudnab (3) Buraydah and (4) Al-Asyah with Qubah. Buraydah was later subdivided into rural and urban parts to give five sample areas. The locations of these sub-emirates are shown on Fig. **6.1.** Each can be briefly described.

1) Dariyah sub-emirate is located in the southwest of Al-Qassim more than 300 km. from the regional capital of Buraydah. As a desert area it has a low population density. In 1974 this was 1.7 persons per sq.km. Agriculture and livestock raising were the main occupations of its population, and accounted for 87 per cent of the employment in 1974. The main settlement, Dariyah, had an estimated population of just over 1,500 persons in 1983. All other settlements are small because most of the population is Bedouin who are nomadic for part of the year. There are eight health centres in the sub-emirate but there is no hospital.

(2) The adjoining sub-emirates of Al-Asyah and Qubah lie 60-150 km. from Buraydah in the northeast of Al-Qassim. Qubah only consists of one main settlement within a sandy area on the route north and has just one health centre to serve the settlement and surrounding nomads. Al-Asyah sub-emirate consists of the principal village of Ain Ibn Fuhayd with a population estimated at 1,578 persons in 1983. The sub-

emirate includes over 35 villages, farm areas and bedouin settlements and there are nine health centres to serve these. There is no hospital.

(3) Al-Mudnab sub-emirate lies in the south of the region, and includes the small urban area of Al-Mudnab, a rural farm area of about 25 settlements and a nomadic area. Al-Mudnab town had an estimated population of 15,000 in 1987. It has a new general hospital opened in 1985 to serve this area together with nine health centres.

(4) Buraydah sub-emirate is located at the heart of the region and contains the capital city of the province as well as a well populated rural farm zone. This contains 25 main rural settlements around the periphery of the city especially on the west side, as well as several smaller settlements. The city had an estimated population of 154,000 in 1987. Because of the large population and importance of this sub-emirate the writer decided to divide the urban part of the sub-emirate from the rural part. Buraydah City, as the regional capital, has one central hospital and four regional specialist hospitals to serve the province in addition to twelve public health centres, mainly to serve the city population. The rural area around Buraydah has nine health centres. It seemed sensible to compare how these centres and the ones in the city were used and it was for this reason that the sub-emirate was divided into urban and rural parts. No data is available on the total population in the rural area around the city. Table **6.1** gives the number of settlements and size of the population in the selected sub-emirates.

6.1.2. Data Collection at the Health Centres and Hospital Outpatients Clinics:

These five selected areas together contain 48 public health centres, or nearly 40 per cent of all M.o.H. health centres in the province in 1987, as well as one of the province's four general hospitals and its only central hospital. Buraydah City also contains four specialist hospitals but it

Table 6.1 Settlement and Population in the Sub-emirate Study Areas

Sub-emirate	No of settlements 1974	No of water points 1974	Sub-emirate population 1974	Population in the main settlement 1974	1983	1987
Dariyah	17	28	13,681	448	1,539	NA
Al-Asyah	25	11	16,656	1,112	1,578	3,300
Qubah	2	14	14,575	1,811	NA	NA
Al-Asyah & Qubah (Total)	27	25	31,231			
Al-Mudnab	25	7	14,784	4,581	8,552	15,000
Buraydah	55	9	87,932	69,924	107,546	154,000
Total	124	69	147,628			
Total Al-Qassim	353	175	339,118			
The five Sub-emirates as % of Al-Qassim	35.1	39.4	43.5			

1983 figures according to Norconsult estimate (Norconsult Report 8, 1986).
1987 figures according to an estimate made by Ministry of Municipal and Rural Affairs (Atlas of Saudi Cities, Existing Conditions, 1988).

The main settlements in the five areas are Dariyah, Ain Ibn Fuhayd and Qubah, Al-Mudnab town and Buraydah City.

was decided at the outset that as these offer no general outpatient facilities they would be excluded from the surveys. In addition to the facilities of the M.o.H. there are in Buraydah City six private health centres, two health centres run by other government agencies, and several private physicians who operate individually. There are also school health units in Buraydah City, Al-Asyah and Al-Mudnab.

It was decided to collect two types of data about health facilities in the selected sub-emirates. First, general information was collected from the statistical department of the Directorate of Al-Qassim Health Affairs, and from other government agencies and private health centres, these including data on the numbers, types of facilities and medical staff in Al-Qassim region in general and in the study areas in particular. Several interviews and discussions were held with administrators in the agencies. Secondly, data was to be collected on the 48 M.o.H., health centres in the study areas by means of structured questionnaires to be given to the administrators of each of the 48 centres. This would seek information on the facilities in each health centre. This includes the equipment, types of manpower, their nationalities, the ownership of the buildings and the number of families and persons registered with each health centre. Similar data would be sought by questionnaire to the non-ministry health centres and private health centres. Again relevant officials were interviewed for some of these data and for other information on the activities of these agencies. The writer visited every hospital in the region and had a meeting with each hospital director (Appendix **6.I**).

The questionnaires were distributed to the health centres by the director in Buraydah. Unfortunately when these questionnaires were returned after six weeks, it was found that many questions were unanswered because the data was not available or could not be released. In particular no data was available in many health centres on the number of families,

and number of persons, registered with the health centres, and their ages. Some of the missing data was added when the writer visited each centre to conduct the patient surveys. All the data that could be obtained has formed the basis for much that is reported in Chapters Eight and Nine.

6.1.3 The Patient Sample:

To provide more data on the use of the health centres and the hospital outpatient clinics, the next stage was to select a sample from the 48 M.o.H. health centres, the two non M.o.H. centres, and the six private health centres and two general hospitals in the selected sub-emirates to questionnaire patients. It was felt that a sample of about 20 centres would be of a practical size for this part of the work. The writer set up a number of criteria by which some of the health centres would be selected. These criteria were:
(i) At least a third of the centres in each of the sub-emirates would be included in the sample. (ii) The sample of centres would be selected to include a range of grades in each sub-emirate. (iii) The health centre located in each sub-emirate capital would be included in the samples from each sub-emirate if there was no hospital outpatient department to be used instead. (iv) Each selected centre had to be fully operational in 1986. The writer had to be sure that staff in the chosen clinic would cooperate and allow the questionnaire to be made. For this he visited each selected clinic before interviewing began to win the support of the staff and to explain to them the nature of the interviews.

On this basis 23 M.o.H. centres, or nearly half of all M.o.H. centres in the five sub-emirates, were chosen as shown in Table **6.2** and Fig. **6.1** and **6.2**. The five health centres chosen in Buraydah City were selected to represent different areas of the city. One of the two non M.o.H. health centres run by the Ministry of Interior was also selected, as well as three of the six private health clinics in the city, one in

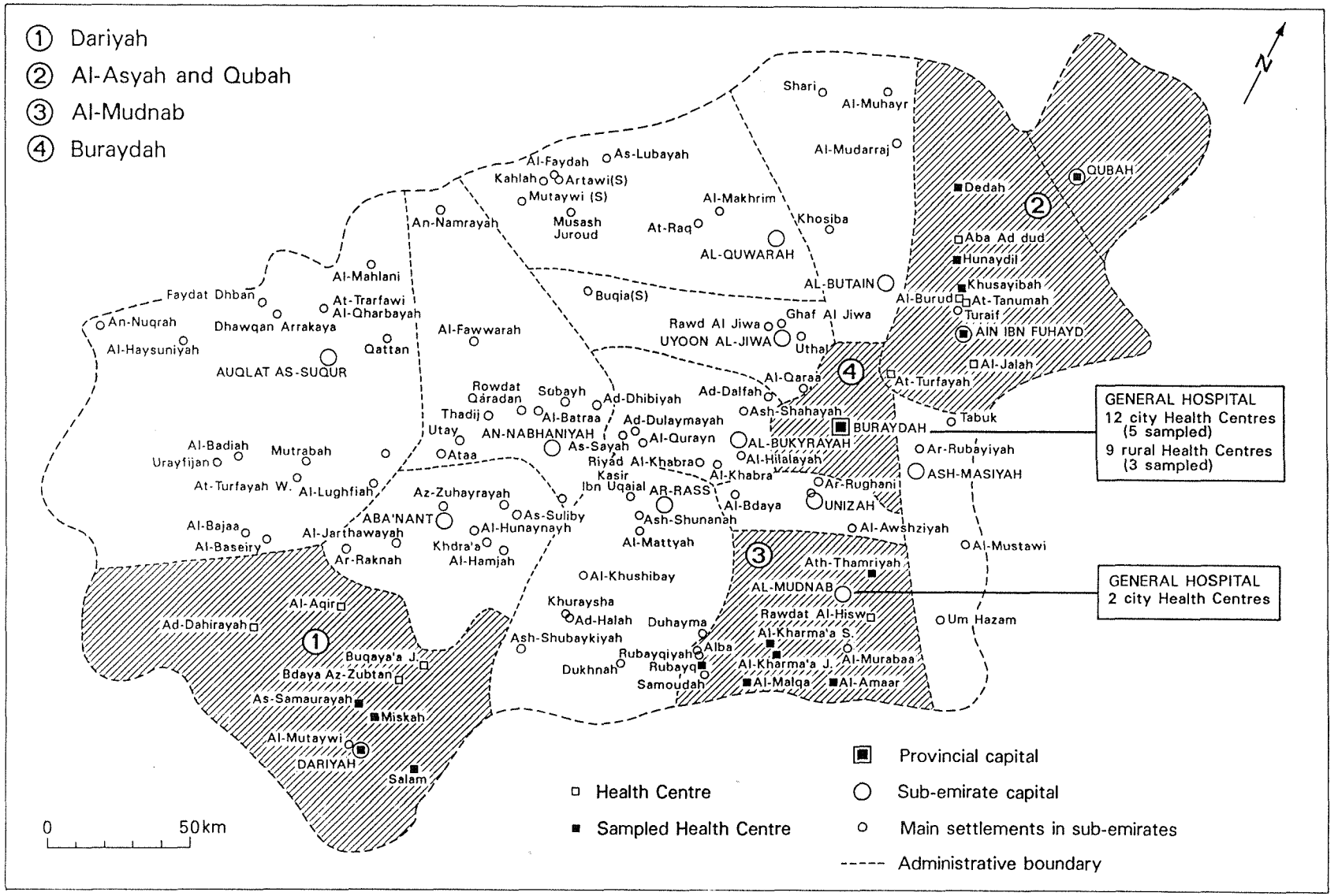


Figure 6.1 Location of the Study Sub-emirates in Al-Qassim and the chosen Health Centres and Hospitals for the Field Survey

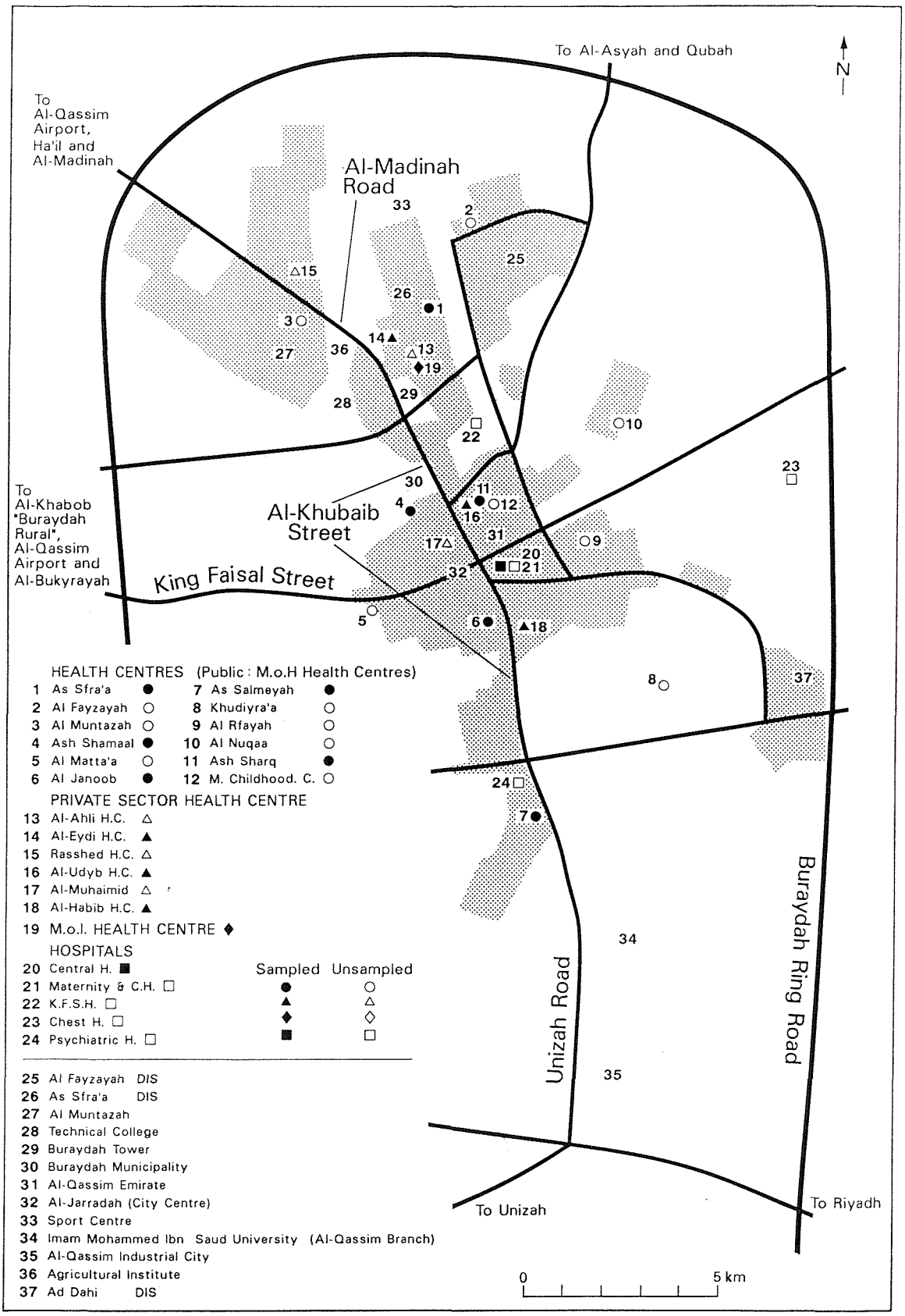


Figure 6.2 Distribution of Health Facilities in Buraydah City and the chosen Health Centres and Hospitals for the Field Survey

each of the south, the centre and the north. Buraydah Central Hospital and Al-Mudnab General Hospital were also included in the sample.

Table 6.2 Number of Primary Health Centres in each Study Area and the Percentage Selected for Patient Samples

Sub-emirates	Total no of health centres	No in sample	Samples as % of total
Dariyah	8	4	50.0
Al-Asyah and Qubah	10	5	50.0
Al-Mudnab	9	6	66.7
Buraydah Rural	9	3	33.3
Buraydah City	12	5	41.7
Total	48	23	47.9

Notes: (1) Of the 15 sub-emirates in the region five (33.3%) were sampled. Al-Asyah and Qubah sub-emirates are treated here as one but Buraydah was divided into two, Buraydah City and Buraydah Rural.

(2) In additions to 23 M.o.H. health centres in the patient sample one of the two other government health centres and three of the six private health centre were sampled. Outpatient clinics in Buraydah Central Hospital and Al-Mudnab General Hospital were also sampled.

The next step was the selection of a suitable number of individuals to be interviewed at each health centre. In considering sample size and design the researcher had to consider the needs for the sample to be representative, but at the same time to allow for the practical and cultural difficulties of sampling diverse people at each of a wide scatter of locations. Oral answers to a written questionnaire were immediately decided upon because many of those to be seen would be illiterate and many would be unable to fill in a questionnaire. Fink and Kosecoff (1985) have pointed out that with people who cannot read well, an oral interview is likely to produce better results. As the primary objective of the research was to examine the characteristics of users of the health centres and the patterns of behaviour, it seemed best

to contact individuals at the clinics rather than at their homes. They could best be interviewed immediately after they had seen the physician when they could better comment on their opinion of the service they have been given. It was also decided that an oral interview would not only provide more accuracy and a higher response rate but would allow the interviewer to explain and simplify questions to persons who were unfamiliar with the material, or who spoke in a particular dialect.

Cultural factors also made it impossible to consider including women in the survey. The writer and all his interviewer assistants were male and as religious and cultural reasons prohibit contact between male and females outside the family it would clearly be impossible to get a reasonable sample of female patients. In a similar way the nature of the research, including questions on the patients attitudes' to the health care services, could not be reasonably asked of children or very young patients, so that persons less than 15 years old were also excluded.

It was decided most practicable to adopt a selected quota rather than a systematic sampling of patients as they left the health centres. A proper systematic sample would require lists of patients from which to sample. These do not exist. Even a systematic random sample, based on taking every fourth or fifth patient at the clinic, would have created many problems. In small health centres the number of patients attending is often very small (often less than 20 a day including women and children) so that a sample of 50 would have taken more than a week to collect. Time and money did not allow the researcher to consider this, although he had attempted this in a pilot survey. But the pilot survey also revealed some patients refused to be interviewed for various reasons. In the large health centres sudden spates of patients would also have made a systematic sample impossible. In the end the writer could only take each patient who was willing to be

questioned as he left the centre. Thus the writer (or his helpers) stayed at a health centre until a sample of 50 male patients had been interviewed. This was normally followed at each selected M.o.H. centre and the non-ministry centres (1). A total of only 60 patients (20 in each) were questioned at the three small private clinics in Buraydah. Because many more patients use the outpatient department of Buraydah Central Hospital a sample of 200 was taken there. This is about 20 per cent of the total number of patients visiting its outpatient department every day. Only 50 were taken at the outpatient department of Al-Mudnab General Hospital which receives fewer outpatients. This gave a total of 1410 questionnaires completed, of which 1050 were from the 23 M.o.H. health centres. Table **6.3** shows the breakdown of the sample. Finally 35 of the total 1410 patients interviewed (or less than 2.5 per cent of the total) were omitted because data from them was found to be incomplete.

Table 6.3 Number of Patients Interviewed in Each Area

Area No		1	2	3	4	5	Total
No of Centres:		4	5	6	3	5	23
No of Patients:							
M.o.H health centre		200	250	200	150	250	1050
Hospital out-patients	(2)			50		200	250
Private health centre	(3)					60	60
Other Gov'. health centre	(1)					50	50
Total		200	250	250	150	560	1410
No of cases omitted because incomplete	No	8	7	0	7	13	35
	%	4.0	2.8	0	4.7	2.3	2.5
No of cases included in the analysis		192	243	250	143	547	1375

Area No= (1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
See note no. [23] regarding the number sampled in Al-Mudnab.

6.2 THE QUESTIONNAIRE:

The writer believed that a simple oral questionnaire conducted at the health centres would not only rapidly provide much information in an area of social and spatial research that is new in Saudi Arabia. It would also offer some flexibility to deal with unforseen problems that could arise. In designing the questionnaire the writer examined previous surveys of a similar nature conducted in Saudi Arabia as well as similar studies carried out elsewhere.

It became clear that as an exploratory study the questionnaire interview should aim to collect as much data as possible about the users of the health services in terms of their demographic, socio-economic, housing and mobility characteristics, as well as their attitudes towards the use of the modern and traditional health facilities. Gesler (1984) has pointed out that: **"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."** (p. 38). That is, the writer needed to know how various sub-groups of the study population differ in terms of their basic characteristics as well as their common illnesses and medical beliefs. This would allow the writer to detect individual variations within each sample area as well as spatial differences between the areas.

The questionnaire, with 48 questions, was divided into four parts. It was decided to collect the data on the individuals themselves as the final part of the questionnaire. If this was left to the later part of the interview the respondents might be more willing to answer questions on their socio-economic status, their family and their housing environment.

Part one of the questionnaire consisted of questions on the patient's utilization of the primary health care services and dealt with the type of illness which brought the patient to

the clinic, the patient's reasons for choosing a clinic, the number of recent visits made to the clinic or to other health care facilities, and his use of modern and traditional medicine. The second part of the interview tried to develop on this by probing into aspects of accessibility. These questions dealt with the mobility of visitors and the time and distance travelled, the type of transport and the type of road used. Part three of the interview consisted of questions on the respondent's attitudes to, and assessment of, the services. Questions dealt with the patient's opinions of the local health services, the facilities in the clinic, his evaluation of the staff and of the health services in general. The final part, as mentioned above, asked questions seeking basic information about each respondent, such as his age, nationality, marital status, place of residence, type of house, number of rooms, whether settled or nomadic, education level, occupation, income, family size, availability of a telephone in the household, car ownership, and source of water and electricity. The final form of the questionnaire is given in Appendix **6.II** in its English version. Prior to data collection it was translated into Arabic.

6.2.1 Pilot Study:

A pilot test of the questionnaire method was considered essential in this type of exploratory research, especially in a country like Saudi Arabia where people are unfamiliar with the nature of social research and are often unaware of questionnaire interviews. The pilot study was conducted between 6-11 June 1987 in two health centres, one in Al-Asyah sub-emirate and the second in Buraydah City, in addition to Buraydah Central Hospital. Altogether 40 patients were interviewed. The purpose of the pilot survey was to give the writer some experience of this type of work, to see if people would be willing and able to answer the questions, and to resolve ambiguities in any of the questions. It would also show if any question should be added or removed, and how long

the planned sample survey might take. On average an interview took 20-25 minutes but some took up to 40 minutes where a patient needed extra explanation of the questions.

A number of changes were made to the questionnaire as a result of the pilot survey by merging some questions and rewording some others. Some were cancelled. Comments from some respondents led to some new questions being added. It was at this stage that the questions seeking personal information were transferred from the early to the last part of the questionnaire.

At the pilot stage the writer also hoped to be able to include some females in his sample and therefore designed questions to be answered by both men and women. He had hoped that the female nurses in the clinics could help him by interviewing some of the women. However, the pilot study showed that this would be almost impossible. Only two female patients were interviewed by female nurses in this way during the pilot survey, and even then not all questions were answered. Because the majority of the primary health care centres do not have Arabic-speaker female nurses who could help in interviewing women, and those that did found it difficult to explain the aims of the study to female patients, it was decided to restrict the main survey to adult males only. Nevertheless, the writer and his helpers found male respondents were more cooperative than he expected. Few refused to answer the questions.

6.2.3 Interviewers:

As the target sample was large and was scattered across the region in different clinics, the writer realized that he could not carry out the whole interview survey without assistance. With no funds provided to hire interviewers who, in any case, would not be easily available in the areas being covered, he had to find volunteer helpers. Various offers of volunteer

help were made in the different areas but it was decided to choose helpers who met two basis criteria: first, they could be easily trained to conduct the interviews accurately, and second, they should be from the same community as the respondents so that they understood the local dialect and would be better able to win the confidence of patients, especially the older and illiterate people. It was also felt that local people would do the work more reliably by seeing the survey as a contribution to the improvement of the health services in their area. Local workers could also better explain the aims of the work to respondents who might not understand the purpose of some questions.

Overall a total of 18 persons from various parts of the region were used to conduct the interviews, although not all were used in all areas. Most of them were students in their third and final years either in the Department of Geography and Sociology at the branch campus of Imam Mohammed Ibn Saud University in Al-Qassim at Buraydah, or at the branch at King Saud University in Al-Qassim. Others were secondary school students or recent graduate or teachers. Some of these assistants had been trained by the writer when conducting the pilot study, but these and the new assistants took part in several meetings where the interviewers practised interviewing each other, and approaching the selected patient. These sessions, which were repeated at various times and places throughout the field survey period, were also used to clear up any problems which had occurred in previous interview sessions. The interviewers were instructed to be patient with all respondents, to read questions as they were written but to further explain and simplify them where respondents needed clarification. They were also advised to start the interview with an informal conversation about the weather or some other topic that would put the respondents at ease. On no account was the interviewer to get into an argument or discussion with the respondents on the answers he was giving. Space was left on the form for the interviewers to write any additional

comments made by the respondents that could throw further light on the answers being given.

The writer paved the way for the interviewer team to go into an area by making a prior visit to the selected clinics. On these visits he obtained the permission of the physicians and other staff to conduct the surveys at their clinic and to gain their cooperation. This permission was important because most health centre premises are cramped and there was seldom a room that could be used for the interviewers. Respondents often had to be interviewed in the corridor as they left the building after seeing the doctor. Either during these prior visits or during gaps in the interview procedure the writer was able to talk to the physicians and other staff to get more information on the operation of the particular centres and to learn how the staff saw the local health situation.

Each interviewer was also provided with copies of the three official letters from the provincial governor, from the regional director of primary health care and from Imam Mohammed Ibn Saud University approving the conduct of the survey. This gave official status to the survey. These letters also gave the researcher's name, described the study as doctoral degree research, and urged those approached to cooperate. In addition the interviewers read out at the start of each interview a brief introductory statement by the writer which explained the purpose of the interviews, emphasising that information provided would only be used for academic research purposes and would be treated confidentially.

6.3 THE INTERVIEW SCHEDULE:

The interview team, at first consisting of nine assistants and the writer, gathered in Buraydah City and went to the Al-Asyah area on July 4,1987. The first interviews took place from about 9 am on that day in Ain Ibn Fuhayd health centre. For the first morning the team worked together as one team

since there were enough patients leaving the doctors at 5 minutes intervals for each to be interviewed. Each interview took 20 minutes or more. For the session from 4-7 pm the team divided into two groups. One group continued to interview at Ain Ibn Fuhayd health centre and the other group moved to Khusayibah health centre. On the second day two more interviewers joined the team, which divided into three groups to cover further centres. The work continued from 9 am until 1 pm and from 4 to 7 pm each day to suit the opening hours of the clinics. After 7 pm there was usually a group discussion of points and problems. Notes were written up. By the end of the first week the five health centres in Al-Asyah and Qubah had been dealt with and a total of 250 patients had been interviewed.

Over the following weeks the team followed a similar timetable, dividing into two or three groups on various days depending on the numbers of interviewers available. In the second week the team covered Al-Mudnab area and interviewed another 250 patients. During the third week, the team was divided into two groups. One was in Buraydah City where one or two interviewers each worked in one of the five public health centres that had been chosen and dealt with 250 interviews in the week. At that time the author and two of the team went to Dariyah, which was expected to be the most difficult area to cover because the population is mainly bedouins and temperatures were expected to be very high. Fortunately the administration of the main health centre in Dariyah sub-emirate provided the team with an air-conditioned room to be used during the heat of the day. Three teachers from Miskah and As-Samaurayah villages and a nurse from Salam village introduced the interviewers to the local people and explained the objectives of the research, and discussed the health problems of the area to help gain the cooperation of the local people who proved very helpful. As a result the team of only three was able to cover the four health centres

in the area in the space of six days during which 200 patients were interviewed.

During the last week of July, the fourth week of the survey, a further 200 patients were interviewed in the outpatient department of Buraydah City central hospital. No interviews were undertaken in the next week which was Eid Al Audha 'Hajj' (a religious holiday). In the sixth week patients in the selected non-ministry health centres and the private clinics in Buraydah City were interviewed, a total of 110 patients. In the final week (15-20 of August) another 150 were interviewed in the Buraydah Rural area. Fieldwork was completed on August 20 and the author returned to England on August 22, 1987. The preparation of the survey and the conduct of the fieldwork took a total of 108 days. The author and his assistants travelled over 13,000 km., often using several vehicles.

6.4 TREATMENT OF THE DATA AND ITS PROCESSING:

Once the interview data had been collected it needed processing. The data processing stage is therefore the link between the information that has been collected and its analysis. The first step was the coding of the data, to assign numbers to allow it to be processed by the Southampton University Main Frame Computer using the SPSS-X (Statistical Package for Social Sciences). Each sample area and clinic had been given a code number. The choice of the analytical methods and statistical tests to be used must be based on the nature of the data itself. The writer decided to use methods commonly applied in social science research. Frequency distributions were used to present the percentage distributions of the respondents by areas in relation to their various demographic and socio-economic characteristics. Cross-tabulations were helpful to illustrate the percentage distributions of the respondents in each case study area, in relation to users' characteristics and use patterns.

Chi-square tests were also applied to determine the significance of relationships between variables. In particular chi-square could determine if there were significant differences between the five areas in the frequency distribution of users of health care services and selected background variables such as respondents' age, marital status, nationality and level of education. Although the tables in Chapters 10-12 give percentage data, the chi-square test were applied to the real figures. These were then excluded from the tables to make them easier to read. Before the results are reported it is necessary to outline the study area further.

CHAPTER SEVEN

THE AL-QASSIM STUDY AREA

Al-Qassim Province, one of the smallest of Saudi Arabia's fourteen administrative regions, occupies 65,000 sq. km. in the centre of the Arabian peninsula, and forms nearly 2.9 per cent of the Kingdom's area. Lying to the north of Riyadh Province, its maximum extent from north to south is 360 km., and 400 km. from east to west. Buraydah, the largest city of the region, and the regional capital, is 317 km. from Riyadh and 300 km. from Ha'il, the next largest city to the north (Fig. **2.1**).

Al-Qassim has a special importance in Saudi Arabia, in spite of its small size, because of its central geographic position and its history. An oasis region it is surrounded by dunes which provided a natural protection for the tribes that gathered there. It was also an important routeway from the Arab gulf and Iraq to the holy places of Islam, and also for other trade routes across the peninsula. Because of its strategic importance it was a theatre of many major events and battles during the process of uniting the Kingdom. As an ancient oasis region it has in recent years gone on to become a major agricultural part of the Kingdom, supplying other areas with cereal, vegetable and livestock products. This chapter outlines its physical geography, and its population and settlement characteristics as a background to its current health conditions.

7.1 GEOGRAPHICAL BACKGROUND TO Al-QASSIM:

7.1.1 Geological, Topographical, and Climatic Conditions:

Geologically, Al-Qassim divides into two main parts (Fig. **7.1**). The western half forms part of the Arabian Shield, and is composed of pre-Cambrian gneiss and other ancient rocks. The eastern half is part of the Arabian shelf, and is formed of sedimentary rocks of Cambrian to Jurassic age. These rocks are over 3,000 m thick and dip gently towards the east. Because they provide the better soils and contain aquifers, most of the major settlements of the province are found in this part.

Most of Al-Qassim has an undulating surface at an altitude varying between 600-900 m. above sea level, with a gentle slope down to the east. On the Shield in the west the surface is generally flat but interrupted by occasional hill and mountain masses. There are few dune areas in this part and only limited settlement, mostly nomad settlements (Hijar) and watering points. The topography of the eastern part of Al-Qassim is a more complex mixture of sand dune areas, wadis, salt marshes, and cuestas. A series of parallel cuestas running northwest to southeast are the main feature of the topography and represent each of the eastward-dipping sedimentary outcrops of the Shelf. Their escarpments which face west stand above valleys which also dip gently to the east. Cutting across these cuestas is the Wadi Ar-Rimah which is the main drainage basin of the region. Wadi Ar-Rimah starts near Al-Madinah and crosses Al-Qassim between Unizah and Buraydah before it disappears under the sands of Nafud Ath-Wairaat, to the east of Buraydah. Numerous wadis feed into it to make it the largest wadi system in Saudi Arabia. Because of its size and importance as a water source the wadi forms an axis of settlements in Al-Qassim, and most cities and towns like Buraydah, Unizah, Ar-Rass, Al-Bdaya, Al-Bukyrayah, Al-Khabra, and Uqlat as-Suqur, and other villages, are

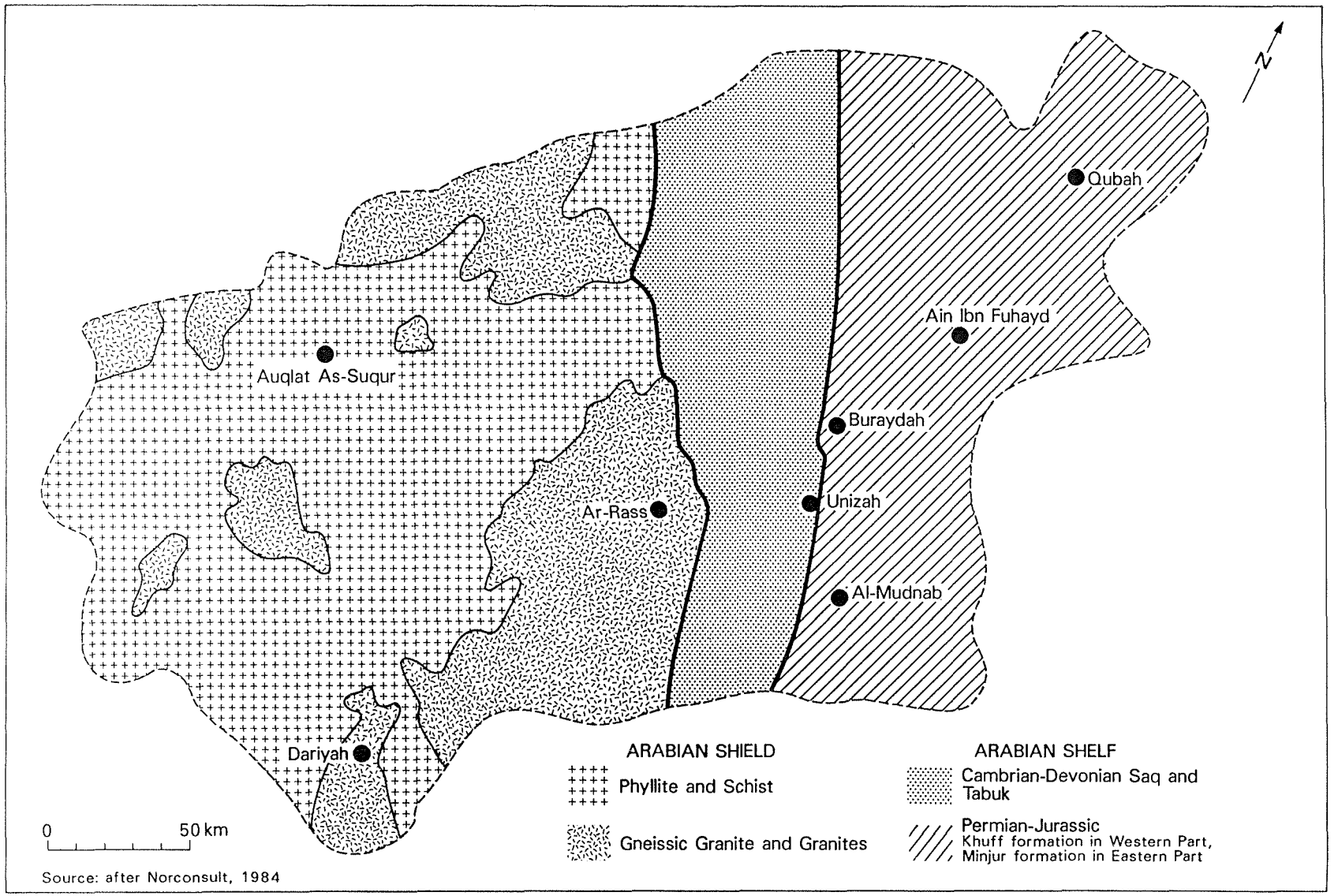


Figure 7.1 Al-Qassim: Geological Overview

situated close to the wadi or close to one of its tributaries (Fig. **7.2**).

The sand dune system which Wadi Ar-Rimah disappears into is only one of a series of sand masses which are the most important topographic feature in the east of Al-Qassim. These nafuds are extensions of sand masses mainly outside the region. The most important of these is Nafud Ath-Wairaat which separates Riyadh and Al-Qassim regions. Other dune areas like Arq Al-Mazhur, east of Al-Asyah, Nafud At-Turfayah, Nafud Al-Jamis, and Nafud As-Sirr in the south of Al-Qassim, are joined to Nafud Ath-Wairaat, but Nafud Ash-Shuqiqah (south of Unizah) and Nafud Urayq Ad-Dasim form separate dune systems. Farmland concentrates along the edges of these dune systems, especially to the south and west of Buraydah, while the sand masses themselves have been favourite grazing areas for the nomads during the rainy season. The north parts of central Al-Qassim are also sand free, and the surfaces are flatter. Here the important Khuff and Saq sandstones outcrops. These have offered potential for irrigated grain production in recent years based on groundwater extraction, so that farm settlement has spread out north and south from the Wadi Ar-Rimah area into these areas of sandstone outcrops.

Climate has had an important impact on the economy and settlement of the area. It also influences the health of the inhabitants. Like most of the Arabian peninsula Al-Qassim experiences high temperatures in summer with many hours of sunshine, and rather low temperatures in winter, with low humidity and little rainfall. Spring and autumn are short, mild seasons with temperatures closer to those of summer than winter.

There is a wide temperature range across the year, and also a wide daily range. The annual average temperature, based on records between 1968-77, is 24° celsius. The maximum

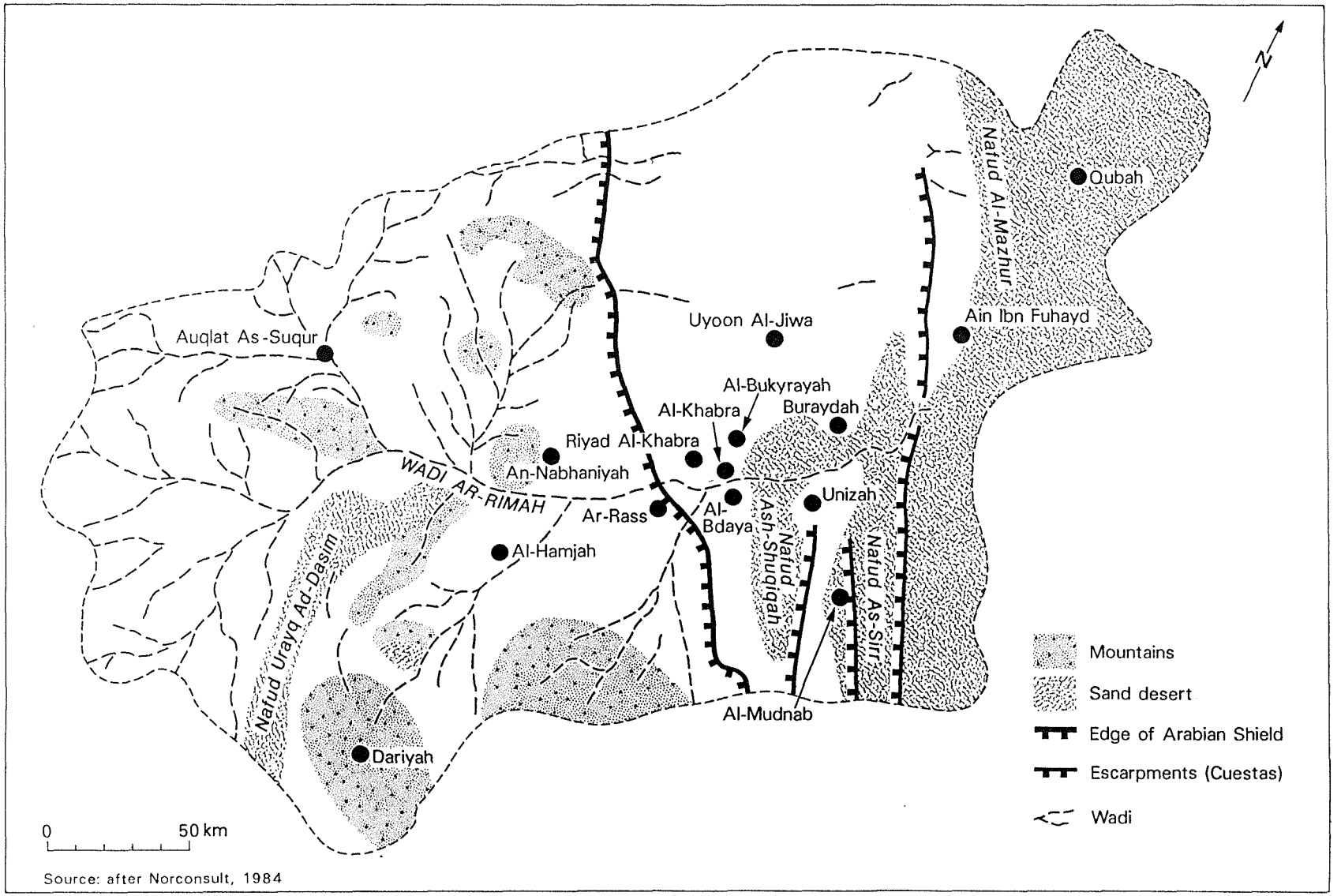


Figure 7.2 Al-Qassim: Geographical features

recorded summer shade temperature was 47° c in August 1978, and a record low of - 4.5 °c was achieved in December 1971.

The average relative humidity in Al-Qassim at 32.5 per cent (1968-1977 average) is low in comparison to western regions of Saudi Arabia closer to the sea, and the very low humidity in summer (about 16 per cent in June and July) makes the very high temperatures less enervating. Humidity reaches its maximum during December and January at around 50 per cent.

Wind can be a climatic and health hazard in Al-Qassim. During the summer months, a very hot southern wind, called Al-Samume, often blows, causing dust storms and having a bad effect on people's eyes and respiratory systems. These dust winds usually start in the morning, gets stronger by the afternoon and die down by sunset. They may occur for several consecutive days. Cold winds from the northeast are common in winter. Winds speeds are generally moderate, with an average speed of 11 km/hour, but a maximum 121 km/hour was recorded in February 1976.

Rain is rare and irregular and varies in amount from one area to another. The rainy season starts in October and ends in May. In the period 1968-1977, the annual average rainfall at Al-Qassim Airport was 107 mm, while at Unizah, only 30 km. to the south, the annual average was 123 mm. The irregularity of rainfall from year to year is seen in records for the same period, when Unizah recorded an annual maximum of 238 mm in 1972, but only 47 mm in 1977. Rain falls an average on 36 days per annum, mainly between October and May, but most falls are brief showers of a few minutes. But sometimes they are enough to cause the wadis to flow and can even damage farmland.

Rainfall incidence is undoubtedly the aspect of climate most noticed by the population because of its rarity and its past importance. The history books mention the rainy years because

of the fertility they have brought. Each year of severe drought is given a name because they led to poor crops and grazing, heightened disputes between nomad and settled people over watering points, and caused emigration. Part of this dependence on rainfall has been lessened in recent years by increased irrigation from aquifers, water importation and storage.

7.1.2 Water Resources:

As has already been pointed out the sedimentary area of eastern Al-Qassim has for long held most of the region's population because of its better water resources for agriculture and settlement. Some estimates indicate that 90 per cent of the region's population was settled around Buraydah, Unizah, and Ar-Rass before the present century (Shamekh, 1975), and this area is still the dominant zone of population, despite the recent spreading of settlement into other parts of the region. Traditionally the only water resources that were available for drinking and farming were the wadi pools and other shallow groundwater sources in the wadis and surface rocks which could be tapped by wells. In the Shield such aquifers are scarce and limited to wherever gneiss and granite rocks have been subjected to severe chemical and mechanical decomposition to make them more porous. These decomposed rocks never go deeper than about 10 meters, so that their potential as aquifers is limited and the amount they store varies from one year to another with rainfall receipt. Water in these traps can become very salty, as runoff water picks up salts from the rocks. Generally, these Arabian Shield waters are too limited and too salty for much farming.

But the non-porous rock areas of the Shield play a vital hydrological role indirectly, because they allow most of the rainfall to run off to the east, where some of it sinks into the sedimentary layers which form much larger aquifers. In

the past only shallow parts of these sedimentary aquifers were tapped by wells to supplement water occasionally available in Wadi Ar-Rimah and its tributaries. Most of the traditional cultivated areas around Unizah and Buraydah were established because of the availability of both surface and subsurface supplies in Wadi Ar-Rimah. The quality of these shallow waters varied, but most were still suitable for palm trees, and fodders which are renowned for their resistance to saltiness.

In more recent years deep aquifers have been exploited in the sedimentary formations. This has allowed the expansion of large scale grain crop irrigation based on overhead sprinklers. Four sedimentary formations have provided most of this deep groundwater. The Saq formation, a 400-850 metre porous sandstone, is the richest of these aquifers and was therefore developed first but its water quality varies, as well as its depth. Generally the deeper the well the more impurities the water contains.

The Tabuk formation is the second largest aquifer and provides better quality water in most areas, although less so in the northern and north eastern parts. The Khuff and Sudair formations produce relatively small quantities of poor quality water. Despite this, they have been exploited heavily to the east of Buraydah and Unizah. The Al-Jilh formation is rich in water particularly around Al-Asyah, but it is of poor quality. It was exploited in the past for farming in the Al-Asyah area from shallow underground foggara-like channels but water is now extracted from it at depths of 200-250m (Al-Musa'ed, 1974), similar to the depth of modern wells in the other aquifers.

7.1.3 The Influence of Environment on Diseases in Al-Qassim:

Little is known of the incidence of diseases in Al-Qassim in the past, but the writer has attempted in this section to show from that fragmentary evidence what links probably existed, and still exist, between disease and ill health and the main geographical features of the region. Basic to this is Al-Qassim's isolated but central location, surrounded by barren sand dunes, so that, until recently, diseases found in the rest of the world were not common in Al-Qassim. However, Al-Qassim did suffer from some diseases brought in by traders and by Hajj pilgrims who crossed the area. As one poet wrote " Al-Qassim where epidemic and infection that killed people, nation after nation".

European travellers found a good level of health awareness in the region about 100 years ago, and health standards were probably higher than in other part of Najd, (the central part of the Arabian Peninsula). Doughty visited Al-Qassim around 1876. Lorimer wrote his report on the region in 1904 and Philby visited the area in 1917. Each mentioned that smallpox, enlarged spleen, fevers, colds, influenza, cataract and other eye diseases were widespread in Saudi Arabia about the times of their visits (Doughty 1936, Lorimer 1976, Philby 1977). Philby also mentioned that cholera and plague had been widespread in Al-Qassim and Najd in 1820, 1832, and 1857 (Philby, 1955).

Smallpox was the most common disease and caused many deaths, especially among children. Chicken pox was also widespread amongst children. Both illnesses are highly contagious, and were worse in small communities, where the children were in closer contact with one another, and where young children were often suckled by other mothers, a common practice due to the scarcity of alternative foods for infants. Doughty mentioned that 5,000 children died in Unizah from smallpox in one year,

and in another year, between five and six children died every day.

Lorimer in 1904 mentioned that British and other western medications were available in the town markets in Al-Qassim, having been obtained by trade contacts with the outside world. Al-Bauok (1982) has noted in her study of disease in the Kingdom that there is evidence that most of the fatal diseases in the past, such as smallpox, cholera, and the plague, followed the routes of the trade caravans, and the Hajj. New arrivals in the area used to undergo quarantine to ensure that they were free of communicable diseases.

People in Najd generally, and in Al-Qassim in particular, used to seek treatment for these and other diseases using folk medicine, often involving herbs or cautery. But European travellers noted that local people were aware of, and ready to accept, modern medicines when they became available. Doughty who visited Al-Qassim around 1876, mentioned that some people were interested in checking their blood pressure, and in being vaccinated against infections. Someone infected with smallpox would be isolated and cared for by another person who had already been infected and had developed immunity to the disease.

The actual landform of the region could have had an influence on disease distribution in the past in that some areas were believed to be more healthy situations than others. Old Buraydah, on the top of a sandy hill, was surrounded by farms and was away from swamps. Its open location facing the northerly wind was believed to have a more healthy climate which was less affected by dust (Wahbah, 1946; Twitchell, 1958). In contrast the Al-Asyah and Khosiba areas and certain settlements around Wadi Ar-Rimah were thought to be unhealthy, probably because of their low lying and swampy situations. They were also on the old Hajj route and so people there may have picked up diseases from passing pilgrims.

Climatic events and water supply probably had a considerable influence on the incidence of disease in the past and are still important. The high temperature can still cause sunstroke or heat exhaustion, especially during the Hajj season. High temperature can also cause congestion of the eyes, can lead to skin and muscle problems, and can effect the nervous and respiratory systems. The human body is most comfortable at a temperature of 20-25 celsius (Anwar,1978) and Al-Qassim often has higher temperatures. Losses of salt in hot weather can be dangerous when perspiring, and a severe drop in the temperature of dry winter air can cause broken skin and infections. Researchers have demonstrated a link elsewhere between hot winds and the increase in death rates (Driscol, 1971; Al-Bauok, 1982; Sharaf, 1986).

In recent years the population has tended to use air-conditioning at home, at places of work, and in its transport for greater comfort but this means the body is often subjected to brief changes of temperature which can cause respiratory illnesses, nose congestion, allergies and influenza. Doctors, who the writer saw at clinics and the outpatient departments of Al-Qassim hospitals, report seeing many patients suffering from these illnesses. Doctors in Dariyah told the author they had noted a rise in the incidence of asthma and allergies during the previous two years, with the widespread use of air-conditioning in the area following the completion of the electricity network in 1985.

Widespread vehicle ownership has brought great benefits of mobility to remote communities but it has also created health problems. Most seriously there is the road accident problem which is referred to later. The high rate of vehicle ownership among villagers and bedouins means that local dirt roads cause much dust. A male nurse at Salam clinic in the Dariyah area told the writer that inhaling dust from the village road is probably one of the main causes of the high rate of asthma, chest problems, eye infections and allergy-

related illnesses found in that area. Some visitors at As-Samaurayah and Miskah health centres in the same area noted the same problem.

Stagnant water following flooding can be a problem along Wadi Ar-Rimah. There is no proper flood control system except for parts of Buraydah and Unizah. Some parts of Buraydah still suffer from the temporary ponds and swamps which occur after sudden rain storms, and parts of Unizah and Ain Ibn Fuhayd are especially affected by their low lying character and heavy clay soils.

Heavy desert showers create temporary swamps which are perfect conditions for mosquitoes and vector species to spread infectious diseases. In 1983 Wadi Ar-Rimah flooded and a 5 km lake was created to the east of Unizah. It lasted for four months, and led to major insect and mosquito infections until the authorities were forced to drain it.

These flood problems have been made worse by increased drainage water flowing off irrigated farms where no proper provision has been made for its drainage. The risk of drainage, flood or sewerage water mixing with drinking water is a continuous hazard which has not yet been studied.

The chemical content of domestic water, much of which in Al-Qassim is obtained from wells, is also an influence on health. Water is considered drinkable and fresh when dissolved salts do not exceed 400 ppm, so it does not leave a salty taste. Water with a salt content of up to 1,000-2,500 ppm is drinkable, but more saline than this it can cause illnesses (El-Sayed, 1973). Much of the population of Al-Qassim relies on water with a salt content of more than 500 ppm, but some bedouin and rural populations drink water with more salt than is internationally permitted. Water in the main urban areas is treated to reduce its percentage of salts, and to purify it, but there is no piped water in most rural areas. Where

piped water is available in some rural areas it is untreated. Rural wells are also sometimes contaminated if they are close to cesspools or farmland.

There are numerous studies in advanced countries that indicate the relationships between the problems of the cardiac, digestive, and urinary systems and other diseases and the chemical content of drinking water. No study has yet been made of water quality and health in Al-Qassim, but studies on esophageal cancer in Saudi Arabia by researchers at King Faisal Specialist Hospital (K.F.S.H) and the Research Centre in Riyadh indicated that there is a possibility of a relationship between the high rate of this cancer in Al-Qassim - where rates are three times the national average - and the quantity of chemicals contained in the region's drinking water (Al-Mahboubi, 1987; Bedikian 1987; Bedikian et al, 1988). Little more is known of infectious diseases carried in water. Al-Bauok (1982) indicated that drinking water used in some rural areas in At-Ta'if causes some illnesses such as stomach upsets and Oxuris worms and parasites amongst the population, especially the children [24].

7.1.4 Housing Conditions and Water Supply:

Housing traditionally in Al-Qassim has reflected the social, economic, and religious requirements of the population as well as environmental conditions. Thus, houses were traditionally built of mud and other local materials with thick walls to reduce the impact of temperature. Because families were large, so were the houses, but poverty and a lack of health standards meant that old houses were often unhygienic. The small size of rooms and the small number of windows also led to bad ventilation which could speed the transmission of diseases amongst the members of the family, and the community. Drinking water often had to be brought from the neighbouring wells, outside the house, on the back of animals and sometimes got contaminated.

Recent improvements in living standards have led to changes in the type of housing, and imported building materials have often replaced traditional ones. Much new housing has been built as people became able to afford it. Norconsult in 1983 estimated that 75 per cent of the region's housing had been built since 1975, and only 11 per cent was more than 20 years old. Not all aspects of traditional housing were given up, however, so that many modern houses are similar in style to traditional ones but are now built of concrete rather than mud, and have larger rooms and more services. But in the cities western style apartment blocks and houses are also common.

Many newer houses now have proper sanitation, utilities and hot water systems. Many are air-conditioned. These improvements have contributed to their greater healthiness, although the lesser insulating powers of concrete, and the use of air-conditioning has probably seen a rise of other illnesses connected with frequent temperature changes.

In such a large area with a low density of population household services are difficult to supply to most of the population, although major advances have been made in recent years. For example, in the case of water supply it is now estimated that over 90 per cent of communities in central Al-Qassim have a piped supply, but this falls to 60 per cent in eastern Al-Qassim, and to only 40 per cent in the west of Al-Qassim. But not all of these are supplies of water of drinking standard, particularly in the more rural areas.

Where a piped supply is unavailable the other main method of supplying water to houses is by water tanker. Whereas probably less than 10 per cent of the houses in central Al-Qassim get their supply by this method, the figure rises to 35-45 per cent in the east of the region and to 45-70 per cent in the west. Another 10 per cent of houses in the west of Al-Qassim get their supply of water direct from wells

(Norconsult, 1984). Because treated water is only available in major centres, like Buraydah and Unizah, much of the population still relies on untreated water from wells. A major problem in rural as well as in urban areas is that domestic water is often stored in cement tanks underground, often near to sewers, where it is more liable to suffer contamination.

While a piped water network has rapidly spread to many communities, far less progress have been made with sewerage systems. Buraydah is the only city in the region that has a general sewerage system, but even this covers only the main part of the old city which contains less than 20 per cent of the city's population. Another system is currently under construction in Unizah, which will serve half of the city's population when completed. All other communities rely on cesspools. While this method is more acceptable in small settlements, providing that the cesspools are far from the drinking water sources, it creates major health hazard in urban centres, especially where sewer overflow occurs, as happens occasionally in parts of Buraydah and Ar-Rass.

7.2 POPULATION CHARACTERISTICS AND THE SETTLEMENT PATTERN:

7.2.1 Historical Background:

Having outlined something of the physical background and environmental conditions, it is reasonable to consider the population, its settlement pattern and the current health conditions in some detail.

It is difficult even to outline the early history of population and settlement in the region because almost nothing has been recorded of it. What evidence there is indicates that Al-Qassim has been inhabited for a long time by a thin scatter of settlements. Its limited settlement and isolation are repeatedly mentioned in the Arab poems written before and

after Islam. Apart from the difficult environment, civil strife as a result of the absence of authority, limited settlement and population growth. As a result of wars and disputes each settlement had to be self-sufficient and capable of resisting sieges, so that each area was a semi-independent tribal state with its own economy based on farming, together with some trade and livestock. Amongst the oldest settlement were An-Nabaj, or Al-Asyah as it is now known in the north east, Al-Kuryateen north of Unizah, and Al-Jiwa north of Buraydah, and Dariyah in the west. Dariyah may have been established in the 1st Hegira century (7th century) (Al-Aboodi, 1979), and Dariyah and Al-Asyah later became major stops on the Hajj route from Iraq to Makkah, possibly because of the easy availability of water, and the fertile grazing.

The central triangle of settlement in Al-Qassim included Buraydah, Unizah, and Ar-Rass, plus some smaller settlements scattered along Wadi Ar-Rimah [25]. This remained the main settled area until the 19th century. In fact this was then the heart of all Najd, not just Al-Qassim. A British Military report estimated the population of Najd as almost one million around 1900, of which 300,000 lived in Al-Qassim (India Government, General staff, Military report on Arabia, 1904). Palgrave had also estimated the population of Al-Qassim at 300,000 in 1863 (Palgrave, 1965), and Shamekh (1975) estimated that central Al-Qassim had more than 90 per cent of the region's population at the beginning of the present century. Most of the rest of the area remained predominantly a bedouin grazing area. Buraydah and Unizah remained the most important towns in Najd until the establishment of the Kingdom in the first third of this century, since when the growth of Riyadh has outpaced them. Even so their growth has continued partly as result of the Bedouin Settlement Programme which brought more nomads into the towns, and partly as a result of general development in the region [26].

Even for recent decades it is difficult to detail population and settlements changes in the region. The first Saudi census was made in 1962 but its results were never officially published because it was believed it under-counted the population. It gave the Saudi population as 3.3 million, of which 223,000 (6.7 per cent) lived in Al-Qassim. The 1974 census gave Al-Qassim's population as 324,543, or 4.6 per cent of the Kingdom's population. Assuming that Al-Qassim has maintained its share of population, more recent estimates gave it 424,000 in 1980, and 551,000 in 1986 (Table **7.1**). But such estimates must be treated with caution.

Without better data it is not possible to say how much of the recent rapid growth that has undoubtedly occurred is a result of natural growth and how much results from migration into Al-Qassim. The Directorate of Health Affairs of Al-Qassim region estimates in the Regional Health Plan (1985-1990) that the region's annual natural population growth is 3.7 per cent which is about equal to the national growth rate. A further increase of 1.3 per cent per year is a result of immigration (Al-Qassim Regional Plan, Document, unpublished data).

Table 7.1 Population and Population Growth in Al-Qassim, 1962-1986

Year	Number of population	Percent change	Annual average change	% of the Kingdom's population
1962/63	222,761 +	---	---	6.8
1974	324,543 !	45.7	3.8	4.6
1980	424,000 *	31.0	5.2	4.6
1986	551,000 *	29.6	4.9	4.6

Sources:+ M.O.F.N.E.,(CDOS), Count of Population and Establishments. First Issue, 1963.
! M.O.F.N.E.,(CDOS), General Population Census, 1974.
* Estimates.

That natural growth of population is high is suggested by the increase in the number of births in the region. Table **7.2**,

for example, shows the increase in the number of babies born in Al-Qassim hospitals for the years between 1981-1986. The number increased by 122 per cent over these years. These hospital figures exclude home births which are still common in rural and bedouin communities. They would also exclude many urban births. For example, 24 per cent of the total births in Buraydah in 1980 took place at home without medical assistance, and another 24 per cent were at home under the supervision of nurses, so that only 52 per cent took place in the maternity ward of Buraydah hospital (Al-Ribdi, 1986a). Even if the proportion of the births taking place in hospitals increased markedly between 1981 and 1986 this could not account for all the 122 per cent increase seen in Table **7.2**. Much of this must have resulted from an actual increase in the total number of births in that part of the region.

Table 7.2 Growth in Numbers of Births in Al-Qassim Hospitals, 1981-1986

Year	Number of births	Percent change
1981	4447	--
1982	6157	24.0
1983	7228	17.4
1984	7925	10.0
1985	8962	12.7
1986	9867	10.1
Increase 1981-86		121.9

Source: M.o.H., Annual Health Reports, various issues.

Similarly there is almost no data on Saudi immigration into the region but this certainly exceeds emigration. Residence permits issued by passport offices in Al-Qassim indicate a large growth in the number of foreign arrivals in the area. In 1980 the number of foreign residents in the region was about 27,000, but this rose to 41,600 in 1982/83, an increase of 54 per cent within two years (CDOS, Statistical Year Book, 1980; 1983).

7.2.2. Population Density and Distribution: [27]

With almost no census data to go on, little can be said about variations in population density and distribution across the region. All that is available is the 1974 census data and the more recent estimate by Norconsult in 1983. But the problem with that data is that Al-Qassim was divided into seven sub-regions at the time of the 1974 census whereas Norconsult used only three sub-divisions. At the present time Al-Qassim is divided into 15 sub-regions (or sub-emirates) as shown in Fig. **7.4**. This makes it difficult to examine the population changes by area over recent years. Nevertheless, it may be useful to use the 1974 data to establish the pattern of population distribution in that year. Table **7.3** shows the population of the seven areas Al-Qassim was divided into at that time, and Fig. **7.3** maps their densities. Table **7.3** also gives the 1986 estimated densities. For the whole of Al-Qassim in 1974 the average density of population was 5.2 persons per sq. km. compared with an estimated 8.4 persons per sq. km. in 1986. While these are very low density figures they are actually greater than the average for the Kingdom (3.2 and 5.34 persons per sq. km. in 1974 and 1986 respectively). As expected there was much variation in the density of population between the various sub-regions. Whereas in 1974 there were more than 14 persons per sq.km. in the central area, there were less than 2 persons per sq. km. in the remote areas like Dariyah. Densities increased in all areas by 1986 but to a greater degree in the more populated areas than in the more empty areas as population tended to shift to the urban and less remote areas.

In general terms we can recognize three zones of population density. These are strongly related to the physical conditions. The Arabian Shield area in the west forms half the area of the region, but is inhabited by less than a third of the population at a density of less than 5 persons per sq. km.in 1986. The main obstacle to greater settlement in this

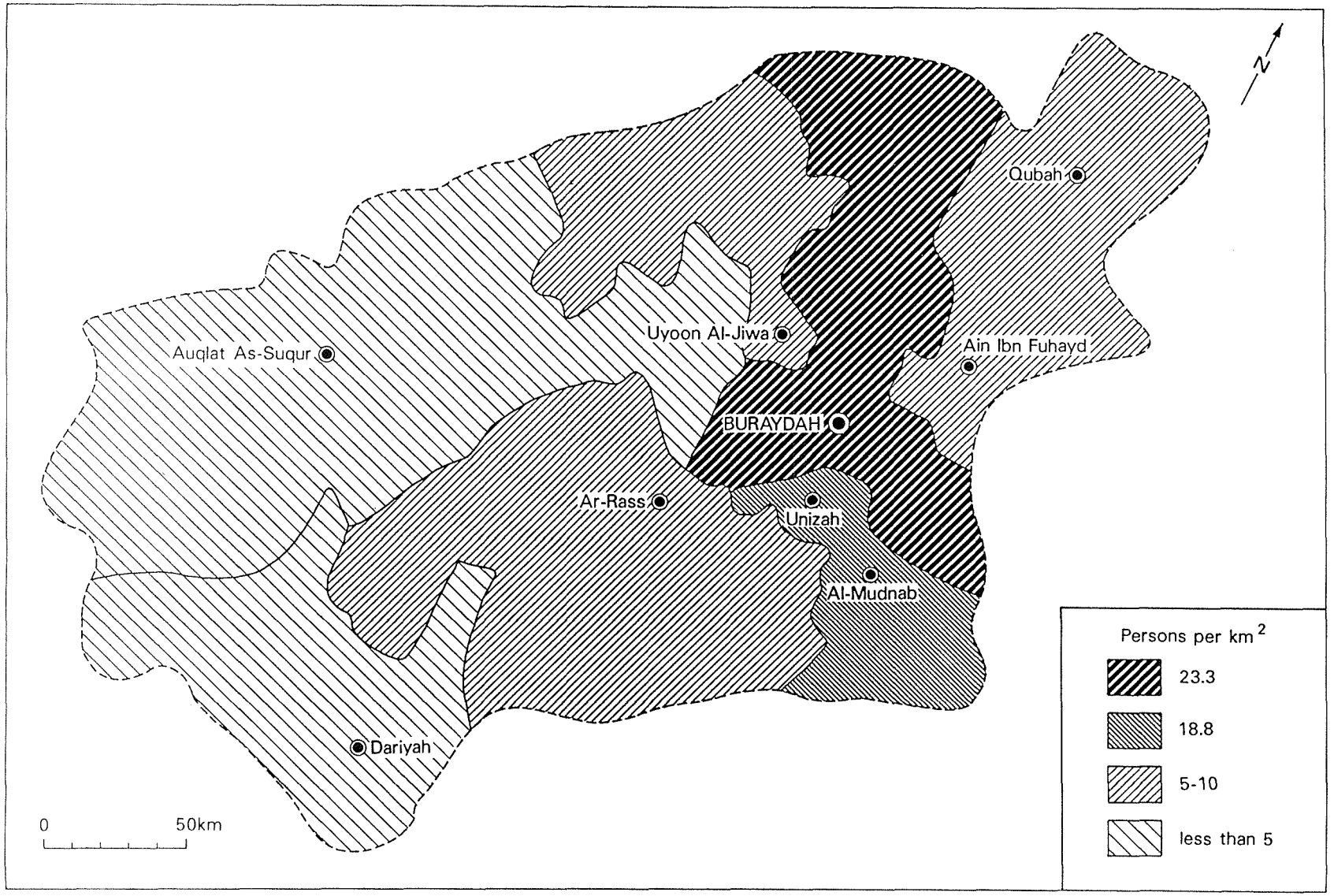


Figure 7.3 Population density in Al-Qassim by Sub-regions, 1986

Source: Author's estimation based on 1974 Census

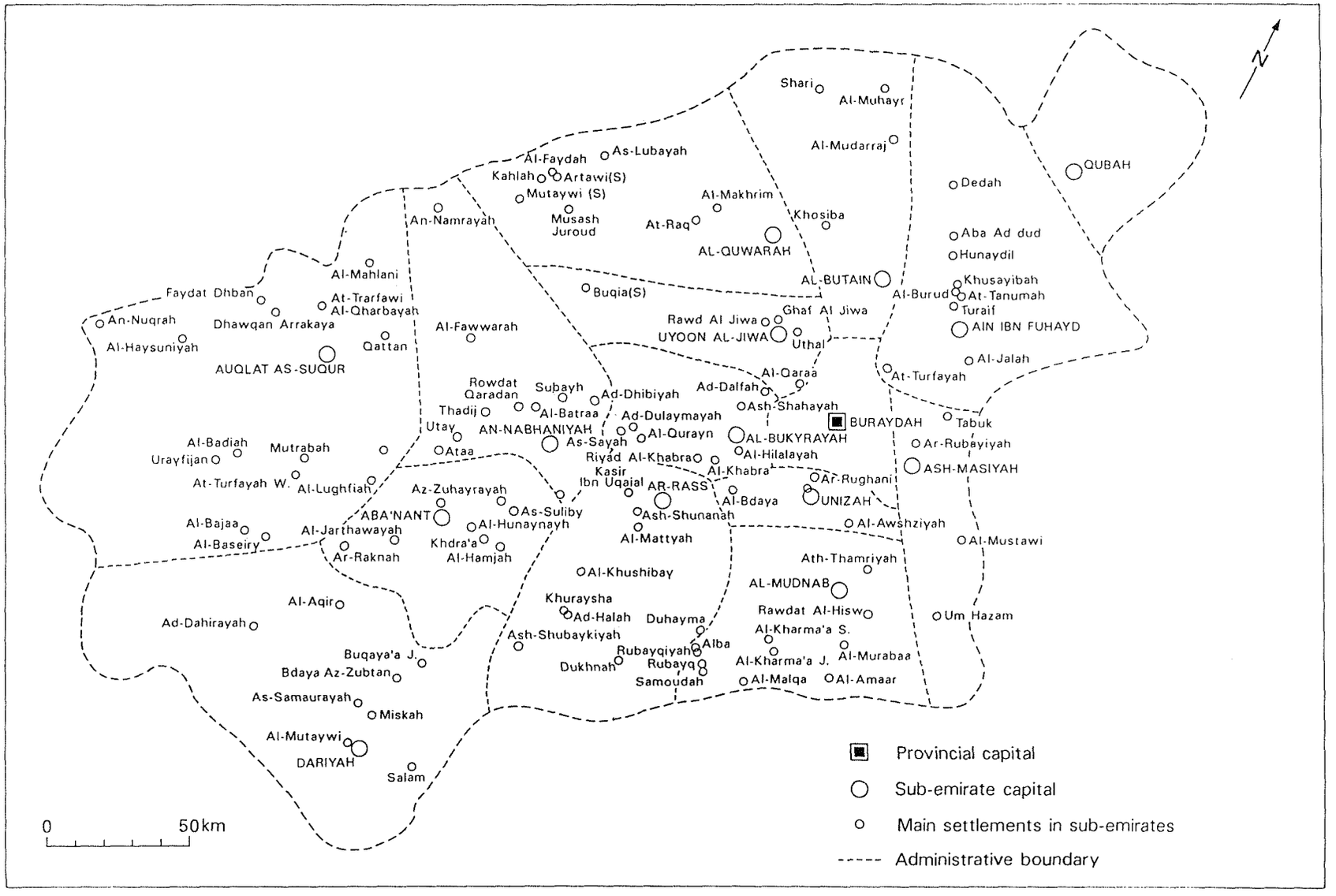


Figure 7.4 Al-Qassim Province Administrative Areas based on Emirate system

vast arid area is the scarcity of water resources for settlement or farming.

Table 7.3 Al-Qassim Population Distribution by Sub-Regions, 1974 and 1986

Sub-region	Area		Population 1974		Density per sq.km.	
Sub-region	Area km2(*)	%	Number(+)	%	1974	1986
Central	9,000	13.7	128,989	38.0	14.4	23.3
Southern	4,600	7.0	53,190	15.7	11.6	18.8
SouthWest	11,000	16.8	53,057	15.6	4.8	7.9
Northern	4,200	6.4	23,952	7.1	5.7	9.3
Al-Uqlat	13,200	20.2	35,018	10.3	2.6	4.3
Dariyah	8,000	12.2	13,681	4.0	1.7	2.8
Eastern & Qubah	15,500	23.7	31,231	9.2	2.0	3.3
Total	65,500	100.0	339,118(!)	100.0	5.2	8.4

Source: (+) M.O.F.N.E., (CDOS), Population Census, 1974, Detailed Data, Al-Qassim & Ha'il.
(*) Measured by the author, and figures are rounded.
(!) This figure includes Qubah Sub-Emirate, which was within Ha'il region in 1974, but added to Al-Qassim region in 1983.

The east of Al-Qassim, the sandy nafud, forms approximately a quarter of the total area of the Province and is mainly represented by the Al-Asyah and Qubah area. It is inhabited by less than 10 per cent of the total population at an average density of about 3.3 persons per sq. km. because the sand dunes make it difficult for agricultural development, even though it forms part of the sedimentary area and is underlain by deep groundwater resources.

Lastly and most importantly, central Al-Qassim is the main sedimentary area and forms 27 per cent of the total area, but is inhabited by approximately two thirds of the population. These are found at a density of about 20 persons per sq. km. This area is known for its fertile agricultural lands,

supported by groundwater pumping as well as the major urban centres of the Province.

7.2.3 Urban, Rural, and Nomad Populations:

The population types of Al-Qassim can be divided into three groups on the basis of their urban, rural and bedouin forms of settlement. The distinction between the bedouin and the others is not always clear because some bedouins are no longer entirely nomadic and form part of the village population or settle on the urban edges in the summer and so add to these populations. For the rest of the year they return to the desert grazings. Variations in the number of bedouins are particularly apparent around Dariyah, in the west, and Qubah in the east. When grazing is good many bedouins will concentrate in those areas, some coming in from other parts of the Kingdom. In contrast they disperse in sterile years. Nevertheless the total bedouin population in Al-Qassim, as in the whole Kingdom, is declining as a result of their increasingly permanent settlement [28].

Table **7.4** shows the distribution of Al-Qassim's population in 1974, divided between urban, village and nomadic settlements (see also Fig. **7.5**). It has been assumed that the population living in the 82 emirate centres (the main village or town in each local emirate) was urban. The rest of the village population was counted as rural, leaving the nomads at watering points largely outside of the cultivated zones. The Table also lists the number of settlements occupied by each group. It shows that in 1974 the population of the emirate centres of Al-Qassim accounted for 56 per cent of the population of the Province, a slightly higher urban population percentage than for the whole Kingdom. However, the actual urban population of Al-Qassim in 1974 was considerably less than this because most of these emirate centres were only villages. Table **7.5** shows the sizes of these settlements according to the 1974 census. It shows that

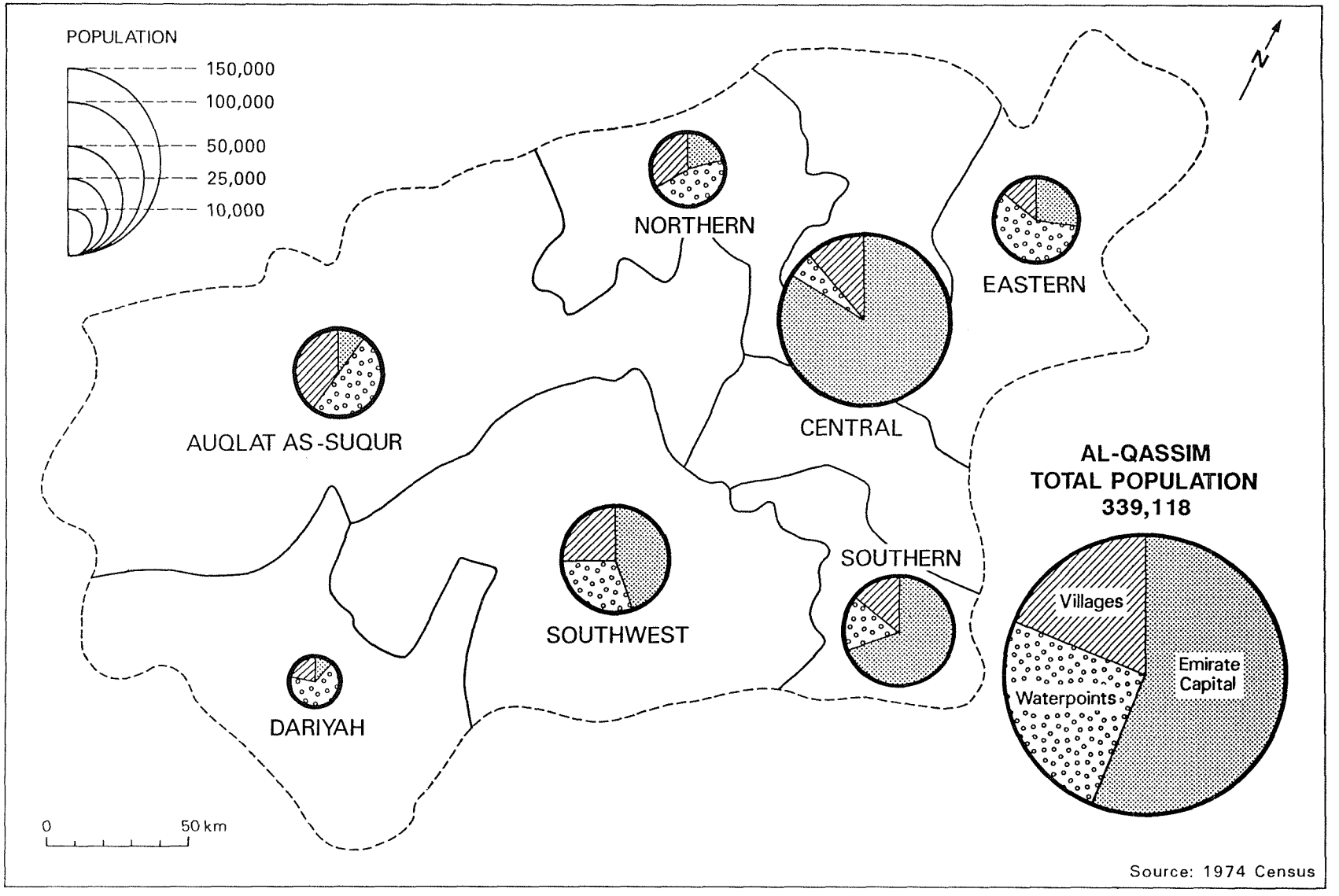


Figure 7.5 Distribution of Al-Qassim's population by settlement types and by Sub-regions, 1974

only seven of the 82 emirates centres had a population of over 3000, which might be considered the minimum size for an urban place. These places accounted for 71.2 per cent of the total population of all emirate centres and 40 per cent of Al-Qassim's total population. Another 18 centres had populations of between 1,000-3,000, so that most of the emirate centres are very small places, in most cases less than 500 population each.

Table 7.4 Distribution of the Population by Settlement Types and Sub-Regions, 1974

Sub Regions	Emirates Capitals (Urban)		Villages (Rural)		Water points (Nomads)		Total	
	% of Population	No of Settl'	% of Population	No of Settl'	% of Population	No of Settl'	Number of Population	Number of Settl'
Central (1)	84.5	25	11.1	87	4.4	19	128,989	131
Southern (2)	69.5	9	15.6	33	14.8	8	53,190	50
Southwest(3)	45.3	16	27.0	58	29.6	27	53,057	101
Northern	20.9	8	32.9	18	46.2	20	23,952	46
Al-Uqlat	9.9	10	39.6	45	50.5	48	35,081	103
Dariyah	11.2	4	21.9	13	66.6	28	13,681	45
Eastern (4)	27.0	10	14.0	17	58.0	25	31,231	52
Total Al-Qassim	55.6	82	19.2	271	25.2	175	339,118	528
							(*)	(+)
The Kingdom	51.3	353	26.9	15,252	21.8	5,784	6,729,643	21,389

Source: M.O.F.N.E., (CDOS), Population Census 1974, Detailed Data, Al-Qassim and Ha'il.

(+) Figures include all Emirate centres, villages, and water points.
(*) Figures exclude 283,000 living abroad or nomads living in border areas.
(1) Buraydah and Al-Bukyrayah are the main settlements in this sub-region.
(2) Unizah, Al-Mudnab and Al-Bdaya are the main settlements in this sub-region.
(3) Ar-Rass is the main settlement in this sub-region.
(4) This sub-region includes Al-Asyah and Qubah.

The rural population made up 19 per cent of the total population in 1974, and lived in 271 small villages. Apart from the 27,000 living in the 57 small emirate centres, the average size of these villages was only 240 persons. In fact this population in 1974 was outnumbered by the bedouins who made up 25 per cent of the total population. These were focused on 175 watering points, so that the number of nomads around each watering point was greater than the population of the average village. This has implications for the provision of services to the rural and nomadic populations since many

nomadic communities were actually larger than village communities.

It is clear from Table **7.4** that villages tend to be concentrated more in the central, southern and southwest areas of Al-Qassim, where nomadic watering places are also fewer. In those three areas the population of the emirate centres accounted for a larger share of the total population because more of these centres are towns. As a result the village and nomad population in these areas form a smaller proportion of the total population. This is also made clear in Fig. **7.5.** Combined the three areas of the central, southern and southwest have about two thirds of the emirate capitals and villages but only one third of the watering points.

Table 7.5 Population Distribution by Settlements, 1974

	More than 3000	1000 to 3000	500 to 999	Less than 500	Total
Number of settlements	7	18	24	33	82
Number of population	134,195	27,060	18,074	9,225	188,554 (*)
% of the settlements	71.2	14.3	9.6	4.9	100.0
% of total population	40.0	8.0	5.3	2.7	55.6

Source: Computed from Population Census, 1974. Detailed Data, Al-Qassim and Ha'il.
(*) These figures only include the 82 emirates centres.

This distribution of the population has changed considerably since 1974, but the only data available on this is that prepared by Norconsult in 1983. But this only gives population estimations for about 20 of the main settlements, generally those with more than one thousand population in the

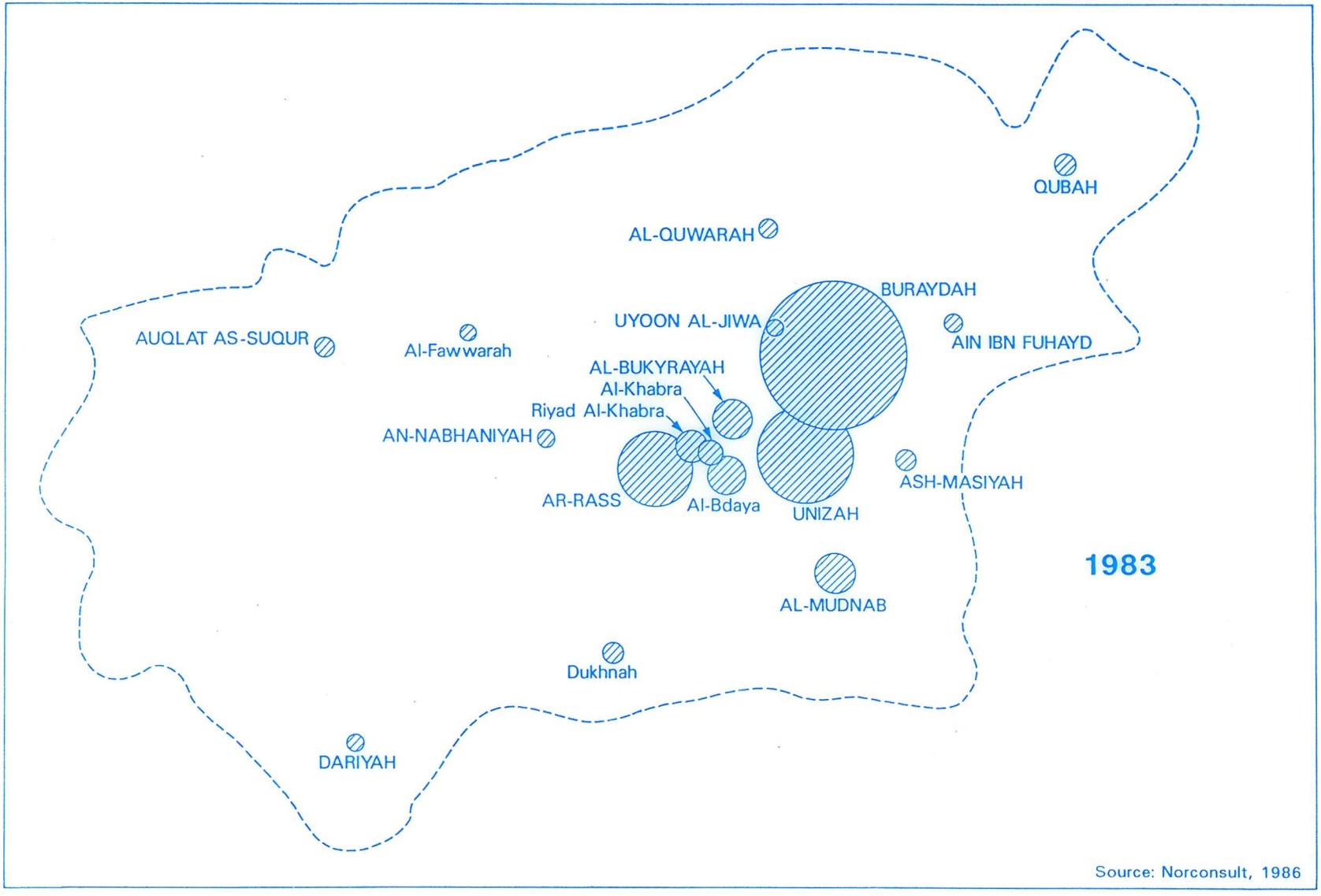
1974 census. Fig. **7.6** shows the population distribution and sizes of the places given in the Norconsult estimate. By comparison with the distribution of all settlements (seen in Fig. **7.4**) it can be seen that these larger centres are concentrated in central Al-Qassim.

7.2.4 Communications:

Brief reference to the Province's communications system is relevant here since accessibility is important in the provision of health services to a rather scattered population like that in Al-Qassim. Fig. **7.7** shows the existing road network in Al-Qassim. It consists of three arms of the national network linking the major centres of the region (notably Unizah and Buraydah) to the centres of neighbouring regions like Ha'il, Riyadh and Al-Madinah. Most of these roads are now of motorway standard. A pattern of secondary regional roads branches out from this networks to link up other middle size settlements, while farm and local roads, not all of them paved and many narrow, provide further links to smaller settlements and agricultural areas. Although Al-Qassim has a relatively high density of roads in comparison to other regions of the Kingdom, they only total about 2,000 km, (Norconsult, 1984), so that many settlements, such as Dariyah in the southwest and other settlements to the northwest of Buraydah and on the Shield, are still not linked to the regional road network.

The telephone network has expanded rapidly in the Province in the last decade, but it is still limited to the main urban areas and a small number of the main villages. Whereas Buraydah had 42 per cent of all phones in Al-Qassim in mid 1988 only 41 of the other 400 settlements had a telephone link. In outlying areas this inevitably can cause dangerous delays in dealing with patients, and means that many doctors in health centres are entirely isolated from doctors in other


1987
Data only available for
nine main settlements
Source: Atlas of Saudi Cities, 1988



Source: Norconsult, 1986

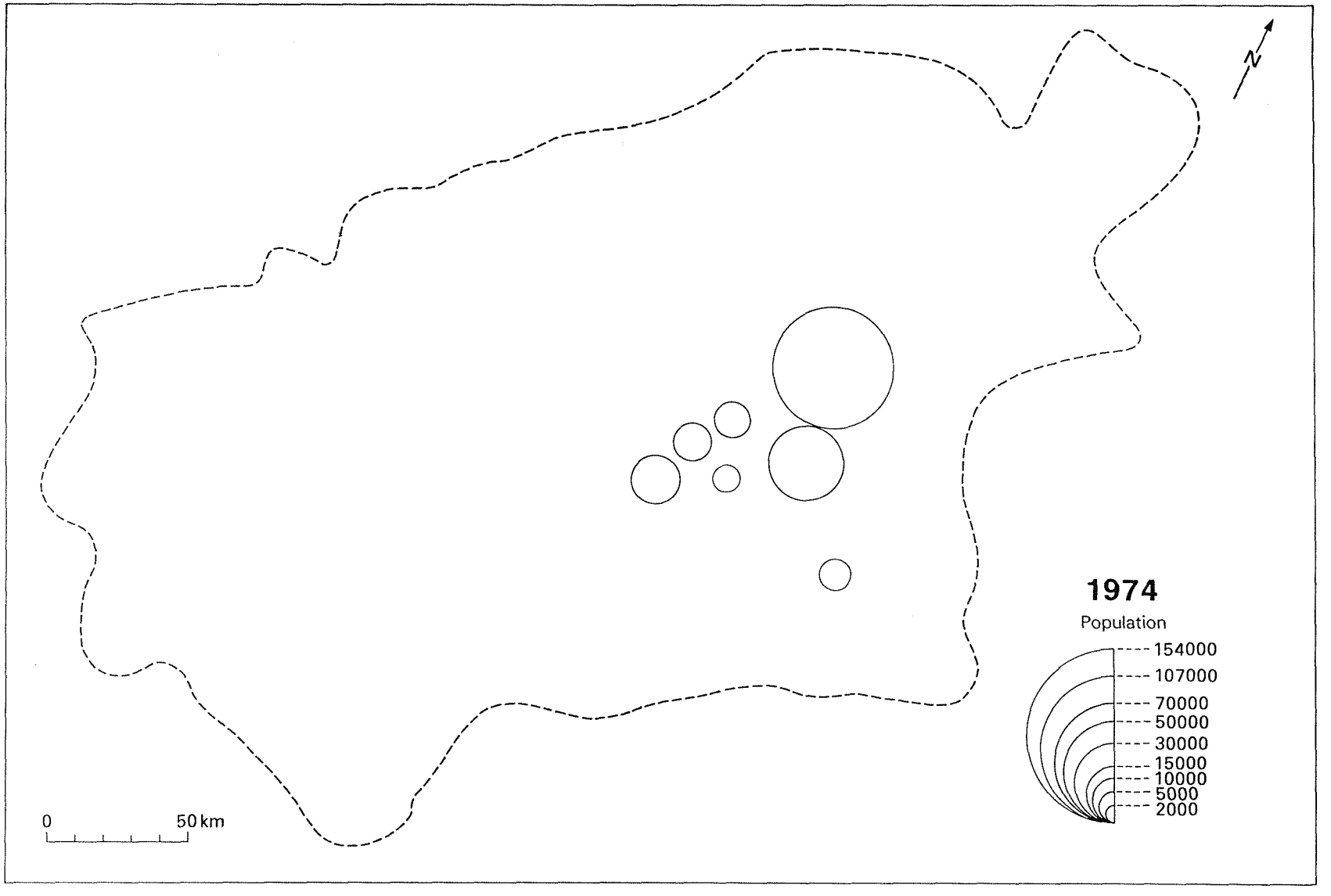


Figure 7.6 Distribution of population in main settlements in Al-Qassim, 1974, 1983 and 1987

Source: 1974 Census

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Source: 1974 Census

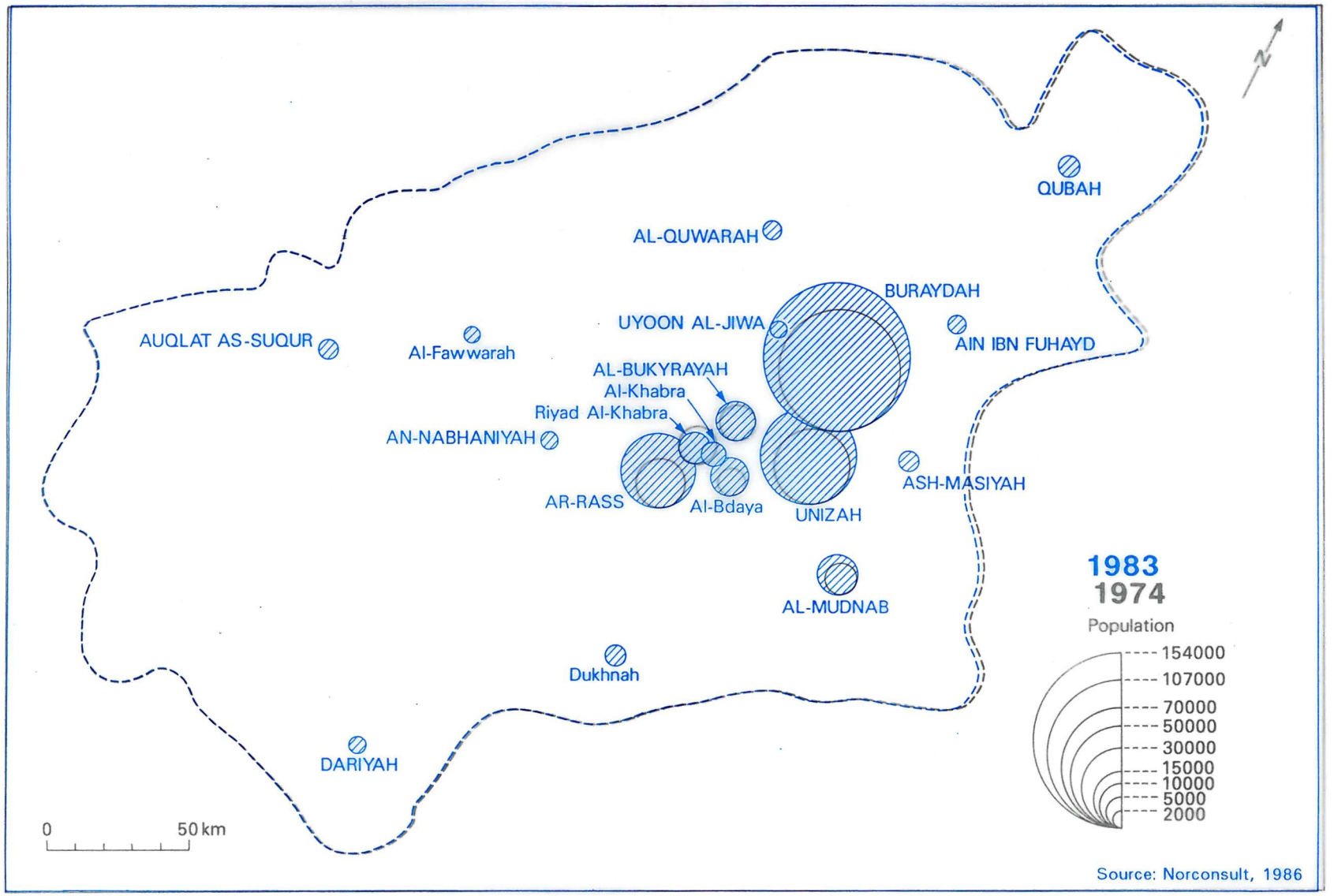


Figure 7.6 Distribution of population in main settlements in Al-Qassim, 1974, 1983 and 1987

Source: 1974 Census

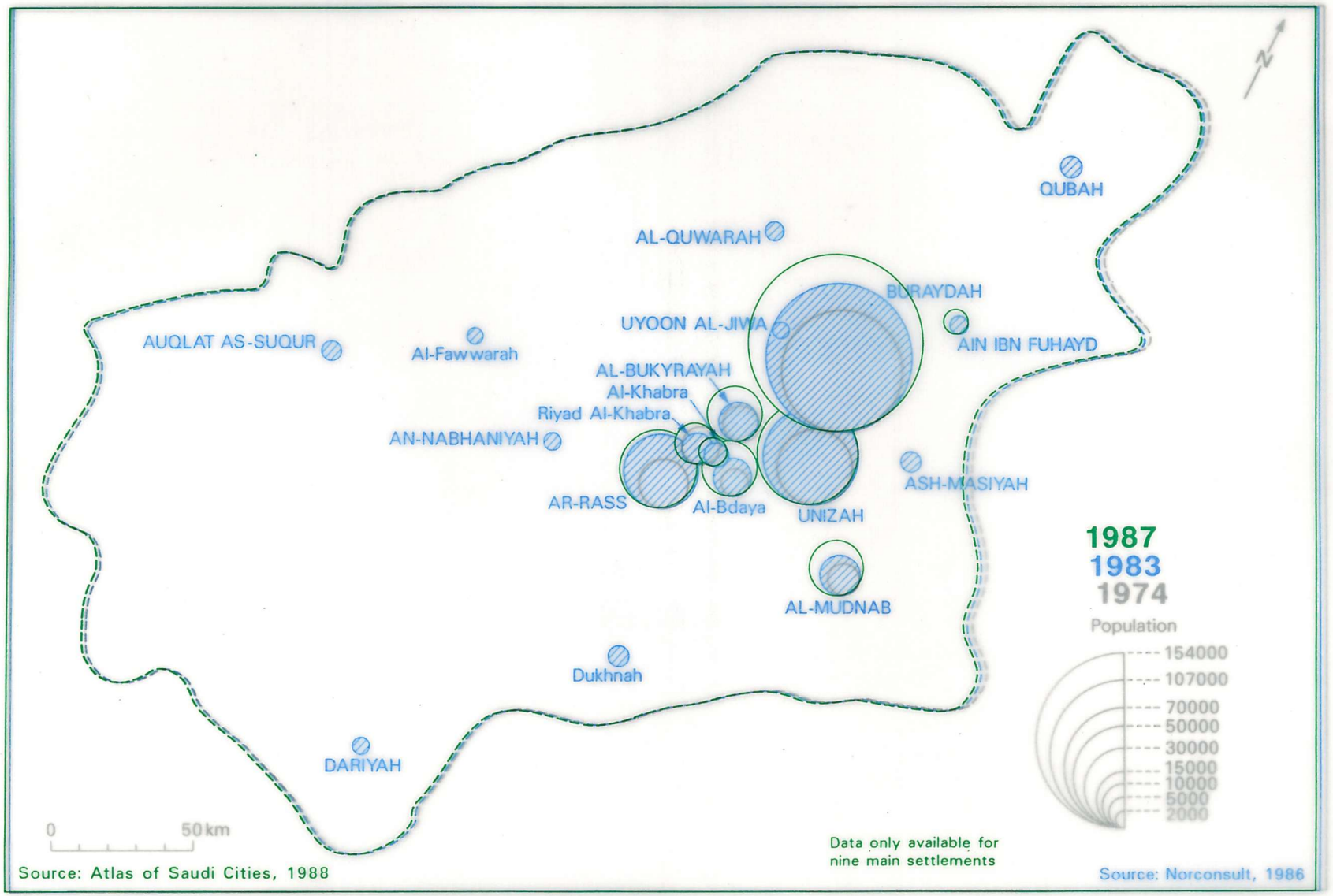


Figure 7.6 Distribution of population in main settlements in Al-Qassim, 1974, 1983 and 1987

Source: 1974 Census

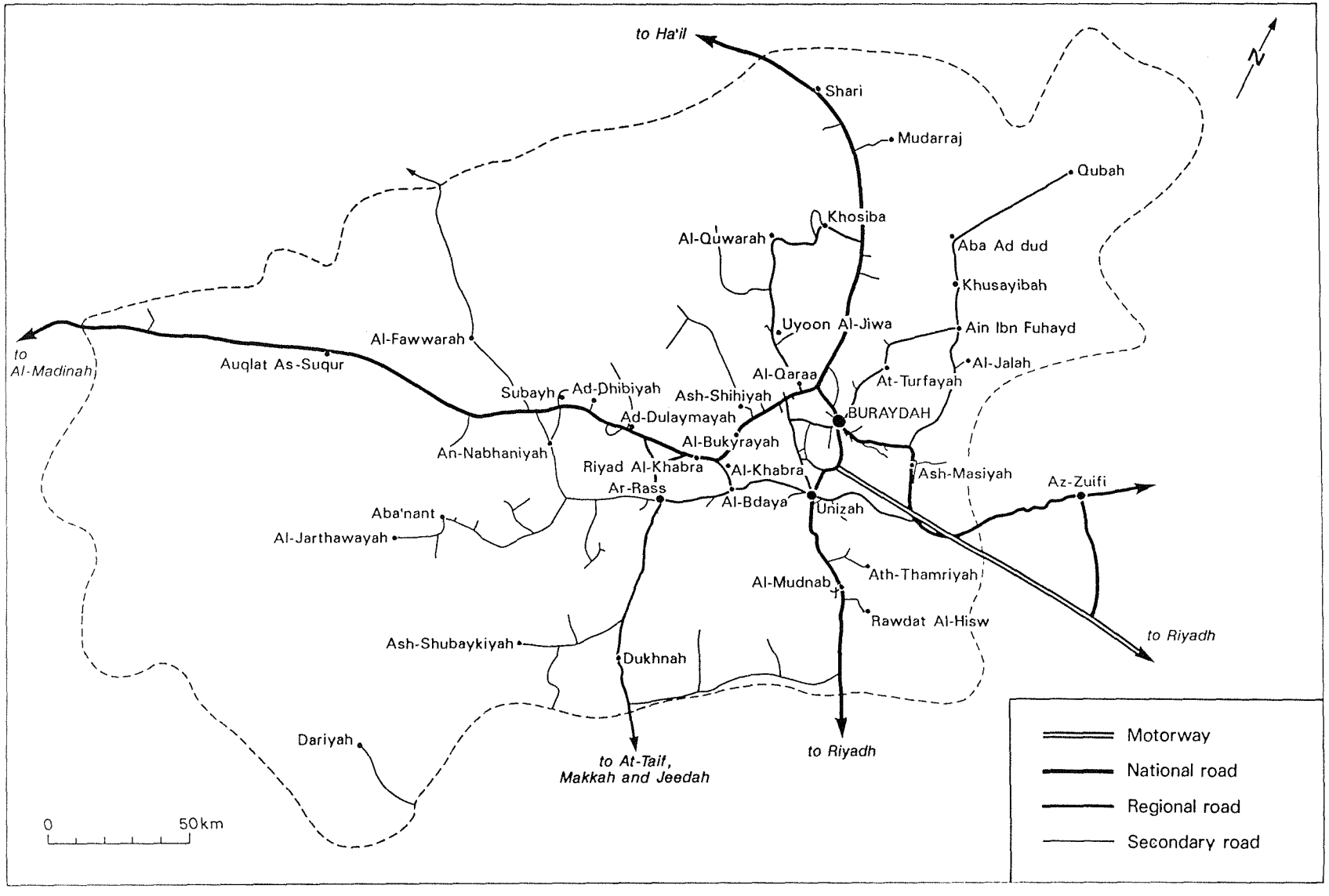


Figure 7.7 Al-Qassim's road network

health centres. The problem caused by the lack of telephones in health centres will be discussed in the following chapter.

7.2.5 Age and Sex Structure and Family Size:

Some information on the age and sex structure of the population of Al-Qassim is useful to indicate the likely health needs of the population, but again the only data available is that in the 1974 census. This is very limited and is now outdated. The very youthful structure of Al-Qassim's population in 1974 is readily seen in Fig. **7.8**, and the situation has probably become more marked since then. In 1974 children under 15 years old represented more than half of the total population, with the 0-4 and the 5-9 age groups each accounting for 18 per cent. This was a very high percentage of young people, even compared with the whole nation where 45 per cent of total population was under 15 years of age.

The elderly, over 60 years old, represented only 6 per cent of the population, a low percentage reflecting a short life span. This means that for every male over 60 in Al-Qassim in 1974 there were 8 boys under 15, and for every elderly woman there were 10 girls. It is also worth noting that the age group 55-59 years in 1974 was much smaller than the cohorts immediately above and below it. This reflects the deaths of large numbers of children in a cholera epidemic which struck in 1917-18.

Males slightly outnumbered females in 1974 at 51.4 per cent of the total population, mainly because of the influx of foreign male workers. This mainly, but not entirely, affected the urban areas where work opportunities are wider. The foreign labour component made up no more than 5 per cent of Al-Qassim's population in 1974. By 1983, with increased work opportunities, foreign labour accounted for more than 10 per cent of Al-Qassim's population. Males then accounted for 53.4

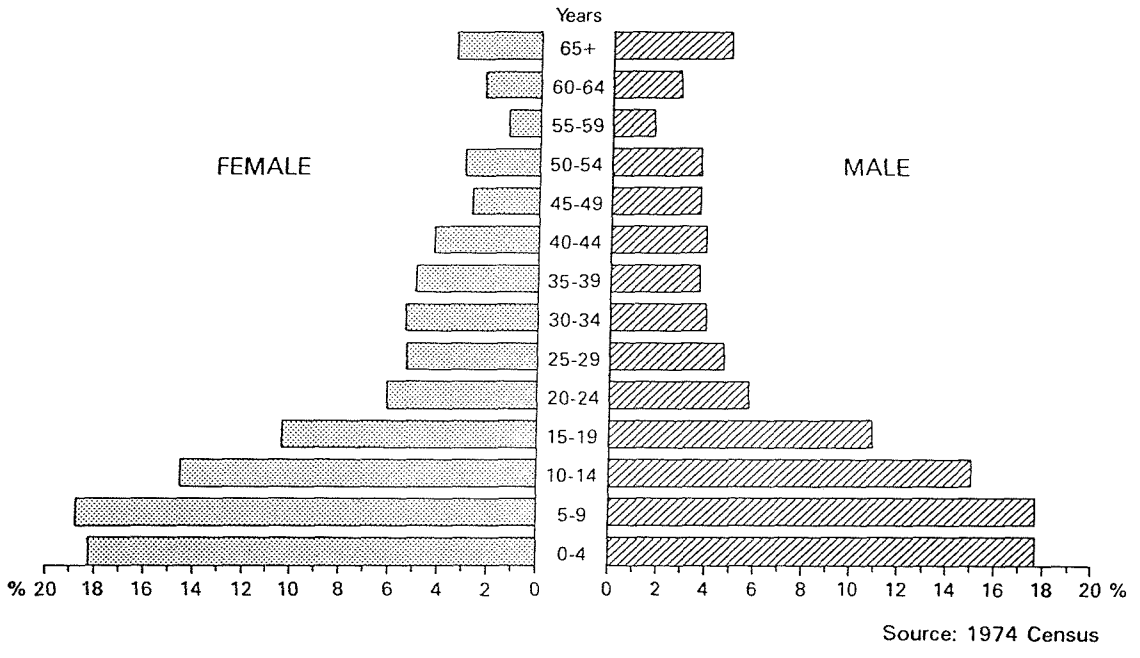


Figure 7.8 Al-Qassim's population pyramid, 1974

per cent of Al-Qassim's population, a little less than in the Kingdom as a whole (57.5 per cent). Most of these foreign workers came from other Arab countries like Yemen, Egypt, Sudan, Syria, and from Asian countries, such as Pakistan, India, Afghanistan and Bangladesh. More than two thirds of the foreigners were males. The impact of this foreign workforce on health services will be considered later.

With large numbers of children in the population and a few elderly people there is a high proportion of dependents. This is reflected in the large family sizes, which also relates to the importance of the large extended family in Islamic society [29]. In 1974 average family size in Al-Qassim was 6.5 persons. By 1983 average family size had risen to 7.9 persons as improvements in health care, especially in the rural and remote areas, contributed to reducing the death rate among children.

7.2.6 Economic Activities of the Population:

Table **7.6** summarizes the distribution of the population of Al-Qassim according to their economic activities at the time of the 1974 census. It shows that over half of the economically active population depended on agriculture and grazing. A particularly high proportion (over 80 per cent) were involved in these activities in the nomadic areas in the east and west. The proportion of the workforce in the southern and central areas engaged in agriculture was much less (at 30-40 per cent), even though these are important farming areas, because urban and other service activities were concentrated there. Even in 1974 20 per cent of the total workforce of Al-Qassim was engaged in public services and this proportion was much higher in the central, southern and southwestern sub-regions.

Table 7.6 Economic Activities of Al-Qassim's Population 12 years and Over by Sub-regions, 1974 and 1983

Activities	Central	Southern	Southwest	Northern	Al-Uqlat	Dariyah	Eastern	Total 1974	Total Al-Qassim 1983 (*)
Agriculture & Livestock	35.4	33.8	57.1	85.5	87.2	87.4	83.0	55.5	22.9
Manufacturing	3.7	3.7	2.5	0.5	0.2	0.5	0.2	2.4	7.9
Utilities	0.5	0.8	0.3	0.0	0.1	0.5	0.1	0.4	2.9
Construction	9.6	11.7	7.9	2.7	1.9	1.2	1.6	7.0	12.0
Trade & Finance	12.3	9.1	5.4	6.8	0.8	1.0	1.4	6.9	18.6
Transport	5.9	6.5	5.2	1.6	4.3	4.9	5.9	5.3	4.2
Government/ Public Services	29.0	31.9	18.6	6.2	3.2	3.2	6.0	19.6	31.5
Other	3.6	2.6	3.1	3.1	2.3	1.3	1.9	2.9	---
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: M.O.F.N.E., (CDOS), Population Census 1974, Detailed Data, Al-Qassim and Ha'il.
(*) Norconsult, 1984.

Table **7.6** also shows the Norconsult estimate of the population's activities in 1983. Norconsult estimated that agricultural work had been displaced by public services as the main regional employer by then. Agriculture was only a little larger than employment in trade and finance which had grown markedly as an employer since 1974. Construction had also became a major employer especially in the more urban areas. Too much reliance, however, should not be placed on the Norconsult survey since it was only conducted in certain urban centres, and probably underestimated the strength of rural activities.

The 1974 census also showed that about two thirds of the population over 12 years old were not defined as economically active. This reflects the fact that the majority of women were not employed although many would have worked in family farms in the rural areas. They would not be considered employed. Also a large share of this non-active population was still young, and would be in full time education. Retired people made up only 7 per cent of the population over 12, in keeping with the small number of elderly people. Unemployment was put at 3.8 per cent of the workforce. No data of a similar type is available for a more recent year to compare with 1974.

7.2.7 Educational Standards of the Population:

Educational standards were still low in 1974. The 1974 census showed that 66 per cent of the population over 10 years of age was illiterate, but Norconsult estimated this figure had fallen to 23 per cent by 1983. This marked improvement was the result of the opening of many new schools, especially in the rural areas. The total population in Al-Qassim also grew by about 40 per cent between 1974 and 1983, mainly by natural increase, so that this expansion of the youthful population helped to hide the effect of the considerable number of adults who remain illiterate because they had few schooling

opportunities when they were young. Even so there have been widespread opportunities for adults who missed out on schooling to learn to read and write and this has also helped to reduce illiteracy levels rapidly. Table **7.7** shows the illiteracy rates of the population in 1983. The percentages of illiterates rise through the age groups as one would expect. They were much higher for females than males. Illiteracy rates were also much higher in the west and east parts of Al-Qassim where more of the population is nomadic or rural, and schooling is more difficult to provide than in the towns of central Al-Qassim.

Table 7.7 Percentage of Illiteracy in Al-Qassim's Population, by Area and Age, 1983

Age Group	Central Al-Qassim		Eastern Al-Qassim		Western Al-Qassim		Total Al-Qassim
	M	F	M	F	M	F	M and F
10 - 19	3	19	5	33	10	40	15
20 - 29	12	36	17	58	19	60	27
30 - 39	22	71	24	82	37	82	48
40 - 49	33	90	40	91	38	96	63
50 - 59	54	95	65	98	61	99	73
60 +	68	97	64	90	76	100	80

Source: Norconsult (1984, p. 103).

7.3 THE CURRENT HEALTH SITUATION:

An earlier section of this chapter indicated from fragmentary evidence the probable links between common causes of ill-health in the region and the environmental, and housing conditions of the people. Much more research is needed on these links. In this final section of the chapter a number of important causes of death and ill-health at the present time are identified and discussed on the bases of the limited data available on them [30].

The level of health standards in Al-Qassim has improved rapidly in the last 30 years as health services have become available at all levels. Many communicable diseases have been controlled or got rid of, but all of this has tended to emphasize the continuing effect of some communicable diseases, high infant death rates and modern causes of ill health.

7.3.1 Communicable Diseases:

Despite the great health progress made in the Kingdom in recent years common communicable diseases still account for much ill health and many deaths, especially among the very young. There has, however, been no national survey of diseases. Of the few government reports on the distribution of these diseases, that prepared for the Ministry of Planning (CK Health Planners, 1984), indicated that in general Al-Qassim was fairly free from some of the major diseases found in some other parts of Saudi Arabia. For example malaria and bilharzia are not widespread and Al-Qassim recorded the lowest number of polio cases in the Kingdom between 1979 and 1980. On the other hand trachoma is endemic in Al-Qassim (Badr and Qureshi, 1982a).

In the absence of full published data on diseases the writer has compiled the incidence of certain communicable diseases per 100,000 persons in Al-Qassim and in the nation as reported in annual health reports for 1981 and 1986. Table **7.8** shows this. Common diseases both at the national and regional level were measles, mumps, dysentery, chicken pox, tuberculosis and viral hepatitis, but cases of TB which occurred nationally in both years only occurred in Al-Qassim in one of the two years under review. In comparing data for the two years a significant decline in the incidence of several diseases can be noted, especially for Al-Qassim. There was a decline in the incidence of three common diseases, measles, dysentery and whooping cough, and this decline was much greater in Al-Qassim than nationally. There were also fewer cases of mumps and

hepatitis in Al-Qassim, even though they were more widespread nationally. On the other hand the incidence of chicken pox increased both nationally and in Al-Qassim over these two years.

Table 7.8 Morbidity Rates due to Infectious Diseases in Al-Qassim and The Kingdom, 1981 and 1986

	Al-Qassim				The Kingdom	
	1981		1986		1981	1986
Types of Disease	Number of cases Persons	Cases per 100,000	Number of cases Persons	Cases per 100,000	Cases per 100,000 persons	
Measles*	7,642	3980.0	1,181	500.0	930.0	499.0
Whooping Cough*	1,276	665.0	1	.4	101.2	5.1
Diphtheria*	117	10.9	0	.0	3.0	0.7
Poliomyelitis*	10	5.2	0	.0	4.4	0.3
Amoebic-Dysentery	6,385	1432.0	224	40.6	680.0	167.6
Mumps	1,684	378.0	1,065	193.3	155.0	181.3
Chicken pox	763	171.0	1,127	204.5	108.0	159.0
Tuberculosis	171	38.0	.0	.0	82.9	31.0
Viral Hepatitis	142	31.8	87	15.8	41.8	50.0
Scarlet Fever	41	9.2	0	.0	2.8	.0
Malaria	38	8.5	0	.0	593.0	.0
Leprosy	7	1.6	0	.0	0.7	0.4
Tetanus	2	0.5	0	.0	1.3	0.5
Meningitis	1	0.2	0	.0	1.5	0.6
Rabies	1	0.2	0	.0	0.4	0.9
Typhoid	0	0.0	17	3.1	5.1	5.9
Undulant Fever	0	0.0	293	53.2	.0	19.2
Salmonella	0	0.0	0	.0	.0	1.9

Source: Number of cases from M.o.H., Annual Health Report, 1981 and 1986.
* Ratios for these diseases were computed for every 100,000 children less than 12 years. The others were based on total population.

A disease that has became endemic recently is undulant fever. This is thought to be spread by the consumption of unpasteurized dairy products, a habit of many people, especially in the rural areas. Al-Qassim had 13 per cent of recorded cases in 1986, the second highest level of incidence

in the Kingdom, so that on this basis it was affecting 0.05 per cent of the population in Al-Qassim. The writer's clinic survey showed that 1.3 per cent of all patients at clinics were suffering from the disease, and this figure rose to 1.8 per cent in rural areas.

An endemic disease not listed in Table **7.8** is leishmaniasis, which many elderly and middle aged persons (especially men) in Al-Qassim suffer from in its cutaneous form. It has been endemic in Al-Qassim, as in many parts of the country, since early times. The infection rate with this disease has been rising gradually in Al-Qassim since 1980. In 1986 there were 1464 recorded cases, 9 per cent of those recorded in the Kingdom. The Head of Disease Prevention of the Directorate of Preventative Medicine in Al-Qassim, in an interview with the writer, believed that the recent agricultural development in the region had spread the sand fly and rats which act as carriers of this disease. 60 per cent of the cases were found amongst the foreign labour who are especially prone to it on the farms they work on. As their numbers have risen so has the incidence of leishmaniasis. Table **7.9** shows the number of infections from the disease in Al-Qassim and the Kingdom by age, sex and nationality in 1986.

Table 7.9 Distribution of Cutaneous Leishmaniasis by Sex, Nationality and Age, 1986

	Total cases	by sex %		by nationality %	
		M	F	Saudi	non-Saudi
Al-Qassim	1,464	79.0	21.0	40.0	60.0
The Kingdom	16,621	72.0	28.0	54.0	46.0

	Age group %				
	Less 1 year	1-5	5-15	15-45	45+
Al-Qassim	7.3	16.7	12.4	58.3	5.3
The Kingdom	4.3	19.4	20.7	49.7	6.2

Source: M.o.H., Annual Health Report, 1986.

7.3.2 The High Rate of Deaths Amongst Infants and Children:

While life expectancy has improved markedly in Saudi Arabia in recent years, it is still low by world standards. Part of this is the result of high death rates amongst children. Table **7.10** lists life and mortality data in Saudi Arabia in 1960 and 1982. It shows that the expected life span at birth rose from 43 years to 56 years between 1960 and 1982. It also shows that over the same time period infant mortality fell from 18 per cent to 11 per cent of the live births. But this remains a very high figure in comparison with industrial countries, where the rate of 8-14 per thousand is common (World Bank, 1984). The rate of deaths among children of 1-4 years old is also higher in Saudi Arabia than in many developing countries, but has also fallen rapidly in recent years.

Table 7.10 Selected Health Indicators for Saudi Arabia, 1960-1982

	Saudi Arabia		World	Industrial Countries
Indicator	1960	1982	1980	1982
Crude death per 1,000 persons	23	12	11	9
Infant mortality per 1,000 live births	185	108	88	10
Child death(1-4 years)per 1,000	48	16	NA	00
Life expectancy at birth (years)	43	56	60	75

Sources: (1) Willett (1986)
(2) World Bank, World Development Report, 1984.

The effect of these high infant mortality rates is indicated in the distribution of death through the age groups given in Table **7.11** for the years 1980 and 1986. The situation in 1986 had improved over that in 1980 but deaths among infants of less than one year old accounted for over 41 per cent of all death in both years. Deaths remained relatively high for children 1-4 years and then fell to a lower level for older children (5-14 years old). Death rates then rose again especially in the over 45 age group. However, that age group only accounted for around one third of the total deaths in both years [31]. This is very small in contrast to the industrial countries where more than 80 per cent of the total deaths occur among the age group of over 65 years (CK Health Planner, 1984).

Table 7.11 Distribution of Mortality by Age in Saudi Arabia, 1980 and 1986 (*)

	1980		1986	
Age Group	Number of cases	% of total	Number of cases	% of total
Under 1 year	3,520	40.6	6,622	41.5
1 - 4	434	5.0	605	3.8
5 - 14	287	3.3	462	2.9
15 - 24	469	5.4	668	4.2
25 - 45	1,043	12.0	1,734	10.8
45 & Over	2,920	33.7	5,878	36.8
Total	8,673	100.0	15,969	100.0

Source: M.O.F.N.E., (CDOS), Statistical Year Book, 1980 and 1986.
(*) Figures only give number of deaths reported by municipalities.

Comparable data is not available for Al-Qassim but Table **7.12** shows the rate of perinatal mortality for hospital births in Al-Qassim compared with the Kingdom for the years 1981 and 1986. Whereas the death rate of infants was about the same in 1981 in Al-Qassim as in the whole country, Al-Qassim showed a much faster rate of improvement to 1986 in this cause of

death. The much improved situation for the newly born in Al-Qassim hospitals probably reflects the great improvement in maternity facilities there in recent years, including the opening of paediatric and maternity hospitals in Buraydah in 1984, and a number of diagnostic and maternity centres in other places.

Table 7.12 Perinatal Mortality in Hospitals in Al-Qassim and in the Kingdom, 1981-1986

	Al-Qassim			The Kingdom		
Year	No of live births	No of deaths	No of deaths per 1,000 live births	No of live births	No of deaths	No of deaths per 1,000 live births
1981	4301	146	34	89469	2928	33
1982	6014	143	24	100219	3295	33
1983	7078	150	21	115898	3590	31
1984	7759	193	25	136396	4234	31
1985	8816	146	17	148460	4297	29
1986	9692	175	18	170521	4391	26

Source: Computed from M.o.H., Annual Health Report, various issues.
Figures are rounded up.

7.3.3 Road Accidents:

Road accidents have become one of the most important causes of death in the world. It is now a major cause of death in Saudi Arabia (Sebai, 1987) and accounted for 31,000 deaths and 200,000 injuries, over a 13 years period up to 1985 (Al-Haza, 1986). Table **7.13** shows that vehicles numbers increased 82 per cent between 1981 and 1986 and the accident rate rose 36 per cent. The number of road accident deaths in Al-Qassim has risen rapidly in recent years, as in all Saudi Arabia, reflecting the increase in motor vehicle use. By 1986 road accident killed 38 per 100,000 of the population. In 1981 it was 35/100,000. The number of injuries was much greater, at about 218 per 100,000 population in 1986, but their rate fell from 1981. The majority of road accident

victims are males between 20-45 years because females cannot drive. This largely explains why 63 per cent of the total recorded deaths in the Kingdom in 1986 were male deaths (CDOS, Statistical Year Book, 1986).

Table 7.13 Number of Road Accidents, Injuries and Deaths in Al-Qassim, 1981 and 1986

Year	1981	1986	Percent Change
No of Vehicles	108,518	197,097	+ 82.0
No of Accidents	713	963	+ 35.6
No of Injured	1,074	1,201	+ 11.8
No of Deaths	158	210	+ 32.9
Injured Per 1,000 Persons (*)	240	218	- 9.2
Deaths Per 1000 Persons (*)	35	38	+ 8.6

Source: Figures of number of vehicles, accidents, and injures are from CDOS, Statistical Year Book, 1981, 1986.
(*) Per 1000 of Al-Qassim's total estimated population.

No data is available on the severity of accident injuries in Al-Qassim, but it is probably similar to other regions [32]. Tamimi et al (1980) concluded in a study of road accidents in Asir, that 6 per cent of the injured died after being admitted to hospitals, and 7 per cent had to be transferred to specialist hospitals because of the severity of their injuries. He found that 50 per cent of the surgical beds in Abha Central Hospital were occupied by victims of car accidents. 46 per cent of the amputations carried out at M.o.H. hospitals in 1986 (for the whole country) were as a result of road accidents (M.o.H., 1986). Road accidents are now the most common cause for hospitalizations for most of the male population.

This chapter has attempted to provide background information about Al-Qassim Province to help understand its current health problems. Its harsh climate, its scattered population, the low level of public health, and the Province's former isolation from medical developments all help to account for its health problems. Much improvement has occurred in recent years but the almost complete lack of data on the people and their health have made it difficult for a full overview of causes and rate of morbidity and mortality to be established. Because these gaps are too large for one researcher to cover the remaining chapters focus on health care provision in the Province and the use made of the primary care system.

CHAPTER EIGHT

HEALTH SERVICES IN AL-QASSIM

In previous chapters the development and distribution of health care services were discussed and analysed at the level of the Kingdom and its administrative regions. In this chapter the health care services in Al-Qassim region will be examined on the basis of the writer's field survey, and with data collected from the Al-Qassim Health Directorate. The chapter begins with a summary of the development of health care services in the region and then explains the existing sources of health care and the agencies providing such services. It ends by considering general patterns of use based on the analysis of Directorate data.

8.1 THE DEVELOPMENT OF HEALTH CARE SERVICES:

The first dispensary to be set up in Al-Qassim was opened in a small mud house in Buraydah in 1941. Run by two Palestinian doctors, the centre was the first attempt to provide modern medicine in the region. Further progress in health provision in the region was rather slow. The first hospital in Al-Qassim, set up in Buraydah, was not opened until 1959. Another opened in the early 1960s in Unizah and a third in Ar-Rass in 1971. A pattern of local dispensaries also developed slowly. According to Bushnak (1957) in 1956, 15 years after the first dispensary was set up in Buraydah, the health care service in the region consisted only of a health office and dispensary in Buraydah and in Unizah, and other dispensaries in Al-Bukyrayah, Ar-Rass, Al-Mudnab, and Al-Asyah. A school health unit was opened by the Ministry of Education (M.o.E) in 1955 in Buraydah to provide health services to the students and staff of the schools in the town.

Primary health provision began to develop faster in the 1960s. The first body (Mandubiah) to organize and supervise the region's health service was set up in 1960. During the 1960s and early 1970s several more health points, health centres and school health units were opened in the main population centres, but no data on their distribution, or the number of staff they employed, are available.

Reliable data on the region's health services starts from 1973. Tables. **8.1** therefore summarizes the much more rapid development of the services provided by the M.o.H. between 1973-1986. The number of hospital beds jumped from 352 to over 1300, as the number of hospitals nearly quadrupled, and the number of health centres increased from 47 to 119, taking health care to most communities of any size. Staff numbers increased even faster with the number of physicians, nursing and technical staff increasing about 10 fold. Table **8.2** shows that the number of outpatient visits to hospitals and health centres increased 4 fold from 890,000 in 1973 to 3.5 million in 1986. Fig. **8.1** and **8.2** shows this in graph form. The number of inpatients rose about 7 fold as a result of the expansion of clinical inpatients services. As seen in the Tables **8.1** and **8.2** the number of hospital beds and health manpower in Al-Qassim increased faster than at the national levels. Also the demand for the services in Al-Qassim increased more than that at the national level. The rapid expansion of facilities and staff, as Table **8.3** shows, gave Al-Qassim by 1986 a larger share of the nation's health care services than the average provision in the rest of the Kingdom.

Table 8.1 Number of Health Facilities in the Kingdom and in Al-Qassim Region, 1973, 1980 and 1986 (M.o.H.)

	1973			1980			1986			% Change 1973-1986	
	The Kingdom	Al-Qassim		The Kingdom	Al-Qassim		The Kingdom	Al-Qassim		The Kingdom	Al-Qassim
	No	No	%	No	No	%	No	No	%	%	%
Hospitals	54	3	5.6	69	4	5.8	141	10	7.0	161	233
Hospital Beds	8,870	352	4.0	11,963	600	5.1	23,862	1,306	5.5	169	271
Health Centres	556	47	8.3	889	82	9.2	1,431	119	8.3	153	153
Physicians	1,268	69	5.4	3,793	215	5.7	10,359	757	7.3	717	997
Nurses	3,179	183	5.8	6,710	410	6.1	24,528	1,728	7.0	672	844
Technicians	2,144	74	3.5	4,443	220	5.0	11,513	779	6.8	437	953

Sources: Computed from:(1) M.o.H., Annual Health Report, 1980; 1986.(2) M.O.F.N.E., (CDOS), Statistics, Statistical Year Book, No. 10, 17.
Figures are rounded up.

Table 8.2 Number of Visits to Outpatient Clinics at M.o.H. Hospitals and Health Centres and the Number of Inpatients in the Kingdom and Al-Qassim Hospitals, 1973, 1980 and 1986. (M.o.H). (in Thousands)

	1973			1980			1986			% Change 1973-1986	
	The Kingdom No	Al-Qassim No	%	The Kingdom No	Al-Qassim No	%	The Kingdom No	Al-Qassim No	%	The Kingdom %	Al-Qassim %
Outpatients:											
Hospitals	8,700	0,691	7.9	13,931	0,720	5.2	21,417	1,258	5.9	146	82
Health Centres	8,067	0,198	2.5	16,902	0,984	5.8	36,285	2,207	6.1	349	1015
Totals	16,767	0,889	5.3	30,833	1,704	5.5	57,675	3,465	6.0	244	290
Inpatients:	0,187	0,008	4.3	0,401	0,022	5.5	0,909	0,053	5.8	386	562

Sources: Computed from:(1) M.o.H., Annual Health Report, 1980; 1986.(2) M.O.F.N.E., (CDOS), Statistical Year Book, No. 10, 17.
Figures are rounded up.

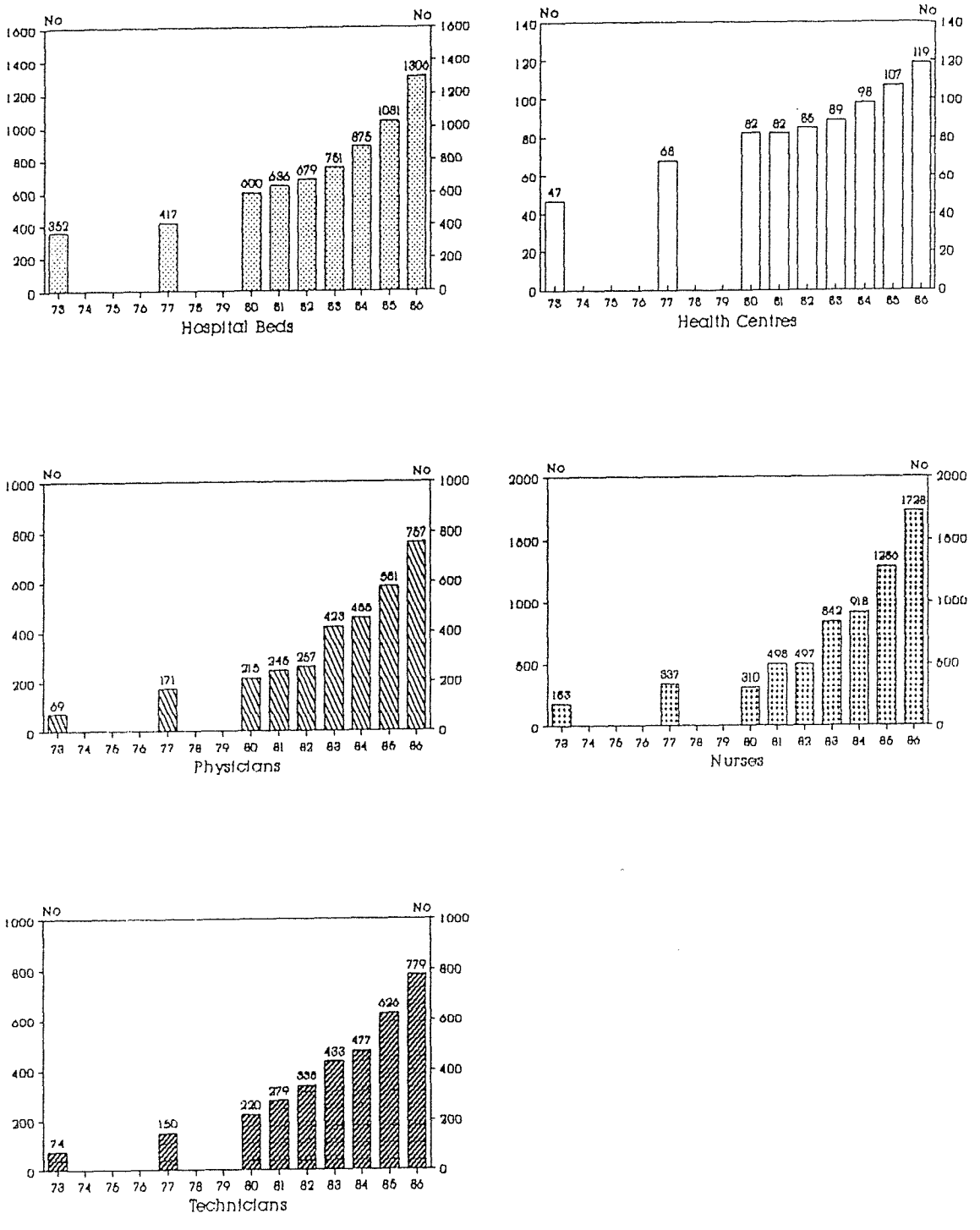


Figure 8.1 Development of Hospital beds, Health Centres and Health Manpower in Al-Qassim, 1973-1986

Sources: M.o.H. Annual Health Reports and (CDOS) Statistical Year Book,various issues
In some years in 1970s data for Ha'il Health Region was included in Al-Qassim

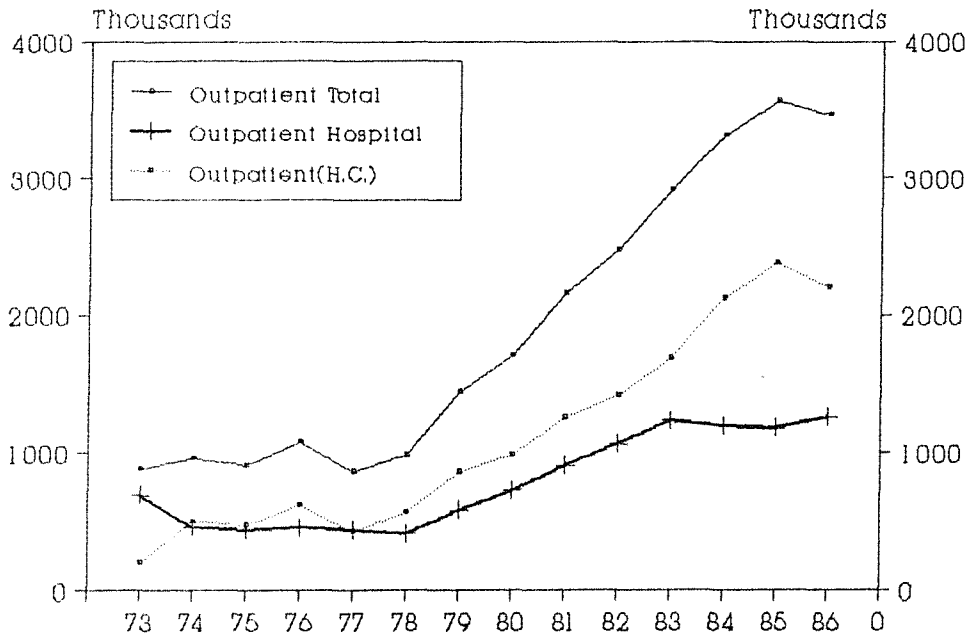


Figure 8.2a Number of Outpatient visits in Al-Qassim, 1973-1986

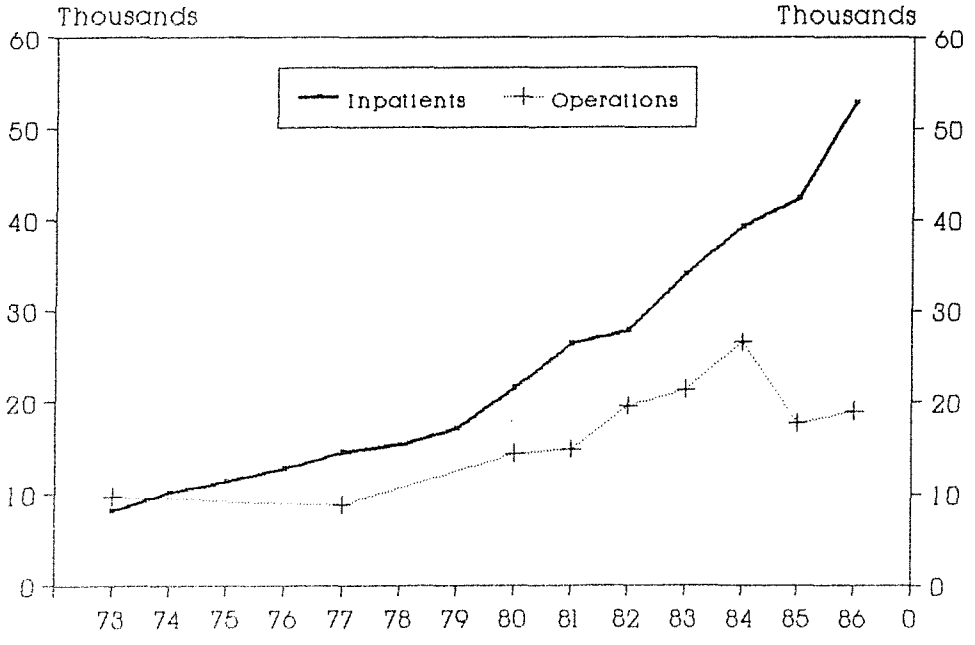


Figure 8.2b Number of Inpatients and surgical operations in Al-Qassim, 1973-1986

Sources: M.o.H. Annual Health Reports and (CDOS) Statistical Year Book,various issues
In some years in 1970s data for Ha'il Health Region was included in Al-Qassim

Table 8.3 Hospital Beds and Health Care Professionals: Levels of Provision in Al-Qassim Province and The Kingdom, 1986. (Per 10,000 Population) (*)

	Beds	Physicians	Nurses	Techn's	Average No of peopleserved by Health.C.
Al-Qassim	23.7	13.7	31.3	14.1	4,630
The Kingdom	19.9	8.7	20.5	9.6	8,372

Source: Computed from M.o.H., Annual Health Report, 1986. (*) Figures for the facilities provided by M.o.H. only. (Private sector & other government agencies are not included).

8.2 HEALTH CARE RESOURCES IN 1987:

During his field survey in 1987 the author noticed that much had changed from what the outline 1986 data suggested. This section attempts, therefore, to analyse the status of the health care services, their distribution and their use in Al-Qassim, as they stood in mid-1987. This is done on the basis of his field data and assisted by other reports and library information. In a few cases the figures for 1986 are used when more recent figures were not available.

It is clear from the records of the Health Directorate, and from numerous interviews with doctors and others, that Al-Qassim, like the rest of the Kingdom, does not yet have a properly coordinated health system. Apart from facilities provided by the M.o.H., other Ministries and government agencies in Al-Qassim provide more limited health services mainly for their employees only. There is also a private health sector, but not of the same standard and strength as that in major cities like Riyadh and Jeddah. These non-M.o.H. services are briefly reviewed later in the chapter. This diversity of providers means some areas of Al-Qassim and some sectors of the population are better served than others [33].

Table **8.4** summarizes the main sources of health care in the region in 1987, and in the following sub-sections the current level of provision by the M.o.H. and other agencies is detailed.

Table 8.4 Existing Health Facilities and Staff in Al-Qassim by Agencies (1987)

Agencies	Hospitals	Hospital beds	Health Centres	Physicians	Nurses	Technicians
a. Min. of Health	10	1,944	123	832	1,995	803
b. Other Gov' Agencies						
- Min. of Education			9	25	17	12
- Girls Education Admin.			3	7	7	8
- King Saud Univ			2	4	5	2
- Imam Moh. Univ			1	3	2	2
- Min. of Interior			1	15	12	6
- National Guard			1	5	4	1
Sub-total			17	59	47	31
c. Private Sector						
- Private Sector H.C.			13	67	72	25
- Private Doctors				9		
Sub-total			13	78	72	25
d. Al-Birr Charity			1	2	6	2
Total	10	1,944	154	971	2,120	861

Source: Author's Field Survey, 1987.

8.2.1 Ministry of Health Services:

8.2.1.1 Hospitals:

All ten hospitals in Al-Qassim are run by the Ministry of Health and the system is still expanding. Even between 1986 and 1987 another 638 hospital beds were added to bring the total to 1944. These ten hospitals divide into four grades: four local general hospitals with a total capacity of 577 beds; the central hospital at Buraydah (319 beds); and four special hospitals, only dealing with certain health problems, with a total capacity of 474 beds. The King Fahd Specialized Hospital in Buraydah (574 beds) is the regional specialist hospital. It was opened in 1988 but was still not fully operational in 1989 although its outpatient department opened in 1986.

Table **8.5** details the beds and manpower of these hospitals, while Fig. **8.3** shows their geographical distribution which is concentrated in central Al-Qassim. There are no officially defined catchments for the hospitals and patients who come to health centres are free to go to any hospital of their choice if they need further treatment. Nevertheless the four local general hospitals do have informal catchments. Unizah hospital provides services to Al-Bdaya, Unizah (50,000 population) and its surrounding areas. It is the oldest of the four hospitals, opened in the 1960s, with a current capacity of 150 beds. Before Al-Mudnab hospital was opened in 1985 Unizah hospital also covered the south of the province and the As-Sirr area of Riyadh province.

Ar-Rass hospital provides services for the city of Ar-Rass (30,000 population), and much of the western half of Al-Qassim because the next nearest hospitals to the west are 450 km. away in Al-Madinah. To the south the next nearest hospital is at Afif in Riyadh Province, over 300 km. away. Ar-Rass hospital opened in 1971 and has 180 beds at the present time.

Table 8.5 Distribution of Hospital Beds, Health Professionals and Administrative Staff, by Hospitals in Al-Qassim, 1987

Hospital	Year of Opening	No of Beds	No of Phys-icians	No of Nurses	No of Techn.	No of Admin.
General H.						
- Unizah	1960s	150	59	94	67	114
- Ar-Rass	1971	180	57	136	65	81
- Al-Mudnab	1985	137	39	81	28	30
- Al-Bukyrayah	1985	110	46	136	48	200
-						
Central H.						
- Buraydah C.H	1959	319	119	404	126	153
Sub-total	----	896	320	851	334	578
Special H.						
- Unizah Infections.H	1975	100	13	43	13	57
- Buraydah Psychiatric.	1984	100	12	53	19	13
- Buraydah Chest.H.	1984	50	10	20	17	12
- Buraydah Maternity & C.Hospital	1984	135	48	115	41	33
* Unizah M.& C. Centre.	1986	89	25	68	10	19
Sub-total	----	474	108	299	100	134
Total	----	1370	428	1150	434	712
- K.F.S.H. Buraydah	1988	574	NA	NA	NA	NA
Total	----	1944	---	----	---	---

Source: Author's Field Survey, 1987.

* Unizah Maternity and Children's Centre is a part of Unizah General Hospital.

NA= No data.

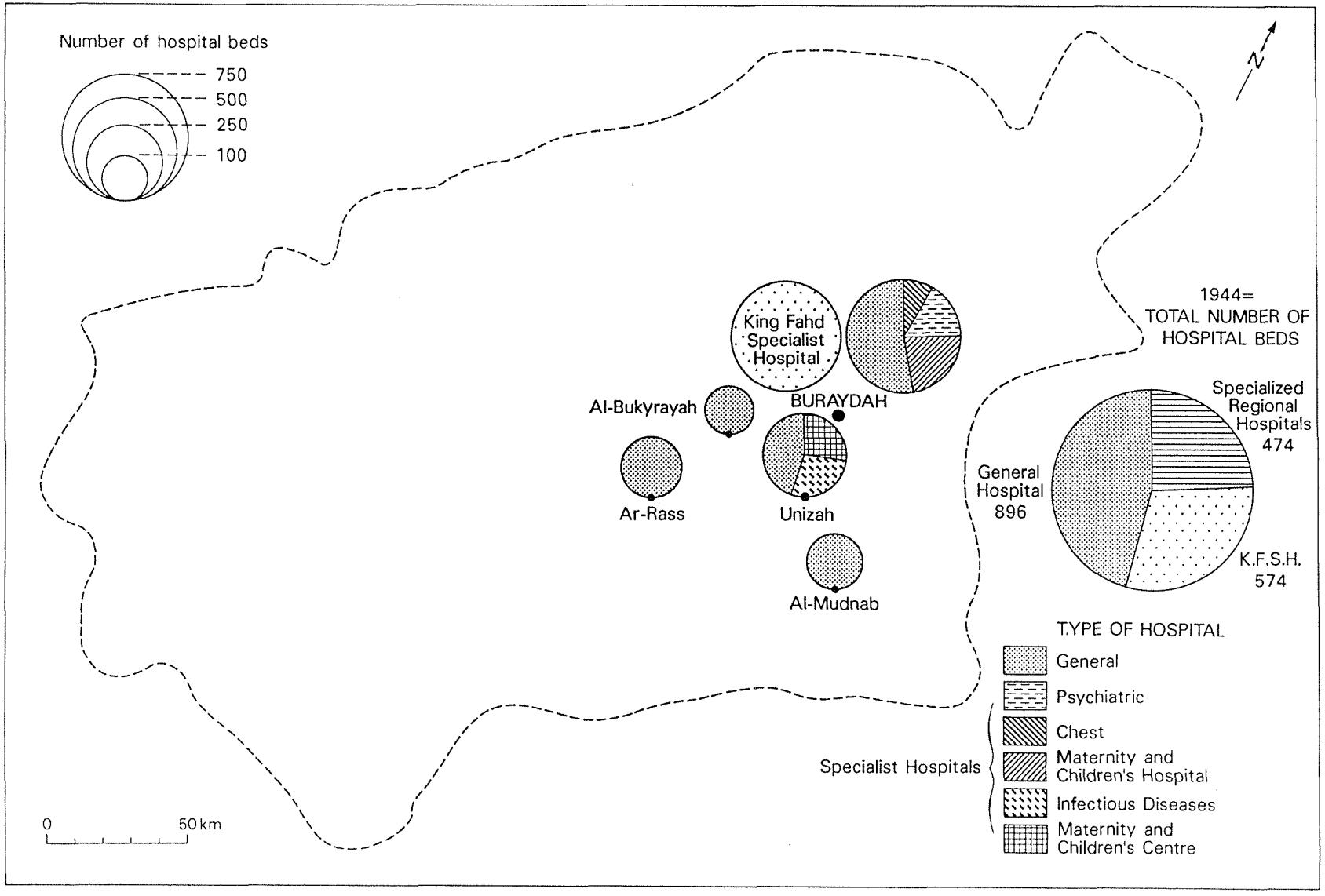


Figure 8.3 Distribution and types of Hospitals and Hospital beds in Al-Qassim, 1987

Al-Mudnab and Al-Bukyrayah general hospitals are the two most modern general hospitals in Al-Qassim. Both were opened in 1985 and each was planned as a 100 bed hospital. But they proved so popular, because of a local belief that a new hospital provides better services, that each has already increased its capacity. Al-Bukyrayah hospital was intended to serve a small local area, but demand has increased more than expected from the relatively large populations in towns like Al-Khabra, Riyadh Al-Khabra and Al-Bdaya which have no hospital, and which were only served by Ar-Rass Hospital. Al-Mudnab Hospital was planned to serve the southern area because, apart from Unizah to the north, the nearest hospital south of Al-Mudnab is Shakra Hospital in Riyadh Province, 200 km. away. The director of Al-Mudnab Hospital, in an interview with the writer, stated that the out- and inpatients departments of the hospital receive patients from other parts of the region including Buraydah, and even patients referred to it by health centres outside Al-Qassim. In particular the As-Sirr area in north west Riyadh Province has no hospital and provides some patients, as does the Shakra area which does have its own hospital.

Set up in 1959 Buraydah Central Hospital is the oldest and largest hospital in the region with 319 beds. In most ways this central hospital varies little from the general hospitals just listed except for its larger size, and its central location. Apart from serving Buraydah city (154,000 people) it also serves a vast rural areas in the north, east and north-west of Al-Qassim which have no other hospital. The next nearest hospital to the north is 300 km. away at Ha'il, while Az-Zulfi Hospital is 100 km. to the east in Riyadh Province. Buraydah Central Hospital, like the general hospitals, occupies a purpose-designed set of buildings, and has several specialized wards in addition to an emergency department, and outpatient clinics which can receive patients who come directly to it from all areas.

Special Hospitals:

There are four special hospitals in Al-Qassim. They include the Infectious Diseases Hospital in Unizah which was opened in 1975 with a capacity of 40 beds, and which now has 100 beds. It deals with isolation cases for cholera, yellow fever, smallpox, typhus, meningitis, typhoid, diphtheria, and other communicable diseases. The hospital only receives cases referred from other hospitals and health centres, and therefore mainly serves Al-Qassim but also receives patients from Ha'il Province and the As-Sirr, Afif, Ad-Wadmi, and Az-Zulfi parts of Riyadh Province.

The Psychiatric Hospital in Buraydah only dates from 1984. Until recent years few people in Al-Qassim believed in the need to treat psychiatric illnesses. The few who were diagnosed as mentally ill were treated either by folk healing or by referring them to the psychiatric hospital in At-Ta'if (in Western Region). There was not even a medically trained psychiatrist or a physician specializing in psychiatry in Al-Qassim before 1980. A psychiatric clinic opened in Buraydah Hospital in 1981 before being replaced by the psychiatric hospital three years later. Its current capacity is 100 beds, and occupies a rented building in the south of Buraydah. It serves the whole of Al-Qassim and the adjacent parts of Riyadh Province but not Ha'il Province which has its own psychiatric hospital.

A Pulmonary, Tuberculosis and Chest Diseases unit, attached to Buraydah Central Hospital, was opened in the 1970s. This centre was up-graded to a hospital which opened in 1984 in a rented building in the east of Buraydah with a capacity of 50 beds. Like the Psychiatric Hospital the Chest Hospital covers Al-Qassim and adjacent parts of Riyadh Province.

The Maternity and Children's Hospital in Buraydah was opened in 1984. It started out in a rented building, but when part of it was damaged by fire in early 1987 it was moved to occupy

part of Buraydah Central Hospital. Its current capacity is 135 beds, 75 of which are for obstetrics and maternity, and the remainder for paediatric cases. This hospital is now under great pressure of demand. On a visit in July 1987, the writer found the maternity and obstetrics department was completely full, and extra beds are sometimes put in the corridors. The reason for this pressure is because there is only one other maternity and child centre - attached to Unizah General Hospital - in the whole of Al-Qassim at a time of rapidly increased child births.

Finally, the King Fahd Specialist Hospital in Buraydah is the most modern hospital in the region, and is intended to provide a range of specialist services to Al-Qassim and neighbouring provinces. It was originally designed as a regional general hospital but was switched to serve more specialist needs before completion. It has wards for internal diseases, obstetrics and the newly born as well as kidney machines, an intensive care unit, a cardiac unit, a burns unit, an emergency department, and outpatient clinics. There are also plans to establish a research centre in the hospital. Although the outpatients clinics started to receive patients in 1986, and some inpatients wards were partly operational from 1987, its large capacity and the need for specialist manpower means that it is still not fully working (1990).

To keep up with rising health demands another two general hospitals are under construction, one in Unizah with a capacity of 345 beds, expected to be opened in 1990, and the other in Ar-Rass, with a capacity of 200 beds. These will supplement the hospital facilities already in these two towns.

Feasibility studies for additional hospitals have already been made and are expected to be acted upon in the next two years. They include a new maternity and child hospital in Buraydah with a capacity of 200 beds, and a psychiatric hospital with a similar capacity. There is a plan to up-grade seven

diagnostic and maternity centres and health centres in the main settlements, mainly in outlying parts of Al-Qassim like Dariyah and Qubah, into small rural hospitals with 30 bed capacities.

Fig. **8.4** shows the distribution of existing hospitals and planned hospitals. When all these projects are completed, the ratios of population per beds and per hospital staff will be as good as in many western countries and the geographic spread of facilities will more closely match that of the population. It is recognized, however, that staffing will remain a major problem with some facilities already better staffed than others. The author's field study showed that there were 2012 doctors, nurses and technicians in Al-Qassim hospitals in 1987, This excluded King Fahd Specialist Hospital for which no data was available. But 50 per cent of the doctors were general practitioners [34]. This would suggest an overall shortage of specialist staff for such a well developed system of hospitals. All of the physicians were non-Saudi and 88 per cent were male.

As might be expected, there are variations in the number of medical staff per bed in the general hospitals and special hospitals, but some of the variations probably reflect insufficient staffing. For example, the general hospitals had an overall ratio of 2.8 beds per physician, but this varied widely between them. The best ratios were found in Al-Bukyrayah hospital with 2.4 beds/physician, followed by Unizah hospital with 2.5, and Buraydah with 2.7. In Al-Mudnab hospital each physician had an average of 3.5 beds to care for and in Ar-Rass 3.2. A similar range was seen for nurses and technicians.

As an example of this maldistribution of staff Al-Bukyrayah and Al-Mudnab Hospitals are the same size and built to the same design to provide similar services in their areas. But Al-Mudnab Hospital has 137 beds with 39 physicians, 81 nurses,

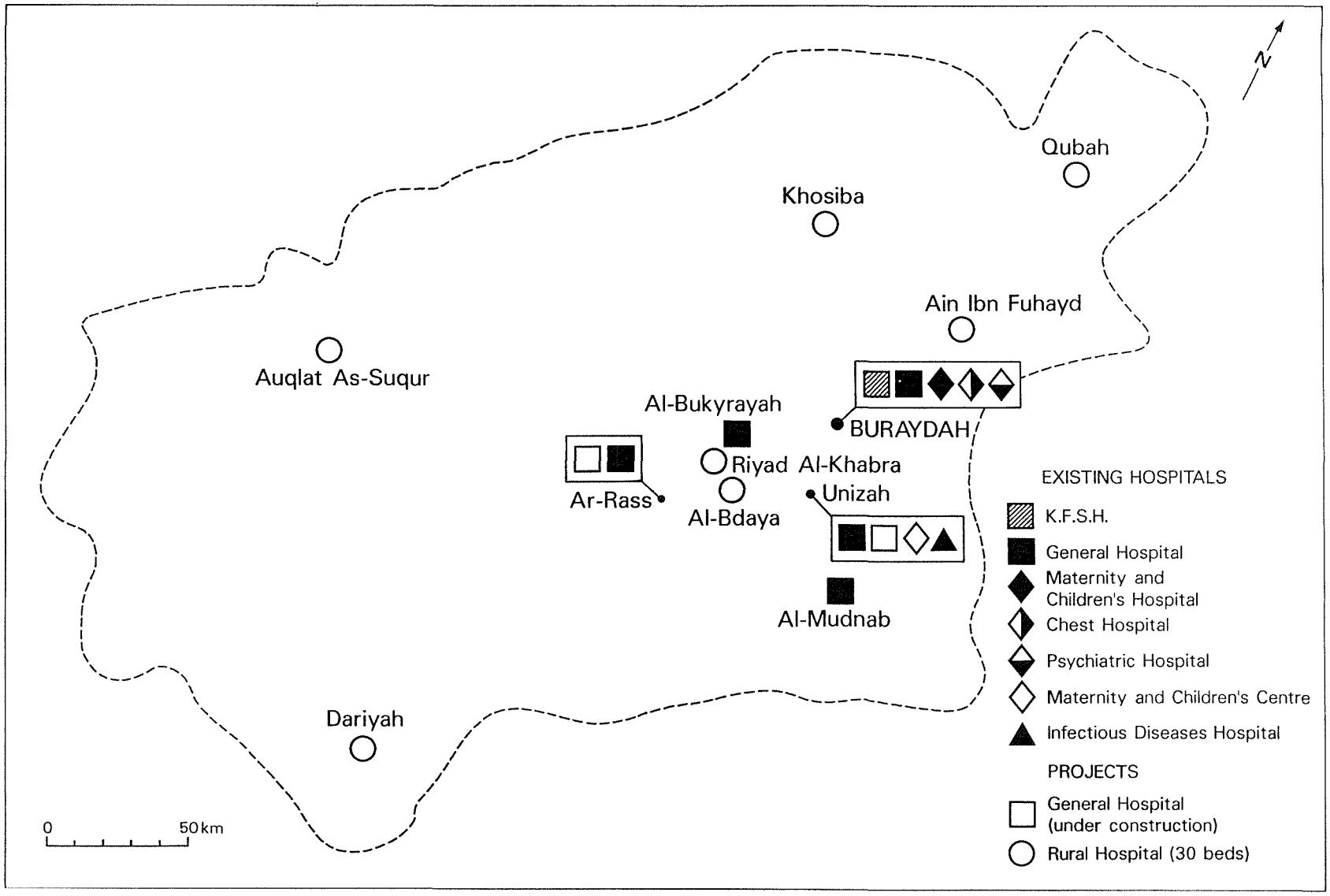


Figure 8.4 Distribution of existing Hospitals and projected Hospitals in Al-Qassim

and 28 technicians, while Al-Bukyrayah has 110 beds with 46 doctors, 136 nurses, and 48 technicians to provide a similar range of services and patient throughput. This variation in their staff levels probably reflects the inadequate organization and planning rather than different needs in each hospital.

As is to be expected the special hospitals have less favourable ratios of staff to beds than the general hospitals because more of the patients are long-stay. The average is 4.4 beds per physician, but this rises to 8.3 beds per physician in the psychiatric hospital and 6.3 in the infectious diseases hospital. A similar pattern is found with other staff.

Similarly, physicians in Buraydah Central Hospital have more assistants available to them than the doctors at other hospitals, reflecting the greater variety of work done at this hospital. Fuller details of these staffing level are given in Table **8.6.**

8.2.1.2 Primary Health Care Centres:

It is now necessary to consider the pattern of primary health care centres which form the lower part of the health delivery system in the Province. This is done in rather more detail because the field survey is focused on this part of the system. As the pattern of health care centres has expanded - there were 123 at the time of the field survey - the status of many of them has also been upgraded with more staff, equipment, and functions. The change since 1973, when detailed records first become available, is marked. In 1973 there were only 47 health centres in Al-Qassim, 34 of which were only small health points, often run by a nurse or two. Many were more like a dispensary than a health point providing only very basic care. They were also limited in their distribution to the larger population centres (Fig. **8.5**). By

Table 8.6 Ratios of Hospital Beds to Health Professionals in Al-Qassim's Hospitals, 1987

Hospital	Bed Per			Nurses & Techn. Per Physician
	Physicians	Nurses	Techn.	
General H.				
1- Unizah	2.5	1.6	2.3	2.7
2- Ar-Rass	3.2	1.3	2.8	2.8
3- Al-Mudnab	3.5	1.7	4.9	2.8
4- Al-Bukyrayah	2.4	0.8	2.3	4.0
Central H.				
5- Buraydah C.H.	2.7	0.8	2.5	4.5
Sub-total	2.8	1.1	2.7	3.7
Special H.				
6- Unizah Infections H.	6.3	3.2	7.7	4.3
7- Buraydah Psychiatric	8.3	1.9	5.3	6.0
8- Buraydah Chest .D.H.	5.0	2.5	4.2	3.7
9- Buraydah Maternity & C.Hospital	2.8	1.2	3.3	3.3
*- Unizah M & C. Centre	3.6	1.3	8.9	3.1
Sub-total	4.4	1.6	4.7	3.7
Total	3.2	1.2	3.2	3.7

Source: Author's Field Survey, 1987.
* A part of Unizah General Hospital.

1980, in contrast, there were 82 health centres including 2 district health centres, both in Buraydah; 14 grade A centres; 37 grade B centres; and 29 health points. By then health services reached a number of the remote areas and small settlements as Fig. **8.6** shows.

Even more growth in quality and quantity of facilities took place after 1980, following the re-organization of the M.o.H. and a decision to concentrate more on preventive medicine. Under this re-organization, as indicated earlier, health facilities were graded into 4 classes from the highest grade 4, down to grade 1. Recently further re-organization has seen the current 123 health centres re-graded into 5 types. These are shown in Fig. **8.7**, and include: seven diagnosis and maternity centres. These are located in the main population centres outside of the main cities where hospital outpatient department can provide these services; five grade 4 centres or district clinics. All of these are in the major cities. Three are in Buraydah and two in Unizah; three grade 3 centres located in larger places without diagnosis and maternity centres; 12 centres of grade 2, located either in certain city districts or medium size villages; and 96 centres of grade 1, some located in various city districts but most in small settlements scattered across the province.

Generally the grading of the health centres reflects their importance, the facilities and the demand placed on them. But this does not always follow. Some low grade health centres have more manpower and equipment than health centres of higher grades. For example, the As-Sfra'a grade 1 centre in Buraydah has twice as many doctors and receives twice the number of patients as Al-Matta'a centre, also in Buraydah, which is a grade 2 centre. Some of the anomalies reflect different urban and rural needs and levels of demand. For example, the Bdaya-Az-Dhabtan health centre, a grade 2 centre, located in Dariyah sub-emirate, was found not to be equipped as well as most grade 1 centres in the major cities. But then it

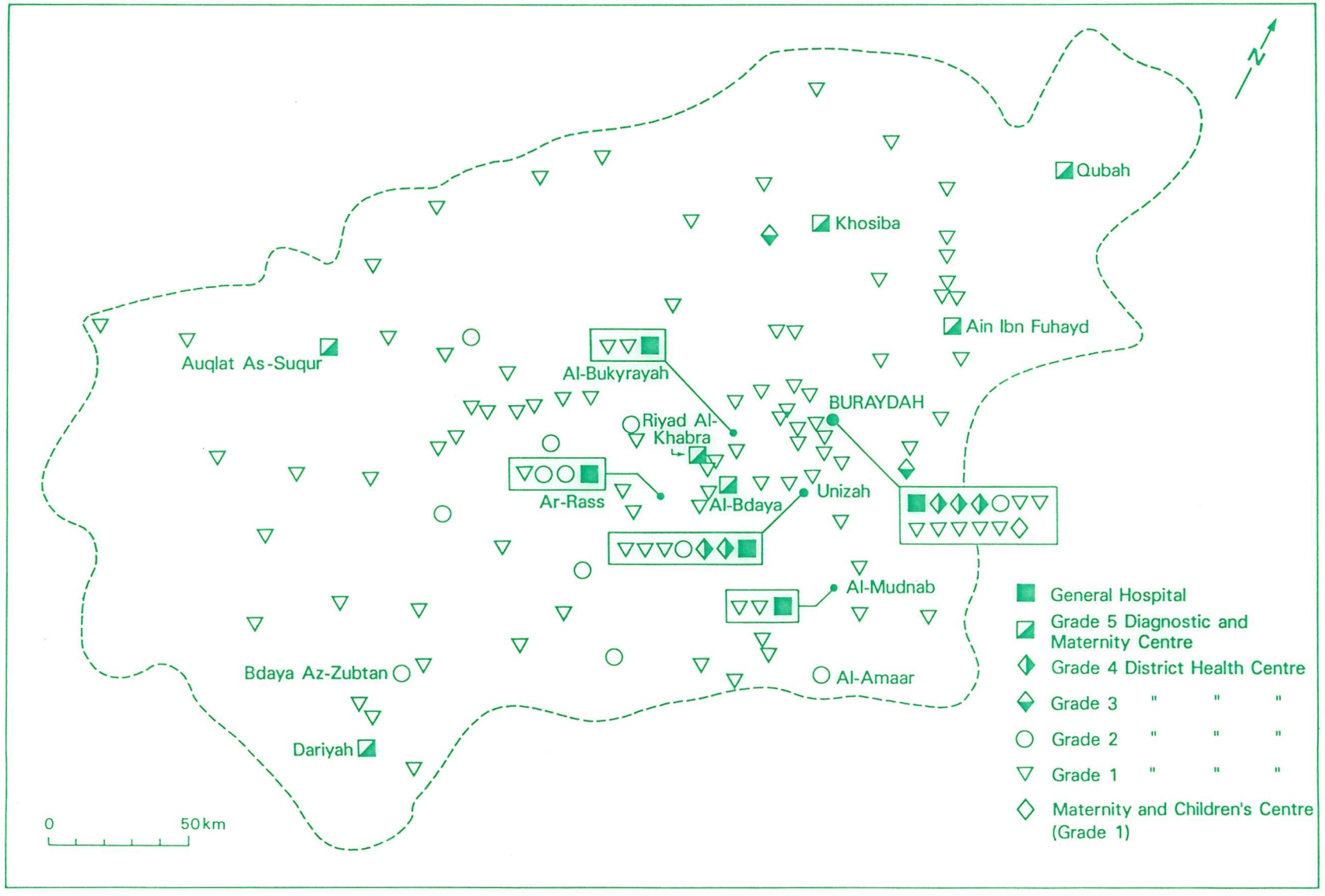


Figure 8.7 Distribution of M.O.H. General Hospitals and Health Centres by Grade, 1987

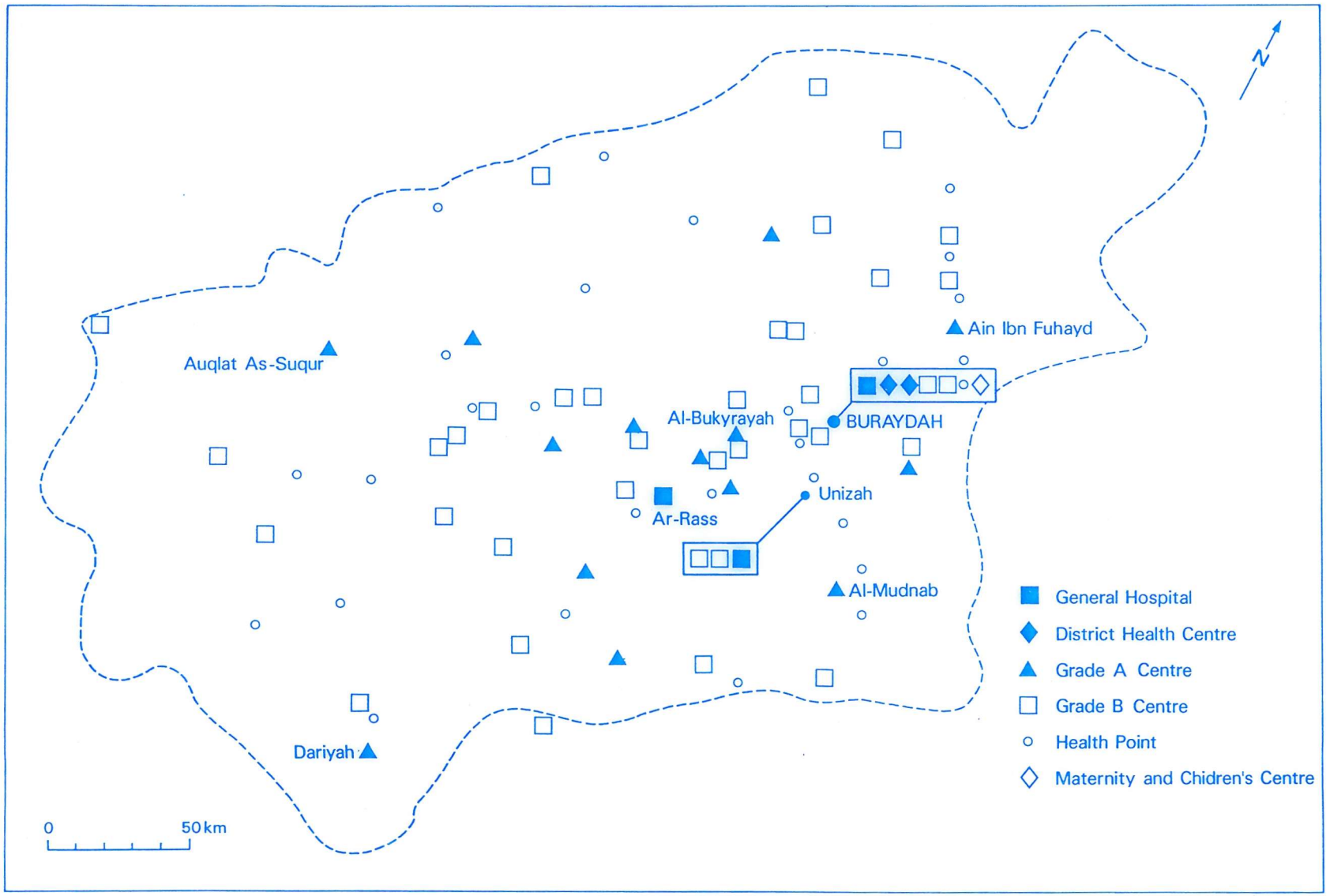


Figure 8.6 Distribution of M.O.H. General Hospitals and Health Centres by Grade, 1980

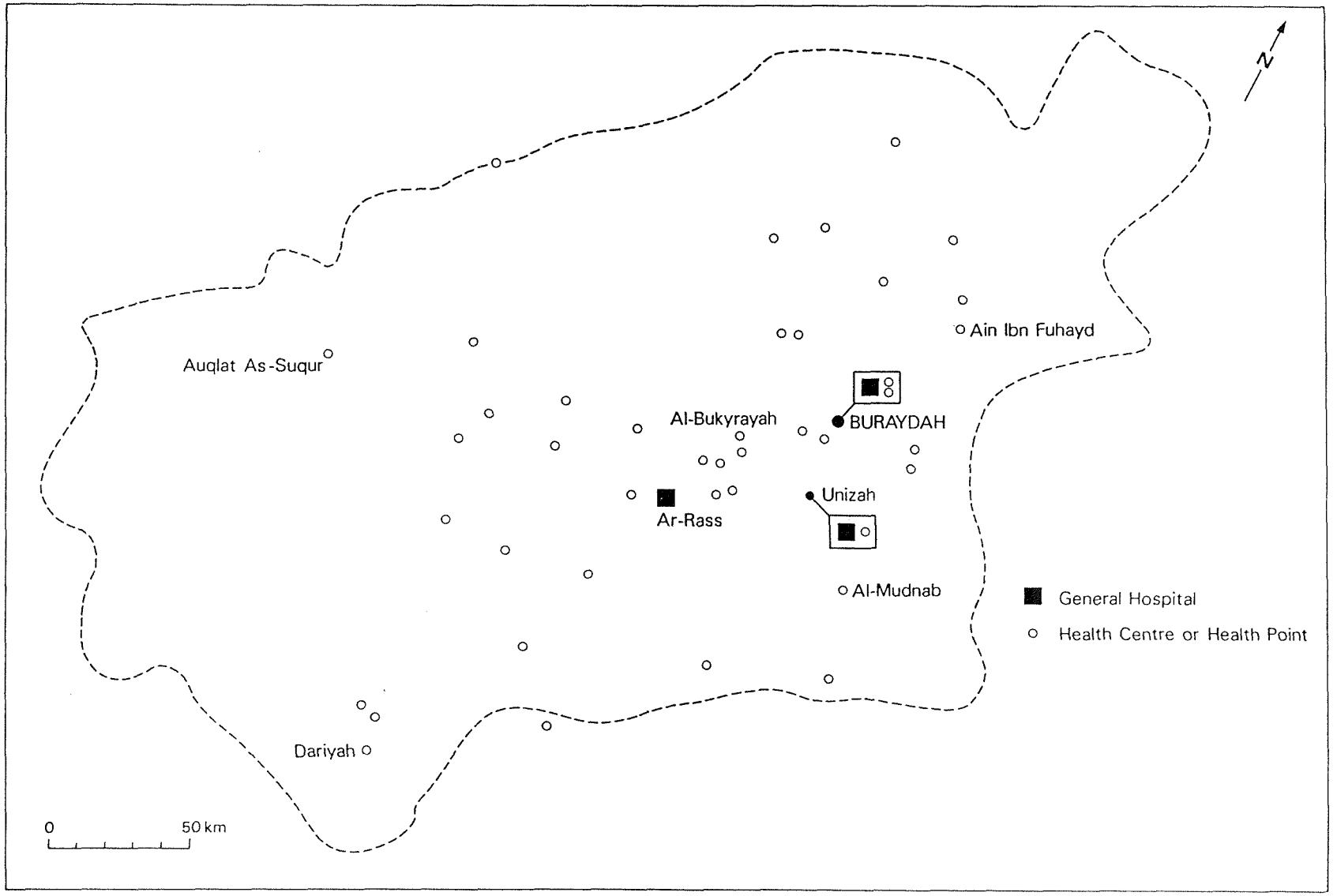


Figure 8.5 Distribution of M.O.H. General Hospitals,Health Centres and Health Points, 1973

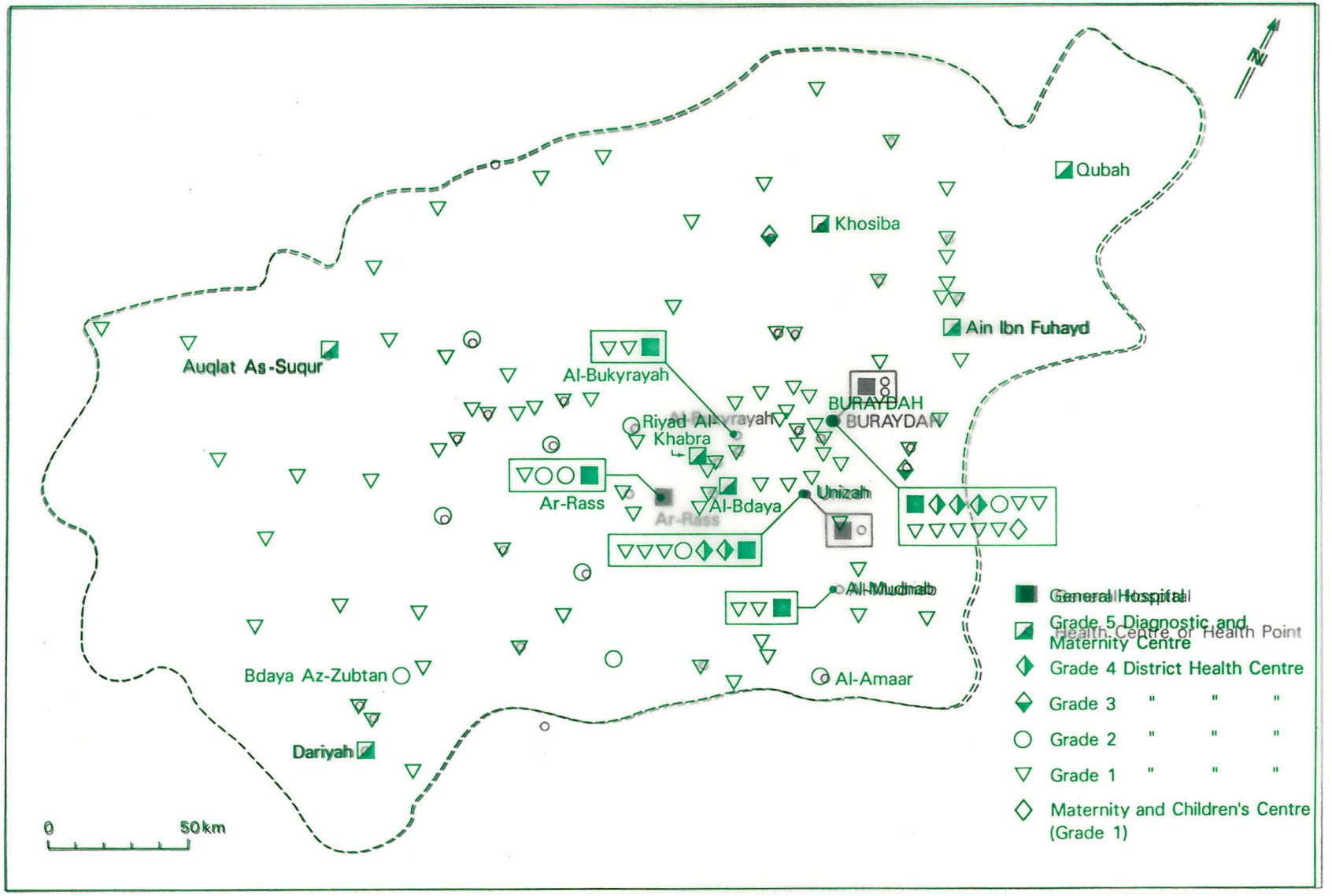


Figure 8.7 Distribution of M.O.H. General Hospitals and Health Centres by Grade, 1987/1973

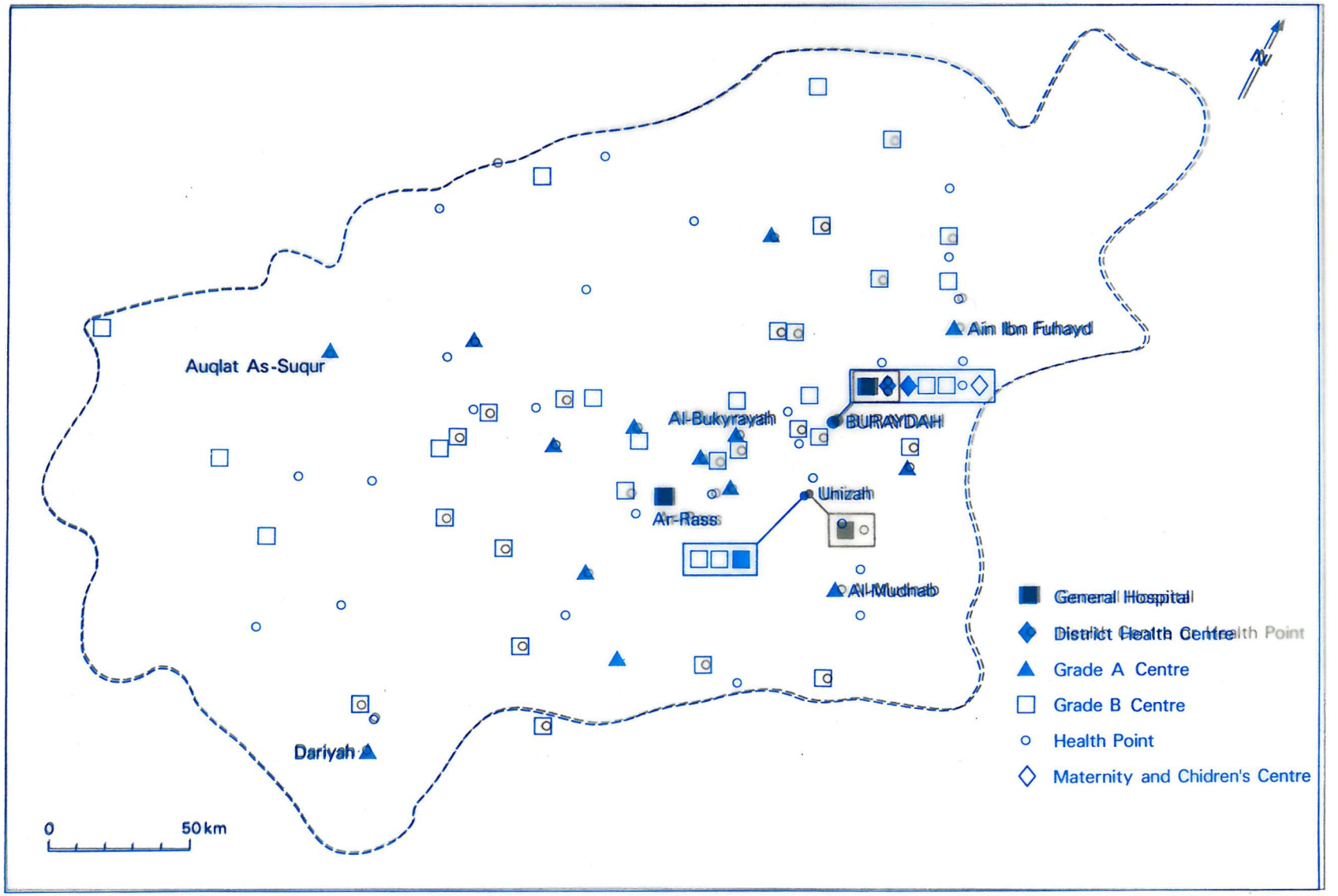


Figure 8.6 Distribution of M.O.H. General Hospitals and Health Centres by Grade, 1980 1973

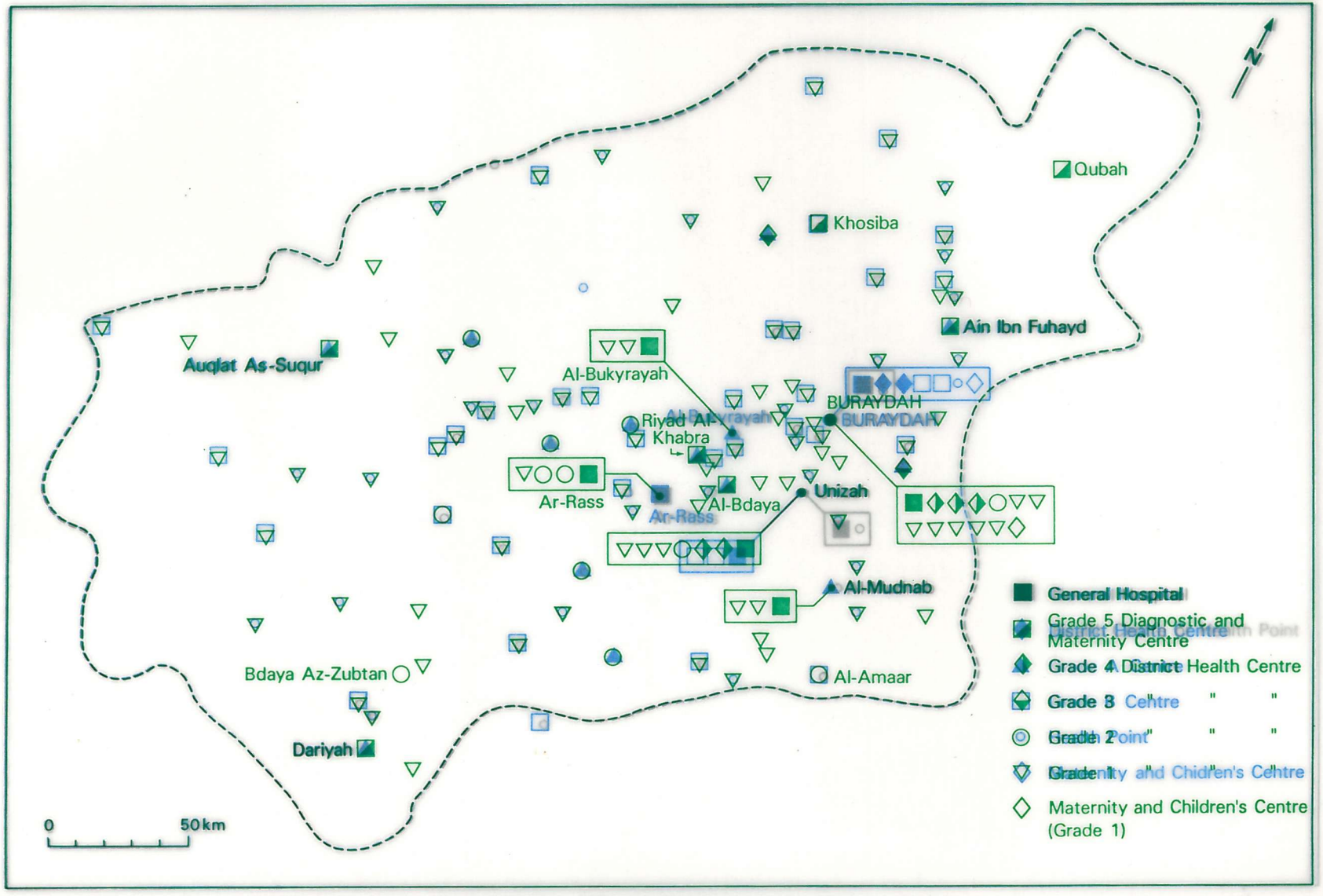


Figure 8.7 Distribution of M.O.H. General Hospitals and Health Centres by Grade, 1987

received only 5,000 patient visits in 1986, or about 8 per cent of the patient visits to As-Sfra'a health centre (grade 1) in Buraydah. The health authorities in the Province seem to be aware of these anomalies and may ignore official gradings and try to meet local demands on a clinic by increasing staff and facilities without necessarily upgrading its status. This is because upgrading requires a bureaucratic administrative decree by the M.o.H. in Riyadh.

Generally the data also reveals that the higher grade centres have more facilities, but the relationship is not a clear one. 28 per cent of the centres in the Province are equipped with dentistry units, 33 per cent with primary pathology laboratories, and 17 per cent are equipped with radiology units. Most of these better equipped centres are located in major settlements, but they are not all classed as higher grade centres. Similarly in 1987 there were 315 doctors, mainly general practitioners, 619 nurses, 276 technicians, and 417 administrative persons and labourers working in the 123 centres. This gives an average of 2.6 doctors, 5 nurses, and 2.2 technicians per health centre. But most health centres in small settlements only have one physician, while some centres in the main cities and settlements have up to ten, no matter their grade.

The 123 health centres in 1987 were distributed in 103 population centres. 98 settlements have a single health centres, which is the only local health resource available to their population. 25 health centres were located in the five main towns.

Virtually every village of 500 population, and some with less than 500 people have a health centre [35]. In contrast the urban populations are not always served as well if the size of the population is taken into accounted. Even though almost 20 per cent of the health centres of Al-Qassim, a large general hospital and all the specialist hospitals, are

concentrated in a radius of 15 km. of Buraydah, approximately 40 per cent of the population is found in that radius. One reason for the apparent under-provision in the urban areas is that the urban population has grown faster than the rural, and it was thought hospital outpatient departments would provide much of the primary health care needs of the urban population. But these outpatient departments in the urban centres came under great pressure and more provision was needed. Hence 25 health centres are found in the five major towns, all of which have hospitals as well. Buraydah alone has 12 health centres, Unizah has six, Ar-Rass has three, Al-Bukyrayah and Al-Mudnab have two each. Yet those centres are all under pressure compared with those in rural areas. The Director of Health Centres in Al-Qassim, in an interview with the writer, said that the region has been allocated funds for eight more health centres during 1989. All would be opened in cities, five in Buraydah, two in Unizah, and one in Ar-Rass [36].

8.2.2 Health Services Provided by Other Government Agencies:

It was pointed out earlier that other government departments, as well as the private sector, provide some health services in Al-Qassim. These will be referred to only briefly here since they together offer less cover than the M.o.H. and were not dealt with in the writer's field survey to any extent. The geographical concentration of these additional facilities in central Al-Qassim is shown in Fig. **8.8.**

8.2.2.1 School And University Health Units:

There are nine school health units for boys and three for girls, all located in the main towns. These units provide basic treatment and preventive health care to school students and the employees of the education sector in the region, but the total number of visits in 1986 - 66,000 visits by male students and staff to the M.o.E. health units, and 23,000 by females to the girls' education health units - was small

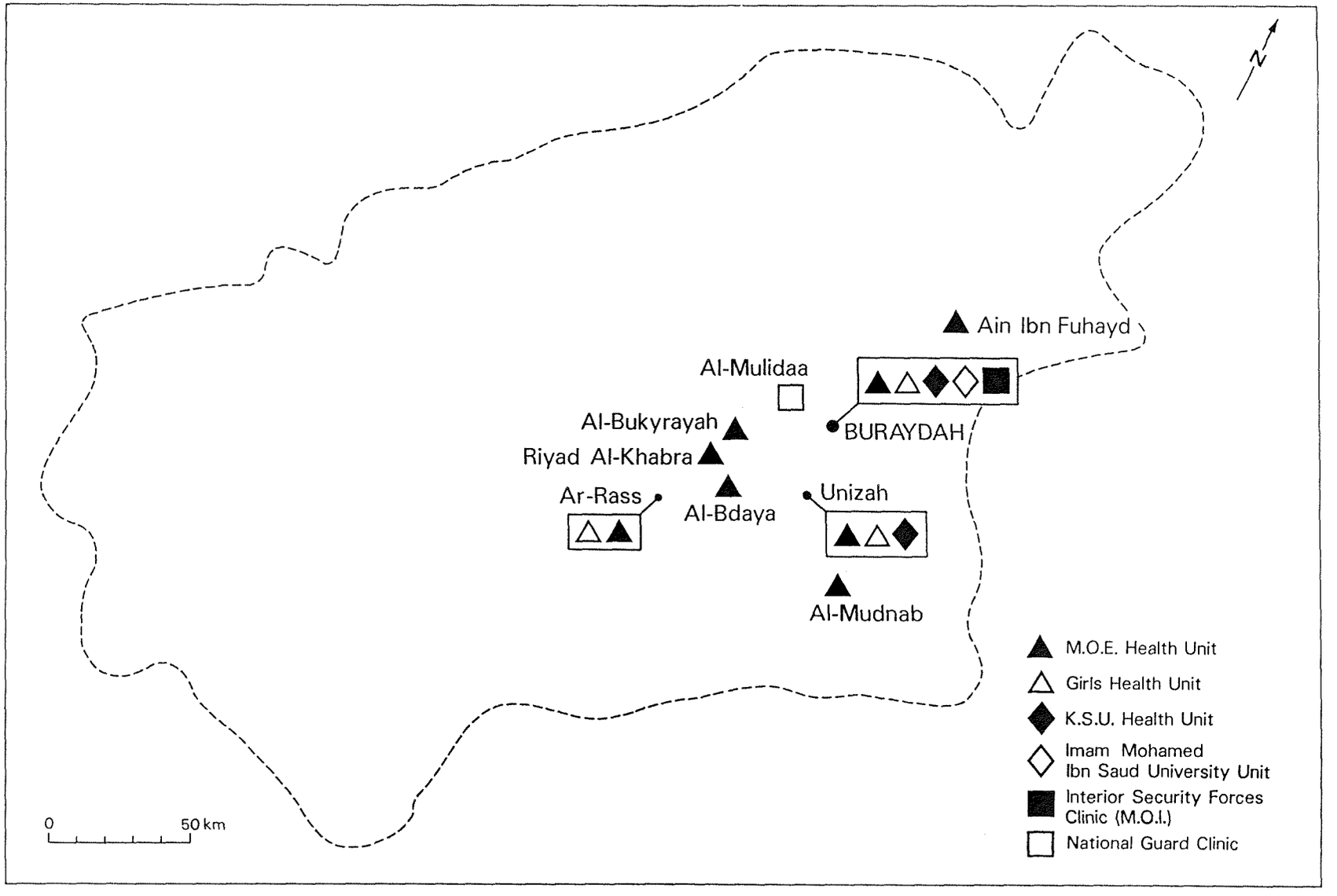


Figure 8.8 Distribution of Health Units and Clinics provided by other Government Agencies, 1987

compared with the number of users of M.o.H. facilities. This number represented less than 3 per cent of all visits to M.o.H. clinics.

The King Saud University branch campus in Al-Qassim has two health units, one at Buraydah and one at Unizah, and the Imam Mohammed Ibn Saud University has a health unit situated on its Buraydah campus to provide services to students, university employees and their families. A total of 39 physicians and 55 nurses and technicians serve in the school and university health units.

8.2.2.2 Ministry of Interior and National Guard Health Centres:

The Interior Security Forces of the Ministry of Interior (M.o.I) opened a clinic in Buraydah in 1982. Although this clinic is only supposed to provide services for the employees of the M.o.I. and their families, it actually also provides these services to other people particularly from the neighbouring districts. This is the largest single health centre in Al-Qassim, and larger than any of the M.o.H. health centres. Its 15 physicians cover a range of specialities and include three female doctors. All the physicians are Egyptians. In an interview with the writer, the deputy director of the health centre stated that the clinic received 77,000 visits in the last six months of 1986 and the first six months of 1987. This is about 2 per cent of all visits to M.o.H clinics. 48 per cent of patients were adult males, 25 per cent adult females, and 27 per cent children. The two dentists deal with a monthly average of 700 patients and the laboratory runs tests for an average of 1,500 patients per month.

The National Guard Clinic in their barracks near Al-Qassim regional airport, 25 km. west of Buraydah, mainly provides services for the National Guard staff and families in Al-

Qassim, but because it is located in a rural area on a main road, it also services the population of the neighbouring villages and passers-by. These account for about 12 per cent of the total users. In the first six months of 1987, the number of visitors to this centre was 6300, of which 52 per cent were adult males, 28 per cent adult females, and 20 per cent children.

8.2.3 The Private Sector:

The private clinic sector is quite well established in Al-Qassim, but because profit plays a major role in the location of the private sector health establishments, clinics tend to be placed in the highly populated and more prosperous areas. There are no private hospitals. Hence the total contribution of the private sector to the health services in Al-Qassim is quite small and localised and is certainly not comparable to that in Riyadh or Jeddah. In 1986 the number of patient visits to private health centres was only about 3 per cent of visits to M.o.H clinics. Until the early 1980s private sector services were limited to a few doctors operating in their private surgeries in Buraydah and Unizah. But as the expansion of the public system could not keep up with demand resulting from the rapid growth of the economy, and the arrival of large amounts of foreign labour in Al-Qassim, the government encouraged the setting up of private health establishments to spread the pressure. Easy payment government loans were available to set up private clinics. By 1987 there were 13 clinics with 67 physicians and 72 other medical staff, to give an average of five doctors per clinic. Six of these clinics are in Buraydah, three in Unizah, two in Ar-Rass, and one in Al-Bukyrayah. The only private clinic not in a major city is in the village of Dukhnah, in south Al-Qassim. The Al-Birr Charitable Society supervises a small clinic with two doctors and eight medical assistants in Al-Bdaya town. Fig. **8.9** shows the urban concentration of these clinics.

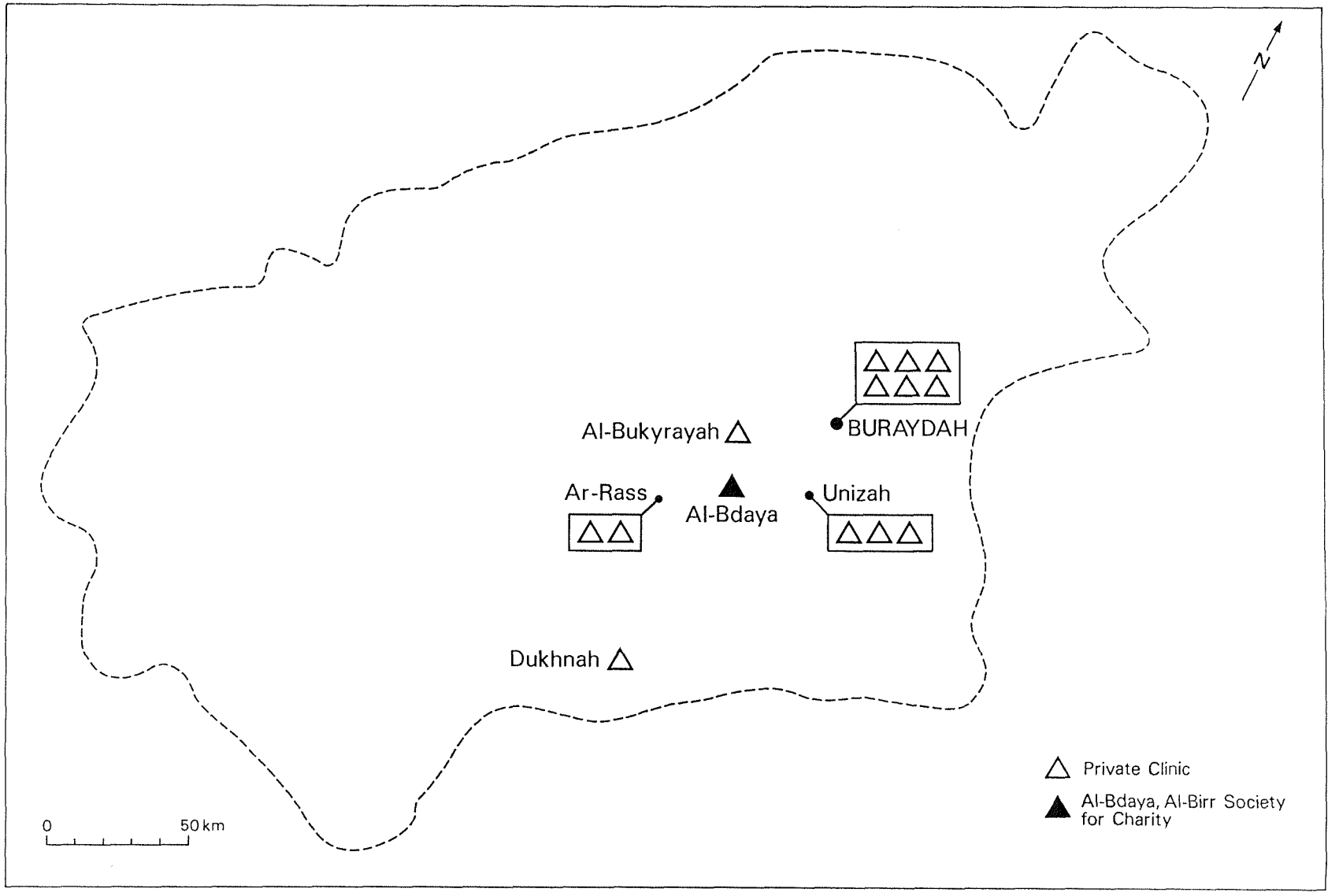


Figure 8.9 Distribution of Private Sector Health Centres, 1987

Private clinics have the same general characteristics as the government health centres, but with a few more specialists. Over a third of the private physicians are general practitioners, but 20 per cent are abdominal specialists, 20 per cent are dentists, and the rest are paediatricians, obstetricians, cardiologists, ophthalmologists and dermatologists. All medical staff are non-Saudi. Because they rely on fee paying patients the private clinics are often better run, and probably offer better care than the M.o.H. clinics. Some provide treatment services for the employees of certain private companies and their families, because these firms are obliged by law to insure their employees medically [37].

There are also five physicians in Unizah, three in Buraydah, and one in Ar-Rass who work independently in their own surgeries, without assistants and with modest equipment. Some of these physicians have been operating in the same location for 20 years or more. These surgeries operate rather haphazardly. No appointments are necessary and none keep medical records on their patients. Some surgeries get over-crowded and some have erratic hours of opening.

Opticians and pharmacies form part of the private health sector and need only brief mention. There are eight opticians in the region. They are all equipped with eye test machines and they provide their services and supply spectacles for a fee. All are in the main cities. The distribution of pharmacies is also limited to the major towns but their number is increasing. In 1980 there were 12 pharmacies in the region, but there were over 50 by 1987. 21 were in Buraydah, seven each in Unizah and Ar-Rass, and two in each of Al-Bukyrayah and Al-Bdaya. The remainder are distributed in the other main settlements [38].

8.2.4 The Red Crescent (Ambulance Emergency Services):

The major task of providing ambulance and emergency collection services falls to the Red Crescent, although the regional hospitals and some of its health centres have their own ambulances. The Society of the Red Crescent was established in Saudi Arabia in 1963, and opened its first emergency centre in Al-Qassim at Buraydah in 1966. There are now 11 Red Crescent centres in the province. Fig. **8.10** shows that their distribution is largely in the major cities or on the main routes which link the region with other parts of the Kingdom because this gives them greater mobility to deal with emergency cases, especially road accidents. There is still a need for more centres in the outlying areas in association with the extensive and developing road network.

Each centre has a fleet of ambulances equipped with emergency medical equipment. Their main task is to share with the emergency departments of the M.o.H. hospitals to move quickly the victims of road accidents and other emergencies to hospitals. For example, in June 1987, the Red Crescent units in Al-Qassim moved 176 cases, 15 per cent of which were road accident victims. The two main problems the Red Crescent confronts is the lack of a telephone network, and the lack of emergency telephones on the roads, for communication between their stations, their vehicles and hospitals. The teams have not yet received sufficient para-medical training and, as a result, many road accident victims die before they reach hospital.

8.3 USE OF HEALTH SERVICES IN AL-QASSIM:

With the recent large scale growth of a range of health care services in the Province it would be useful to be able to examine their patterns of use and any changes in those patterns in recent years. There is, however, almost no readily available data on use levels at the local scale so

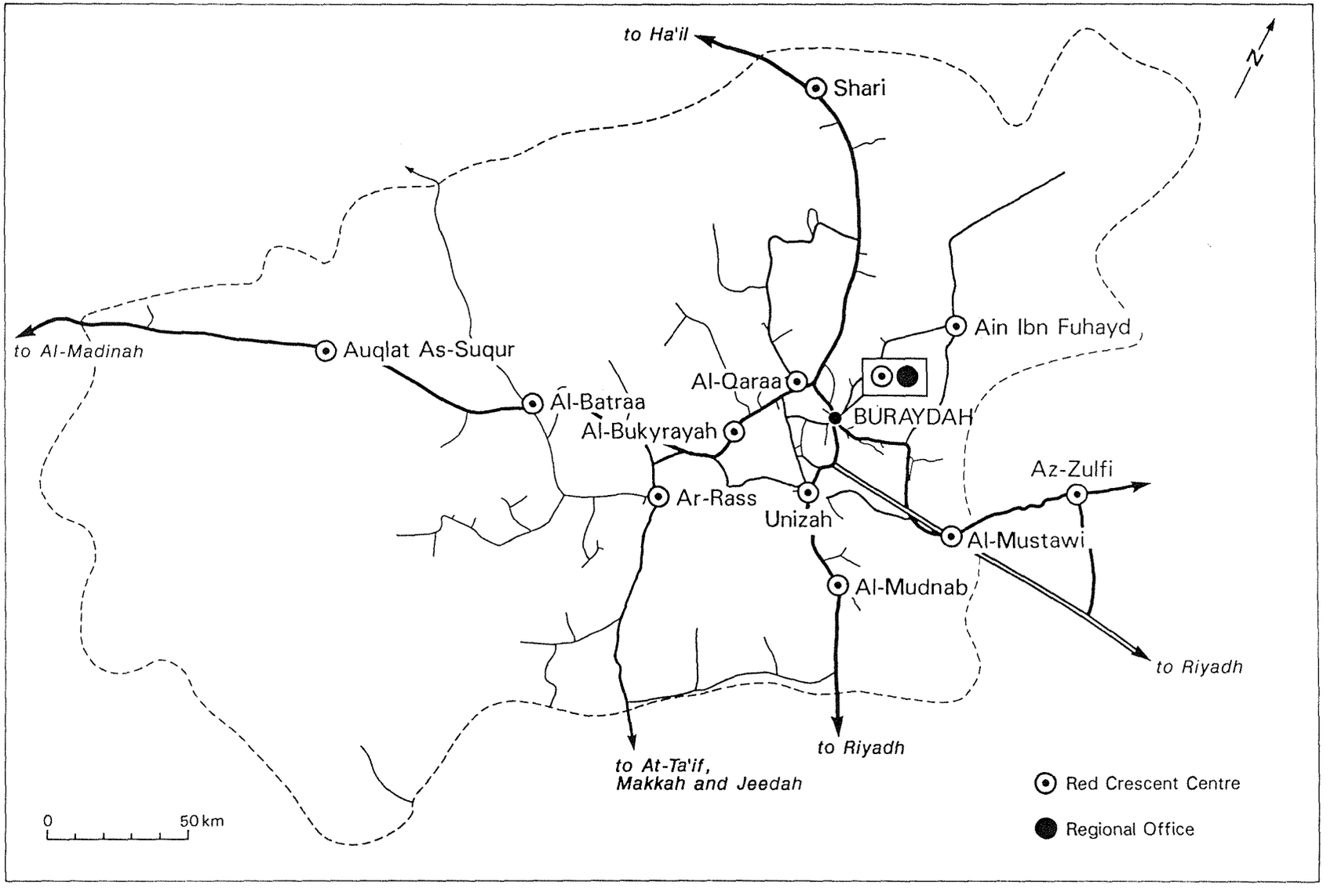


Figure 8.10 Distribution of Red Crescent Centres, 1987

that this final section of the chapter can only indicate general patterns based on unpublished raw data collected from the Statistics Department at Al-Qassim Health Directorate. Much more detail is provided in the next chapter on the basis of the analysis of writer's field data.

In the last two decades the health resources in Al-Qassim have developed much faster than in the Kingdom. Their use has also increased faster than at the national level. Table **8.7** shows the services are used at a higher level than are those in the rest of the country. While in 1973 the rate of hospital admissions was 260/10,000 persons in Al-Qassim, by 1986 the rate had risen to 958/10,000 persons. This compares to 759/10,000 for the Kingdom. Similarly the average number of all visits to primary health care services (hospital outpatients and health centres) per 100 persons in Al-Qassim increased from 187/100 in 1973 to 628/100 persons per year in 1986 a 119 per cent increase, compared with 93 per cent for the Kingdom. That is, whereas people in Al-Qassim made an average of 6.3 visits for primary care in 1986, the figure was less than five for the whole country. With more visits made to the doctors for primary care in recent years, and with an increasing number of primary health care centres, the balance between the number of visits made has shifted significantly from hospital outpatient departments to health centres. Of the total 3.5 million visits to M.o.H. doctors made by Al-Qassim people in 1986, 36 per cent were to hospital outpatients departments, and the rest to the health centres. In the early 1970s nearly 80 per cent of visits to primary care were to the hospital outpatient departments [39].

Adult males made up a larger than average share of the patients in 1986. 38 per cent were adult males, 30 per cent adult females, and 32 per cent children (12 years or less). Compared to the proportions of the total population in the 1974 census (29.7%, 27.3%, and 43.0% respectively), it is obvious that visit rates of adult males were unusually high

Table 8.7 A. Average Number of Visits per Year to M.o.H. Doctors in Hospital Outpatient Clinics and Health Centres in the Kingdom and in Al-Qassim Region, 1973, 1980 and 1986 (per 100 persons).

	1973			1980			1986			% change 1973-1986
	Hospital	H.C	Total	Hospital	H.C	Total	Hospital	H.C	Total	
Al-Qassim	223	64	287	169	231	400	228	400	628	119
The Kingdom	130	120	250	151	183	334	179	303	482	093

Table 8.7 B. Average Number of Inpatients Admitted to Inpatients Departments at M.o.H. Hospitals in the Kingdom and in Al-Qassim Region, 1973, 1980 and 1986 (per 10,000 persons).

	1973	1980	1986	% change 1973-1986
Al-Qassim	260	508	958	268
The Kingdom	280	434	759	171

Source: Figures in these tables were computed by the writer using the number of inpatients and outpatients in Table 8.2 and estimated populations based on the 1974 census.

while the visit rate of children was probably less than it should be, especially since the child proportion of the population has probably increased markedly since 1974. The high proportion of adult males using the services probably results because they can drive themselves to health centres, and possibly because they are more subject to illnesses due to the nature of their work. But the influence of easier accessibility to health centres for men becomes more apparent when one compares the use of health services closer and further from where people live. Because there are few hospital outpatient departments, their users mostly need transport to get there. Hence adult male use of outpatient department is particularly high. 41 per cent of hospital outpatient visits were by adult males but it should also be noted that women use hospital outpatient department more than health centres, probably because hospitals have a larger female medical staff and can provide for their needs better. In contrast children form a rather larger share (36 per cent) of users of health centres (Fig. **8.11**).

Urban children in particular visit health centres more frequently than the children in rural areas. For example, children accounted for 44, 40, and 35 per cent respectively of all visitors to health centres in the towns of Buraydah, Unizah and Ar-Rass in 1987. Easy accessibility, often on foot, to these city health centres means family members can take the children to the nearby clinic without the need for transport. Similarly women and children visitor are more numerous than men visitors to health centres in some small villages when the services can be reached on foot.

It is also clear that health centres in the main urban areas now attract most patients even though there are also hospital outpatient departments nearby offering the same services. For example, about one quarter of the total number of visits to health centres in Al-Qassim in 1987, were to health centres in Buraydah sub-emirate which has 21 health centres or 17 per

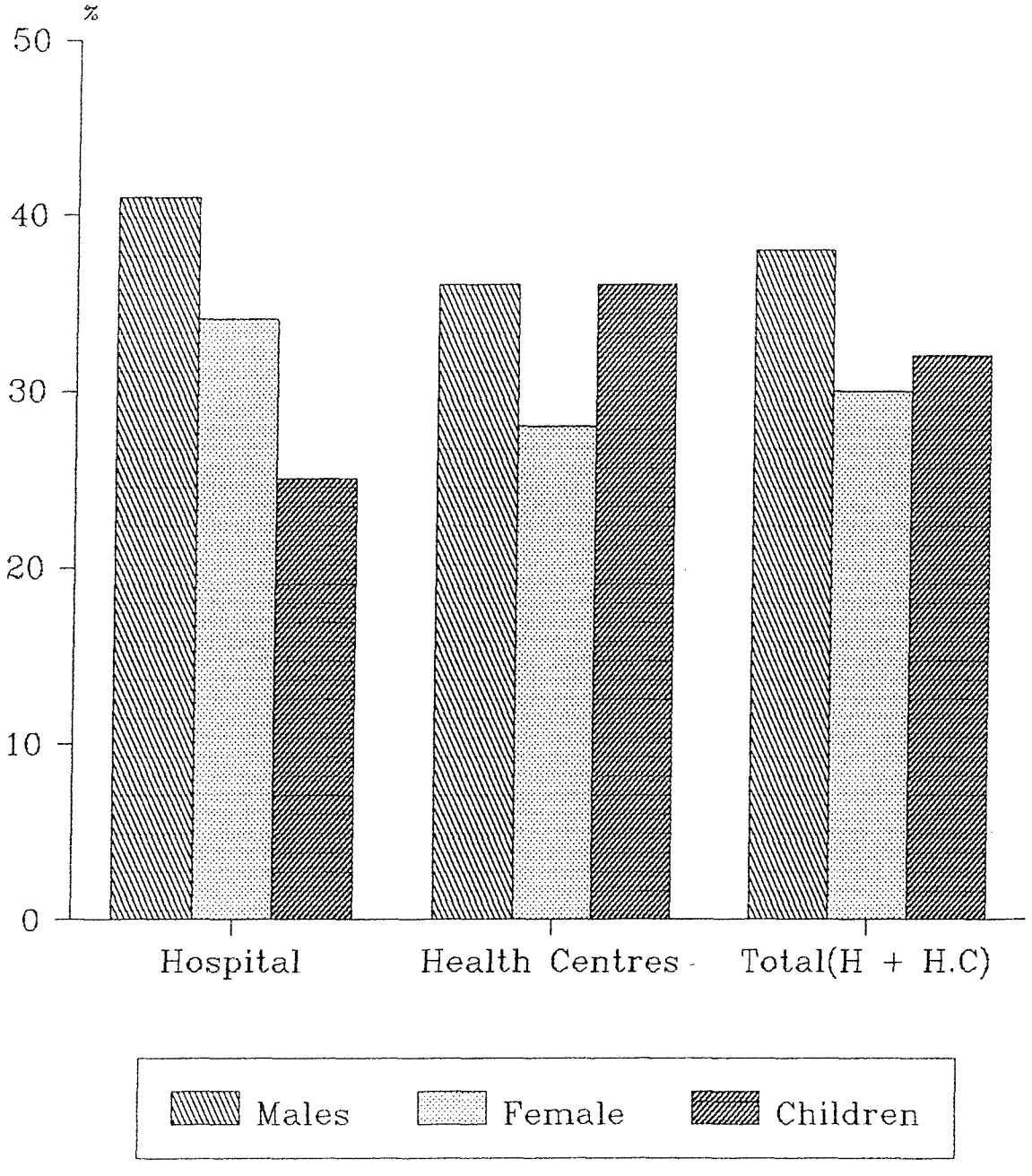


Figure 8.11 Distribution of visits to Primary Health Care Services in Al-Qassim by sex, 1986

cent of total centres in the region. Almost three quarters of those visits took place in the health centres in Buraydah City itself (12 health centres), even though the city has hospitals with outpatient departments offering primary health care which the people can (and do) use [40]. Of course, one would expect this concentration of use of facilities in the main city in the region since about one third of Al-Qassim's population is also found there [41]. But it demonstrates that urban patients no longer rely on the hospital outpatient departments for all their primary care. The lowest total number of visits to health centres in any one sub-emirate was found in Qubah where the visits to the single health centre formed only 1.9 per cent of the total visits to health centres in the whole of Al-Qassim, although Qubah sub-emirate accounted for about 4.5 per cent of Al-Qassim's total population in 1974 [42].

When the number of visits to individual centres is examined, it is clear that the most frequented health centres are generally the urban ones. For example, As-Sfra'a district health centre in Buraydah had 57,000 visits in 1987. But the main health centres in smaller places with no hospital such as that in Al-Bdaya Al-Wasta and Riyadh Al-Khabra, or the main clinic in more rural sub-emirate centres (like Dariyah) can also get more heavy use. Each had over 50,000 visits in 1987. In 34 centres the number of visits ranged between 20-50,000; in 39 other centres between 10-20,000; and in 27 health centres between 5-10,000. The smallest 18 centres each had less than 5,000 patients per year [43].

It was because the outpatient department in M.o.H. hospitals were coming under a great deal of pressure in the 1970s and 1980s that the number of health centres in the towns was increased. It is clear that the development of considerable numbers of urban health centres has helped to relieve pressure on hospital outpatient departments. At the same time the existence of hospital outpatient departments, to which

patients can go without a referral, takes some of the pressure off the urban health centres. Thus, in the urban areas there is a dual system of primary health care, both parts of which appear to be under considerable pressure. In rural areas the total pressure is probably less in most centres because the population is smaller and is less health conscious. Here the problem is not so much the number of centres provided, rather the low quality of the services that are offered. The next chapter will examine these patterns of provision and use in more detail for a sample of centres in the Province.

CHAPTER NINE

HEALTH SERVICES IN THE STUDY AREAS

The previous chapter attempted to give a general overview of the provision of health services in Al-Qassim province, and pointed to different patterns across urban and rural areas, and in comparison with the rest of the Kingdom. Further analysis of the services and their use requires a focus on the sample of areas described in Chapter Six. This chapter details the characteristics of the health services in the chosen sub-emirates to prepare the way for an analysis of the questionnaire data on the use made of the services in the later chapters. As Chapter Six explained primary health care services were examined in the field in the five sub-emirates of Dariyah, Al-Asyah/Qubah (treated as one area), Al-Mudnab, and Buraydah which was divided into Buraydah Rural and Buraydah City. Their locations were shown in Fig. **6.1**.

Table **9.1** lists the health centres and hospitals in the selected study areas compared with the total number in the region. The concentration of many of the region's facilities in Buraydah City is immediately clear. As indicated in Chapter Six the selected areas include two general hospitals, one in each of Buraydah and Al-Mudnab. Also in Buraydah are three specialist hospitals and the new regional specialist hospital. A quarter of the 48 sampled centres are in Buraydah City, which also has six private clinics. Each of the other selected areas has several M.o.H. clinics but in most areas these are the only health facilities available.

The sample survey of health centre users involved 23 of the 48 M.o.H. health centres and two hospital outpatient clinics. One of the other government clinic (the Interior Security Forces Health Clinic in Buraydah) and three of the six private clinics were also included. No questionnaires were conducted

Table 9.1 Distribution of Health Centres and Hospitals, by Agencies in Al-Qassim Region and in the Selected Sub-Emirates

Sub-emirate	Al-Qassim Total	Dariyah Emirate	Al-Asyah & Qubah Emirates	Al-Mudnab Emirate	Buraydah.E		Total in sample Emirates (**)	Total Sampled for out-patients clinics(*)
					Rural	City		
M.o.H Health.C	123	8	10	9	9	12	48	23
General & Central.H	5			1		1	2	2
Regional Specialist Hospitals	4					3	3	-
K.F.S.H	1					1	1	-
Other Gov. Agencies Clinics	2				1	1	2	1
Boys H. Units	9		1	1		1	3	-
Girls H. Units	3					1	1	-
Univ H. Units	3					2	2	-
Private H.C.	13					6	6	3

Source: Author's Field Survey, 1987.

(**) Figures in this column indicate the total number of health facilities in the five sub-emirates, while figures in the last column show the numbers of health centres and hospitals chosen for the distribution of the questionnaires to outpatients.

(*) 23 Health Centres of the M.o.H., (four in Dariyah, five in Al-Asyah/Qubah, six in Al-Mudnab, three in Buraydah Rural, and five in Buraydah City) in additional to Buraydah Central Hospital, Al-Mudnab General Hospital, the M.o.I. Clinic in Buraydah and three private health centres also in Buraydah, were chosen for the distribution of the questionnaires to outpatients.

at the university and school health units as they provide mainly limited seasonal services. The analysis of the questionnaire survey is reported in the next three chapters. In this chapter the characteristics of the main health centres facilities in the chosen sub-emirates are examined. These are the 48 M.o.H. health centres where the writer has attempted to understand their varied grading, facilities and levels of use. No analysis has been made of the non M.o.H. facilities.

9.1 CHARACTERISTICS AND FACILITIES OF HEALTH CENTRES:

9.1.1 Numbers and Grades of Selected Health Centres:

The last part of the last chapter indicated that while the urban areas create most of the health demand in Saudi Arabia the rural areas are now also well catered for. This is the case in the study region. Of the nine centres provided by the M.o.H. in Al-Mudnab sub-emirate, for example, only two are in the town. In the sub-emirates of Al-Asyah/Qubah there are ten health centres, one in each main village, and a similar situation is seen in Dariyah sub-emirate with its eight health centres. Buraydah City has 12 health centres. The selected sub-emirates are therefore predominantly rural areas with Buraydah City, and to much lesser extent Al-Mudnab, providing an urban contrast.

The writer gathered a variety of data on these 48 M.o.H. health centres in his five areas in order to better assess their pattern. Health centres in Al-Qassim generally occupy modern premises because most were set up in recent years. Over two thirds of health centres in the study area were only established during the last 15 years, and 42 per cent opened after 1980. Table **9.2** gives further details. The first units were set up in the larger older settlements but because of recent nomad sedentarization these older villages are not necessarily the largest settlements in their areas any longer. In Al-Asyah, for example, three of the longer-established

Table 9.2 Grade, Type of Building, and Years of Opening of Health Centres, by Sub-emirates

Sub-emirate	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City	Total
Total No of H.C.	8	10	9	9	12	48
Grade						
(5) Diagnosis & Maternity Centre.	1	2				3
(4)					3	3
(3)						-
(2)	1		1		1	3
(1)	6	8	8	9	8	39
Opening year						
Before 1965		3	2		1	6
65 - 69	2			1		3
70 - 74	1	2	2	2	1	8
75 - 79	2	2		2	5	11
80 - 87	3	3	5	4	5	20
Type of Building						
Villa	5	6	6	7	12	36
Traditional house	2	2	2	1		7
Prefabricated	1	1				2
Building built as H.C		1	1	1		3

Source: Author's Field Survey, 1987.

health centres were set up in three older neighbouring villages before 1965. Similarly, the first two health points in Dariyah opened over 20 years ago in two of the older settlements in the sub-emirate. In contrast health services did not reach Qubah, north of Al-Asyah, until 1980 because this is a relatively new settlement, although now one of the largest on the eastern borders of the province. The rapid growth in the centres over recent years reflects, of course, the objective of the M.o.H. to pay more attention to preventive health and primary care. This target can only be achieved in rural areas by providing a wide distribution of health centres as close to the scattered population as possible.

The distribution of centres reflects the population pattern in a general way but the grading of clinics is not so easily explicable. The presence of hospital outpatient departments in the towns of Buraydah and Al-Mudnab also complicate the pattern. Thus Buraydah City has 12 health centres of which three are grade 4, one is grade 2 and eight are grade 1 (the lowest grade). It also has a major hospital outpatient clinic. But Al-Mudnab is a much smaller town with a hospital so it only has two grade 1 health centres to supplement the hospital. Nearly all health centres in rural area sub-emirates are grade 1 centres reflecting the limited number of patients served by each. Table **9.2** shows the grades of the centres in the sampled areas. It shows that 39 of the 48 health centres in these areas are grade 1. This predominance of low grade centres is a pattern similar to that for the whole Province.

As was made clear earlier, in general terms the higher grade centres are found in the more important settlements. This is the case in the study areas. All three grades 5 centres (diagnosis and maternity centres) in the study areas are found in the capitals of their sub-emirates. But Buraydah City and Al-Mudnab, as the capitals of their sub-emirates, do not have

any grade 5 centres. This is probably because they have enough population to support general hospitals instead. Therefore the diagnosis and maternity centres are in Dariyah, Al-Asyah and Qubah where there are no hospitals. Even the grade 2 centres do not necessarily occur in the more important places in their areas. For example, Bdaya Az-Zubtan in Dariyah sub-emirate has a grade 2 centre although it is one of the smallest settlement in its area. In contrast Al-Amaar, south of Al-Mudnab, is a relatively large village which was also selected to provide other public services to the surrounding villages. But it only has a grade 2 health centre and probably warrants a higher grade centre.

9.1.2 The Types and Ownership of Health Centre Buildings:

The author's visits to the health centres showed that most centres occupy clean, modern buildings. Only seven of the 48 centres are in traditional buildings, but even those were in good condition. These health centres in traditional buildings are located in small villages where it would be difficult to find a suitable modern building and the small size of the clinics did not warrant providing a special building. The unsuitable design of originally residential buildings for health centre use can be a problem. Converted houses present problems of unsuitable room sizes, room arrangement, narrow corridors, lack of storage space, and spaces which are difficult to clean. Lack of parking and waiting space is no problem at health centres in the villages but can be a problem in Buraydah City.

The writer found that 41 centres of the 48 are rented. This is because the health authorities were eager in the 1980s to spread health services to the largest number of people as rapidly as possible. Buildings intended for general purposes or for housing were rented as a quicker and cheaper means of providing health centres than building them. The main exceptions to this among the 48 studied are the health centres

in Ain Ibn Fuhayd and Dariyah which are prefabricated, and those in Qubah and Al-Amaar which are concrete buildings designed as large health centres capable of conversion in the future to small 30 bed hospitals.

The writer could find no relationship between the grade of the health centre, its size and the kind of building it occupied. Some low grade centres, especially in villages, occupy rented buildings which are larger than centres of higher grade. That is, the type of building used seems to have depended on the availability of buildings at a suitable location for rent at the time when it was decided to set up a health centre in a particular place, rather than on the importance of the centre.

9.1.3 Facilities of Health Centres:

As the function of health centres is to provide primary health care services, they are expected to have facilities and equipment to serve this purpose. The level of this provision varies, however. Again it does not always reflect the official grading. In a vast region like Al-Qassim, where some settlements are 200 km. away from the nearest hospital, some of the health centres - even small ones - are sometimes required to perform tasks normally carried out at a hospital. These include small emergency operations and difficult child deliveries. The field survey showed that most health centres have emergency rooms and basic facilities for delivering babies. Only a few have laboratories, radiology or other needs of a well equipped centre. Surprisingly, the centres that have these additional facilities are not always those in the remote areas far from a hospital, where they might be most needed. For example, radiology units are available at ten of the 48 centres only. Yet half of these are in Buraydah City were radiology is available closeby at the hospital. Laboratories able to carry out initial tests exist in 19 of the 48 centres, again half of them in Buraydah City.

Dentistry units are available in 14 centres and over half of these are in Buraydah City. Table **9.3** shows that while grade 5 centres have a full range of facilities, some grade 1 and 2 centres are much better equipped than others. For example, the grade 2 health centre at Al-Amaar, the centre of a village cluster, and the grade 1 centre at Huwailan, within the Buraydah Rural area, are equipped to the level of grade 5 centres.

Generally urban health centres appear to be equipped better than their grade would indicate in comparison with rural centres. Several of the grade 1 health centres in Buraydah City are equipped like the grade 5 centres. Eight of the 12 health centres in Buraydah City have dentistry units. Ten have laboratories and four have radiology equipment, so that overall they are much better equipped than health centres in the rural areas. Yet many of them are only classed as grade 1 centres. Similarly nearly all the Buraydah City clinics have a telephone connection, whereas only six of the 36 rural centres the writer examined have this. Clearly a lack of a telephone is a major obstacle to the delivery of an effective service. This, of course, is largely a reflection of the availability of telephone lines in the whole region because both of the grade 1 health centres in Al-Mudnab town have a telephone but none of the seven in rural Al-Mudnab has one, even though one is a grade 2 centre. Only the main health centre of the eight in Dariyah sub-emirate has a telephone.

9.2 STAFF:

The author's survey of the 48 health centres looked at staff provision. Again no simple pattern in relation to grading was found, but generally the busier urban health centres had more staff. The normal pattern is for a health centre to have at least one doctor and several support staff. The staff working in the health centres of the studied areas totalled 656, an average of 13.7 persons per health centre. 125 of

Table 9.3 Relationship between Location, Grade of Health Centres and Facilities, by Sub-emirates

	Health Centre	Government building	Telephone	Dental Unit	X-ray Unit	Laboratory	Emergency vehicle	Emergency room	Maternity room	Grade	
DARIYAH	Dariyah	x	x	x	x	x	x	x	x	5	Sub-emirate Capital
	Miskah							x	x	1	
	As-Samaurayah						x	x	x	1	
	Salam							x	x	1	
	Ad-Dahirayah							x	x	1	
	Bdaya Az Zubtan							x	x	2	
	Buqaya'a.J							x	x	1	
	Al-Aqir							x	x	1	
AL-ASYAH AND QUBAH	Ain ibn Fuhayd	x	x	x	x	x	x	x	x	5	Sub-emirate Capital
	Khusayibah							x	x	1	
	Hunaydil							x	x	1	
	Dedah							x	x	1	
	Qubah	x		x	x	x	x	x	x	5	Sub-Emirate Capital
	At-Tanumah		x					x	x	1	
	Aba Ad Dud							x	x	1	
	Al-Jalah		x					x	x	1	
	At-Turfayah							x	x	1	
	Al-Burud							x	x	1	
AL-MUDNAB	Ath-Thamriyah							x	x	1	
	Al-Amaar	x		x	x	x	x	x	x	2	Villages Service.C
	Al-Malqa							x	x	1	
	Rubayq						x	x	x	1	
	Al-Kharma'a.S							x	x	1	
	Al-Kharma'a.J							x	x	1	
	Rawdat Al-Hisw							x	x	1	
	Al-Kalydayah		x	x	x	x		x	x	1	Al-Mudnab Town
	Ash-Sharq		x			x		x	x	1	" "
BURAYDAH RURAL	Huwailan	x	x	x	x	x	x	x	x	1	Social Development.C
	Al-Busur					x		x	x	1	Villages Service.C
	Ash-Shqah							x	x	1	
	Al-Ghmaas							x	x	1	
	Al-Muraydisiyah					x		x	x	1	
	Al-Qusayaah							x	x	1	
	As-Snaayah	x	x			x		x		1	
	Al-Mulayda							x	x	1	
	Al-Mataar	x	x					x		1	
BURAYDAH CITY	As Sfra'a		x	x		x		x	x	1	Buraydah City
	Ash Shamaal		x	x	x	x		x	x	4	" "
	Al Janoob		x	x	x	x		x	x	4	" "
	Ash Sharq		x	x	x	x		x	x	1	" "
	As Salmeyah		x	x				x	x	1	" "
	Al Fayzayah		x	x		x		x	x	4	" "
	Al Rfayah		x	x		x		x	x	1	" "
	Al Muntazah					x		x	x	1	" "
	Khudiyra'a							x	x	1	" "
	Al Matta'a		x		x	x		x	x	2	" "
	Al Nuqaa		x	x		x		x	x	1	" "
	M.Childhood.C.C		x			x	x	x	x	1	" "

Source: Author's Field Survey, 1987.

these were physicians, 365 were nurses and health technicians, and 166 administrators and servants. This gives an average of 2.6 physicians, 7.6 nurses and technicians, and 3.5 administrators and servants per health centre. Of the 125 physicians working in the health centres, 101 (81 per cent) were general practitioners, and 15 were dentists. The specializations of the others are listed in Table **9.4 A.** The highest number of physicians per clinic was found in health centres in Buraydah City with a mean of 3.8 per centre, followed by the Al-Asyah sub-emirate (2.8). The lowest ratios of physicians to clinic were in Dariyah and Buraydah Rural. In these areas most health centres are grade 1 status. In Dariyah sub-emirate seven of the 15 physicians worked in the main health centre in Dariyah and two in the Ad-Dahirayah clinic. There was only one physician in each of the six remaining health centres.

Table **9.4 B.** shows that 81 per cent of the health centre physicians were males. The number of female doctors tended to be least in the more remote areas (Table **9.4 C**). For example, there was only one female doctor amongst the eight health centres in Dariyah and more than half of all the female doctors in the health centres sampled worked in health centres in Buraydah City. This is inspite of the fact that the population of Buraydah City has other options for female consultations, such as in the hospitals and private clinics. These clinics are not accessible to the nomad and rural populations in an area like Dariyah. It means that at only 20 of the 48 health centres sampled can a woman see a female doctor, and half of these centres are in Buraydah City.

The physicians' nationalities are given in Table **9.5.** Half of them were Egyptian. Others were commonly Indian and Sudanese. The fact that three-quarters of the physicians are Arabic-speaking helps to solve the problem of communication between patient and doctor even though they are non-Saudi. But this still leaves the problem of understanding the local

Table 9.4 A. Distribution of Physicians in Health Centres, by Specialization and Sub-emirates

No of H.C	8	10	9	9	12	48	
Speciali-zation	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City	Total No	Total %
Gps	12	21	16	16	36	101	80.8
Dental	1	2	2	1	9	15	12.0
Internal disease	1	1			1	3	2.4
Paediatri-cians		2				2	1.6
Obs & Gyn		1				1	0.8
General S		1				1	0.8
Orthopaedic	1					1	0.8
Chest D		1				1	0.8
Total	15	29	18	17	46	125	100.0
Average Doctor/ H.C	1.9	2.9	2.0	1.9	3.8	2.6	--

Table 9.4 B. Distribution of Physicians, by Sex and Sub-emirates

Sex	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City	Total	Total %
Male	14	25	16	14	32	101	80.8
Female	1	4	2	3	14	24	19.2

Table 9.4 C. Distribution of Health Centres, by Sex of Physicians and Sub-emirates

Sex	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City	Total
Male & Female	1	3	2	3	11	20
Male Only	7	7	7	6	1	28

Source: Author's Field Survey, 1987.

Table 9.5 Physicians, Nurses and Technicians in Health Centres, by Nationality and Sub-emirates

A. Physicians:

Nationality	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City	Total	%
Egyptian	5	9	5	7	33	59	47.2
Sudanese	1	5	3	3	4	16	12.8
Palestinian	1	1	2	1	2	7	5.6
Syrian		3			3	6	4.8
Jordanian	1		4			5	4.0
Total Arabs	8	18	14	11	42	93	74.4
Indian	4	8	1	4	1	18	14.1
Bangladeshi	3	3	2	1	2	11	8.8
Pakistani			1	1	1	3	2.4
Non-Arabs	7	11	4	6	4	32	25.6
Total	15	29	18	17	46	125	100.0

B. Nurses and Technicians:

Nationality	Dariyah	Al-Asyah & Qubah	Al-Mud, ab	Buraydah Rural	Buraydah City	Total	%
Saudi		3	2	20	36	61	16.7
Egyptian		10	10	11	30	61	16.7
Palestinian	4	2	5	4	2	17	4.7
Sudanese	2	1	2		5	10	2.7
Tunisian	2	2		1		5	1.4
Jordanian					1	1	0.3
Somalian					1	1	0.3
Total Arabs	8	18	19	36	75	156	42.8
Indian	25	30	17	12	19	103	28.2
Philippino	10	26	7	3	24	70	19.2
Pakistani	1	4	5	4	11	25	6.8
Bangladeshi	1	3	4		3	11	3.0
Non-Arabs	37	63	33	19	57	209	57.2
Total	45	81	52	55	132	365	100.0

Source: Author's Field Survey, 1987.

social conditions and traditions which can play such a major part in good health care. When interviewed by the writer the non-Arab physicians stated that language is the major challenge in performing their job, as well as understanding the health conditions of the individuals and of the society. Again the urban areas came out best in this because more of the Arabic speaking physicians are concentrated in the urban areas. For example, only four out of 46 physicians in health centres in Buraydah City are non-Arabs, but seven of the 15 physicians in Dariyah sub-emirate are. The influence of the language barrier is strongly felt by the patients visiting health centres. Many patients referred to this problem in the questionnaire survey and generally expressed the wish to see a physician who could speak their language.

Table **9.6 A.** shows the distribution of nurses and technicians working in health centres by their specialization. As for doctors, there is considerable variation in the average number of nurses and technicians per health centre in the sub-emirates. While there was an average of 7.6 nurses/technicians per health centre, this reaches 11 per health centre in Buraydah City, and falls to 5.6 in Dariyah sub-emirate. This again reflects the small size of most Dariyah health centres. One third of the 38 nurses in Dariyah sub-emirate were in the main health centre. Most of the other centres in Dariyah had fewer staff to support the few doctors. This means that there was no pharmacological assistant to dispense medicine in several of the health centres in Dariyah. This is a common problem in many of the small rural clinics in other areas. In several health centres in Dariyah, Al-Asyah, and rural Al-Mudnab, the physician, or one of the nurses, does this job. In contrast, each centre in Buraydah City had an assistant pharmacologist and some had as many as three. 59 per cent of the support staff were female, and except in Buraydah Rural female nurses and technicians normally outnumbered males.

Table 9.6 A. Nurses and Technicians in Health Centres, by Specialization and Sub-emirates

	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City	Total	%
Nurses	38	60	39	36	86	259	71.0
Technicians.							
Pharmacists - techn.	4	11	7	11	22	55	
Lab.techn.	1	2	3	4	9	19	
X-Ray.techn.	1	2	2	3	7	15	
Operation - techn.		3				3	
Health - inspectors	1	3	1	1	6	12	
Statistical - assistant					2	2	
Total. techn.	7	21	13	19	46	106	29.0
Total	45	81	52	55	132	365	100.0
Average Nurses/ H.C.	4.7	6.0	4.3	4.0	7.2	5.4	--
Average Techn. Asst. H.C.	0.8	2.1	1.4	2.1	3.8	2.2	--

Table 9.6 B. Nurses and Technicians, by Sex and Sub-emirates

Sex	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City	Total	%
Male	14	25	21	30	59	149	40.8
Female	31	56	31	25	73	216	59.2
Total	45	81	52	55	132	365	100.0

Source: Author's Field Survey, 1987.

Many different nationalities were represented by the nursing staff and technicians. 57 per cent were non-Arabic speakers, a much higher proportion than for the doctors. These were often Indian (28.2 per cent), and Philippino (19.2 per cent). Table **9.5B** gives details. Saudi nationals made up 17 per cent of the support staff, but virtually all of these were male technical assistants in the laboratory, pharmacy, and radiology units, and 92 per cent of these were concentrated in Buraydah City and its rural area. Very few Saudis were nurses. Much of the rest of the Arab speaking nursing and technical staff are concentrated in and around Buraydah. There was not one Saudi amongst the 45 nursing and technical staff in Dariyah sub-emirate and the majority of staff in both Al-Asyah and Dariyah sub-emirates are non-Arabs. As for doctors it is clear that the Arabic speaking staff tended to concentrate in or close to the urban areas. Table **9.7** shows the number of non-medical staff working in health centres. They are mostly drivers, workers, and clerks. 97 per cent are Saudi.

As with the level of equipment in a health centre, the relationship between the number of medical staff and the grade of the health centre was weaker than the influence of urban or rural location. In general urban centres have more staff than rural ones, no matter their grade. Half the centres had only one physician, and these were predominantly centres in rural and nomad areas. For example, six of the eight health centres in Dariyah sub-emirate, and seven of the ten in Al-Asyah had one physician only. In contrast, eight of 12 health centres in Buraydah had four or more physicians each. These centres, of course, can offer a greater level of care than rural clinics. The same applies for nurses and technicians. While there was an average of nearly eight nurses and technicians in each centre, the urban centres were much better staffed than most rural centres. In rural areas like Dariyah and Al-Asyah, most physicians and technicians tended to be concentrated in one larger health centre in the

Table 9.7 Administrators and Workers in Health Centres, by Sub-emirates

	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City	Total	%
Clerk	3	3	4	1	5	16	9.6
Driver	8	11	5	7	13	44	26.5
Servant	21	23	19	8	21	92	55.4
Guard	4	5	1	3	1	14	8.4
Total	36	42	29	19	40	166	100.0

Source: Author's Field Survey, 1987.

Table 9.8 A. Classification of Health Centres According to the Number of Physicians, by Sub-emirates

No of Physi-cians	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City	Total H.C	Total Physi-cians
1	6	7	5	5	1	24	24
2	1		1	1	1	4	8
3		1	1	2	2	6	18
4			2	1	5	8	32
5					2	2	10
7	1				1	2	14
9		1				1	9
10		1				1	10

Table 9.8 B. Classification of Health Centres According to the Number of Nurses and Technicians, by Sub-emirates

No of Nurses & Techn.	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City	Total H.C	Total Nurses & Techn
1-3	2	2	1	2		7	19
4-5	4	5	5	2	1	17	76
6-9	1	1	3	4	4	13	101
10-15				1	5	6	71
16-20	1				2	3	52
20 >		2				2	46

Source: Author's Field Survey, 1987.

sub-emirate capital, with far fewer staff in the outlying centres (Table **9.8**).

It should be clear from what has been reported that examination of the various characteristics individually of each of the 48 health centres does not give a clear picture of the real status of each health centre, and it has been shown that the grading system does not help here. Nor is there any data on size or area of catchments of each health centre to support this. The writer has therefore used a simple scoring system, laid out in Table **9.9**, to better classify the 48 centres. One point was given to a centre for each member of its medical staff, and a point to each service available. Because the writer believes that female patients are attracted by a female physician, and all patients are attracted by Arabic speaking physician, extra points have been awarded for these. The table shows that three centres (Qubah, Ain Ibn Fuhayd and Dariyah) score most points on this basis (over 31 points). It can also be noted that each of these is a grade 5 centre with plans for them to be converted into small rural hospitals at some future date. Ten other health centres score between 21-30 points, and seven of these centres are in Buraydah City, indicating the urban emphasis in the provision of facilities in many health centres. Most of the centres (24) scored 10 points or less, which reflects the modest facilities and services they provide. When scores for all centres in a sub-emirate are totalled to arrive at a mean score for each sub-emirate, it becomes clear that health centres in Buraydah City produced an average score (21.4) about twice that for centres in Dariyah sub-emirate (11.0) which has been shown to have the least well provided centres. Health centres in Al-Asyah and Qubah came next after Buraydah City (15.1), followed by Al-Mudnab (12.3) and Buraydah Rural (12.2).

Table 9.9 Classification of Health Centre According to the Availability of Health Personnel and Facilities, by Sub-emirates

	Health Centre	Grade	Health Personnel: No. of Doctors	Health Personnel: Nurses and Technicians	Facilities: Female Doctors	Facilities: Arabic speaking Doctor	Facilities: Dental Unit	Facilities: X-ray Unit	Facilities: Laboratory	Facilities: Maternity room	Facilities: Emergency room	Facilities: Emergency vehicle	Facilities: Telephone	Total scores
DARIYAH	Dariyah	5	7	17	1	1	1	1	1	1	1	1	1	33
	Miskah	1	1	3		1				1	1			7
	Al-Samaurayah	1	1	6						1	1	1		10
	Salam	1	1	4						1	1			7
	Ad-Dahirayah	1	2	3		1				1	1			8
	Bdaya Az Zubtan	2	1	4		1				1	1			8
	Buqaya'a.J	1	1	4						1	1			7
	Al-Aqir	1	1	4		1				1	1			8
AL-ASYAH AND QUBAH	Ain ibn Fuhayd	5	9	23	1	1	1	1	1	1	1	1	1	41
	Khusayibah	1	3	5	1	1				1	1			12
	Hunaydil	1	1	5		1				1	1			9
	Dedah	1	1	3						1	1			6
	Qubah	5	10	23	1	1	1	1	1	1	1	1		41
	At-Tanumah	1	1	4						1	1		1	8
	Aba Ad Dud	1	1	4		1				1	1			8
	Al-Jalah	1	1	4		1				1	1		1	9
	At-Turfayah	1	1	6		1				1	1			10
	Al-Burud	1	1	3		1				1	1			7
AL-MUDNAB	Ath-Thamriyah	1	1	5		1				1	1			9
	Al-Amaar	2	4	9	1	1	1	1	1	1	1	1		21
	Al-Malqa	1	1	5		1				1	1			9
	Rubayq	1	2	5		1				1	1	1		11
	Al-Kharma'a.S	1	1	3		1				1	1			7
	Al-Kharma'a.J	1	1	4		1				1	1			8
	Rawdat Al-Hisw	1	1	5		1				1	1			9
	Al-Kalydayah	1	4	9	1	1	1	1	1	1	1		1	21
	Ash-Sharq	1	3	7		1			1	1	1		1	15
BURAYDAH RURAL	Huwailan	1	4	14	1	1	1	1	1	1	1	1	1	27
	Al-Busur	1	3	9	1	1			1	1	1			17
	Ash-Shqah	1	3	7	1	1				1	1			14
	Al-Ghmaas	1	1	4		1				1	1			8
	Al-Muraydisiyah	1	1	7		1			1	1	1			12
	Al-Qusayaah	1	1	4		1				1	1			8
	As-Snaayah	1	1	3		1			1		1		1	8
	Al-Mulayda	1	2	7		1				1	1			12
	Al-Mataar	1	1	1		1					1		1	5
BURAYDAH CITY	As Sfra'a	1	7	13	1	1	1		1	1	1		1	27
	Ash Shamaal	4	4	18	1	1	1	1	1	1	1		1	30
	Al Janoob	4	5	16	1	1	1	1	1	1	1		1	29
	Ash Sharq	1	4	9	1	1	1	1	1	1	1		1	21
	As Salmeyah	1	4	10	1	1	1			1	1		1	20
	Al Fayzayah	4	5	13	1	1	1		1	1	1		1	25
	Al Rfayah	1	4	10	1	1	1		1	1	1		1	21
	Al Muntazah	1	3	8	1	1			1	1	1			16
	Khudiyra'a	1	1	5		1				1	1			9
	Al Matta'a	2	3	11	1	1		1	1	1	1		1	21
	Al Nuqaa	1	4	10	1	1	1		1	1	1			20
	M.Childhood.C.C	1	2	9	1	1			1	1	1	1	1	18

Source: Author's Field Survey, 1987.

9.3 ACTIVITIES OF HEALTH CENTRES:

The writer also looked at the daily operation of the centres in order to better evaluate the provision. There is no appointment system at health centres. They only receive patients during official working hours. In summer they open from 7.00 am. until 1.00 pm., and from 4.00 pm. until 7.00 pm., and in winter from 8.00 am. until 4.00 pm. for five days a week (Saturday to Wednesday) and on Thursday mornings. For emergencies at other times people are expected to use hospital emergency departments while in the rural areas patients could visit the doctor in his home. But it is not normal for physicians to visit patients at home.

The record keeping system on patients is limited. Until recently the only records kept of patients were their name and age. These were noted in a general daily record, but no medical histories of patients were taken or kept. However, since 1986 when the M.o.H. put into practice the new record system health centres have been required to keep a medical card for each patient giving comprehensive information on the social and health status of each patient registered at the centre. But as this system is new records are still not kept on a proportion of the population, particularly those not registered at a health centre.

Health centres are also required to prepare a monthly report on their activities which is returned to the Al-Qassim Health Directorate. These reports include only general figures of their activities such as the number of patients visiting the centre in the month and similar activities. The writer found that reports were not available at the Department of Statistics of Al-Qassim Health Affairs Directorate for some health centres or for some recent years. Nevertheless it was thought useful to analyse this incomplete data to see the variation in the activities between different health centres. Table **9.10** shows the average monthly activities at a selection

Table 9.10 Selected Activities Carried Out in Selected Health Centres of Different Grades (Average per Month)

Area	Dariyah		Al-Asyah & Qubah		Al-Mudnab		Buraydah Rural		Buraydah City	
Health Centre	Dariyah	Salam	Ain Ibn Fuhayd	Dedah	Al-Amaar	Ath-Thamr-iyah	Huwailan	Ash-Shqah	Ash-Shamaal	As-Sfra'a
Grade / Activity	5	1	5	1	2	1	1	1	4	1
General out patients *	3130	487	3079	774	1271	705	1554	2863	2029	4149
Dental patients *	486	9	415	55	183	67	20	50	286	1030
Minor * Surgery	20	2	14	nil	1	18	1	11	6	22
Radiological Invest'**	42	nil	127	nil	NA	nil	46	nil	10	nil
Laboratory Invest'**	364	nil	762	nil	174	nil	361	nil	265	132

Source: Computed from Unpublished Data in Al-Qassim Health Affairs Directorate.
* Average per month for 1987.
* * Average per month for 1985.

of ten centres - two for each study area - in two recent years to indicate the considerable variation in activity in different centres. It can be seen that the monthly average number of patients attending in 1987 at the centres varied between 487 at a small centre in Dariyah sub-emirate to over 4,000 in one of the busy centres in Buraydah City. This suggested to the writer that further examination in the field survey of the amount of work performed at each health centre might indicate something of its spatial variety. Again there is no close relationship to be seen between the level of activity and the grade of the centre, although the low grade rural centres were less active than the high grade rural centres. But the busiest of the ten centres - As-Sfra'a in Buraydah City - is only a grade 1 centre and was twice as busy as Ash-Shamaal, a grade 4 centre. Most of the low grade centres did no radiological or laboratory examinations because they were not equipped to do so.

9.4 REGISTRATION LEVELS:

Because the record keeping system on patient visits is still incomplete Health Directorate data did not allow any further analysis of the level of use of all health centres in Al-Qassim, or even the number of patients using all of the 48 health centres in the sample sub-emirates. However, for the 23 centres used in the questionnaire survey, the writer was able to obtain the numbers of families and individuals registered under the new record system as a crude indicator of their number of patients. This should allow some estimates of patient load per physician to be made for each centre. It should be stressed, however, that these registrations figures do not necessarily represent the full number of users of a centre because not all visitors to a centre would be registered. Nor do these figures indicate the frequency with which the patient attends at the centre.

Table **9.11** shows that the number of families registered in mid 1987 in the 23 centres was 11936. These were made up of 73,934 persons at an average of 6.2 persons per family, rather less than the average size of family of 8 in Al-Qassim. This means that each health centre on average serves 520 families or about 3,200 persons. Each physician serves on average 153 families or 948 persons. By any standard this appears to be a high level of provision but it must be remembered that health centres actually provide services to many people who are not yet registered in the records.

Little relation can be demonstrated between centre "scores" and their activity level. Differences between sub-emirates were clearer. The centres in Al-Asyah/Qubah sub-emirates - the most rural areas - have the best ratio of doctors and staff to patients, with an average across the 5 centres of 550 patients per physician. This means that each physician on average serves only 86 families. The other rural areas of Dariyah, Al-Mudnab, and Buraydah Rural have rather less favourable ratios. The health centres in Buraydah City have the least favourable ratios of about 250 families (1,400 persons) per physician. It must be remembered that the city populations also have available to them alternative primary health care services in hospital outpatients clinics, as well as health services provided by other government agencies, and by the private sector. Also the urban health centres are larger and better equipped and often have better staff, even if the staff have more patients to deal with, so that over-provision in the rural areas is not as high as might be suggested by the figures.

Furthermore one might expect more favourable ratios of doctors to patient in rural health centres, because facilities have to be made accessible to quite small communities if they are to be able to use them. Some overprovision may be inevitable. If facilities are too far away they would be little used and rural health would suffer. It also appears from Table **9.11**

Table 9.11 Number of Families, and Persons, Registered with Health Centres and Health Care Professional/Ratios, by Sub-emirates

Health Centre	Grade	No of Families	No. of Persons	Average Family Size	No of Doctors	No of Nurses	Doctor/ Person	Nurse/ Person	Average visits P/Y *	Score
Dariyah	5	689	2,928	4.2	7	12	418	244	15.0	33
Miskah	1	138	1,139	8.3	1	3	1,139	380	7.5	7
As-Samaurayah	1	303	2,030	6.7	1	5	2,030	406	6.6	10
Salam	1	143	1,029	7.2	1	3	1,029	343	5.8	7
Total Dariyah		1,273	7,126	5.6	10	23	713	309	10.0	
Ain Fuhayd	5	556	3,838	6.9	9	17	426	226	11.0	41
Khusayibah	1	269	1,879	7.0	3	4	626	470	8.4	12
Hunaydil	1	132	889	6.7	1	4	889	222	6.7	9
Dedah	1	163	1,216	7.5	1	3	1,216	405	8.2	6
Qubah	5	942	5,379	5.7	10	16	538	336	5.6	41
Total Al-Asyah & Qubah		2,062	13,201	6.4	24	44	550	300	7.9	
Ath-Thamriyah	1	147	1,361	9.3	1	4	1,361	340	7.0	9
Al-Amaar	2	302	2,927	9.7	4	5	732	585	6.0	21
Al-Malqa	1	110	805	7.3	1	5	808	161	9.0	9
Rubayq	1	305	2,115	6.9	2	4	1,058	529	5.7	11
Al-Kharma'a.S	1	173	948	5.5	1	3	948	316	14.2	7
Al-Kharma'a.J	1	198	1,321	6.7	1	4	1,321	330	7.1	8
Total Al-Mudnab		1,235	9,477	7.7	10	25	948	379	7.3	
Huwailan	1	292	2,082	7.1	4	8	521	260	9.0	27
Al-Busur	1	532	3,706	7.0	3	6	1,235	618	4.2	17
Ash-Shqah	1	565	3,991	7.1	3	5	1,330	798	8.8	14
Total Buraydah Rural		1,389	9,797	7.0	10	19	978	515	7.1	
As Sfra'a	1	2,156	11,056	5.1	7	8	1,579	1,382	5.6	27
Ash Shamaal	4	1,193	7,015	5.9	4	10	1,754	702	4.0	30
Al Janoob	4	1,704	10,156	6.0	5	9	2,031	1,128	2.3	29
Ash Sharq	1	1,126	6,218	5.5	4	6	1,555	1,036	4.4	21
As Salmeyah	1	925	6,124	6.6	4	7	1,531	875	4.7	20
Total Buraydah City		5,978	34,351	5.7	24	40	1,431	859	4.5	
Total		11,937	73,934	6.2	78	151	948	490	6.5	

Source: Author's Field Survey, 1987.

* The average number of visits per year is based on the average number of visits for 3 months in 1987

that frequency of patient visits on an average annual basis are rather higher in rural than urban areas. This may reflect the greater health needs of rural people and the lack of alternative sources of health care available to them in contrast to the urban population. It may also reflect the fact that doctors are under less pressure in the rural areas and are therefore more readily available.

Even so the rural people have far less specialist services available close at hand. For example, the whole population of Dariyah sub-emirate is served by only one dentist. There is only one female doctor. The area has no paediatricians nor obstetricians. Much the same is found in Al-Asyah/Qubah, where the whole population is served by two dentists, and two paediatricians in only two health centres which are 80 km. apart. In the villages south of Al-Mudnab there is only one dentist to serve 10,000 registered patients. In contrast in Buraydah City and its rural surround most centres have more than one physician, and one is often a female doctor. Several centres have dentists. Some centres like As-Sfra'a in Buraydah City have two dentists, in addition to the various medical services available in other establishments in the city.

It is clear, then, that accessibility could be a major factor in evaluating provision and the question of how to measure this arises. Average distances between health centres in a sub-emirate is a useful indicator of how scattered they are. In a more scattered pattern it means that each centre has to provide services to a wider area. During the field survey, therefore, the writer measured with a car mileometer the distances between health centres in the study areas. From this he calculated the average, maximum and minimum distances between health centres in each sub-emirate. These are shown in Table **9.12.** The degree of scatter varies from an average 23 km. between health centres in Dariyah, to only 7 km. in Buraydah Rural, and less than 2.5 km. in Buraydah City. But

maximum distances vary much more as a result of some centres being quite isolated from their nearest neighbour. Thus the most isolated health centre in Dariyah sub-emirate is 70 km. from its nearest neighbour. Clearly in such areas some families are very difficult to serve.

Table 9.12 Distance to Next Nearest Health Centres and Hospitals

A. Distance to Next Nearest Health Centres:

Sub-emirate	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City
Average (km)	23.0	15.0	16.0	7.0	2.3
Minimum (km)	7.5	2.0	2.0	3.0	1.0
Maximum (km)	70.0	48.0	30.0	12.0	4.0

B- Distance to Next Nearest Hospital:

Sub-emirate	Dariyah	Al-Asyah & Qubah	Al-Mudnab	Buraydah Rural	Buraydah City
Average (km)	144	82	42	16.0	2.8
Minimum (km)	113	28	2	6.5	1.0
Maximum (km)	190	144	96	25.0	5.0

Source: Author's Field Survey, 1987.

But analysis of other figures for the use of health centres reported in Chapter Eleven show that repeat visit frequencies are higher in the rural centres than at the urban ones. This might suggest that the influence of accessibility is not too important an effect on use levels. Repeat visit frequencies could be lower in urban areas where hospital outpatient department and health centres complement each other. One might expect repeat visits to be lower where health centres and a hospital are close together because some patients would go direct to the hospital for any further treatment. This relationship can be detected in Buraydah City where the average distance between the health centre and the nearest hospital does not exceed 3 km. The health centre in Al-Janoob, for example, has the lowest average of annual

visits per person (2.3), because patients with persistent ill health can go to the general hospital which is only about 1 km away. In contrast the health centres further from the General Hospital, like As-Sfra'a north of the city, and As-Salmeyah to the south, have higher averages of 5.6 and 4.7 visits per person annually, because patients are less likely to go to the hospital for their repeat visits. Rates of repeat visits tend to be even higher in rural areas where hospital visits are much less likely. For example, as seen in Table **9.11**, the highest averages of annual visits per person per year to health centres were found in Dariyah sub-emirates (10 visits), followed by Al-Asyah/Qubah (7.9). These are the areas where average distances to nearest hospitals were also high at 144 km, and 82 km respectively.

These questions of accessibility, levels of visit frequency and patients' use of a range of health care will be considered in later chapters concerned with how a sample of users of 23 health centres made use of the facilities. First the characteristics of the sample users must be explained. This is taken up in the next chapter.

CHAPTER TEN

DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF USERS OF PRIMARY HEALTH CARE SERVICES

Introduction:

Having outlined the main features of the health care services in the study areas and their basic patterns of use, it is now appropriate to consider the results of the questionnaire survey of the health centre visitors the writer interviewed. As was explained in Chapter Six 1375 of the 1410 sets of results were useable. The results from the survey will be presented in three chapters (10-12), each chapter taking a specific aspect of utilisation behaviour, following the model framework laid out in Chapter One (Fig. **1.1**).

This chapter examines the demographic and socio-economic characteristics of the respondents while the next two chapters deal with particular aspects of the use of the health services. Chapter Eleven deals with respondents' reasons for frequency of visits to primary health care services and the relationship between use patterns and users' accessibility to the health services, while Chapter Twelve reports on users' opinions on the various features of the services.

It seems sensible to consider the demographic and socio-economic characteristics of the users first for three reasons. First, this provides the foundation for later chapters where relationships between the individuals and group characteristics, and their levels of use of services, can be examined. Secondly, since the case study areas are only a sample from different geographic areas of Al-Qassim the intention is to see how representative the sample is of the wider Province. Third, one needs to see if levels and patterns of use of health centres vary across the study areas and if

those variations relate to the characteristics of the users [44].

In describing the demographic and socio-economic characteristics of the sample of users, data from the questionnaires on the age, marital status, settlement type and place of residence, level of education, nationality, occupation and income are discussed first. Then various housing conditions of respondents including family size, house ownership, type of housing, number of rooms and facilities are considered. The questionnaire data is also compared with data from other related studies conducted in Saudi Arabia where relevant.

10.1 DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS:

10.1.1 Age:

Age could be expected to be an important influence on a person's use of the primary health care services. Table **10.1** shows the age breakdown of the 1375 respondents to the questionnaire. It should be noted that all persons under 15 and all females were excluded from the survey. As a result men in the age group 20-34 years were most numerous and accounted for about half of the whole sample. Each older cohort produced progressively fewer respondents, so that the age category 35-49 accounted for 23 per cent of the sample, and the age group 50+ only 12 per cent. This age pyramid of users clearly reflects the age characteristics of the population of Al-Qassim as a result of the rapid expansion of the Saudi population in recent years. It can be noted that the second largest cohort after the 20-34 years age groups is the narrower cohort between 15-19 years which made up 16 per cent of the total sample.

But one cannot expect the age distribution of users of health centres to fully reflect the age structure of the whole

population because use of health care will vary with age. Table **10.1** shows how the sizes of these cohorts compare with their sizes in the 1974 census, the last available source of data on the age makeup of Al-Qassim's population. Fig. **10.1** shows the differences more clearly. In that count the age group 15-19 made up 22 per cent of the population over 15 years old and about a quarter of the population fell into each of the other three cohorts. But the writer's sample is much larger for the 20-34 year age group. This could reflect the effect of recent population growth and the greater mobility of males of this age to get to the clinics. The rather smaller 15-19 age group sampled could result because that cohort has less need to use clinics. That the more elderly part of the population was so poorly reported in the sample may indicate their lower levels of health awareness, with the older men not using modern health facilities, or turning to traditional folk methods.

Inspite of these differences between the age makeup of the author's sample and the whole population, there is strong evidence to suggest that the writer's age sample is typical of users of modern health services in the whole Al-Qassim and in Saudi Arabia. Similar results, with the young predominating amongst primary health care users, have been found elsewhere in Saudi Arabia. Al-Ghamdi (1981) in his study of seven public dispensaries in Jeddah City found that 71 per cent of the users were less than 35 years of age, compared with 64.6 per cent in the present study. Al-Sunai (1983), in his study of utilisation of outpatients' clinics and hospitals in Makkah also found most of the users were either young or in their early middle age. A study conducted by the Institute of Public Administration found that 29 per cent of the visitors to outpatients' units of Riyadh Central Hospital were between 15-25 years of age and 35 per cent were between 25-35 years, again very similar to the writer's results. Only 13 per cent were over 45 years old.

Table 10.1 Age Distribution of the Male Users of Primary Health Care Services and the Population of Al-Qassim (15 Years) as a Whole in 1974 (percent)

Age Group	Frequency of respondents	Percentage of respondents	Al-Qassim Male Population 15 years > (1974)(*)
15 - 19	224	16.3	22.2
20 - 34	664	48.3	29.3
35 - 49	322	23.4	23.1
50 >	156	12.0	25.4
Total	1375	100.0	100.0

Sources: Author's Field Survey 1987.(*) 1974 Census.

Table **10.2** shows the distribution of the surveyed respondents by age in each of the five study areas. As indicated the chi-square test shows that there were significant differences in the distribution of the age groups between the areas. In Buraydah City and in Dariyah, the sampled nomadic area, young men (15-19 years old) accounted for a smaller percentage of the users compared with the other areas sampled. 56.5 per cent of the users in Buraydah City were in the age category 20-34 years, much above the percentage in other areas, while only 6.8 per cent were 50 years old or more. This was only half of the proportion of older men using clinics in the other areas.

It is not possible to fully explain the areal variations because there is no up-to-date data on the age structure of the population in each area. The smaller proportion of young users of health facilities in Dariyah may be because the young tend to emigrate to the major cities, while the low percentage of both youngest and oldest cohorts in Buraydah City could result from the enlarged young/middle age groups whose size is supplemented by large numbers of non-Saudis attracted to the provincial capital by job opportunities. Non-Saudis made up 18 per cent of the whole sample and accounted for 22 per cent of the total users of the primary health care services

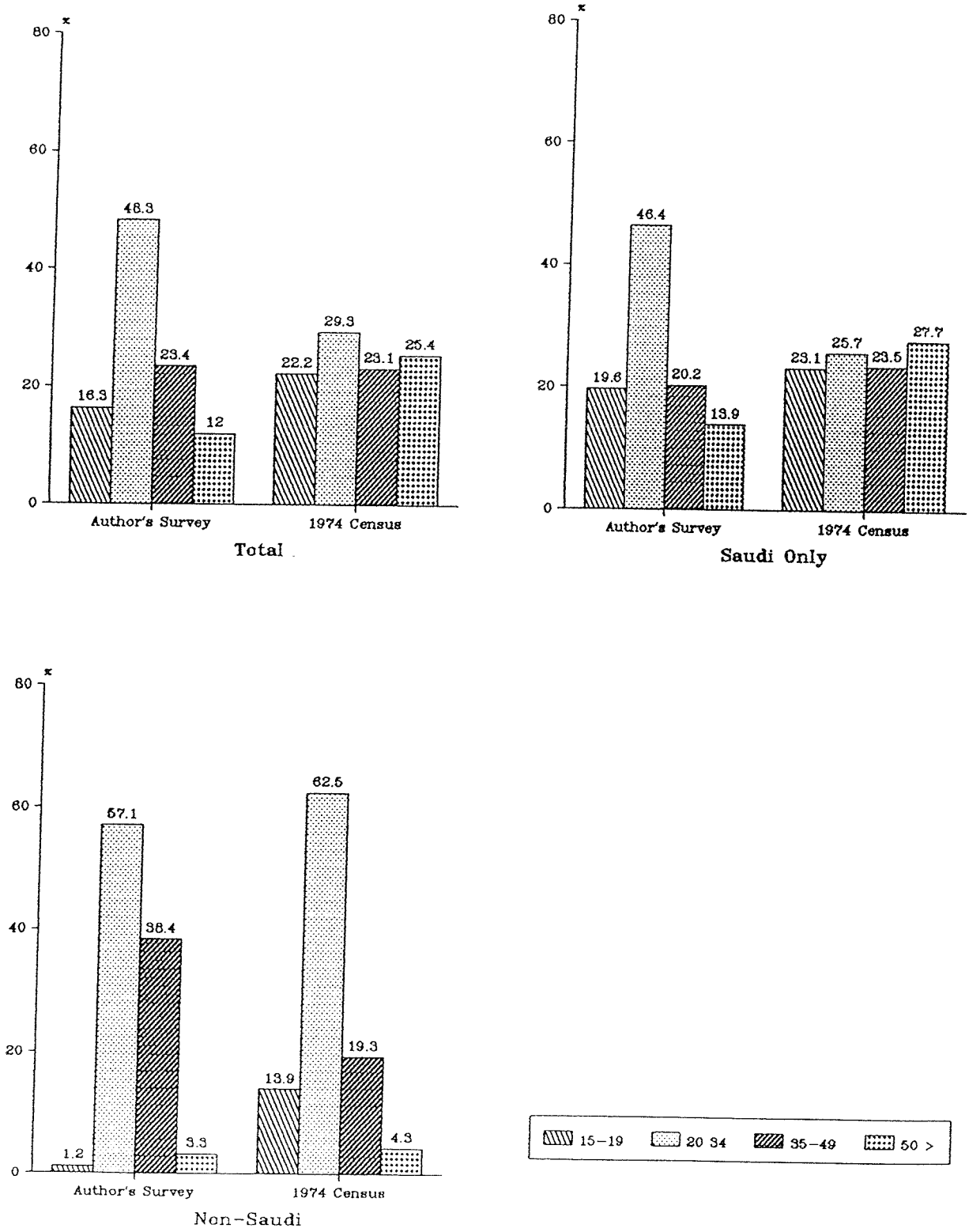


Figure10.1 Age distribution of the Survey sampled compared with the population structure (Males 15>) in the 1974 Census

in Buraydah City. The majority of these were in the middle age groups. In 1974 non-Saudis only made up 4 per cent of Al-Qassim's population. Fig. **10.1** shows that the sampled non-Saudis were overwhelmingly aged between 20 and 49. These would have helped to boost the number of men of these ages using health centres especially in Buraydah City. The small proportion of elderly users of primary health services in Buraydah City contrasts with a rather larger share in the rural areas of Al-Asyah, Al-Mudnab and Dariyah where more elderly men seem to stay in their villages or on their farms, rather than emigrate with the young to the cities.

Table 10.2 Respondents' Distribution by Area and Age

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of samples		192	243	250	143	547	1375
Age Group	No			(%)			
15 - 19	224	13.0	20.6	20.0	21.7	12.4	16.3
20 - 34	664	42.7	41.6	42.0	46.9	56.5	48.3
35 - 49	322	29.7	20.6	21.2	20.3	24.3	23.4
50 >	165	14.6	17.3	16.8	11.2	6.8	12.0
Total	1375	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 56.37 D.F = 12 Significance = 0.0000.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey 1987.

* The Chi-square test was applied to the real figures in the normal way in this and subsequent tables, with a null hypothesis to be rejected at a suitable level of a statistical significance.
** The level of significance used in each table in this and subsequent chapters is the 95% level.

10.1.2 Marital Status:

Table **10.3** gives the marital status of the respondents. The majority of the respondents (70.5 per cent) were classified as married. These also included those who had been divorced or widowed, but it is thought that these two groups made up

a very small proportion of the total sample. The 1974 Census showed that only 2.8 per cent of the males over 15 years old were divorced or widowed. In that count 62.4 per cent of adults were married and 34.8 per cent were classified as never married. In the writer's sample 29.5 per cent were classified as unmarried, so that the writer's survey may have revealed a rather higher level of married respondents than was typical of the whole population in 1974. This may reflect on the nature of users of health centres, or it may suggest that the proportion of married men in the population has increased. Even so the survey results compare reasonably in this aspect with other recent studies of primary health care users. For example, a study of outpatients at the central hospital in Riyadh showed that over 60 per cent of the visitors were married (Haristany and El-Torky, 1985).

That more married men seem to use health services reflects not only their greater number in the population but also that they were more likely to have family responsibilities and the need to care more for their health. The chi-square test shows that no statistically significant differences occurred between the two categories across the five study areas. This might help to confirm the statistical validity of the selected sample size.

Table 10.3 Respondents' Distribution by Area and Marital Status

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of samples		192	243	250	143	547	1375
Marital Status	No			(%)			
Married	969	76.0	70.0	71.6	64.3	69.8	70.5
Unmarried	406	24.0	30.0	28.4	35.7	30.2	29.5
Total	1375	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 5.74 D.F = 4 Significance = 0.2194.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey 1987.

10.1.3 Settlements Types and Place of Residence:

It was mentioned in Chapter Seven that the nomads made up about 10-12 per cent of Al-Qassim's population in 1986. As is to be expected the proportion would vary by sub-regions. Table **10.4** shows that 8 per cent of the writer's total sample were nomads. This percentage varied significantly from area to area with nomads making up about one quarter of the users of the primary health centres in Dariyah and 18.1 per cent in Al-Asyah and Qubah, but much lower percentages in the other areas.

Because no similar study has been conducted in Saudi Arabia, there is no way of knowing if the nomads use the services as much, or more, than the settled urban and rural people. But the results of the present survey do reveal that the primary health care services are accessible to many communities, even those in the desert and remote areas. The relationship between respondents' social type (settled or nomad) and level of utilisation of modern primary health care and use of traditional folk healing will be highlighted in a subsequent chapter.

Table 10.4 Respondents' Distribution by Area and Social Type

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	547	1375
Social Type	No			(%)			
Settled	1261	76.6	81.9	93.2	95.8	99.6	91.7
Nomad	114	23.4	18.1	6.8	4.2	0.4	8.3
Total	1375	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 137.79 D.F = 4 Significance = 0.0000.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

Table **10.5** gives more detail on the type of settlement the samples came from. About 41 per cent of the respondents lived in urban areas and a very similar proportion were from villages. The remainder (17.9 per cent) live on scattered farms or in the desert (Bedouin). But as is to be expected, there were great variations between the five areas in terms of these proportions because the sample were chosen to examine these differences. Differences in these areal patterns were proved to be statistically significant by chi-square tests as shown in Table **10.5**.

Table 10.5 Respondents' Distribution by Area and Place of Residence

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	249	143	543	1370
Place of Residence	No			(%)			
Urban Areas	558	2.1	1.2	12.9	9.1	93.2	40.7
Rural Areas	567	67.2	78.2	56.2	59.4	4.2	41.4
Farms or Desert	245	30.7	20.6	30.9	31.5	2.6	17.9
Total	* 1370	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 1057.23 D.F = 8 Significance = 0.0000.
*(5 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

Urban residents made up 93 per cent of the users of the health centres in Buraydah City, compared with less than 2 per cent in Dariyah and Al-Asyah/Qubah. In all areas except Buraydah City the rural (village) population was dominant, followed by that from scattered farms or the nomads, although these percentages also varied markedly. That small numbers of nomads and village people used the facilities in Buraydah City, and some urban people were found in the rural centres, reflects the effect of visitors from outside an area using health centres. Generally, of course, people use the primary

health care services nearest to their homes. But because there is no referral system and only a recently established record-keeping system on patients, people feel free to go to any clinic. They will often do so when they are visiting another area, for example, when rural people visit the city. Similarly, about 9 per cent of the users of the village health centres in the rural fringe of Buraydah City were classified as urban dwellers who had come out from the city. This also reflects the interrelationships between Buraydah City and its rural areas in that some of the Buraydah City population has relatives in the rural areas, while some spend the summer season on family farms on the edges of the city.

Another reason for the use of rural clinics by city dwellers is that the health centre sampled in the village of Huwailan is very close to the western section of Buraydah City but is classified as in the rural area. People in that section of the city often prefer to use Huwailan health centre rather than go into the Buraydah City clinics. It is equally accessible, is easier to park at and involves less waiting time.

10.1.4 Education:

Table **10.6** shows the distribution of respondents by areas and level of education. More than one third (35.9 per cent) of the total respondents were classified as being illiterate (or with a minimal elementary education), and another 38.8 per cent were classified as having an intermediate level of education. Another 25.9 per cent had a secondary or university level of education. It is clear in the table, and in the chi-square value, that there are significant differences between the areas in the distribution of respondents according to their level of education. Those with a low level of education were dominant in the three most rural or remote areas where they accounted for about half of the respondents. But in Buraydah Rural and Buraydah City those

with an intermediate level of schooling were more common. 37.8 per cent of the respondents from Buraydah City had a secondary or college level of education and illiterates were much less common there.

Table 10.6 Respondents' Distribution by Area and Level of Education

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	547	1375
Level of Education	No			(%)			
Low	(*) 493	46.4	47.7	48.0	35.0	21.6	35.9
Medium	(!) 533	33.9	37.0	38.8	41.3	40.6	38.8
High	(+) 349	19.8	15.2	13.2	23.8	37.8	25.4
Total	1375	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 119.45 D.F = 8 Significance = 0.0000.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab (4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

* **Low:** Those without any schooling or who had not completed a full six years of primary education.
! **Medium:** Those who had completed elementary or middle level schooling.
\+ **High** : Those who had attended secondary school and those with a university or higher degree.

When the total figures from the survey sample are compared with the 1974 Census, there appears to have been a marked fall in the illiteracy rate. Then the level of illiteracy among the male population in Al-Qassim over 15 years old was 78.6 per cent. This is more than twice the level given in the writer's sample. The figure for illiterates in the writer's sample may be too low to properly represent the whole male population because the better educated may use health services more than the whole population. This difference could partly reflect the makeup of the writer's sample with more of it being taken from Buraydah City where the people could be better educated. But it probably also reflects 13 years of

expansion in all levels of education and especially in boys' education, which has greatly reduced levels of illiteracy [45].

It was noted earlier that the elderly formed a smaller than expected proportion of the sampled users of health services. The low level of education of the elderly may be one reason for this. It may deter them from using health facilities.

To examine the relationship between the aged and their level of education Table **10.7** indicates that there is a sharp increase in the rates of illiteracy with increasing age. The vast majority (84.8 per cent) of the respondents more than 50 years of age were illiterate (or with minimal schooling), compared with only 9.8 per cent of respondents aged 15-19 years, and 25.3 per cent of respondents in the age group 20-34 years. Similarly, the 34-49 year age group was often less well educated than the 20-34 year age group. Over one third of the 20-34 year old group had a high level of education, compared with less than one quarter of the 35-49 year old group and only 5 per cent of the over 50 year old group. The relationship between the educational level of the respondents and their level of utilization of the primary health care services, as well as their attitudes towards use of traditional medicine, will be examined further in a later chapter.

Table 10.7 Respondents' Distribution by Age and Level of Education

Age Group		15-19	20-34	35-49	50>	Total
Level of Education	No	224	664	322	165	1375
				%		
Low	493	9.8	25.3	50.6	84.8	35.9
Medium	533	81.3	38.0	25.8	9.7	38.8
High	349	8.9	36.7	23.6	5.5	25.4
Total	1375	100.0	100.0	100.0	100.0	100.0

Chi-square = 431.30 D.F = 6 Significance = 0.0000.
Source: Author's Field Survey, 1987.

10.1.4 Nationality:

Table **10.8** shows that 82.2 per cent of the total sample of respondents were Saudi and 17.8 per cent were non-Saudi. Not surprisingly these figures varied somewhat across the five sample areas. Smaller numbers were found in the rural than in the urban areas. Over one fifth of all patients interviewed in Buraydah City were non-Saudis. Figures from some previous studies gave similar results. Haristany and El-Torky (1985) and Al-Sunai (1983) found even higher percentages of non-Saudis using outpatients department at King Abdulaziz University Hospital, Riyadh and Makkah Hospitals. These higher figures reflect differences in the makeup of the population in those areas where there were more non-Saudis than in Al-Qassim, and because those researchers only surveyed the hospital outpatient departments in major cities which non-Saudi workers are more likely to attend.

Table 10.8 Respondents' Distribution by Area and Nationality

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	547	1375
Nationality	No			(%)			
Saudi	1130	85.9	86.0	85.6	81.8	77.7	82.2
Non-Saudi	245	14.1	14.0	14.4	18.2	22.3	17.8
Total	1375	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 13.80 D.F = 4 Significance = 0.0080.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

As can be seen in Table **10.8** non-Saudi respondents made up 14 per cent of the total number of users in each of the three rural areas but reached over 22 per cent of the users in Buraydah City. Non-Saudis therefore made up 18 per cent of the total survey sample. They probably make up a much smaller share of the total population although there is no up-to-date

data on this for the sampled areas. In 1983 Norconsult estimated that non-Saudis made up 10 per cent of the total population of the Province compared with 4.1 per cent at the time of 1974 Census, and the number has probably much increased since 1983. One might also expect a heavy use of the primary health services by the non-Saudi population because the majority of them are males in the young and middle age groups, and would want to make use of free health care. It was estimated in 1983 that nearly three quarters of the expatriate males were aged between 20-50 years old. Saudi males in that age group are known to be frequent users of the primary health services, so that it is not surprising to find that non-Saudi males of the same ages similarly make full use of the services. In contrast Table **10.9** shows that non-Saudi patients accounted for a very small percentage of the users in either the youth (15-19) or the elderly age groups (50 year and more) because there are few non-Saudis in these age groups. All of the non-Saudi respondents in the sample were from developing countries or from neighbouring Arab states. About one third were Egyptians. Other major group were Yemenis (17.5%), Pakistani (13.0%), Sudanese (10.6%) and Indian (8.6%).

Table 10.9 Respondents' Distribution by Nationality and Age

Age Group		15-19	20-34	35-49	50>	Total
No		224	664	322	165	1375
Nationality	No			%		
Saudi	1130	98.7	78.9	70.8	95.2	82.2
Non Saudi	245	1.3	21.1	29.2	4.8	17.8
Total	1375	100.0	100.0	100.0	100.0	100.0

Chi-square = 93.78 D.F = 3 Significance = 0.0000.
Source: Author's Field Survey, 1987.

The educational attainment of the non-Saudis in the sample was also examined because it was thought that this could affect their use of the health services, just as their particular age

distribution seemed to be an influence. The different patterns of the Saudi/non-Saudi samples in their educational attainment are shown in Fig **10.2.** Nearly a half of the non-Saudi respondents were illiterate (or had minimal schooling) compared with one third of the Saudi sample. But at the other end of the educational range nearly a third of the non-Saudis had quite a high level of education (to the secondary and university degree levels), which was a much higher proportion than for the Saudi sample. These differences are worth making clear because people with a higher level of education tend to pay more attention to their health. It was therefore expected that some non-Saudis would be more frequent users of health services. The data could not, however, fully confirm this probably because of the great variety in the non-Saudi population. Many of the better educated expatriate population from developed countries were probably under-represented in the sample because they are often working for large companies which provide health care insurance or private health services for their workers. Most of the non-Saudis with a better education that came into the writer's sample were working in the government services. These accounted for about 20 per cent of the total non-Saudi sample. The writer met many more of the poorly educated or non-educated non-Saudis. These are often working in difficult environments on construction projects, or in the agricultural sector, where the work can often affect their health. These generally do not get health insurance benefits with their employment so they have to use the free public health services and their use of these services varied.

10.1.6. Occupation:

Table **10.10** gives data from the survey to show the occupations of respondents by study areas. It can be seen that a high percentage (34.3 per cent) of the respondents were in government services, while students made up the second most common category at 22 per cent. Farmers and herdsmen

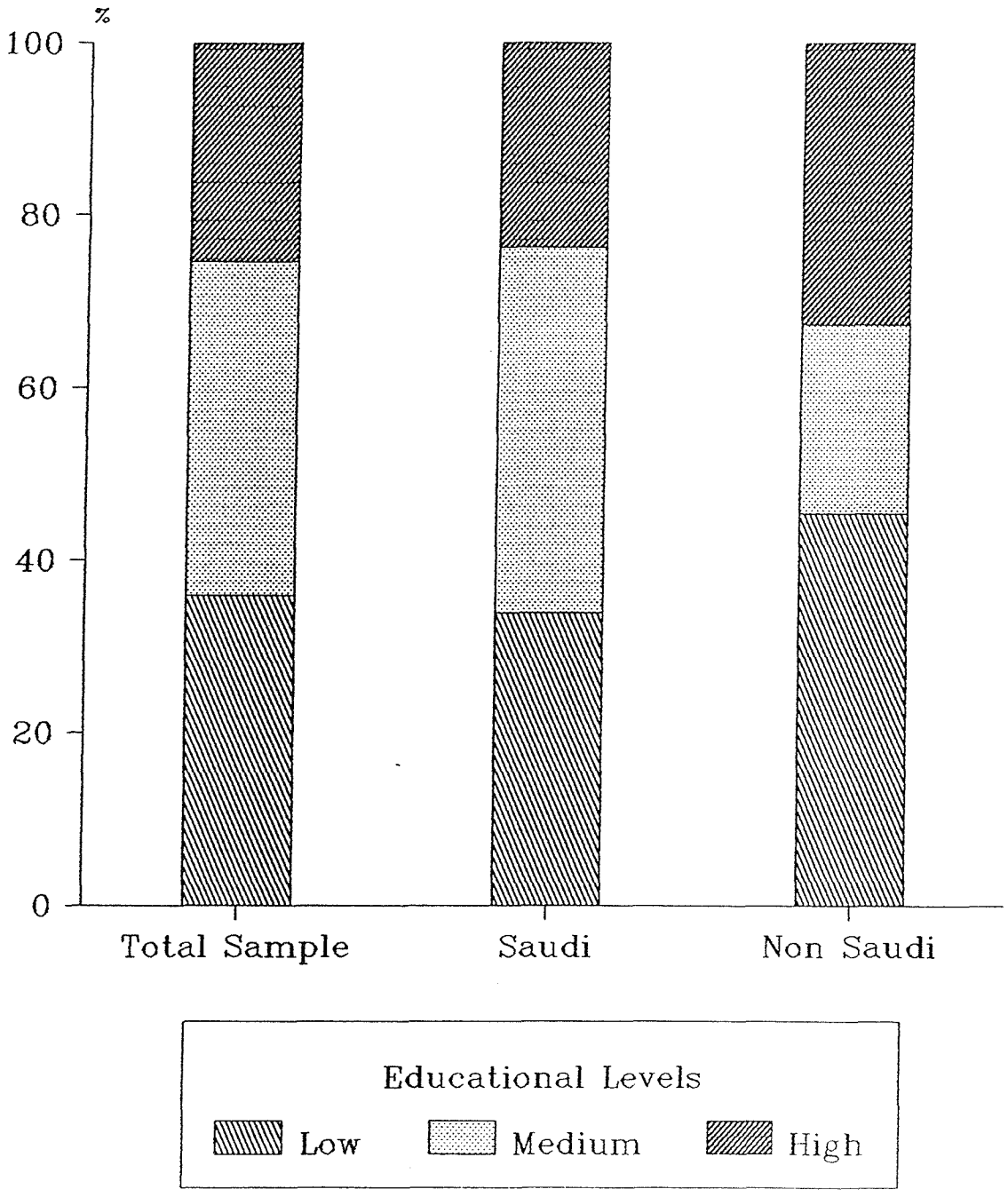


Figure 10.2 Distribution of Respondents by nationality and educational levels

accounted for 16 per cent; 12.5 per cent were traders or businessmen and 11 per cent were private employees. The least numerous (3 per cent) were the unemployed and retired who might have been expected to make up a greater proportion of the users since they form a rather larger part of the male population. There are some broad similarities in these patterns to those obtained in other surveys.

Table 10.10 Respondents' Distribution by Area and Occupation

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	241	250	143	546	1372
Occupation Status	No			(%)			
-Government Employee	470	26.0	29.0	30.4	36.4	40.7	34.3
-Private Sector Employee	154	8.3	7.5	6.4	10.5	16.3	11.2
-Trader or Businessman	172	15.6	10.8	9.2	9.1	14.7	12.5
-Farmer or Herdsman	222	30.7	26.6	26.0	11.1	3.3	16.2
-Student	310	15.1	22.0	24.0	31.5	22.5	22.6
-Unemployed and Retired	44	4.2	4.1	4.0	1.4	2.6	3.2
Total	* 1372	100.0	100.0	100.0	100.0	100.0	100.0

* (3 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

In other studies students accounted for a large proportion of the users of the hospital outpatient clinics in Riyadh Central Hospital and Makkah Hospitals at 15.4 and 14.6 per cent respectively (Haristany, El-Torky, 1985 and Al-Sunai, 1983). These studies of use of health services in the Makkah and Riyadh regions also produced other results which were similar to those obtained by the writer. The majority of the hospital outpatient visitors were, for example, government employees.

In the present study government employees made up the largest group of users - over one quarter - in all areas, with high percentages in Buraydah City and its rural area. This, of course, reflects the fact that most of the government offices and services are located in Buraydah and many men are employed by the government. Only in Dariyah, the bedouin area, were government employees exceeded by herders and farmers. In 1983 Norconsult estimated that government jobs accounted for 31.5 per cent of employment in the Province so that the 34 per cent of health services visitors being government workers in the present survey suggests the sample is comparable. Students were also common in all areas. This reflects the youthful nature of the population. They were the second largest category in Buraydah City and its rural area, were the third largest group in Al-Asyah and Al-Mudnab, but they dropped to fourth largest in Dariyah where secondary schooling is less developed. Herdsmen and farmers were either the largest group, or the second largest group, in the areas further from Buraydah City. Private sector employees were twice as numerous in the Buraydah City sample as in the samples from more remote areas.

10.1.7 Income of the Users:

The questionnaire attempted to collect data about the personal income of the users and their families. As was expected, this was the only question which large numbers of the sample refused to answer. Yet answers of a sort were obtained from 85.8 per cent of the sample, although many were not prepared to state an exact income. The writer therefore generalised the responses into three broad income categories. Table **10.11** shows the results. The majority of the respondents (56.7 per cent) stated their monthly income was between 3000 and 8999 Saudi Riyals which can be classified as a medium income. 28 per cent gave an income below this level, and 16 per cent above.

Table 10.11 Respondents' Distribution by Area and Household Monthly Income

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		138	188	213	128	508	1175
Income	No			(%)			
Low	(+) 324	38.4	33.5	29.6	31.3	20.7	27.6
Medium	(!) 666	52.9	54.8	59.2	59.2	56.7	56.7
High	(#) 185	8.7	11.7	11.3	9.4	22.6	15.7
Total	* 1175	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 49.50 D.F = 8 Significance = 0.0000.
*(200 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.
(+) Less than 3000 SR.(!) 3000-8999 SR. (#) 9000 > SR
Note: 3.75 Saudi Riyals = One $ and 6 SR= about one £ (1990).

It should be noted, however, that the non-Saudis in the sample reported much lower incomes and Fig. **10.3** emphasises the income differences between the Saudi and non-Saudi part of the sample. Whereas two thirds of the Saudi population put themselves in the middle income groups, this proportion of the non-Saudis was found in the low income group. Similarly high income earners were rare among the non-Saudis, but accounted for about one fifth of all the Saudis in the sample.

The Table also shows the distribution of respondents' income by area with more than half of the respondents in all five areas classified in the medium income group. In the four rural and desert areas, including Dariyah and Al-Asyah/Qubah, respondents in the low income group accounted for about one third of the total respondents compared with only one fifth in Buraydah City. Buraydah City also had many more respondents who put themselves in the high income group. With the great majority (84 per cent) of the respondents in the middle or low income groups most would not be able to regularly meet the relatively high cost of private sector

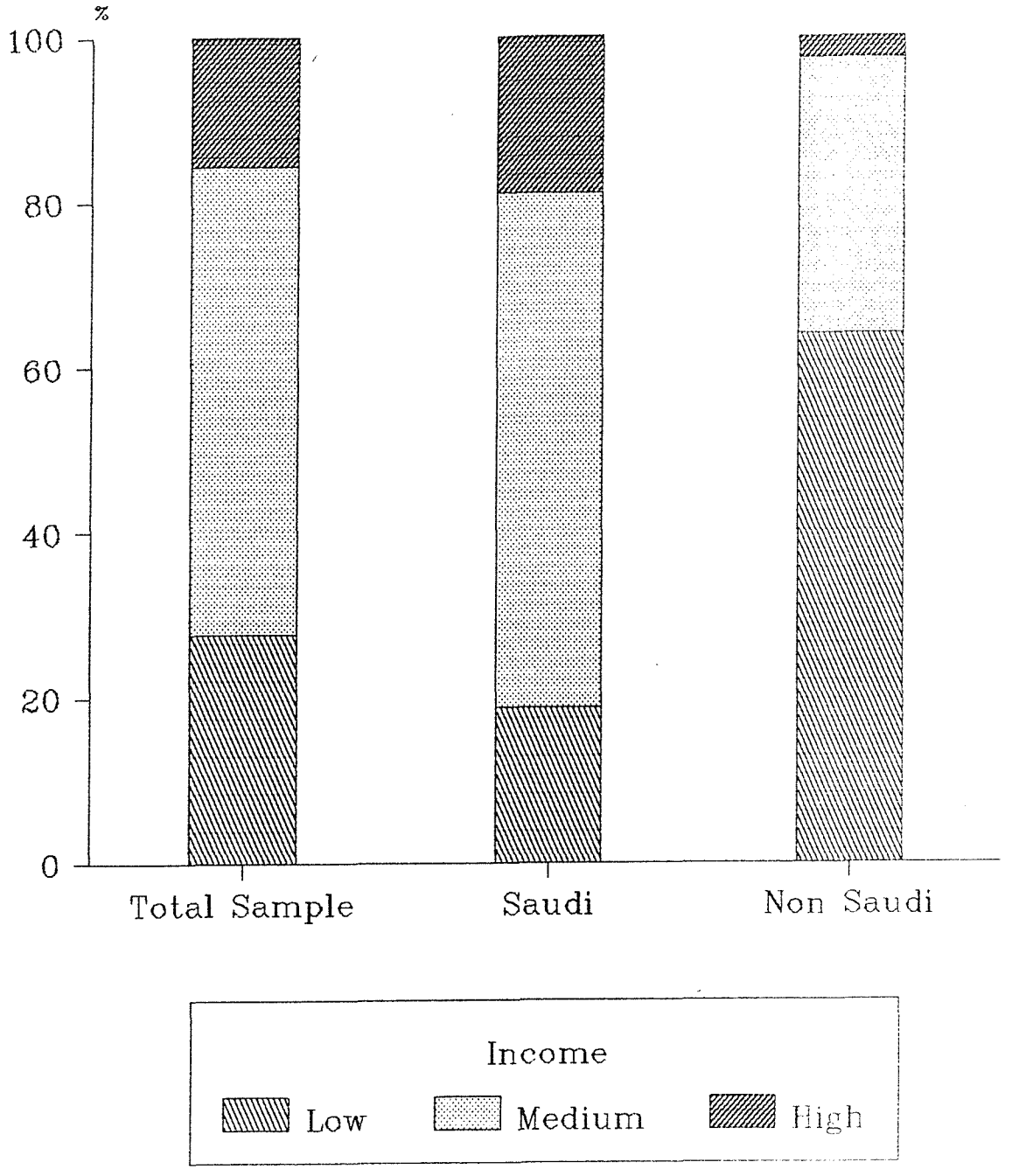


Figure 10.3 Distribution of Respondents by nationality and income

health care. This is one reason why it has been shown to be limited in size in Al-Qassim and largely restricted to Buraydah City where more high earners are found. One visit to a private clinic in Buraydah can cost one hundred SR with a similar amount for medicines from a private pharmacy. A middle income family could well spend 10-20 per cent of its income on private medicine. Hence most turn to the government clinic, especially for routine health care. The relationship between income and utilization level of primary health services will be considered further in the next chapter.

10.2 HOUSING CONDITIONS:

In this section basic information on the housing environment of the users is presented on the basis of answers provided in the questionnaire survey.

10.2.1 Respondents' Family Size:

Information about the number of members in respondents' families, their ages and sex was collected and Table **10.12** shows this. The youthfulness of the population is suggested by the fact that 40 per cent of the family members reported by respondents were children of 12 years or less. The adult population which made up the other 60 per cent were more or less equally divided into male and female but with rather fewer females reported than males. Fig. **10.4** shows a fairly close correspondence to the sex and age make up reported for Al-Qassim in the 1974 Census, although that reported an even larger child proportion in the population.

Table **10.12** shows no significant variation in the age structure pattern across the five areas. The author's data revealed an average of 8.6 persons per household compared with 6.7 in the 1974 census. The Norconsult survey in 1983 showed that the average number of persons per family in Al-Qassim had risen to eight so that it is reasonable to assume that family

size has been getting larger. Because individuals with large families would expect to visit the clinics more than those with small families, the author's sample may also be biased towards this group.

Part of the reason for the large size of families in Al-Qassim results from their extended form with parents, their children and the grandchildren often living in the same household. Table **10.13** shows that the majority of the respondents (43.8 per cent) said they lived with a family comprising of 6-10 persons, and another 30 per cent lived in families of 11 persons or more. Only 26 per cent of respondents gave the size of their families as no more than five persons, and less than half (9 per cent) of those were two person households. These were usually a newly married couple without children or two foreign male workers sharing together. The Table also shows these patterns of family makeup are similar in all five areas and the chi-square test revealed no significant differences across the areas. The relationships between patterns of use of primary health care and family size will be examined in the next chapter.

10.2.2 House Type, Density and Ownership:

Table **10.14** shows the type of houses respondents said they live in. About half (49.3 per cent) of the total respondents reported they live in modern houses, either villas or apartments and generally concrete built. Villas are about four times as common as apartments which were only reported widely among the respondents in Buraydah City. 41.6 per cent reported they lived in a traditional Arabic style of houses. Some errors may have crept into these answers because the writer believes that traditional houses are not quite as numerous as the results suggest. Many of those who reported they live in a traditional house probably live in a modern house built to the traditional design but with modern conveniences. Only 8.2 per cent of the sample said they live

Table 10.12 Distribution of Respondents' Families by Sex and Area and the Population of Al-Qassim in 1974

Area No	(1)	(2)	(3)	(4)	(5)	Total	1974 Census for Al Qassim as whole
No of Samples	192	243	250	143	547	1375	
Sex			(%)				
Male > 12 Years	32.8	32.1	30.8	32.9	34.6	32.3	29.7
Female > 12 Years	26.6	26.3	26.8	28.7	28.9	27.9	27.3
Children 12 Years & Less (M & F)	40.6	41.9	42.4	38.5	36.6	39.8	43.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average Family	8.3	8.9	8.6	9.8	8.3	8.6	6.7

Chi-square = 3.56 D.F = 8 Significance = 0.8943.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

Table 10.13 Respondents' Family Size, by Area

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	547	1375
Size of Family	No			(%)			
1 - 2 (Persons)	124	12.0	7.8	9.2	8.4	8.6	9.0
3 - 5 "	238	17.7	17.3	14.4	15.4	19.0	17.3
6 - 10 "	602	41.7	44.9	46.4	36.4	44.8	43.8
11 & More "	411	28.6	30.0	30.0	39.9	27.6	29.9
Total	* 1375	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 13.28 D.F = 12 Significance = 0.3485.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

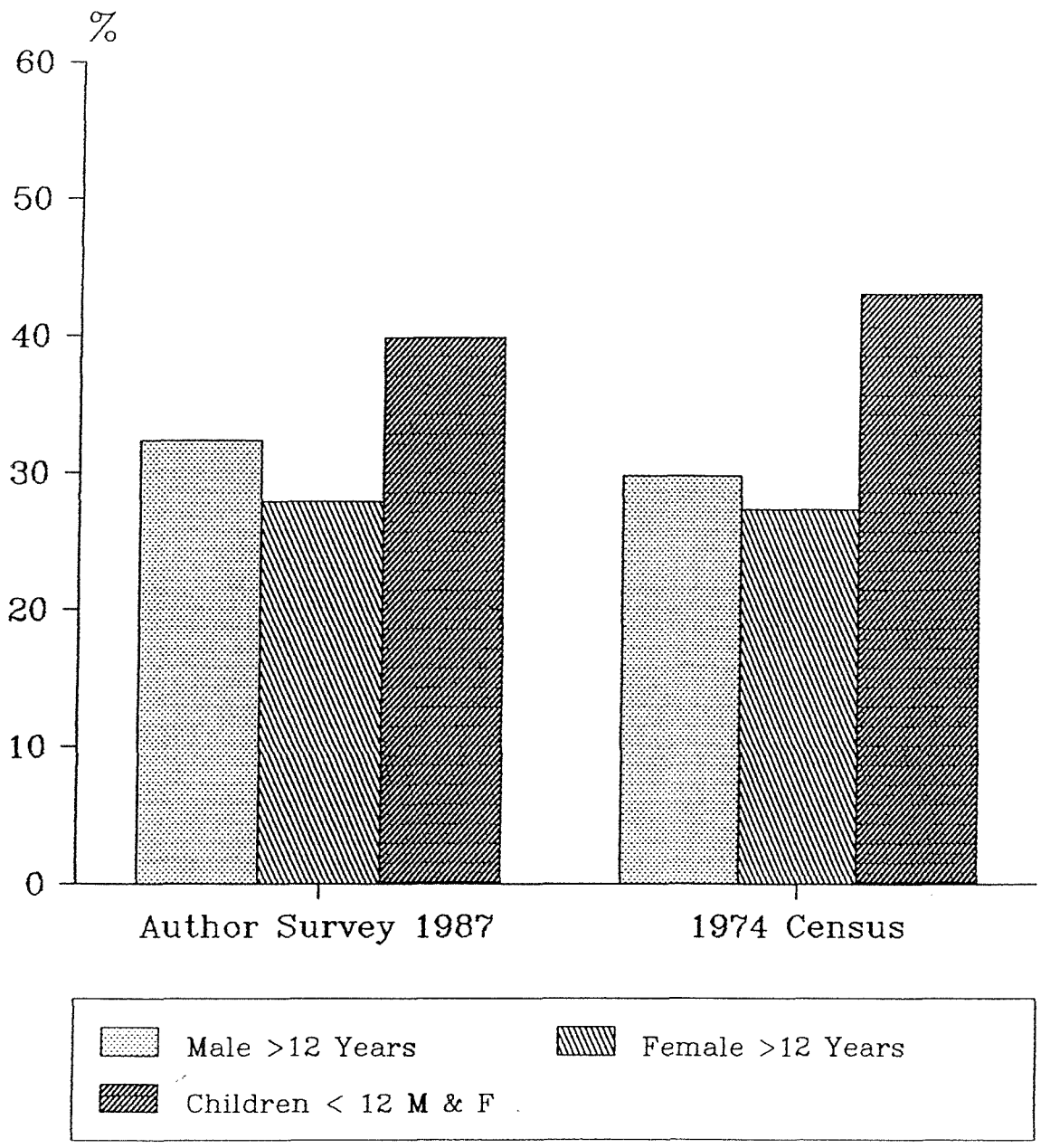


Figure 10.4 Family make-up in Author's Survey, 1987, compared with the 1974 Census

in nomadic houses or tents, and 13 (less than 1 per cent) reported they were living in shacks.

As shown in the Table and as indicated by the chi-square value, there are significant differences between the five study areas in relation to the type of houses respondents said they live in. In Buraydah City about 80 per cent of the respondents reported they lived in modern houses, compared with about one third or less in the other four areas. In those areas a majority of respondents said they lived in traditional Arabic houses. One out of every four respondents in Dariyah and about one out of five in Al-Asyah reported they lived in nomadic houses or tents.

Table 10.14 Respondents' Distribution by Area and Type of House

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	142	546	1373
Type of House	No			(%)			
Villa (Modern)	535	20.3	30.9	27.2	31.7	56.4	39.0
Apartment (Modern)	141	5.2	4.5	1.6	3.5	20.3	10.3
Arabic Houses, old and new styles	571	49.0	45.7	64.0	60.0	22.0	41.6
Nomadic House (Tent) and Shack **	126	25.5	18.9	7.2	4.2	1.3	9.2
Total	* 1373	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 385.16 D.F = 12 Significance = 0.0000.
* (2 did not answer)
** Of those, 113 reported they lived in nomadic houses or tents and 13 lived in shacks.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab (4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

The survey also revealed that three quarters of respondents said they own their own houses and only 16 per cent rented. 8 per cent had their houses provided for them by their

employers. Fig. **10.5** shows this distribution by areas with renting being more common in Buraydah City.

In spite of possible errors in the results from this part of the questionnaire the writer's survey results are strongly supported by the results of the Norconsult report. This also indicated that in 1983 75 per cent of the families in Al-Qassim owned their houses, and that 58.8 per cent still lived in traditional Arabic houses. 33 per cent lived in modern villas. The small differences in the percentages between the writer's survey and the Norconsult report could result from the way each survey was conducted as well as the effect of five more years of building development which would have increased the numbers living in modern homes.

Data on house style can, of course, give little indication of housing quality, although it is to be expected that with about half of the respondents now living in modern houses, and with many of traditional houses being improved, there should now be a good level of space and modern conveniences in most homes. For example, Fig. **10.6** shows that most households now have a public electricity supply. Even in remote areas like Dariyah and Al-Asyah/Qubah only one fourth of respondents lacked this supply or relied on a home generator.

Numbers of rooms and the provision of sanitary facilities may be another indicator of housing quality. Tables **10.15** and **10.16** give details on this by areas. It can be seen that most respondents reported living in medium to large size houses with 54.3 per cent having 4-8 rooms. More than a quarter had 9 rooms or more. Only 16 per cent had three rooms or less. There was little variation in this pattern across the five areas, except that houses in Dariyah were rather smaller than in other areas. The question on numbers of rooms was not put to Bedouin living in tents or nomadic houses.

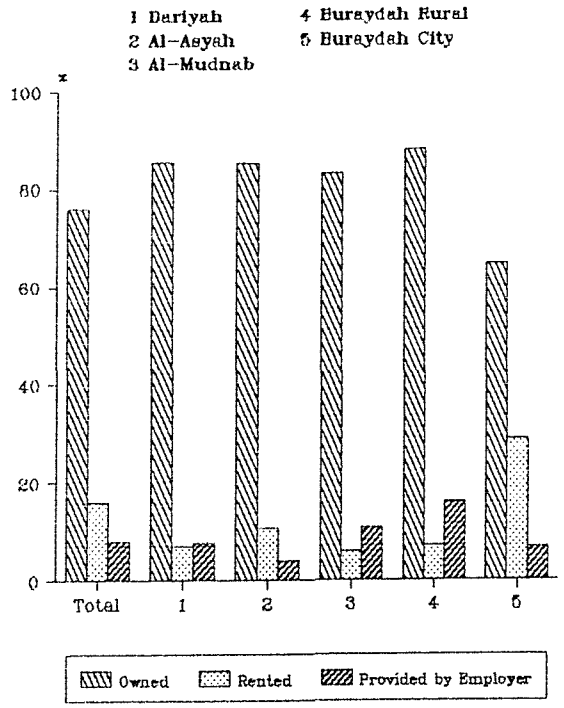


Figure 10.5 House ownership of Respondents by areas

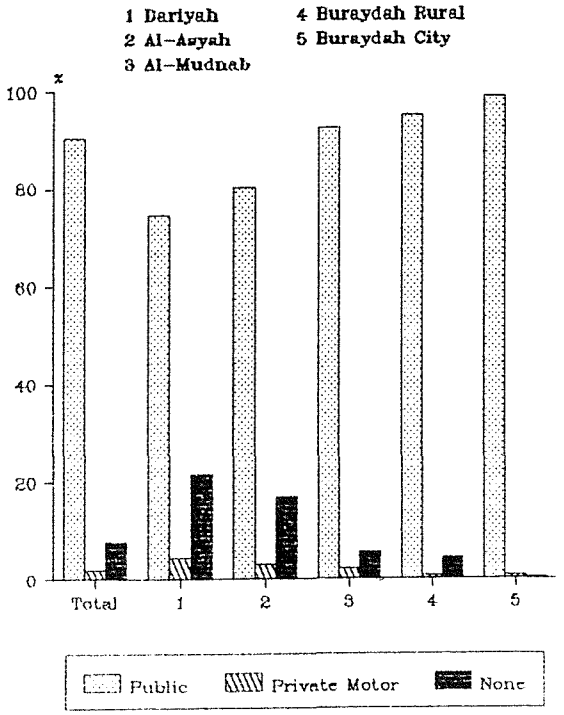


Figure 10.6 Types of electricity supply by areas

Table 10.15 A. Number of Rooms in Housing in which the Respondents Live, by Area

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		147	200	233	137	543	1260
Number of Rooms	No			(%)			
1-3	214	18.4	21.0	13.3	15.3	17.1	17.0
4-8	684	61.2	50.0	63.5	54.7	49.9	54.3
9 and More	392	20.4	29.0	23.2	29.9	33.0	28.7
Total	* 1260	100.0	100.0	100.0	100.0	100.0	100.0
Average no room/house		6.5	6.9	6.9	6.5	7.4	7.1

Chi-square = 21.22 D.F = 8 Significance = 0.0066.
Total number of rooms= 8947 (Average number of rooms/house=7.1)
* 113 in nomadic houses (Tents) and 2 who did not answer are excluded.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.

Table 10.15 B. Housing Density, by Area (Person/room)

Area No	(1)	(2)	(3)	(4)	(5)	Total
Density Person/room	1.2	1.3	1.2	1.4	1.1	1.2

Table 10.16 Number of Toilets (W.C) in Housing, by Area

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Sample		147	198	230	135	542	1252
No of Toilets	No			(%)			
One	203	22.4	16.2	13.9	14.8	15.9	16.2
2-3	722	63.9	65.7	76.5	62.2	43.9	57.7
4 and more	227	13.6	18.2	9.6	23.0	40.2	26.1
Total	* 1252	100.0	100.0	100.0	100.0	100.0	100.0
Average per/House		2.3	2.4	2.3	2.6	3.1	2.7

Chi-square = 119.62 D.F = 8 Significance = 0.0000.
* Total number of toilets=3392 (Average per/house=2.7)
* 113 in nomadic houses, 4 who did not answer and 6 with no toilets are excluded.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

House size is of little significance without reference to the number of persons in the household. With an average of 8.6 persons per household among the respondents, average housing density was 1.2 person per room. Although this would not suggest excessive overcrowding, there is probably some overcrowding in some homes.

10.2.3 Sewage Disposal and Drinking Water:

It can be seen in Table **10.16** that all respondents in the areas reported at least one toilet in their own home, and 83 per cent have two or more, to give an average of 2.7 toilets per house. Again this question was not put to the nomadic respondents. But no information was obtained on the forms of these toilets and the sewage disposal. It has already been mentioned in Chapter Seven that, except from a small parts of Buraydah and Unizah cities, there is as yet no piped sewerage systems in any part of Al-Qassim, so it must be assumed that all drainage is to cesspools or into the ground by infiltration. This could help explain the high level of visits to health centres reported for gastro-intestinal problems if water supplies are contaminated.

Fig. **10.7** shows that the respondents gave one of three main sources for their drinking water. Piped water on tap from a public supply was reported by only 57.6 per cent of all respondents. 36.1 per cent relied on water delivered by tankers, and 6.3 per cent said they used water from a well in their home or farm. The proportion of households with a piped supply was less than in Norconsult's estimate in 1983 but that estimate was only based on a limited survey.

As can be seen in Fig. **10.7**, and as would be expected, a significant variation was found in the form of water supply across the five areas and these reflected their closeness to an urban centre for a piped supply. In Buraydah City 94 per cent of the sample said they received their supply from public

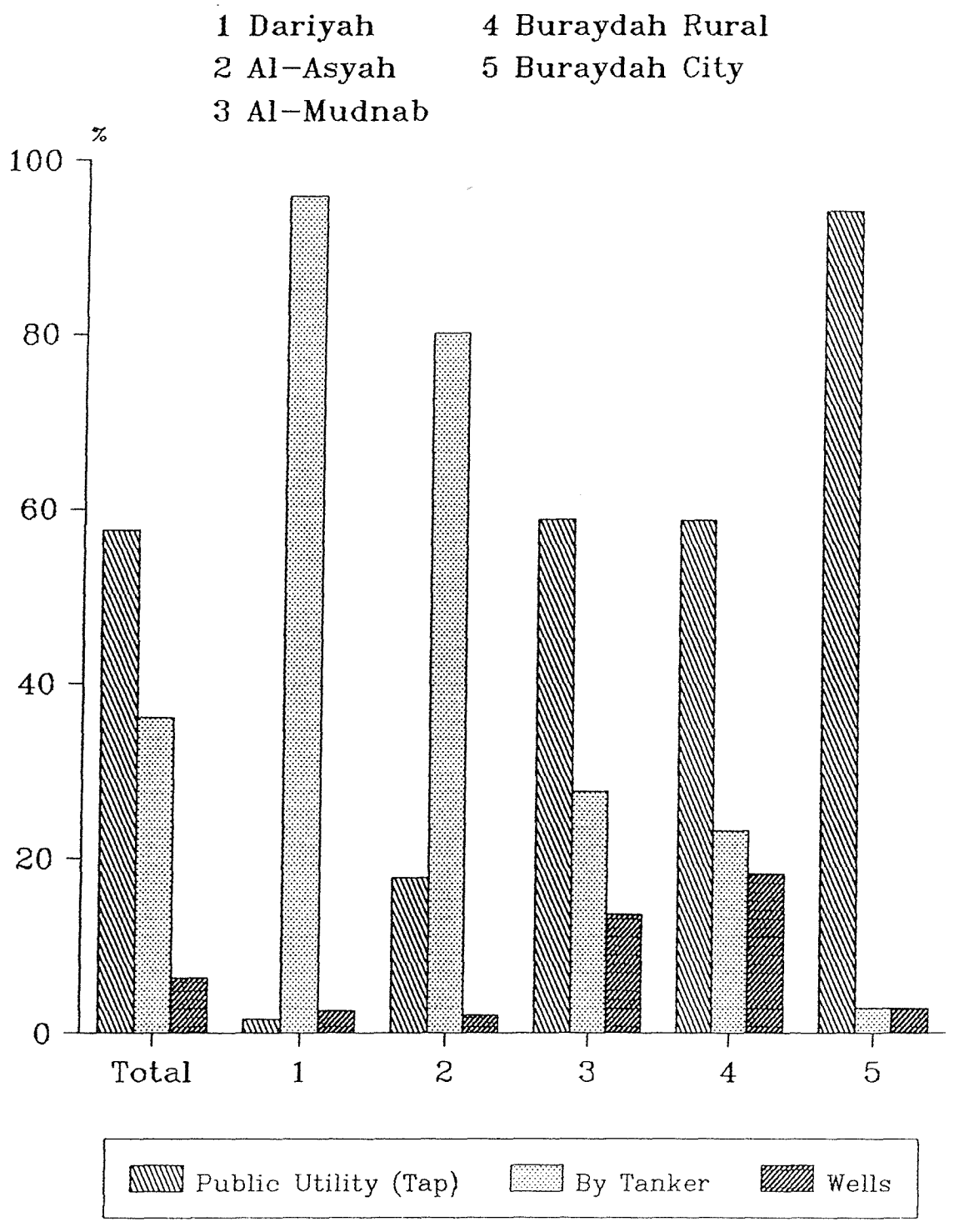


Figure 10.7 Sources of drinking water by areas

utilities compared with only 1.6 per cent in Dariyah and 18 per cent in Al-Asyah. In these areas the great majority relied on tanker supplies. Domestic well supplies were only a significant source in the two farm areas of Buraydah Rural (18 per cent) and Al-Mudnab (14 per cent).

In places served by a piped public supply water quality is believed to be reasonable but in some parts of the region, especially in the rural areas, the water from some wells is not considered potable. Norconsult in its report, also found that **"Most wells produce water that have chemical qualities within the maximum limits of the recommendations of the World Health Organization"** (1984, p. 297), but suggested that in some areas the well water needs further treatment before drinking. For this reason much of the rural population relies on water delivered by tankers. Even so tanker water can get contaminated and the two sources probably account for many health problems in rural communities in Al-Qassim.

10.2.4 Car and Telephone Ownership:

As mentioned early, car ownership may be one of the most important factors influencing the frequency and the type of visits to the clinic. The car makes places more accessible so that a person with a car might visit clinics more often. This will be examined further in Chapter Eleven. Data was, therefore, collected on car ownership. The results presented in Fig. **10.8** show that the vast majority (85 per cent) of the respondents in all areas have at least one car in the household. It must, of course, be recognized that the author may have been able to question fewer of the non car owners who may make less use of clinics.

In contrast to the widespread car ownership nearly 70 per cent reported they had no telephone. Fig. **10.9** shows that most respondents with phones were in Buraydah City. In the Dariyah area, for example, there is only one public telephone in the

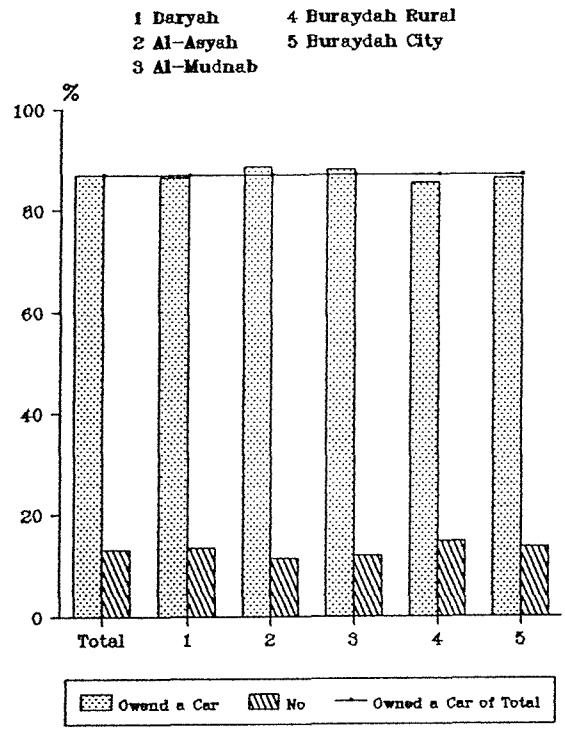


Figure 10.8 Vehicle ownership by areas

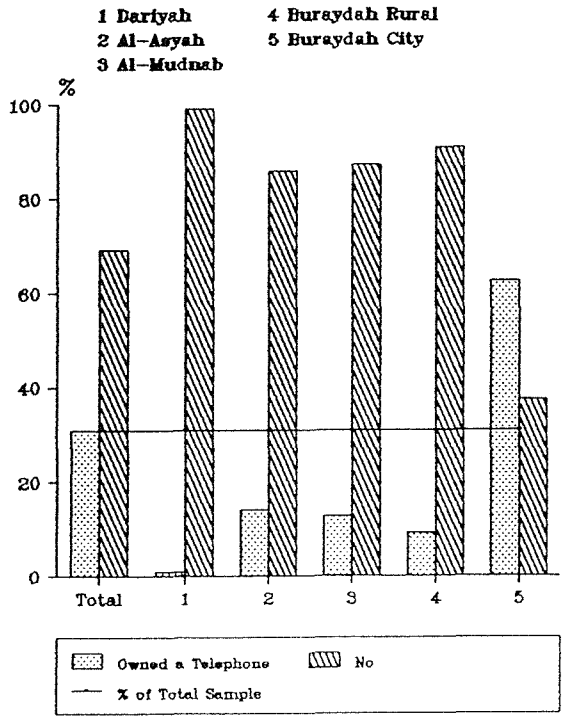


Figure 10.9 Telephone ownership by areas

whole region. That was located in the emirate capital. 82 per cent of the respondents in this area said the nearest public telephone to their home was more than 15 km. away. Similar percentages were also found in Al-Mudnab and Al-Asyah. The lack of a well developed telephone system is one of the major obstacles to comprehensive and well organized local health services. Families, especially with children, with no telephone may have great problems to make contact with their doctors for advice or for an emergency. Considerable journeys have to be made to the doctor and this means that families delay getting attention or may seek it unnecessarily.

CHAPTER ELEVEN

PATTERNS OF USE OF PRIMARY HEALTH CARE SERVICES

The previous chapter provided an analysis of the characteristics of primary health care patients and showed some of the variations between the five study areas in terms of user characteristics. This chapter examines relationships between some of these user characteristics and their behaviour. The chapter is divided into three main sections. First, the reasons for the visit, or the illness which brought the respondents to the primary health centres, are considered. The second section deals with frequencies of user visits in the different areas, and the third section provides further details on the accessibility factor which seems to greatly influence rates of use. In the analysis the users' characteristics are treated as independent variables and each of the aspects of patients' use behaviour is treated as a dependent variable. Chi-square tests are also used and these results are summarised in Table **11.1.** Several interrelationships were shown to be significant at the 95 per cent level and these are considered in more detail in the chapter. Cross-tabulations were also used particularly to illustrate variations in user characteristics as independent variables.

11.1 TYPES OF AILMENTS:

Information on the types of illnesses of patients was obtained in the questionnaire survey by asking respondents to indicate the health problems causing them to visit the clinic. In order to help respondents on this, a list of ten common groups of illnesses was provided. This was based on the Ministry of Health classification of diseases [46].

Table 11.1 Result of Chi-Square Tests on Various Behaviourial Aspects of Users of Primary Health Care Services

	1 Type of Ailments	2 Utilisation Rates of Modern Health Services (!)
1- Study Area (Location)	S	S
2- Social groups	S	S
3- Age	S	S
4- Marital Status	S	NS
5- Nationality	S	S
6- Education	S	S
7- Occupation	NS	S
8- Income	NS	NS
9- Family Size	NS	S
11-Type of Houses	NS	--
12-Type of water supply	NS	--
13-Number of rooms	NS	--
14-Distance	NS	S
15-Travel Time	NS	S
16-Type of Transport	--	S

	Study Area (Location)	Age	Social group	Nationality	Income
1- Distance	S	NS *	S *	S *	--
2- Type of Transportation	NS	S *	S *	S *	S *
3- Type of Road	S	--	S *	--	--

(!) The relationship between type of ailments and utilisation rates was also tested but no statistically significant relationship was found.

S= Significant
NS= Not significant
Significance level= 95 per cent.

* These relationships were tested but were not considered further in discussion.

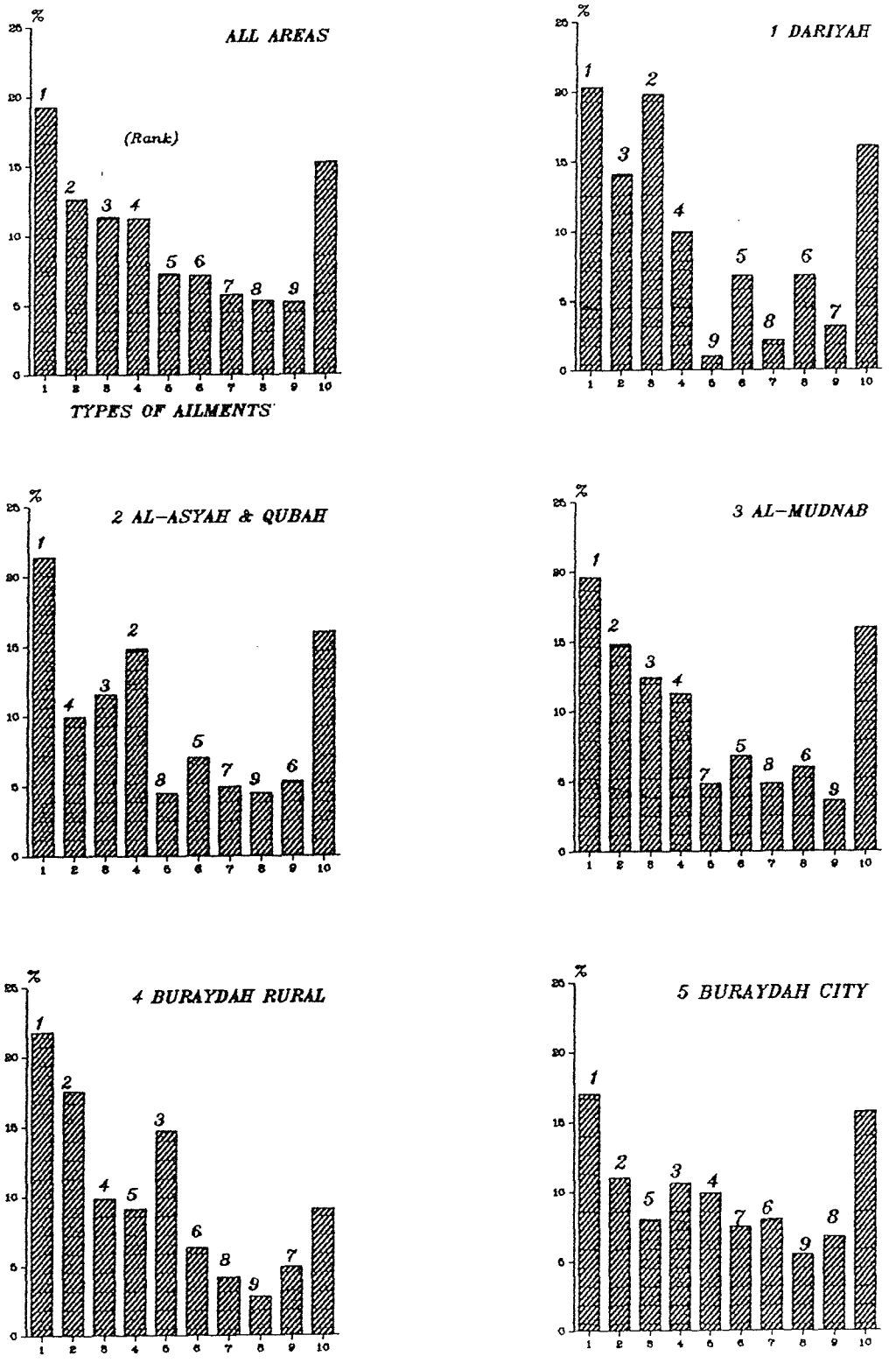
As shown in Table **11.1** statistically significant relationships were found between the types of ailments reported and six of the background variables. These variables were location, settlement type, age, level of education, nationality and marital status of the respondents. No statistically significant relationships were found between illness and several variables including occupation, income, family size and housing conditions.

Table 11.2 Types of Illness Reported by Respondents Using the Primary Health Care Services, by Area

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	547	1375
Type of Illness	No			(%)			
Gastro-Intestinal	264	20.3	21.4	19.6	21.7	17.0	19.2
E.N.T Diseases	173	14.1	9.9	14.8	17.5	11.0	12.6
Chest Diseases	155	19.8	11.5	12.4	9.8	8.0	11.3
Cold & Influenza	154	9.9	14.8	11.2	9.1	10.6	11.2
Mouth & Dental	100	1.0	4.5	4.8	14.7	9.9	7.3
Eye Problems	97	6.8	7.0	6.8	6.3	7.5	7.1
Musculo & Arthritis	78	2.1	4.9	4.8	4.2	8.0	5.7
Genito-Urinary	73	6.8	4.5	6.0	2.8	5.5	5.3
Minor Surgery	72	3.1	5.3	3.6	4.9	6.8	5.2
Others	209	16.1	16.0	16.0	9.1	15.7	15.2
Total	1375	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 85.34 D.F = 36 Significance = 0.0000.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

Table **11.2** shows the distribution of the respondents' types of illnesses by study areas. Fig. **11.1** gives these results in histogram form. Of the total respondents 54 per cent came for health care for four particular groups of problems. The most common of these were gastro-intestinal ailments, (19.2 per cent), followed by ear, nose, and throat (E.N.T) problems (12.6 per cent), chest diseases, (11.3 per cent), colds and influenza (11.2 per cent), mouth and dental problems and eye



1. Gastro-intestinal 2. E.N.T. 3. Chest
4. Cold & Flu. 5. Mouth & Dental 6. Eye
7. Musculo & Arthritis 8. Genito-Urinary
9. Minor Surgery.

Figure 11.1 Types of ailments by areas

problems (7.3 and 7.1 per cent respectively). Smaller numbers (5.5 per cent) were visiting for musculo-, genito-, and minor surgery problems. 15 per cent were put into a miscellaneous category. The table shows that there were variations in the reasons for visits between the five study areas. However, gastro-intestinal complaints were the most frequent cases of visits in all areas. E.N.T. problems were common in all areas and ranked second amongst patients from Al-Mudnab, Buraydah Rural and Buraydah City.

The ranking of the common ailments varied somewhat from area to area. Amongst these it is worth noting that chest diseases were very common in Dariyah, while mouth and dental problems were common in and around Buraydah City, but were mentioned by few visitors to clinics in the remote areas like Dariyah. This probably reflects the shortages of dentists in these areas compared with the Buraydah area. As was mentioned in Chapter Nine there is only one dentist in Dariyah, and two in Al-Asyah/Qubah so that there is little point for people to go to those clinics with mouth and dental problems. Almost 20 per cent of the respondents from Dariyah area reported that they had visited the clinic for chest problems, and this percentage is twice as high as among respondents from the other four areas. The writer is not in the position to explain if there is any clear medical reason behind this difference. But the writer was told by physicians in the local health centre in Dariyah that the desert dust and the proximity to animals were causes for both the high rate of chest and E.N.T problems in that area. Together they account for about one third of all visits by patients to the health centre. Many patients said they suffered from asthma and allergies [47].

Because of the apparent link between settlement type and common ailment the data presented in the previous table was reclassified to separate the bedouin users of primary health care services from all others. Table **11.3** gives the results

and shows that gastro-intestinal illnesses account for no less than 30 per cent of all nomad visits to the clinics. Chest ailments are also more common among the bedouin than among the settled population, whereas other illnesses appeared to vary little in frequency. Overall, about half of the nomad respondents use the primary health care for these two type of ailments, which may reflect the effects of the local environmental conditions, such as the lesser cleanliness of their drinking water and food, and their common mixing with animals which are known to be sources of many diseases.

Table 11.3 Types of Illness and Respondents' Social Type

		Respondents' Social Type (%)		
		Settled	Nomad	Total
Type of Illness	No	1261	114	1375
Gastro-Intestinal	264	18.3	28.9	19.2
E.N.T Diseases	173	12.8	10.5	12.6
Chest Diseases	155	10.5	19.3	11.3
Cold & Influenza	154	11.2	11.4	11.2
Mouth & Dental	100	7.6	3.5	7.3
Eye Problems	97	7.1	6.1	7.1
Musculo & Arthritis	78	5.8	4.4	5.7
Genito-Urinary	73	5.4	6.8	5.3
Minor Surgery	72	5.6	1.8	5.2
Others	209	15.7	9.6	15.2
Total	1375	100.0	100.0	100.0

Chi-square = 22.20 D.F = 9 Significance = 0.0083.
Source: Author's Field Survey, 1987.

Table **11.4** shows the distribution of respondents by age and types of complaints for which they visited the doctors. It is immediately clear that some illnesses, such as gastro-intestinal, musculo- and chest illnesses, seem to be found with greater frequency among the older visitors. Gastro-intestinal illnesses caused older patients (50 >) to make almost twice the number of visits as the youngest age group (15-19). On the other hand younger visitors make more visits to the primary care centres especially for E.N.T and minor

surgery. The differences in types of ailments between elderly and young which cause visits to primary care centres may also reflect the effect of other socio-economic factors, such as education level and personal mobility. Generally, the majority of elderly respondents tend to use the clinic for specific or chronic health problems, and for curative purposes, while young and middle age group seems to visit the clinic for more varied purposes.

Table 11.4 Types of Illness and Age

		Age Group (%)				
		15-19	20-34	35-49	50 >	Total
Type of Illness	No	224	664	322	165	1375
Gastro-Intestinal	264	15.6	18.7	18.6	27.3	19.2
E.N.T Diseases	173	17.0	13.3	10.9	7.3	12.6
Chest Diseases	155	9.4	10.7	12.1	14.5	11.3
Cold & Influenza	154	12.5	11.0	12.7	7.3	11.2
Mouth & Dental	100	5.8	7.8	8.1	5.5	7.3
Eye Problems	97	8.0	7.2	6.8	5.5	7.1
Musculo & Arthritis	78	7.1	3.5	5.3	13.3	5.7
Genito-Urinary	73	3.1	5.7	7.1	3.0	5.3
Minor Surgery	72	8.0	5.4	4.7	1.8	5.2
Others	209	13.4	16.7	13.7	14.5	15.2
Total	1375	100.0	100.0	100.0	100.0	100.0

Chi-square = 63.19 D.F = 27 Significance = 0.0001.
Source: Author's Field Survey, 1987.

Table **11.5** shows some differences in illnesses being reported by married and unmarried persons who were interviewed. Most of these differences probably relate to other factors which vary between the married and unmarried males interviewed such as age differences. Generally the unmarried men seem to experience the same frequency and types of complaints as the younger age male group reported in Table **11.4.** This is to be expected because most of the unmarried males are the younger men. But it can also be noted that genito-urinary problems are a more common cause for a visit to a doctor amongst the married than amongst the unmarried men.

Table 11.5 Types of Illness and Marital Status

		Respondents's Marital Status (%)		
		Married	Single	Total
Type of Illness	No	969	406	1375
Gastro-Intestinal	264	20.9	15.0	19.2
E.N.T Diseases	173	11.7	14.8	12.6
Chest Diseases	155	11.0	11.8	11.3
Cold & Influenza	154	11.5	10.6	11.2
Mouth & Dental	100	7.4	6.9	7.3
Eye Problems	97	6.6	8.1	7.1
Musculo & Arthritis	78	6.0	4.9	5.7
Genito-Urinary	73	6.1	3.4	5.3
Minor Surgery	72	3.6	9.1	5.2
Others	209	15.2	15.3	15.2
Total	1375	100.0	100.0	100.0

Chi-square = 29.70 D.F = 9 Significance = 0.0005.
Source: Author's Field Survey, 1987.

A similar but less statistically significant relationship is to be found between type of ailment reported and respondents' nationality. Table **11.6** shows that gastro-intestinal, E.N.T problems, chest diseases and colds were the most frequent reasons for visit to primary health care services among both Saudi and non-Saudis males, although these ailments accounted for 57 per cent of Saudi visits compared with only 46 per cent of visits by non-Saudis. In turn musculo-, genito-, and minor surgery were more common a cause for clinic visits among the non-Saudis than among the Saudis. These higher levels of complaints could relate to the type of work of the non-Saudis and the effects of the new environment on them. That genito-urinary system problems are more common among non-Saudis could be because bilharzia disease is endemic in the areas like Egypt, Pakistan, Yemen, and India where more of the non-Saudis came from. More of the non-Saudis also went to the health centres with a variety of other ailments classified as miscellaneous in Table **11.6.**

Table 11.6 Types of Illness and Nationality

		Respondents's Nationality (%)		
		Saudi	Non-Saudi	Total
Type of Illness	No	1130	245	1375
Gastro-Intestinal	264	19.9	15.9	19.2
E.N.T Diseases	173	13.5	11.6	12.6
Chest Diseases	155	11.7	9.4	11.3
Cold & Influenza	154	11.6	9.4	11.2
Mouth & Dental	100	7.4	6.5	7.3
Eye Problems	97	7.2	6.5	7.1
Musculo & Arthritis	78	5.3	7.3	5.7
Genito-Urinary	73	4.8	7.8	5.3
Minor Surgery	72	4.7	7.8	5.2
Others	209	13.9	21.2	15.2
Total	1375	100.0	100.0	100.0

Chi-square = 24.01 D.F = 9 Significance = 0.0043.
Source: Author's Field Survey, 1987.

A stronger relationship could be established statistically between type of ailments and the educational level of users. As indicated in Table **11.7**, although gastro-intestinal problems were one of the most common complaints among all three educational categories, the percentage among the little educated group was higher (23 per cent) than among those with more education. The least educated also complained more with chest problems, whereas the better educated were more frequent visitors to clinics with E.N.T, mouth and dental problems. The incidence of visits to primary health care centres for colds and influenza varied little across the educational groups. These differences in purpose of visits to doctors by groups with different levels of education could reflect on their differing approaches to health where the less educated use primary health care services only for curative purposes whereas the better educated are also interested in preventive health. It may also be that the higher level of use of primary care centres by the better educated with mouth and dental problems is because the better educated are more common among the urban users and here mouth and dental treatment is

more readily available. As is clear in Table **11.1** no statistically significate relationships were found between ailment that caused a visit to the health centre and the patients' occupation, income, family size, housing conditions or distance travelled, and these aspects are not considered further.

Table 11.7 Types of Illness and Level of Education

		Respondents' Educational Level (%)			
		Low	Medium	High	Total
Type of Ailment	No	493	533	349	1375
Gastro-Intestinal	264	23.3	15.8	18.6	19.2
E.N.T Diseases	173	8.7	15.4	13.8	12.6
Chest Diseases	155	14.8	10.3	7.7	11.3
Cold & Influenza	154	11.8	10.7	11.2	11.2
Mouth & Dental	100	3.7	8.3	10.9	7.3
Eye Problems	97	7.5	6.4	7.4	7.1
Musculo & Arthritis	78	6.5	6.0	4.0	5.7
Genito-Urinary	73	5.9	5.4	4.3	5.3
Minor Surgery	72	2.8	7.1	5.7	5.2
Others	209	15.0	14.6	16.3	15.2
Total	1375	100.0	100.0	100.0	100.0

Chi-square = 56.74 D.F = 18 Significance = 0.0000.
For meaning of education level, see Table 10.6.
Source: Author's Field Survey, 1987.

11.2 UTILISATION PATTERNS OF PRIMARY HEALTH CARE SERVICES:

In the literature survey it was mentioned that several factors have been identified as influences on the use of health care services by individuals. Those factors, of course, include ones like accessibility which could influence the frequency of a patient's visits. But aspects of the patients' personalities and general health are also important. This means that the levels of utilization of primary health care services could vary markedly with some individuals visiting the physicians only rarely when they felt it is necessary

while others may consult the physicians very frequently and perhaps unnecessarily, for any simple health problem. In order to examine the frequency of primary health care visits of respondents in the study areas, each person was asked to estimate their actual number of visits made to the clinic where they were being interviewed in the previous twelve months [48].

Because of the range of figures quoted and the problems respondents had in recalling the number of visits made, the writer combined the answers into three groups. These groups include:
i) A low utilisation level, where a respondent made one or two visits to the doctors in the previous twelve months; ii) Medium use level, for respondents who made between three and 12 visits; and iii) High level of use, for respondents who made 13 visits or more in the previous 12 months, that is more than one visit per month on average [49].

The writer believes that these three broad use levels could help to show if, for example, the elderly use primary health care services more than the young and the urban more than the rural. Using these three levels the next section attempts to see if these patterns are upheld. The utilisation rates are presented as the dependent variable and the background demographic and socio-economic factors as the independent variables. As Table **11.1** shows all these background variables, except marital status and income, were associated at a statistically significant level with utilisation rates.

Table **11.8** shows respondents' utilisation rates for primary health care services in the five areas. The majority (48.2 per cent) of the 1373 respondents used clinics at the medium rate (three - 12 times per year), and only (16.1 per cent) said they used the clinics at low rates (one to two visits). Rather surprisingly, no less than 36 per cent said they used the clinic on average more than once a month, so that there

are a considerable number of frequent users of clinics in the writer's sample. Clearly these frequent users were more likely to appear in the sample because they are more often at the clinics and the survey method did not attempt to exclude the most frequent users from the sample or to weight the infrequent users who are under represented.

Table 11.8 Frequency of Visits to the Clinics by Respondents, by Area

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	241	250	143	547	1373
Utilisation Pattern	No			(%)			
1 - 2 (Low)	221	11.5	8.3	12.0	14.0	23.6	16.1
3 - 12 (Medium)	660	52.1	38.6	43.2	47.6	53.2	48.1
13 > (High)	492	36.5	53.1	44.8	38.5	23.2	35.8
Total	* 1373	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 93.38 D.F = 8 Significance = 0.0000.
* (2 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

The Table and its chi-square value indicate significant differences between the five areas in relation to utilisation rates. Rather surprisingly respondents in the more remote and rural areas tend to visit the health centres more than those in urban areas. Less than a half of all users visited health centres at a moderate rate of three to 12 times per year, but the majority of the respondents in Al-Asyah/Qubah (53.1 per cent) said they had visited the clinic more than once per month and the other rural areas also had higher user rates. Only in Buraydah City were these frequent users less than a quarter of the total number sampled. Here the low frequency users were as numerous as the more frequent users whereas less frequent users were far fewer than more frequent users in the rural areas. Fig. **11.2** shows these rates as a histogram to make the areal differences clearer.

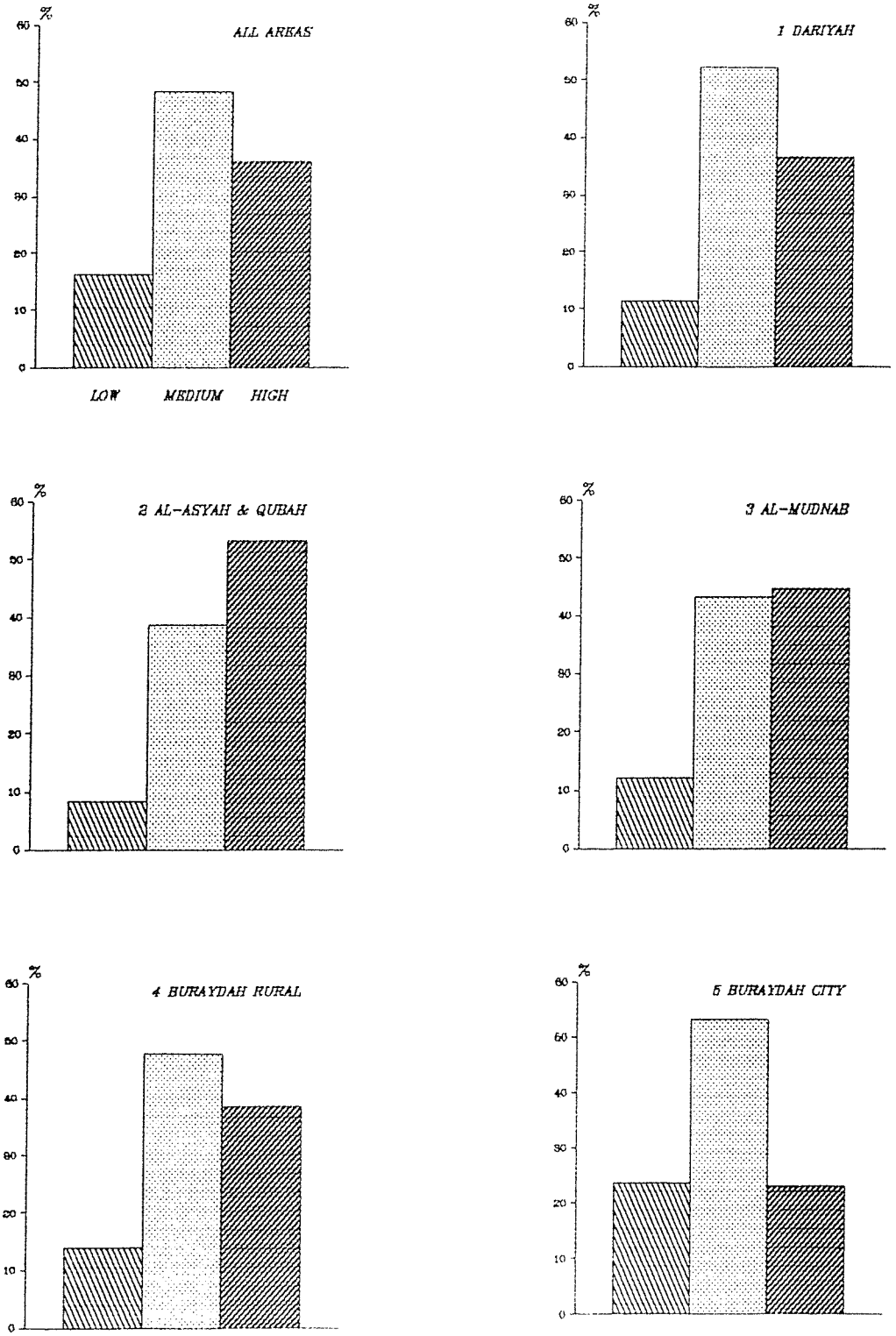


Figure 11.2 Utilisation rates by areas

When these frequency rates were examined in relation to the settlement type of the visitors it is clear that the nomads are more frequent users than the settled users. Table **11.9** shows that although about half of settled respondents used the primary health services at the medium frequency rate, an even larger share of the nomads used the clinics at a higher rate. 55 per cent of nomads said that they had made more than 12 visits in the past year compared with 34 per cent of the settled population. A markedly smaller share (10.5 per cent) of nomads only used the clinics on an infrequent basis compared with the settled population (16.6 per cent).

Table 11.9 Utilisation Pattern and Respondents' Social Type

		Respondents' Social Type (%)		
Utilisation Pattern	No	Settled 1259	Nomad 114	Total 1373
1-2 (Low)	221	16.6	10.5	16.1
3-12 (Medium)	660	49.3	34.2	48.1
13 > (High)	492	34.1	55.3	35.8
Total	1373	100.0	100.0	100.0

Chi-square = 20.46 D.f = 2 Significance = 0.0000.
* (2 Did not answer)
Source: Author's Field Survey, 1987.

Because there has been no previous study in Saudi Arabia of primary health service user rates there has been no previous attempt to explain a rather unexpected situation where rural and bedouin people who seem to be more remote from facilities tend to be more frequent users of them than urban people. One reason is undoubtedly that people in the desert and rural areas have no other source of medical help than that available in the local public health centres. In contrast in the urban areas there are several alternative sources of health care and those are widely used, so that some would use the public centres less often.

In order to explore this further Fig. **11.3** gives responses to the question in the questionnaire on what type of health care facility do respondents normally rely. It is clear that the vast majority of rural, village and nomadic respondents rely on the local public health centres as their main care source. In fact in Dariyah and Al-Asyah the local public health centres are virtually the only modern health facilities available. 97 per cent of nomad visitors said the public health centre they were interviewed at was their usual place of care. This compared with only 68 per cent of the settled people interviewed. Less than 4 per cent of respondents in those remoter areas indicated any other place for health care and some of this small minority only referred to other public clinics in the area. Even in Al-Mudnab which has a hospital outpatients department and in Buraydah Rural, close to the range of facilities in the city, about three quarters of the visitors to the health centres normally used only those centres for general health care. Far fewer also used the local hospital or private clinics. Nevertheless about 16 per cent in Al-Mudnab said they also use the hospital, and 15 per cent in the Buraydah Rural area said they use private clinics because they are accessible to them.

Only in Buraydah City was the pattern of use of facilities very different. Here less than half of the respondents said the health centres were their usual place for care and treatment. Almost as many said they use the hospital outpatients' department. 21 per cent also normally used private clinics. Clearly if this variety of health sources used is a normal pattern in the urban area one would expect less regular use of health centres in town areas, and even rural areas where other facilities are accessible.

But a second reason why more frequent use of primary health services is found among many patients in the remote areas is probably that the rural health centres have far fewer patients to deal with. Treatment involves far less waiting and staff

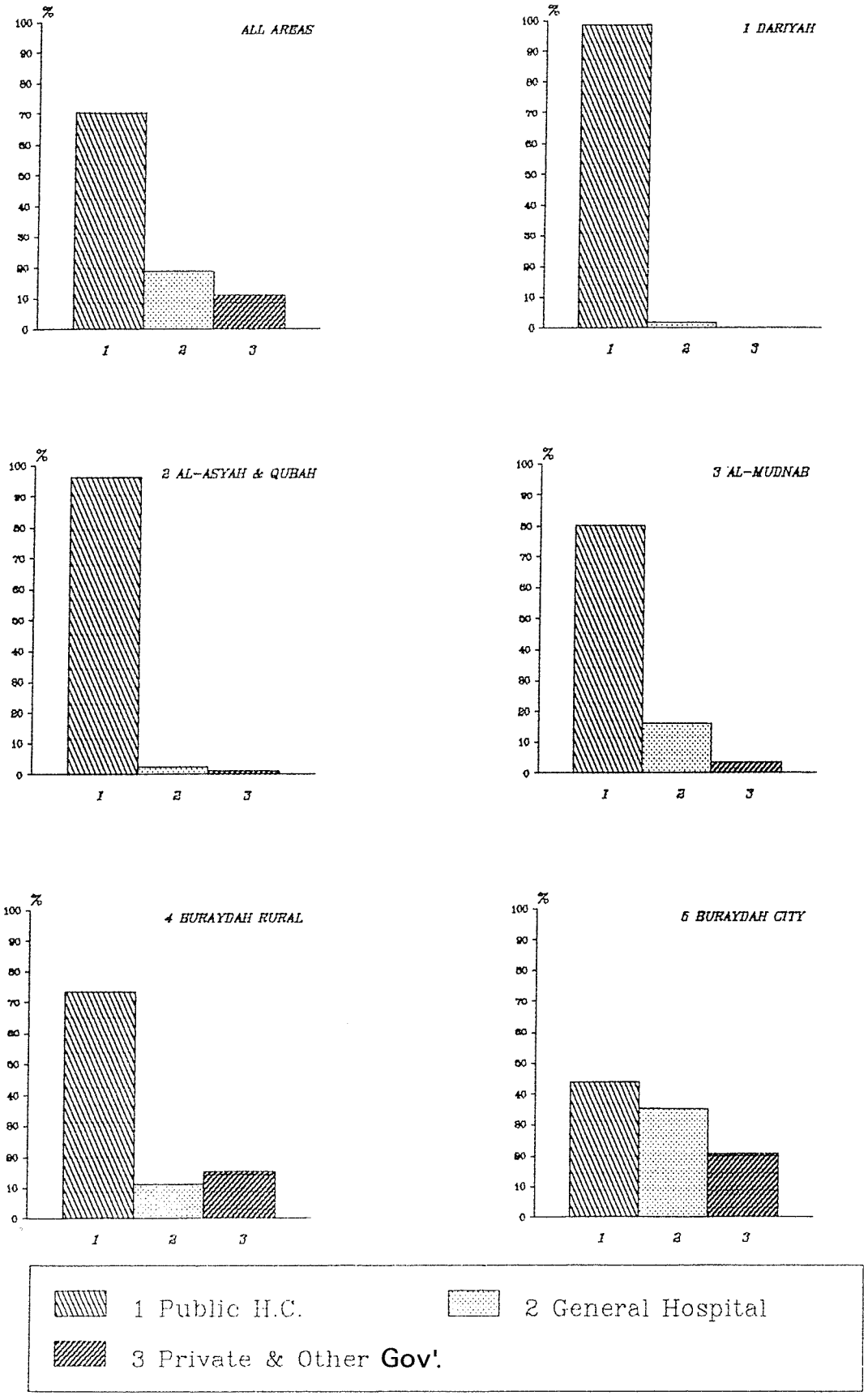


Figure 11.3 Types of Clinics usually used by areas

can build a better relationship with patients. Chapter Nine showed that some rural centres have less than 1000 registered patients, compared with 6000 or more in the city health centres. Thus, one would expect doctors and medical staff working in a village or desert centre to build a stronger relationship with patients so that patients are prepared to come back for further treatments. Moreover, most health centres in rural areas are located in the main villages, and can be reached on foot or by a short car drive, so that people in those villages are more likely to make more frequent visits. For them the health centre is not remote. An urban person visiting a centre in a town may have to make more of a journey than many rural people, and the busier life of many urban people may also mean they have less time to seek basic health care. Many nomadic people also will settle near the main villages where the clinics and other facilities are found so that they have good access to them. The writer also noted during his field survey that most of the nomads he interviewed as they visited the health centres had come to the centre as part of a multi-purpose trip. Large numbers of nomadic respondents said they usually make a daily or at least a weekly journey to the village nearest to where they are settled for a variety of purposes such as for shopping, for selling their goods, to transport their children to the schools, to visit government offices and to visit the health centres. Finally, as was mentioned earlier nomadic people probably are subject to more chronic illness which may require multi-visits to the doctor.

Unfortunately, the writer's survey could not find out nothing about those who never visit health centres. Their absence from the centres could be for one of several reasons, one of which could be that there is no centre accessible to them. A greater proportion of nomads and rural people are likely to be in this category than urban people. A house to house survey would be necessary to learn more of this aspect of health care patterns, although other aspects of accessibility

to care are considered later on the basis of the type of survey the writer conducted.

Frequency of use of services could be expected to vary with age of patients and this is suggested in Table **11.10** where the chi-square value shows a significant difference between age groups and levels of primary care utilisation. As is to be expected the more elderly (50 >) respondents tend to be more frequent users with approximately 57 per cent using the facility more than once per month, whereas all other age groups were predominantly in the medium frequency category. This is in spite of the fact that Chapter Ten has already shown that older patients make up a smaller than expected proportion of all users. While only a proportion of the elderly use the health centres many of those are frequent users. In fact the proportion of frequent users increases in each higher age group. Yet rather surprisingly 40.2 per cent of the youngest group sampled (15-19) use the clinic at a high rate level, and another 50 per cent at a medium level. This young cohort of males is, of course, a rather special group which may have good reason to use primary care at a high level of frequency. For example, the writer observed large number of visitors at the Buraydah Central Hospital going for orthopaedic and therapy after accidents, notably road accidents.

Table 11.10 Utilization Pattern and Age

		Respondents' Age Group (%)				
Utilization Pattern	No	15-19	20-34	35-49	50>	Total
		224	663	322	164	1373
1- 2 (low)	221	9.8	19.0	17.4	10.4	16.1
3-12 (Medium)	660	50.0	51.7	46.9	32.9	48.1
13 > (High)	492	40.2	29.3	35.7	56.7	35.8
Total	1373	100.0	100.0	100.0	100.0	100.0

Chi-square = 51.70 D.F = 6 Significance = 0.0000.
* (2 Did not answer)
Source: Author's Field Survey, 1987.

There could be another reasons for some of the frequent visits to health centres by the younger groups of males. This could be related to family make up, in that with large families common the young men often have to transport the women and young children in the family to the clinic. The larger families will have more women and children and often the young men are the only members of the family able to drive, so that young men come to the clinic more often and may seek medical advice for themselves at the same time. In fact visiting the health centre may become a family habit which seems to be stronger in the larger families.

Table **11.11** shows that respondents' utilisation rates increase with family size. 42 per cent of respondents in families of 11 and more are frequent users of clinics compared with 18 per cent of families of one or two, and 26 per cent of families of three to five persons. More of those in smaller families make infrequent visits.

Table 11.11 Utilization Pattern and Family Size

		Respondents' Family Size (%)				
Utilization Pattern	No	1-2	3-5	6-10	11 >	Total
		124	237	601	411	1373
1-2 (low)	221	33.1	19.0	13.1	13.6	16.1
3-12 (Medium)	660	49.2	54.9	47.4	44.8	48.1
13 > (High)	492	17.7	26.2	39.4	41.6	35.8
Total	* 1373	100.0	100.0	100.0	100.0	100.0

Chi-square = 55.01 D.F = 6 Significance = 0.0000.
* (2 Did not answer)
Source: Author's Field Survey, 1987.

Another contributing factor to the frequency of use by young men is that the health centres in the rural areas tends to become social gathering points. These also attract the younger population more. The writer noted that many younger visitors to the clinics said they were not actually in need

of treatment. Many were accompanied by friends or the whole family. In each area the writer found that often no more than half of male patients came alone (female patients were always accompanied). In the more rural areas as many as 60 per cent of patients were accompanied and in the desert areas of Al-Asyah/Qubah and Dariyah a quarter of the sampled patients were accompanied by two or more persons, sometimes friends, sometimes family members. Table **11.12.** summarizes group sizes.

Table 11.12 Number of other Individuals Visiting the Clinic with the Patients, by Area

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	546	1374
Number of Persons with the Patient No				(%)			
-Alone	643	41.7	43.6	48.0	37.8	51.8	46.8
-With One	415	30.7	30.5	27.2	37.1	29.5	30.2
-With two	188	12.5	15.6	16.0	14.0	12.1	13.7
-With 3 or More	128	15.1	10.3	8.8	11.2	6.6	9.3
Total *	1374	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 52.20 D.F = 12 Significance = 0.0139.
* (1 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

When the frequency of use of primary health services in relation to marital status was examined, no statistical patterns were found even though Chapter Ten reported that married men were probably over represented in the sample. One might expect married persons to consult the physician more frequently than single persons, but this did not appear to be the case. Table **11.13** summarizes the results from this question in the questionnaire.

Table 11.13 Utilization Pattern and Marital Status

Utilization Pattern	No	Respondents's Marital Status: Married 967	Single 406	Total 1373
1-2 (Low)	221	16.0	16.3	16.1
3-12 (Medium)	660	48.0	48.3	48.1
13 > (High)	492	36.0	35.5	35.8
Total	* 1373	100.0	100.0	100.0

Chi-square = 0.035 D.F = 2 Significance = 0.9823.
* (2 Did not answer)
Source: Author's Field Survey, 1987.

Table 11.14 Utilization Pattern and Level of Education

Utilization Pattern	No	Respondents' Educational Level (%): Low 492	Medium 533	High 348	Total 1373
1 - 2 (Low)	221	14.8	14.4	20.4	16.1
3 - 12 (Medium)	660	40.0	48.6	58.6	48.1
13 > (High)	492	45.1	37.0	21.0	35.8
Total	1373	100.0	100.0	100.0	100.0

Chi-square = 53.55 D.F = 4 Significance = 0.0000.
* (2 Did not answer)
For meaning of education level, see Table 10.6.
Source: Author's Field Survey, 1987.

In contrast Table **11.14** shows a strong relationship between the educational level and level of utilisation of primary care by respondents. Those with more education tended to use primary health services at a lower average level than the less educated, probably because the better educated also tend to be more urban and more wealthy, and can therefore afford to use alternative sources of care. Those better educated may also be able to judge when a visit to the doctor is not necessary. Only 21 per cent of the better educated were frequent users compared with 45 per cent of the illiterate.

More of the illiterate group were, of course, elderly and probably had more need for frequent attention. 17 per cent of users with a high educational level reported they used private facilities compared with only 11 per cent of those with a moderate and 6 per cent of those with a low educational level (Fig. **11.4**). This must help to account for these differences in levels of use of the public facilities.

Table **11.15** presents the distribution of respondents according to their occupation and level of use of the services. The chi-square test shows there is a significant differences between level of clinic use by those in different occupations. The pattern of use by government employees and students were similar, with the majority falling into the medium level of frequency, while traders, farmers, herders, the retired and unemployed tending to be frequent users. Private employees were also often infrequent users, probably because they include many non-Saudis some of which tend to be low frequency users. This may partly be because they work at the same hours as the clinics. An earlier part of the survey showed that non-Saudis are over-represented in the sample, but they are not frequent users. This could be for several reasons. As already stated those working in large companies normally use private facilities provided for them. Another part of the writer's survey shows that non-Saudis use private health services at twice the rate of Saudis. More are in towns where they can use hospitals instead of health centres. Non-Saudis as a group also have less access to private transport which could reduce their frequency of use of primary health services. Whereas 97.4 per cent of Saudis in the sample had a car, only 38.4 per cent of non-Saudis did. Public transport is generally unavailable and taxis are expensive, so visits to health services would be made only when essential by those without a car and by those who live too far from the clinic to walk to it. This could include many of the non-Saudis employed on farms.

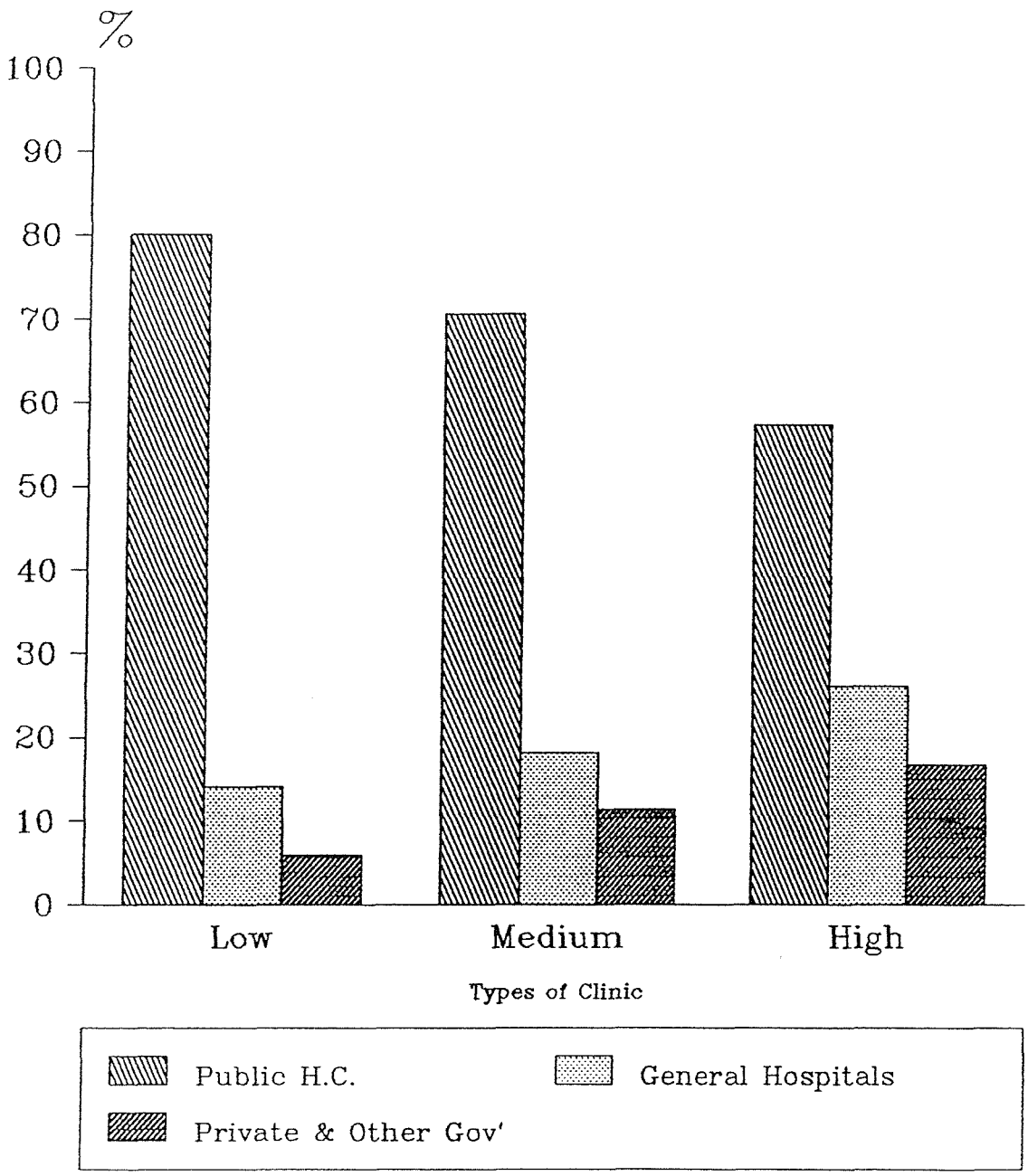


Figure 11.4 Types of Clinics used and level of education

Table 11.15 Utilization Pattern and Type of Occupation

Utilization Pattern	** No	Respondents' Occupations (%) 1	2	3	4	5	6	Total
		469	154	172	221	310	44	1370
1-2 (Low)	221	14.7	30.5	13.4	14.9	13.9	13.6	16.1
3-12 (Medium)	658	52.7	57.8	43.6	34.8	50.0	34.1	48.1
13 > (high)	491	32.6	11.7	43.0	50.2	36.1	52.3	35.8
Total	* 1370	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 83.37 D.F = 10 Significance = 0.0000.
*(5 Did not answer) ** 1- Government Employee 2- Private Sector Employee 3- Trader or Businessman 4- Farmer & Herdsman 5- Student 6- Unemployed & Retired
Source: Author's Field Survey, 1987.

To follow this up Table **11.16** examines the relationship between respondents' nationality and level of utilisation of primary health services. This shows a strong relationship between these two variables. Although the majority of both categories tend to visit doctors at the medium level of frequency (45.7 per cent among Saudis and 59 per cent among non-Saudis), almost as large a proportion of the Saudis in the sample (41.4 per cent) said they make more frequent visits while only a very small proportion of the non-Saudis (10.2 per cent) did. Nearly one third (30.7 per cent) of the non-Saudis made only infrequent use of the clinics. Possible reasons for this have already been indicated.

While one would expect income levels to influence user rates no statistically significant relationship could be established. It has already been noted that no significant relationship could be demonstrated between user incomes and type of ailments reported. Table **11.16** shows the results of income against use rate where the medium frequency users made up about half of each income group and the low frequency users were only a little more common among the low income group. While one could expect a stronger relationship from what has already been shown, the problem may lie in the difficulty of

getting reliable income data from respondents. There is also the problem created by alternative sources of health care. While one could expect men with higher income to be more health conscious it may also be that they can afford private health care and therefore make less use of public facilities. It may also be that part of the explanation of use levels refers to personality and health factors in the individual users and not outside influences like income.

Table 11.16 Utilization Pattern and Nationality

Utilization Pattern	No	Respondents' Nationality (%) Saudi	Non-Saudi	Total
		1129	244	1373
1-2 (Low)	221	12.9	30.7	16.1
3-12 (Medium)	660	45.7	59.0	48.1
13 > (High)	492	41.4	10.2	35.8
Total	* 1373	100.0	100.0	100.0

Chi-square = 101.13 D.F = 2 Significance = 0.0000.
* (2 Did not answer)
Source: Author's Field Survey, 1987.

Table 11.17 Utilization Pattern and Level of Monthly Income

Utilization Pattern	No	Respondents's Household Monthly Income (%) Low	Medium	High	Total
		323	666	184	1173
1-2 (Low)	185	19.5	14.6	13.6	15.8
3-12 (Medium)	589	48.0	51.8	48.4	50.2
13 > (High)	399	32.5	33.6	38.0	34.0
Total	* 1173	100.0	100.0	100.0	100.0

Chi-square = 5.92 D.F = 4 Significance = 0.2047.
(202 Did not answer)
Source: Author's Field Survey, 1987.

11.3 ACCESSIBILITY AND UTILISATION OF PRIMARY HEALTH CARE SERVICE:

Ready accessibility to health care facilities has been identified by several researchers as a major explanatory cause of more frequent use of facilities. It deserves more attention here in view of the scattered character of much of the population being studied. Several means of assessing proximity have been employed by other researchers. In pointing out that "...**physical proximity is an importance factor in accessibility and utilisation of health care resources.**" Meade et al (1988), noted that a measure of road distance can be weighted by road quality to assess users' accessibility. Meade added "**In societies where time is often more important than distance, the time it takes to reach a facility, time distance, may be the best measure. The degree of patient mobility, which involves the type of transportation available, is also implicated in distance measures...**" (pp. 306-308). For those reasons in this section all four measures - road distance, travel time, road quality, and type of transport - are considered to try and better understand the influence of accessibility on use made of health care services. Furthermore, Eyles and Woods (1983) have pointed out that the analysis of the friction of distance is usually achieved "... **by calculating facility attendance or utilisation rates of people distributed at various distances around the facility. The utilisation rate is adopted as the dependent variable and distance from the facility to place of residence as the independent variable.**" (p. 117). This is also done in the following sections.

11.3.1 Distance and Travel Time to Primary Health Care Services:

Table **11.18** shows the percentage distribution of respondents by distance travelled to the primary care services in each of the five study areas. Of the total respondents, about one

quarter (26.3 per cent) travelled less than one km., and 41.7 per cent travelled from one to five km.. That is, 68 per cent travelled less than five km. and can be considered to live close to their clinic. But this left 21.2 per cent who travelled from six to 14 km. and 10.8 per cent who travelled more than 15 km.. This compares closely with the findings of Al-Kahtani (1988) who found that 63 per cent of the visitors to health centres in the Sarat Abidah area in Asir Region, a village area in southwest Saudi Arabia, had travelled less than five km. In a more urban area Al-Ghamdi (1981) showed that 81 per cent of the users of seven dispensaries in Jeddah City travelled no more than five km. to them.

Table 11.18 Distance Between Respondents' Residence and Health Care Services, by Area

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	547	1375
Distance (Km.)	No			(%)			
Less than 1 km.	361	21.4	34.2	26.4	19.6	26.1	26.3
1 - 5	573	36.5	40.3	30.8	51.0	46.6	41.7
6 - 14	292	27.6	12.3	24.8	25.2	20.3	21.2
15 >	149	14.6	13.2	18.0	4.2	6.9	10.8
Total	1375	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 69.12 D.F = 12 Significance = 0.0000.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

These results suggest that most users in the writer's samples travel quite short distances for health care. This is further confirmed by examining the figures for five areas shown in Fig. **11.5**, and Table **11.18**. Although it is clear that more than half of the respondents in all the five areas said they had travelled no more than five km. to reach the clinic, in three areas (Al-Asyah, Buraydah Rural and Buraydah City) this percentage rose to over 70 per cent. While this is not surprising in Buraydah City and the rural area around Buraydah

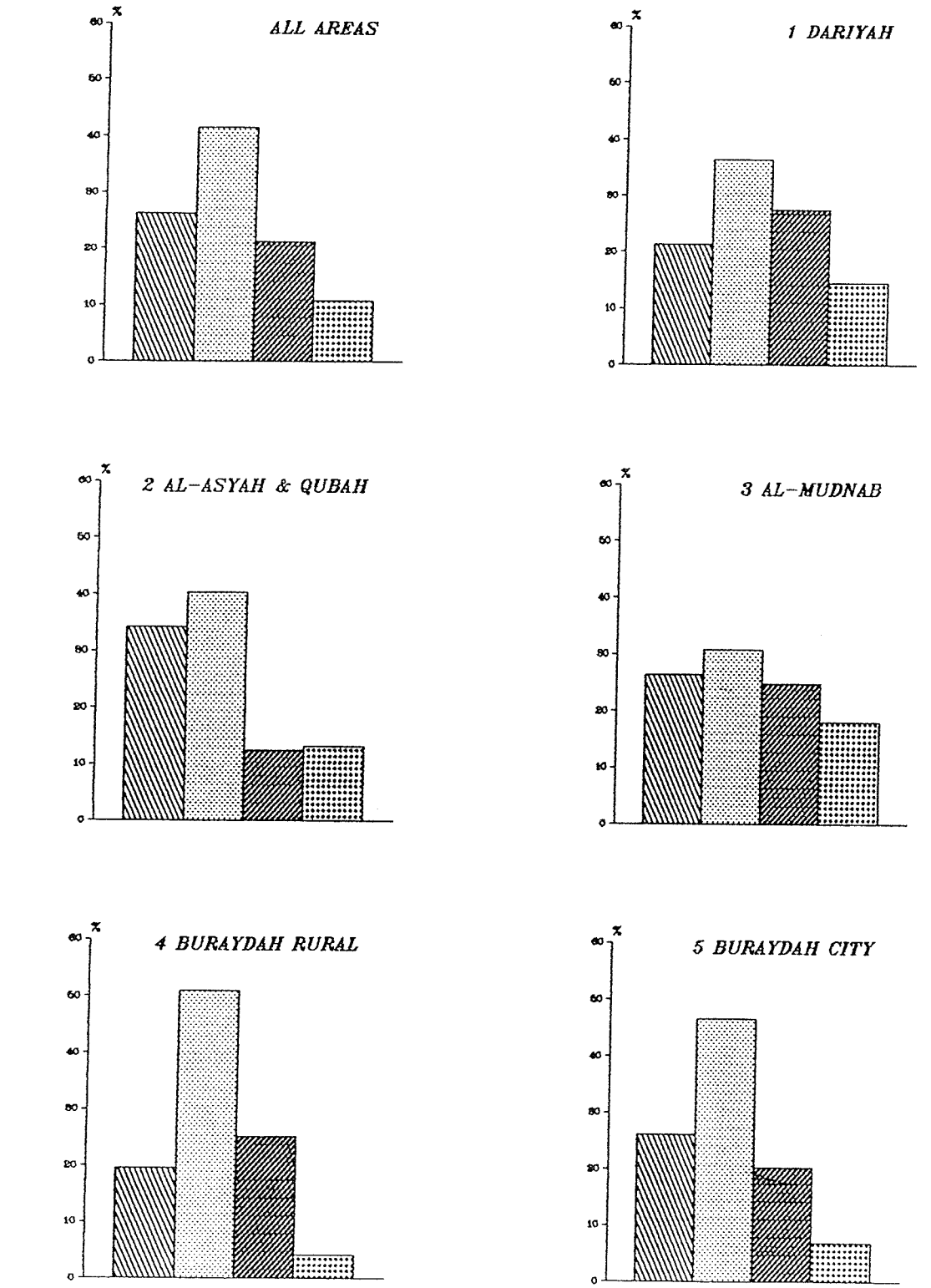


Figure 11.5 Distance from Respondents' homes to Clinic by areas

- where most of the population has a clinic near to where they live - it seems more surprising in Al-Asyah. But in that rural area clinics seem well sited to serve much of the local populations, as can be seen by the high proportion that come less than one km.. There are, in fact, ten health centres in Al-Asyah sub-emirate, one in each main village so that most people are very accessible to one. But all three of the more remote areas - Al-Asyah, Dariyah and Al-Mudnab - also have larger percentages of visitors who came more than 15 km. reflecting the scattered outlying population that also has to be served. Chapter Eight has already indicated the large average distance between health centres in these areas - 23 km. in Dariyah, 16 km. in Al-Mudnab and 15 km. in Al-Asyah. In contrast very few users of clinics in the Buraydah Rural area travelled any great distance. Only 4 per cent travelled more than 15 km. This reflects the fact that the centres clearly serve very local populations in the villages and in surrounding areas. Here the average distance between health centres is seven km.

The same is seen in Buraydah City where an even higher proportion of users - over one quarter - lived within one km. of the centre they were visiting. Here the average distance between health centres is 2.3 km. Only 6.9 per cent of the users of these city clinics travelled more than 15 km. and these probably came from outside the city and were attracted by the better health care at those clinics. Nevertheless, 7 per cent is a small proportion of total users to come any distance and results partly because of the large local population that mainly uses these busy city clinics, and partly because those travelling in from the countryside will probably be more attracted to the hospital outpatients' departments where they can expect better care.

These different patterns of distance decay of users at local levels is also reflected in the pattern of travel time the respondents reported. One would expect in the remoter rural

areas average journey time to a clinic would be greater than in a more settled or urban area, because a far greater proportion of the patients are likely to travel further. Furthermore, road conditions may be poorer in the desert areas to slow travel although urban congestion may also slow the journey in the city. To find out more about travel time visitors were asked to indicate the length in time of their journey, the type of road they used and the type of transport they used. These latter influencing are considered in the next section.

That most users of primary health services are local is clear from what has already been stated and from data calculated on travel time. Table **11.19** shows that nearly 40 per cent of all respondents reached the primary health centres in less than five minutes and no less than 88 per cent in less than 20 minutes. As is to be expected from the travel distance pattern already referred to, the least densely settled areas of Dariyah and Al-Mudnab shared similar travel time patterns, with rather larger percentages (19.8 per cent and 14 per cent respectively) of respondents reporting that they needed more than 20 minutes to reach the centre. It will be recalled in Table **11.18** that these two areas had a greater proportion of visitors from over 20 km. and these could be the ones taking longer to reach the clinic. Similarly the Al-Asyah area had the highest proportion of visitors (34 per cent) who came less than one km. and the highest proportion (52 per cent) who travelled less than five minutes. This suggests the easy access most patients have to the primary care there. Travel times to the clinics in Buraydah City seem a little longer than actual distances given in Table **11.18** would suggest. This could reflect the effect of the heavy traffic in the city.

Table 11.19 Time Respondents Needed to Get to Health Care by Car, by Area

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	547	1375
Time (Minutes)	No			(%)			
Less than 5	512	31.3	52.3	37.6	32.2	33.8	37.2
6 - 20	706	49.0	35.8	48.4	65.7	56.7	51.3
21 >	157	19.8	11.9	14.0	2.1	9.5	11.4
Total	1375	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 66.08 D.F = 8 Significance = 0.0000.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

11.3.2 Type of Road and Transportation:

The vast majority (87 per cent) of the respondents in all five areas indicated that they have their own cars. The proportion nowhere fell below 85 per cent (see Fig. **10.8**). As a result of high car ownership most respondents had used them to reach the clinics. Fig. **11.6** shows that of the total respondents nearly three quarters said they had used their own car. Only about 15 per cent said they walked even though considerably more than that proportion lived within one km. of the clinics. However, some respondents, especially those who are close to the clinic, reported that although they owned a car they preferred to walk to the clinic. Another ten per cent of respondents reported that they used other types of transportation, mainly a friend's car or taxi. These would probably have mainly been those without their own cars. There were no significant differences in the pattern of transportation used by respondents across the study areas. The highest percentage of those who walked to the health services was found in Al-Asyah where it has been noted that more of the visitors came from a short distance.

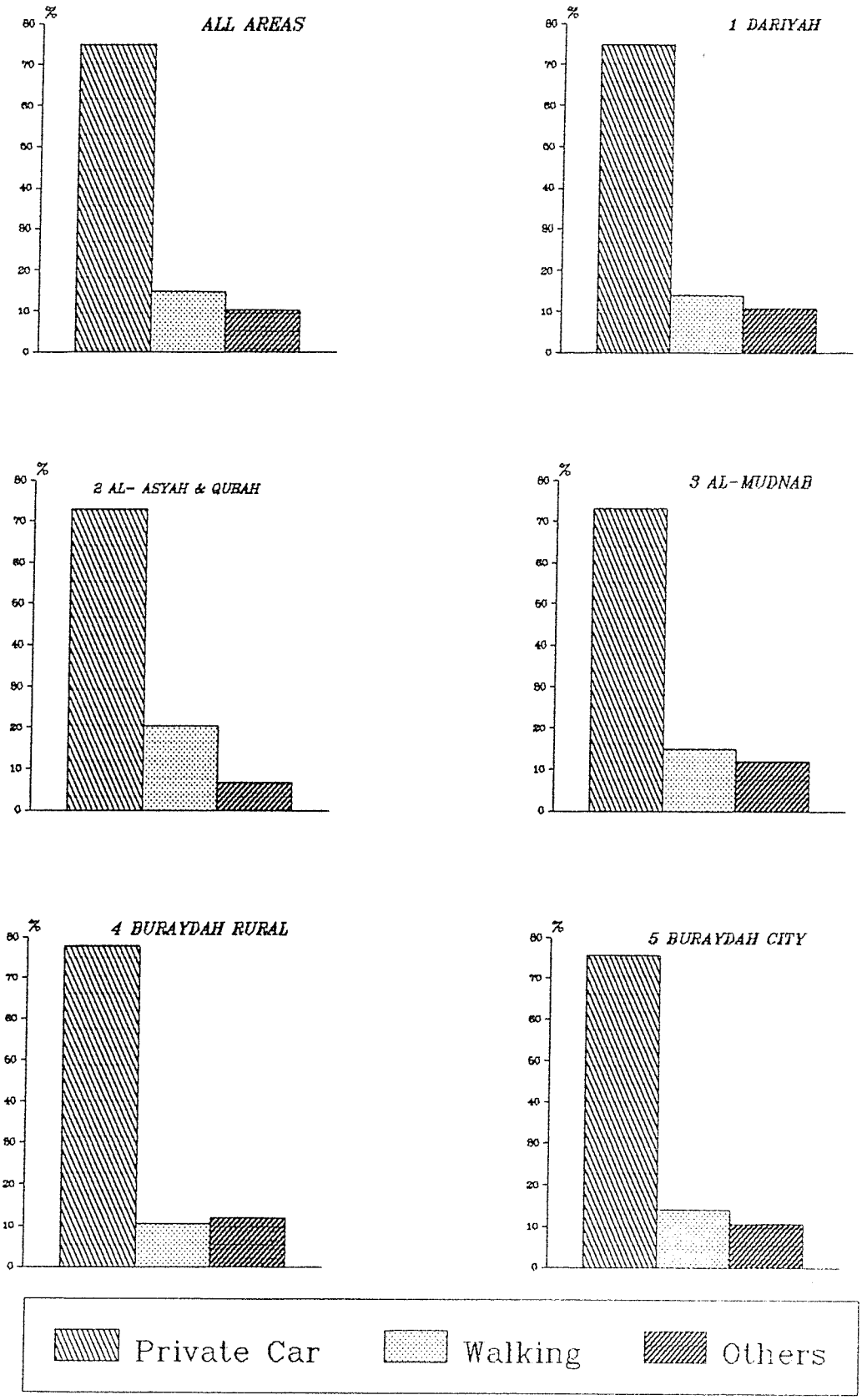


Figure 11.6 Types of transportation used by Respondents to reach Clinics by areas

In conclusion the survey generally showed that the majority of the users of the primary health care services in all the five areas lived quite close to the clinics and can reach them in a short time. This could indicate that the existing pattern of health facilities is well distributed to meet local health care needs although it is not possible from this data to tell if the people more distant from the centres use them much less because they consider the journey not worthwhile.

Finally in this section Fig. **11.7** shows the percentage distribution of respondents by area according to type of road used to reach the primary care services. About 60 per cent of all respondents reported that they had travelled the whole journey on asphalt road, compared with a quarter who said their whole journey was on dust roads. As was expected, there were great variations between the five areas. While almost all the respondents from Buraydah City travelled on asphalt roads more than 93 per cent of respondents in Dariyah travelled entirely on dust roads. Respondents in the other three areas more or less divided equally between who those travelled to the health services entirely on asphalt roads and those who travelled only part way on asphalt.

11.3.3 Accessibility and Utilisation Rates:

It is clear that easy accessibility is a major influence on how primary health care services are used, so it is sensible to examine utilisation in relation to access. The four factors of travel distance, travel time, type of transportation and personal mobility (car ownership) will now be examined in relation to utilisation rates.

Table **11.20 A** presents the relationships between travel distance and utilisation rates. There is some evidence to suggest that respondents who reported that they travelled a short distance (less than one km.) to seek health care tend to use the clinics at higher rates than those that have to

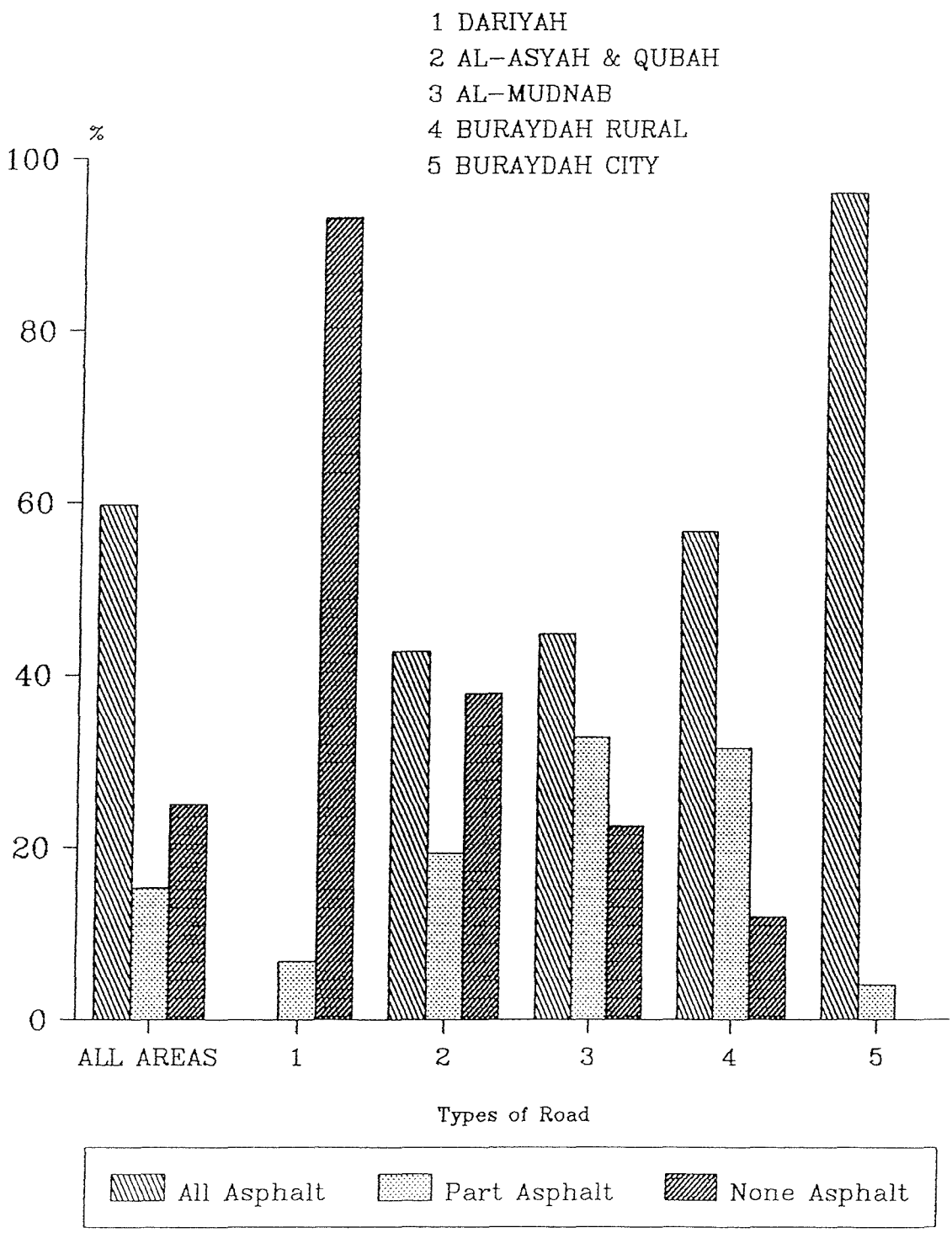


Figure 11.7 Types of roads Respondents use to travel to Health Care by areas

come further. Only 13 per cent of those who came less than one km. made infrequent visits whereas 24 per cent of those who lived more than 15 km. away were infrequent users. Whereas 41 per cent of those who lived within one km were very frequent users, this proportion fell to 36 per cent of those that lived more than 15 km. away.

Table 11. 20 A. Utilization Pattern and Distance to Clinic

Utilization Pattern		Distance (Km.) (%)				
		Less than 1	1-5	6-14	15 >	Total
	No	360	572	292	149	1373
1-2 (Low)	221	12.8	15.4	17.8	23.5	16.1
3-12 (Medium)	660	49.1	50.2	50.0	40.9	48.1
13 > (High)	492	41.1	34.4	32.2	35.6	35.8
Total	* 1373	100.0	100.0	100.0	100.0	100.0

Chi-square = 15.04 D.F = 6 Significance = 0.0199.
* (2 Did not answer)

Table 11.20 B. Utilization Pattern and Time to Get to Clinic

Utilization Pattern		Time (Minutes)			
		Less than 5	6-20	21 >	Total
	No	510	706	157	1373
1-2 (Low)	221	12.2	17.4	22.9	16.1
3-12 (Medium)	660	50.8	47.0	43.9	48.1
13 > (High)	492	37.1	35.6	33.1	35.8
Total	* 1373	100.0	100.0	100.0	100.0

Chi-square = 12.29 D.F = 4 Significance = 0.0153.
* (2 Did not answer)
Source: Author's Field Survey, 1987.

It does appear that distance of travel does have some influence on the utilisation rates and the chi-square value gives a statistically significant result although other factors may distort the pattern and reduce the significance. Much the same results were obtained when the accessibility

factor was conducted in terms of travel time. This is clearly a close reflection of travel distance and needs no further explanation. It is worth noting, however, that about a third of users who came from each time distance zone are frequent users. This could indicate that there is a large group of patients who need frequent attention and for these distance and time of travel are factors of less importance to them than the essential need for regular care.

The means of transport clearly was also a strong influence on utilisation rates but this is not unrelated to the travel distance and medical need. Table **11.21** shows that those with the use of their own car - the great majority - tend to be more frequent users of primary care services. In contrast those without transport and not able (or willing) to walk to the services were generally lower level users. They featured far less as frequent users and many more were infrequent users. Those able to walk to the clinics tended to make more frequent use of them. It is clear, then, that visitors with their own transport or who can reach the clinics by foot tend to visit the physician much more frequently than those who have to depend on someone else, or on other types of transportation.

Table 11.21 Utilization Pattern and Type of Transportation

		Type of Transportation (%)			
Utilization Pattern	No	Private Car	Walking	Others **	Total
		1027	203	142	1372
1- 2 (low)	221	13.9	19.2	27.5	16.1
3-12 (Medium)	660	46.9	49.8	54.2	48.1
13 > (High)	491	39.1	31.0	18.3	35.8
Total	* 1372	100.0	100.0	100.0	100.0

Chi-square = 33.77 D.F = 4 Significance = 0.0000.
* (3 Did not answer)
** Including Taxi, Bus, Motorcycle, and Friends' cars.
Source: Author's Field Survey, 1987.

11.3.4 Reasons for Choosing a Clinic:

Finally, respondents were asked to indicate their main reason for choosing the clinic where they were interviewed, in order to get their personal assessment of the importance of the accessibility factor in their decision on where to go for health care. Table **11.22** groups the reasons given into three main categories and a miscellaneous category. Easy access was clearly the dominant reason given by 72 per cent of respondents although the quality of the local doctors was stated by 18 per cent. Only 5 per cent of patients had been referred from another centre. There was considerable variation in the patterns of responses across the five areas with easy access being a much more dominant reason in the more remote areas than in either Buraydah City or even the Buraydah Rural area. Whereas 94 per cent of visitors in Al-Asyah chose the centre because of its close proximity to their homes, this factor accounted for only half of users of centres in Buraydah City. There, and in Buraydah Rural, rather more attention was paid by some visitors to the quality of the doctor. A higher proportion of patients to Buraydah City and Al-Mudnab centres had also been referred to the clinic, or outpatient department, but this higher figure was probably because these groups included samples taken at the hospital outpatients departments. Referral was rare in the other areas. Only two of the 243 visitors interviewed in Al-Asyah had been referred from elsewhere. Even in Buraydah City only 50 of the 547 interviewed were referred from elsewhere and most of these were seen at the Buraydah City Central Hospital Outpatient Department.

Table 11.22 Respondents' Most Important Reason for Choosing a Clinic, by Area

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of samples		192	243	250	143	541	1369
Categories of Reasons				(%)			
1.Because it is close to my residence	983	88.5	94.2	84.4	73.4	49.5	71.8
2.Because it has a good service	249	3.1	2.9	8.0	16.8	35.5	18.2
3.Referred from other H.C or Hospital	69	0.5	0.8	6.0	0.7	9.2	5.0
4.Others	68	7.8	2.1	1.6	9.1	5.7	5.0
Total	* 1369	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 285.78 D.F = 12 Significance = 0.0000.
* (6 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

CHAPTER TWELVE

USERS' ATTITUDES TO PRIMARY HEALTH CARE SERVICES

The previous chapter examined possible influences on health centre use and showed that easy access to the local clinic is a major influence on its level of use. Few visitors travel outside their home area for basic medical care, and only a small amount of referral seems to occur. But none of this considered what the visitors think of the local facilities available to them. This chapter is concerned with this aspect of the provision. Other researchers have noted the importance of the attitudes of the health personnel towards their patients and the nature of the facilities on the way that the public use health facilities. The level of facilities in the primary health care centres was analysed in Chapter Nine but the question was not asked on how visitors evaluate such services. Several questions in the questionnaire survey were designed to examine such issues. The results for these questions are dealt with in four sections of this chapter. These consider the health care register and record system, the consultation and waiting time, other aspect of the clinics' facilities, and alternative health care sources.

12.1 PATIENT REGISTRATION AND ATTITUDES TO CLINIC:

One element of importance to the development of the health services laid out in the First Development Plan (1970-1975) was to establish a medical registration and record system throughout the Kingdom's hospitals and health centres, so that a health file is kept on each patient which is referred to every time the patient uses the services. Without it a patient can freely visit several doctors, possibly receiving conflicting advice or several sets of medicine. With this system a patient can more easily be referred up the system for more specialist advice or treatment. Where the record system

was not in operation in the past a patient was not even asked to give his name and address, and the doctor kept no information to help in the further treatment of the patient. It was not until early 1986 that the M.o.H. began to put registration and a record system into practice. Under it each patient or household registers with the nearest health centre and doctors keep a record of each consultation. Al-Qassim health region was one of the first in Saudi Arabia to set up this new system [50].

Table 12.1 Response of Patient by Area to the Question "Do You Have Your Health Record in a Clinic in Al-Qassim?."

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	547	1375
Response	No			(%)			
Yes	852	89.6	80.2	68.4	67.8	39.7	62.0
No	523	10.4	19.8	31.6	32.2	60.3	38.0
Total	1375	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 218.43 D.F = 4 Significance = 0.0000.
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab (4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

Because the writer conducted his own questionnaire just over one year after the introduction of the system it seemed sensible to find out to what extent the users of primary health care services were aware of this system in their particular case. Each patient was asked to state whether he was registered with the clinic that he was interviewed at or in another clinic in the region. The results in Table **12.1** show that 62 per cent of the total respondents said they were registered with the clinic where they were interviewed or with another clinic in Al-Qassim region. If one accepts that some users would be unaware of the record system now being kept on them and that some of those questioned were visitors from

outside of Al-Qassim who did not normally go to that health centre, the figure of 62 per cent of users aware of their health profile suggests that the record system was being widely used soon after it had been but into operation. This appears a very good achievement to so widely institute the system in only a year.

It is also interesting to note that the highest level of awareness of registration and the health record was found amongst the respondents in Dariyah (89 per cent) and Al-Asyah/Qubah areas (80 per cent). This level is about twice as high as that found among respondents from Buraydah City and well about that in Buraydah Rural and Al-Mudnab. This is rather surprising. One might expect that people in urban areas would be brought into a registration system and be aware of it faster than in more remote areas. However, this was clearly not the case and there may be several reasons for this. Health workers and physicians in the rural health centres serve small communities and it has become clear that many patients are often regular visitors. Establishing the record system here would have more straightforward than in the city where there are more patients to deal with and more clinics that patients have been free to visit. In addition in rural areas health workers have been known to go out to register the villagers [51]. Hence more rural people appeared to be registered and aware of their health record. In contrast in the city there are no catchment areas for the various clinics. With most of the city streets unnamed visitors to clinics can not easily give an address for registration purposes. Workers in primary health centres in the cities do not know therefore if a particular patient should be registered in their clinic. This is made worse because many city dwellers have access to several clinics and may use different clinics at different times for different purposes [52].

Since patients are now more restricted by the registration system to the use of their local clinic it seemed sensible to find out their opinions of their clinic. Respondents were asked to rate their opinion of the clinic they were visiting into one of four classes from excellent to below average. The results in Table **12.2** reveal that 23.5 per cent of all respondents evaluated the services as excellent, and 28.2 per cent above average. Only 9.3 per cent rated them as below average so that 90 per cent of users rated the service as average or better than average. Levels of satisfaction with the services are, then, generally high. No question was asked, however, on what constituted an average quality.

A statistically significant difference was seen to exist between different areas in relation to patients' evaluation of services, although any pattern is difficult to explain. About a quarter of visitors in four of the areas rated their clinics as excellent, but the proportion who so praised the clinics in Al-Mudnab was much less (at 17 per cent). Many more visitors at Dariyah also rated their service as only average. Al-Asyah, Buraydah City and Al-Mudnab had a greater share of users who rated the services as below average. More of the visitors to clinics in Buraydah City felt unable to give an opinion. This was partly because these clinics had more visitors from outside the area who were unfamiliar with these clinics.

Because no obvious explanation of these variations is available it seems sensible to explore these patterns using the results of other evaluative questions asked by the writer. The quality of the physician must be a major factor influencing how patients rate a clinic, so that the answer to a question on how the visitor would rate the doctor could be revealing. Table **12.3** shows that overall respondents expressed a very similar pattern of opinions on the physicians to those rating the general services of the clinic. Again Al-Mudnab got the poorer rating overall and Dariyah a more

Table 12.2 Respondents' General Evaluation of the Clinic where they were Interviewed, by Area

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		189	239	248	142	542	1360
Evaluation level	No			(%)			
1-Excellent	319	23.8	26.8	16.9	28.9	23.4	23.5
2-Above Average	383	12.7	29.3	31.0	38.7	29.0	28.2
3-Average	473	56.1	29.7	36.3	23.2	31.9	34.8
4-Below Average	126	4.2	11.3	14.9	2.1	9.4	9.3
5-Do not know	59	3.2	2.9	0.8	7.0	6.3	4.3
Total	* 1360	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 101.89 D.F = 16 Significance = 0.0000.
* (15 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

Table 12.3 Response of Patients by Area to the Question "How Would You Rate the Doctor You Saw Today?."

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Sample		192	240	250	143	543	1368
Rate level	No			(%)			
1-Excellent	348	29.7	30.0	18.8	40.6	21.0	25.4
2-Above Average	363	14.1	27.9	29.6	29.4	28.2	26.5
3-Average	471	51.0	30.0	33.2	25.2	33.5	34.4
4-Below Average	115	3.1	8.3	15.2	00.0	9.4	9.4
5-Do not Know	71	2.1	3.8	3.2	4.9	7.9	5.2
Total	* 1368	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 105.57 D.F = 16 Significance = 0.0000.
* (7 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

average one. There may also be some evidence in the data to suggest that respondents in the remote areas were a little more satisfied with their doctors than with the health centres. This was not the case in Buraydah City where there are more alternative doctors against which to judge those in the health centres in the city. Another possible explanation for a less favourable opinions of doctors in the city is that although the primary health centres there are usually better equipped and maintained, physicians in the village centres see fewer patients and can build a better relationship with their patients. As a result patients in the villages were less prepared to be critical of the doctors to the writer [53].

The survey also included a question to determine the amount of time the physician spent with the patient. Clearly some cases need more time than others, but the writer wished to see if patients felt that they had been hurried through by the doctor and not treated adequately as a result. Table **12.4** shows that nearly 60 per cent of patients had been dealt with in less than five minutes and 90 per cent in less than ten minuets. Rather surprisingly, more of the patients in the rural areas had been dealt with most rapidly even though doctors appear less overworked in these clinics. Whereas 52 per cent of patients in Buraydah City spent five to ten minutes with the doctor, this rose to 67 per cent in Dariyah and not much less in the other rural areas. The results tend to suggest that physicians in all the five areas spend very little time with each patients. These findings compare closely with those previously found by others in Saudi Arabia. Sebai, for example, in two of his studies (1981, 1982a) found that in the health centre of Turaba, and in Al-Asyah district in Al-Qassim, on average a physician spent only two minutes with each patient.

There could be several different reasons to explain this very rapid throughput of patients. In some cases it is simply the large number to be seen, although other evidence, especially

in rural areas, may refute this where a physician may see less than 20 patients in a day. The speed of throughput may reflect the skill or attitudes of the doctors but the writer was not able to evaluate these. Undoubtedly some patients do not want lengthy consultations and will have more respect for doctors who can give an immediate diagnosis [54].

Table 12.4 Response of Patients by Area to the Question "How Many Minutes Does the Physicians Usually Spend With You ?"

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	546	1374
Time (Minutes)	No			(%)			
Less than 5	802	67.2	60.9	57.6	66.4	52.4	58.4
5 - 10	446	25.0	30.9	29.2	26.6	38.8	32.5
11 >	126	7.8	8.2	13.2	7.0	8.8	9.2
Total	* 1374	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 26.31 D.F = 8 Significance = 0.0009.
* (1 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

The data presented in Tables **12.3** and **12.4** do suggest that the largest percentage of respondents who rated their physicians as excellent were found in those areas, like Buraydah Rural, Al-Asyah, and Dariyah where the largest percentage of respondents said they were dealt with by the physicians in less than five minutes. On the other hand, users of Al-Mudnab clinic who were not very satisfied with the physician also reported more patients spending longer with the physicians. This relationship between the rating of the doctor and the length of time spent with the patient is shown graphically in Fig. **12.1**. At this stage, of course, we do not know if the patients who rated their physicians poorly where also the ones that spent longer with them but it does appear

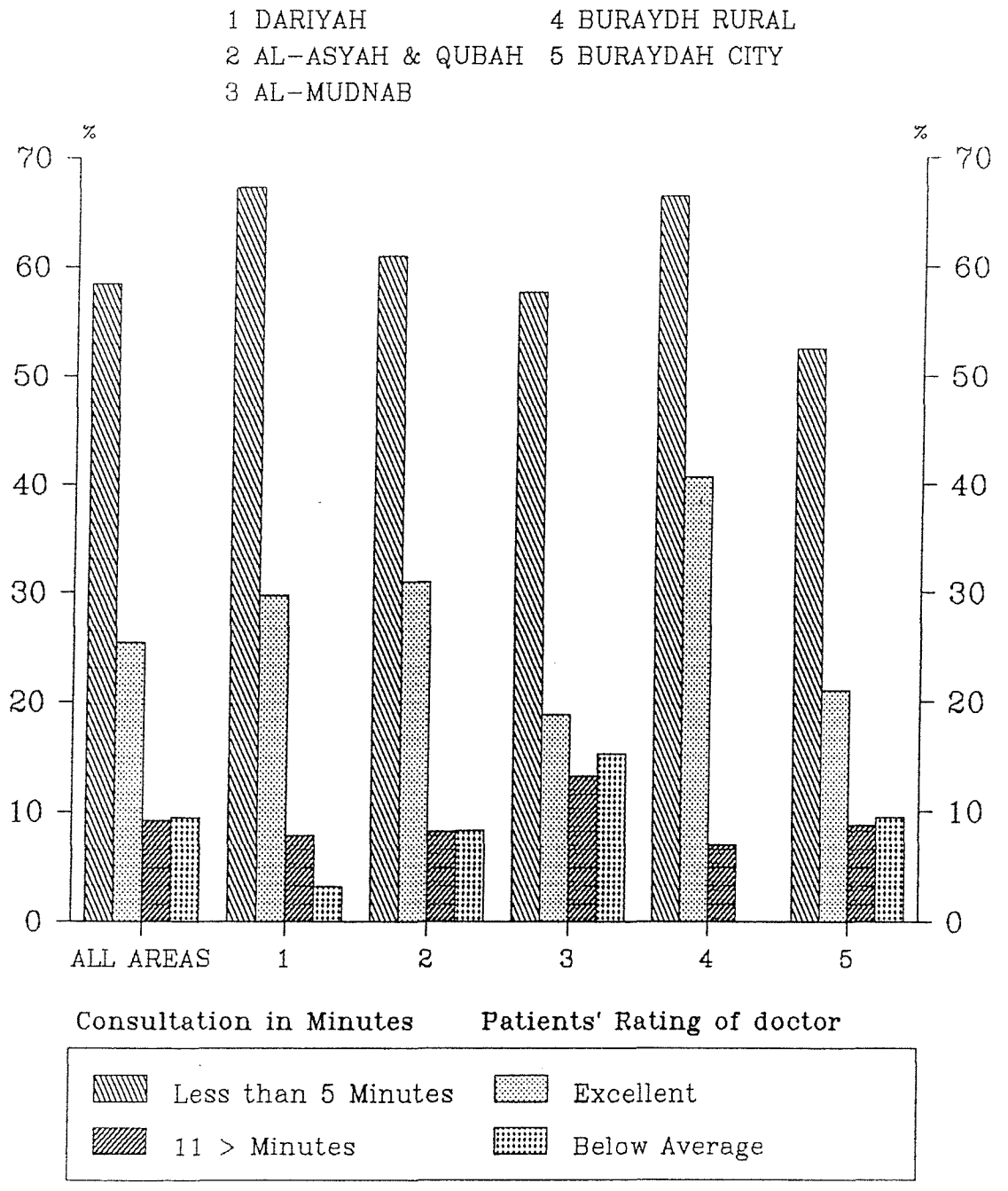


Figure 12.1 Relation between Patients' attitude to Physician and time spent by Physician with Patient by areas

that patients judge a doctor partly on how quickly he can make a diagnosis rather than how accurate is the diagnosis.

12.2 ATTITUDES TO WAITING TIME:

Most patients seem to want a doctor to provide a quick consultation although time spent with the doctors may be viewed differently by different patients. But the time spent waiting to see the physicians has no value placed on it and is simply an indicator of the level of the doctors' work-load and the quality of management of the health services. There is, of course, no appointments systems to space out consultations because few health centres have a telephone. Thus people arrive at all times while the clinics are open. Waiting times can, therefore, build up. Respondents were, therefore, asked to express their opinion about the length of time they had to wait, the time when they prefer to visit the clinic to avoid this, and the level of crowding in the clinic.

Table **12.5** gives the results of the question on the length of waiting time. It reveals that of the total respondents just over half were kept waiting no more than ten minutes. This would seem to be entirety acceptable in any public system without a prior appointment system. Another quarter had to wait more than 20 minutes. Waiting time varied significantly by areas. Respondents in Buraydah City had generally to wait longer than those in rural centres. For example, waiting time for the majority (55.3 per cent) of respondents in Buraydah City was more than ten minutes, in contrast to only 22.4 per cent of those in the Dariyah area, although other rural areas were little better in this than Buraydah City. These waiting times generally do not seem excessive in most cases. According to Haristany and El-Torky (1985), under the British NHS standards at hospital outpatient departments, which operate an appointment system and a referral system, 75 per cent of the patients should not to be kept waiting more than 30 minutes to see the doctor (Stewart and Sleeman, 1967). The

results of the present survey show the waiting times fall well within this standard with only 10.6 per cent of the total sample having to wait more than 30 minutes. This seems remarkable given that there is no appointment system to even out the flow of patents, and clearly reflects the rapidity which patients are dealt with.

Table 12.5 Response of Patients by Area to the Question "Usually How Many Minutes Do You Have to Wait Until You Can See the Physician ?."

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	546	1374
Waiting time (Minutes)	No			(%)			
5 or less	353	45.8	35.0	23.6	21.0	16.7	25.8
6 - 10	377	31.8	19.8	25.2	36.4	28.0	27.4
11 - 20	274	11.5	19.3	19.2	26.6	21.8	19.9
21 - 30	224	5.7	14.8	16.4	11.2	22.0	16.3
31 >	146	5.2	11.1	15.6	4.9	11.5	10.6
Total	* 1374	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 122.41 D.F = 16 Significance = 0.0000.
* (1 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

The differences between areas regarding waiting times are easy to explain and relate to two main factors. First, some centres, especially in urban areas, have more patients to see so that waiting is inevitable at some times. Second, some physicians spend longer with patients and this causes longer waits. The data shows that physicians in urban clinics tend to spend more time with their patients than those in rural areas and those are also areas where there are more patients to see. Hence the waiting time is often longest in the urban areas. It is not unusual to see long lines of patients waiting for services in the clinics in Buraydah City and Al-Mudnab town health centres and in hospital outpatients

departments. This is not a usual sight in the rural clinics [55].

Waiting time was not, then, a major criticism of the service. When asked if they thought the waiting time to see a physician was reasonable the overwhelming majority of respondents were satisfied with the waiting time (Table **12.6**). This was especially the case in Buraydah Rural and Dariyah, the two areas which had the shortest waiting times.

Table 12.6 Respondents' Opinions of Waiting Time, Crowding of the Clinic and the Time Patients Prefer to Visit the Clinics, by Area

Area No	(1)	(2)	(3)	(4)	(5)	Total
No of Samples	192	243	250	143	547	1375
Response			(%)			
A: WAITING TIME:(*)						
Yes, Reasonable	91.7	78.6	78.4	95.1	85.7	84.9
No	8.3	21.4	21.6	4.9	14.9	15.1
B: CROWDING OF THE CLINIC:(**)						
Yes, Crowded	26.2	52.7	54.2	49.0	49.0	47.4
No	73.8	47.3	45.8	51.0	51.0	52.6
C: PREFERENCE TIME TO VISIT THE CLINIC:(***)						
-Morning	40.6	41.2	38.0	38.5	38.2	39.1
-Afternoon or Evening	20.3	37.0	31.2	30.1	37.7	33.2
-No preferred time	39.1	21.8	30.8	31.5	24.1	27.8

(*) Chi-square = 34.58 D.F = 4 Significance = 0.0000.
(**) Chi-square = 42.54 D.F = 4 Significance = 0.0000.
(***) Chi-square = 31.33 D.F = 8 Significance = 0.0001.

Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

The respondents were also asked whether they thought the clinics were crowded. Here opinions were more equally divided with 47 per cent saying they were crowded and 53 per cent saying they were not. This division of opinion was similar in all areas except Dariyah where crowding was not widely perceived (Table **12.6**) [56]. There could be several reasons for these divergent opinions including the time of day when a sampled patients visited [57], the time kept waiting and the adequacy of the waiting areas. Some clinics, where lines of patients built up waiting to see the doctor, had inadequate space for people to wait in. It should also be noted that some people would like more facilities and want the authorities to believe their health centre is more busy and crowded than it really is, so as to get more facilities provided [58]. They, therefore, exaggerated to the writer, or his interviewer assistant, the problems of congestion at their clinics in the hope that this would be reported to the authorities.

A question was also asked about when patients preferred to visit the clinics to see if this explained any variation found in waiting time or other criticisms of the service. Table **12.6** shows that generally more preferred to make a morning visit, but because little criticism was made of the waiting times, nothing can be inferred from these preferences.

12.3 PATIENTS' OPINION OF FACILITIES IN THE PRIMARY HEALTH CARE SERVICES:

A number of items in the questionnaire were designed to obtain users' opinions on the general facilities in the clinics. The respondents were asked to express their views about the quality of facilities such as the adequacy of the waiting room, the cleanliness of the clinics, and the adequacy of car parking. In most cases the responses could be classed into a few clear groups.

12.3.1 Waiting Room and Cleanliness:

Because there is no appointment system there can be no control on when patients arrive at the clinic. A waiting room is, therefore, considered a normal part of the health clinic although this research showed that waiting time is not excessive in most cases. Respondents were asked to rate the waiting room into one of four classes from more than adequate to poor. Table **12.7** shows that nearly 70 per cent believed the waiting rooms were adequate or more than adequate. This is to be expected since waiting is not a major problem and few had to use the waiting rooms for long. Only 3.7 per cent felt they were poor. The great majority of respondents in all areas were satisfied with the facility in their health centres although respondents in Dariyah and Buraydah Rural areas seemed more satisfied than those in Al-Mudnab and Buraydah City. No respondent in Dariyah and only 1.4 per cent of those in Buraydah Rural thought the waiting rooms were poor and only small percentages there thought them less than adequate. The facilities were not as highly regarded in some areas where the health centres are in less suitable rented building. In some of these it is difficult to provide a suitable waiting room.

The study also sought to examine the respondents' views about the level of cleanliness of the clinics. As shown in Table **12.7** nearly 70 per cent of respondents evaluated the cleanliness of clinics as excellent, or above average. Only 4.3 per cent evaluated the cleanliness as below average. Although more than half of the respondents from all the five areas considered the clinics' cleanliness to be above average, a large minority in Dariyah and Al-Mudnab saw the clinics there as of only average or below average cleanliness. This could be because more of the clinics in those areas are cleaned by the servant staff in the clinic, whereas some others in the other areas use private contractors who have to maintain a good standard in order keep their contract. In the Al-Mudnab area it may be that because patients were less

satisfied with other aspects of the health services they were also prepared to criticise the cleanliness of the premises.

Table 12.7 Respondents' Opinion of the Adequacy of the Waiting Room and Standard of Cleanliness of the Clinics, by Area

A: Waiting Room: (**)

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Sample		190	240	246	141	539	1356
Response	No			(%)			
More than adequate	281	22.1	13.8	11.4	12.8	29.7	20.7
Adequate	659	64.7	46.3	43.5	71.6	40.3	48.6
Less than adequate	366	13.2	32.9	39.4	14.2	26.9	27.0
Poor	50	00.0	7.1	5.7	1.4	3.2	3.7
Total	* 1356	100.0	100.0	100.0	100.0	100.0	100.0

B: Standard of Cleanliness: (***)

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		189	241	248	139	539	1356
Response	No			(%)			
Excellent	554	38.6	42.3	32.3	47.5	43.2	40.9
Above average	376	15.9	27.8	28.2	32.4	30.4	27.7
Average	368	42.9	24.5	32.3	18.7	22.6	27.1
Below average	58	2.6	5.4	7.3	1.4	3.7	4.3
Total	* 1356	100.0	100.0	100.0	100.0	100.0	100.0

(**) Chi-square = 135.07 D.F = 12 Significance = 0.0000.
(***) Chi-square = 57.13 D.F = 12 Significance = 0.0000.
* (19 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

12.3.2 Car Parking:

Because parking at clinics is a problem restricted to the urban areas only users of clinics in Buraydah City and Al-

Mudnab were asked whether they thought car parking was adequate at these clinics. Whereas about 40 per cent thought the parking was sufficient 60 per cent thought it was not adequate. Table **12.8** summarises these results. Clearly this could reflect the time when respondents use the clinics and the difficulty of parking which results. Most urban clinics are in rented buildings located in narrow streets and most visitors arrive by car, so that sometimes car parking can be difficult. This suggest that parking problems should be considered when new clinics are developed in the urban areas.

Table 12.8 Adequacy of Car Parking.(*)

Area	Al-Mudnab City	Buraydah City	Total
Response		(%)	
Adequate	46.0	39.1	39.7
Not adequate	54.0	60.9	60.3
Total	100.0	100.0	100.0

Chi-square = 0.64 D.F = 1 Significance = 0.4235.

(*) This question was answered only by the respondents from Al-Mudnab and Buraydah Cities.
Source: Author's Field Survey, 1987.

12.4 ATTITUDES TO USING OTHER HEALTH CARE SERVICES:

While most respondents only used the clinics they were interviewed at, the writer thought it useful to examine the users' opinions of health services provided by other clinics within Al-Qassim region and in other regions in the country. This would allow him to see how respondents rated their own clinics against other health services they may know about. Four questions were asked on this topic.

When the respondents were asked to indicate whether they had visited another clinics in Al-Qassim in the previous 12

months, 62 per cent said they had. This percentage varied little from area to area, as can be seen in Table **12.9,** so that it is clear that most patients have used more than one clinic for health care in recent months and do not base their evaluation of health care on only one facility. That so many respondents had visited other clinics when the registration system is intended to reduce this is a little surprising and cannot be easily explained.

Table 12.9 Number of Respondents who Reported they had Visited Another Clinic in Al-Qassim Region, and Those who had made Visits to Another Clinic in Another Region in the Kingdom in the Last 12 Months

Area No	(1)	(2)	(3)	(4)	(5)	Total
Total Samples	192	243	250	143	547	1375
To Al-Qassim:						
Number	120	160	146	90	329	845
% of total	62.5	65.8	58.4	62.9	60.1	61.5
To Another Region:						
Number	63	35	39	15	109	261
% of total	32.8	14.4	15.6	10.5	19.9	19.0
Distribution of respondents who had visited another clinic in another region (%)						
1-In Riyadh City	58.7	77.1	61.5	93.3	87.2	75.5
2.In other Cities in the Kingdom	41.3	22.9	38.5	6.7	12.8	24.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

Each respondent was then asked the question "Do you think you would be treated better at another clinic in Al-Qassim than in this clinic?". Answers to this question, given in Table **12.10**, reveal that nearly half of the total respondents thought they would get better treatment elsewhere, whereas only about a quarter were certain they would not. These responses, however, varied widely from area to area. More than twice as many in Dariyah and Al-Asyah as in Buraydah City and Buraydah Rural expected they would find better treatment in other centres in Al-Qassim. It seems, then, that those using clinics in and around Buraydah City believed they were getting attention as good as available anywhere in the Province. Those using rural clinics do not believe they are of the best standard, but this reflects the lower level of equipment and staffing expected of them in remote areas.

Because so many patients were found to have used other health centres than the one they were being interviewed at they were also asked if they had been treated outside Al-Qassim in the last 12 months. Table **12.9** shows that about one fifth has gone outside the region for some form of health care in the previous 12 months. This percentage were markedly higher in Dariyah where about one third had made such a visit. This high figure for Dariyah is not too surprising since the Dariyah area is far from the nearest hospitals in Al-Qassim, and some Dariyah people would tend to seek more specialist care from Afif General Hospital in Riyadh Province. This is nearer to them than Buraydah and Unizah or other hospitals in Al-Qassim. It should also be noted that three-quarters of respondent who said they had been treated outside of Al-Qassim said they went to Riyadh City which is the closest place for specialist care. Most of the rest went to Jeddah City. It does appear, then, that many respondents expect to travel outside the Province for some health care, and recognize that what is available in Al-Qassim is of reasonable, but not the highest, standard in the Kingdom. For this they mainly look to Riyadh.

Table 12.10 Response of Patients by Area to the Question "Do You Think if you Go to Another Clinic in Al-Qassim Region, that your Treatment would be a Lot Better than at this Clinic ?."

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	142	546	1373
Response	No			(%)			
Yes, certainly	622	78.1	64.6	46.0	30.3	28.8	45.3
Maybe	196	14.1	10.3	17.6	13.4	14.8	14.3
No, certainly not	345	4.7	12.8	19.6	31.0	38.8	25.1
Do not know	210	3.1	12.3	16.8	25.0	17.6	15.3
Total	* 1373	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 234.69 D.F = 12 Significance = 0.0000.
* (2 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

Table 12.11 Response of Patients by Area to the Question " Do You Think if you Go to Another Clinic or Hospitals in Riyadh or Jeddah, that your Treatment Would be a Lot Better than at this Clinic or Any Other Clinic in Al-Qassim ?."

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	241	250	142	547	1372
Response	No			(%)			
Yes, certainly	800	82.3	62.2	49.6	48.6	54.7	58.3
Maybe	130	9.4	7.1	14.8	8.5	8.4	9.5
No, certainly not	105	3.6	7.5	10.0	9.2	7.7	7.7
Do not know	337	4.7	23.2	25.6	33.8	29.3	24.6
Total	* 1372	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 83.41 D.F = 12 Significance = 0.0000.
* (3 did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

When asked whether they believed better treatment was available outside Al-Qassim there was a large majority (about

60 per cent) who recognize that this would be the case. Table **12.11** shows again that those respondents were more common in the more rural clinics of Dariyah and Al-Asyah. Over one third of all respondents were undecided and answered either "maybe" or "did not know". This clearly reflects the fact that a large minority of patients had never experienced health care outside Al-Qassim or outside of their own area in order to judge it against care available locally.

12.5 ATTITUDES TO USE OF TRADITIONAL FOLK HEALING:

In Chapter Two reference was made to the widespread use of folk healing in the region. Researchers have recognized the important role of traditional medicine in the Third World where it can, in some cases, be viewed as part of the health care delivery system. Here, therefore, it was decided to find out more about its use by those who were also frequenting the modern primary health care services. Earlier it was noted that folk healing in Saudi Arabia in recent years has changed with the spread of modern medicine, but is still widely practiced in both rural and urban areas. Some people use traditional methods for certain illnesses and modern ones for others. This was clearly confirmed in the results of the writer's survey.

Table **12.12** shows that more than one fifth of the sample of users of modern health services had made one or more visits to a folk healer in the previous 12 months. As many as one third of respondents in Dariyah and Al-Asyah/Qubah areas had used a folk healer. But even in Al-Mudnab and Buraydah Rural as many as one person in six had gone to a folk healer. In Buraydah City the proportion fell to one in ten. The differences between areas in use of folk healers may reflect various socio-economic characteristics of the respondents such as their education level as well as the availability and quality of modern health services in the areas where use of traditional methods is common.

Table 12.12 Attitudes to Use of Folk Healing, by Area

Area No		(1)	(2)	(3)	(4)	(5)	Total
No of Samples		192	243	250	143	545	1373
Response	No			(%)			
Visited	280	38.0	32.5	19.6	17.5	9.9	20.4
Not visited	1093	62.0	67.5	80.4	82.5	90.1	79.6
Total	* 1373	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 96.72 D.F = 4 Significance = 0.0000.
* (2 Did not answer)
Area No =(1) Dariyah (2) Al-Asyah & Qubah (3) Al-Mudnab
(4) Buraydah Rural (5) Buraydah City.
Source: Author's Field Survey, 1987.

When the sample was divided according to whether they were nomadic or settled people, more nomads (41.5 per cent) than settled people (18.5 per cent) used the folk healers. There is also a statistically significant relationship between use of folk healers and the age of respondents, with those over 50 years old of age about twice as likely (38.2 per cent) to have used them as those in the next lower age cohort (22.7 per cent). Even so 16 percent of those in the age groups 15-19 and 20-34 also said they had visited a folk healer in the previous 12 months (Table **12.13**). It will be recalled that some of the elderly (over 50) were often frequent users of the modern primary health care services, yet clearly this is complemented by quite a lot of use of folk medicine as well.

Table 12.13 Attitude to Use of Folk Healing and Age (%)

		Respondents' Age Group				
		15-19	20-34	35-49	50 >	Total
Response	No	223	664	322	165	1374
Visited	280	15.7	16.4	22.7	38.2	20.4
Not visited	1094	84.3	83.6	77.3	61.8	79.6
Total	* 1374	100.0	100.0	100.0	100.0	100.0

Chi-square = 42.71 D.F = 3 Significance = 0.0000.
* (1 Did not answer)
Source: Author's Field Survey, 1987.

A significant relationship was also found between use of folk healers and the educational level of the respondents (Table **12.14**). As the education level of respondents increased there was a decrease in the percentage of respondents using folk healing. Whereas nearly 30 per cent of those with a low educational level had made a recent visit to a folk healer, only 16 per cent of those with an intermediate, and 15 per cent of those with a secondary or university, level of education had done so. This pattern, of course, probably reflects the age factor since most of those with a better education would be in the younger age groups.

Table 12.14 Attitudes to Use of Folk Healing and Level of Education (%)

		Respondents' Educational Level			
		Low	Medium	High	Total
Response	No	493	532	349	1374
Visited	280	29.4	15.6	14.9	20.4
Not visited	1094	70.6	84.4	85.1	79.6
Total	* 1374	100.0	100.0	100.0	100.0

Chi-square = 38.73 D.F = 2 Significance = 0.0000.
* (1 Did not answer)
Source: Author's Field Survey, 1987.

In Table **12.15** the relationship between respondents' occupation and use of folk healing is presented. Here the unemployed and retired - often the older people - and the farmers and herders - often the least educated - are shown to be the main users, accounting for about 40 per cent of the visits to folk healers. Those in better jobs or with better education, including more of the traders, students and government workers, use the folk healers much less. The lowest level of use was found amongst the private sector employees (7.8 per cent). This is because the majority of this group are non-Saudi. While 23.5 per cent of the Saudis in the sample reported at least one visits to a folk healer in the past year, only six per cent of non-Saudis had done so.

That non-Saudis did not use folk healers, who are part of the traditional Saudi culture, is not surprising.

Table 12.15 Attitudes to Use of Folk Healing and Occupation (%)

		Respondents' Occupation						
		1	2	3	4	5	6	Total
Response	No	470	154	172	222	309	44	1371
Visited	279	16.8	7.8	19.8	37.8	16.5	43.2	20.4
Not visited	1094	83.2	92.2	80.2	62.2	83.5	56.8	79.6
Total	* 1371	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square = 77.51 D.F = 5 Significance = 0.0000.
* (4 Did not answer)
(1) Government Employees (2) Private Sector (3) Trader and Businessman (4) Farmer and Herdsman (5) Student (6) Unemployed and Retired.
Source: Author's Field Survey, 1987.

Only one relationship tested - that between the use of folk healers and the income band of respondents - seems unusual in that it did not produce a statistically strongly significant result. Instead it seems that those with a lower income tended to use folk healers less than those with a medium or higher income. It suggests that the users of folk healers - among the retired, the farmers, and the herders - are those men in those groups that can afford to pay for this extra aspect of health care.

Finally, no relationship could be found between marital status and use of folk healers. Unmarried men in the sample used folk healers only a little less than married men (Table **12.16**).

Table 12.16 Percentage of Respondents who Visited a Folk Healer According to their Type of Settlements, Marital Status, Nationality and Income

Categories			
(1) Settled Nomads:		(2) Marital Status:	
Settled	% 18.5	Married	% 21.7
Nomad	% 41.5	Single	% 17.3
(3) Nationality:		(4) Income:	
Saudi	% 23.5	Low	% 14.2
Non-Saudi	% 6.1	Medium	% 20.5
		High	% 20.0

(1) Chi-square = 33.30 D.F = 1 Significance = 0.0000.
(2) Chi-square = 3.38 D.F = 1 Significance = 0.0656.
(3) Chi-square = 37.34 D.F = 1 Significance = 0.0000.
(4) Chi-square = 5.87 D.F = 2 Significance = 0.0530.
Source: Author's Field Survey, 1987.

CHAPTER THIRTEEN

CONCLUSIONS

13.1 SUMMARY:

The main aim of the research described in this thesis was to investigate the provision and use of primary health care facilities in Al-Qassim region, Saudi Arabia. In order to gain a proper understanding of the pattern of use of health care services in any given geographical area they need to be analysed within the context of the overall national health care delivery system. Therefore, in the first part of the thesis, an attempt was made to examine the main features of the Saudi health care delivery system and the growth of health provision in the Kingdom.

In brief, the analysis has shown that the rapid rise of the Kingdom's wealth from oil production, especially in the 1970s and early 1980s, allowed for a major expansion of spending on social welfare, including health. Much progress has been made in only a few years to create a level of health provision almost equal, in quantitative terms, to that found in some advanced countries. This has particularly been the case in terms of levels of health manpower, although the country's dependence on expatriate medical skills has presented several problems especially in the provision for women. The provision of facilities in the primary health care area has also expanded rapidly, especially since 1980, but again with problems of an over-reliance on expatriate skills.

In particular, the massive expansion of the Ministry of Health, which was given the main responsibility to provide health care services to all parts of the population, helped to spread the network of primary health facilities to reach almost all communities including the more remote areas. Much

of this network was created in the 1980s and helped to reduce the inequalities, which previously existed between the Kingdom's health regions. Nevertheless, some of the data presented in this thesis indicates that even as recently as 1986 regional variations in the levels of provisions still existed between the M.o.H.'s 14 health regions. Furthermore, the limited Ministry data available on utilisation rates of health facilities suggests that there are still considerable regional variations in utilisation patterns. While more use is made of facilities in all regions as more are provided, it is clear that some regions have benefitted from better levels of provision.

Nevertheless, this broad-scale analysis, based on government data, could not be taken far as a result of limitations of the data. These limitations were both in terms of the spatial pattern of provision of facilities and the lack of information in the data on the utilisation of the services. In order to get to a more detailed spatial analysis of health care, the second part of the thesis focused on the provision and use of health facilities in one province, Al-Qassim, an area well-known to the author. Thus, the second part of the thesis has provided an explanation of the Province's main geographical features and its population characteristics. This paved the way for the investigation of the provision and use of the health facilities and a review of the general health situation in Al-Qassim. The main conclusion from this was that use of health care facilities in Al-Qassim, as in other parts of the Kingdom, have expanded rapidly in the last decade as health services have become available at all levels. This has probably improved health standards and although this thesis has not looked at morbidity rates due to various causes in any detail they are believed to have declined in recent years. For example, there is some evidence - from the data presented in Chapter Seven on morbidity rates due to infectious diseases - that the morbidity rates due to these diseases have declined in recent years.

The development of health resources in the Province and the main features of the present provision of health care facilities were examined. This indicated that the rapid expansion of health facilities and staff gave Al-Qassim region a larger share of the nation's health care services than the average level in the rest of the Kingdom. Al-Qassim is one of the more favoured regions for health care provision. Not only is there a considerable amount of hospital provision centred in Buraydah, but the local primary health care network has been extensively developed to bring basic care close to even some of the remotest communities in the region. Along with the rapid development of the health care facilities, generally, the use of the primary care facilities has increased rapidly in the last two decades. The average number of visits per person per year to these services has increased faster than that in the rest of the country. The bedouin and the villagers in remote rural communities appear to make as much use of - and sometimes even more use - public primary health centres as the urban people of the Province.

In order to examine in much more detail the spatial variety of use of primary health services at the sub-regional scale, five parts of the Province were selected for field study. This involved employing an extensive questionnaire on the use of these facilities in the five areas. 23 M.o.H. health centres, a small number of non-ministry health centres, two hospital outpatient departments, and 1410 patients were the basis of this survey. By using an extensive questionnaire to adult males it was intended to identify patterns of use of primary health care facilities and the main demographic and others factors related to their use. The methodology employed was discussed in Chapter Six, and the results of the questionnaire survey were presented in Chapters 10-12. The major findings can be summarized as follows:

1. The survey found that, generally, the largest categories of primary health care users were the middle aged with middle

income. Most were married. Most had a medium level of education and were often government employees. While none of that is surprising, because those groups form the bulk of the Saudi society, the survey also showed that the proportion of elderly men attending the primary health clinics was small when compared with their actual proportion of the Province's total population as given in 1974.

2. The demographic and socio-economic characteristics of the users varied significantly between the five study areas in terms of their age distribution, social types, educational levels, occupations, nationalities, monthly income, and housing conditions. More than one third of all respondents were classified as being illiterate but there were significant variations between the five areas in this, in particular between Buraydah City and the other areas. A similar pattern distinguished Buraydah City from the other areas regarding the nationality, occupations and incomes of the users. More non-Saudis, government employees and high income people were found among health centre users in Buraydah City compared with the other areas. There were also significant variations between the areas in terms of the social types of the users. About one fifth of the users of the primary services in Dariyah and Al-Asyah/Qubah were nomads compared with less than 1 per cent in Buraydah City. Such variations reflect differences in the demographic and socio-economic characteristics of the population in those areas. In contrast, little variation was found in levels of marital status of users across the five areas.

3. Analysis of the data indicated the possible influence of some of these factors on the ailments which bring people to seek primary care, and the frequency of their use of these services. A statistically significant relationship was found between the types of ailments reported and six of the background variables. These variables were location, social type, patients' age, level of education, nationality and

marital status. No statistically significant relationships to ailment were found with several other variables including occupation, income, family size and housing conditions.

It was also clear that the patterns of illness which lead to the use of facilities varied markedly between the urban area of Buraydah City, the desert area of Dariyah, Al-Asyah and Qubah, and the farm areas of Al-Mudnab and Buraydah Rural. Thus, while the desert communities suffered rather more with gastro- and chest illnesses, those in the towns sought more varied health care. Ear, nose, throat and dental problems tended to be more common in and around Buraydah City.

Overall, however, the study revealed that gastro-intestinal complaints were the most frequent cause for visits in all areas, followed by ear, nose and throat problems. The ranking of other common ailments varied somewhat from area to area. While gastro- and chest problems were common causes for health care visits among all categories of users, they were especially common among the elderly, the nomads, and those with little education.

4. The frequency of visits to health centres was examined both in relation to patients' demographic and socio-economic characteristics and in relation to their mobility and accessibility to the centres. Average rates of use of health centres appeared to be high. Here, it was clear that while most patients fell into the broad groups listed earlier, those patients who made more visits than average to the primary health centres were more often the elderly, those with large families, the unemployed and retired, the nomads, and those with little education. That is, while the elderly people, who also made up the bulk of the unemployed and retired were under-represented as groups within the sample, the majority of those that used the service appeared to make more frequent visits to the doctors than other groups. The desert people actually often visited their local health centres more

frequently than people in the towns and rural areas, even though they have to travel further to the clinics. However, no data could be collected on the non users or very infrequent users of health centres, of which there may be many more in the most remote communities. The fact that the urban people had alternative sources of health care to the free Ministry health centres may also help account for the lower frequencies of primary care use in these areas. While one might expect income levels and marital status, and types of ailment to influence frequency of user visits, no statistically significant relationship was found for these variables.

From these findings it is reasonable to conclude that the elderly, the nomads and, to some extent, the rural and less educated people can be divided into two main groups: those who believe in the benefits of the modern health service and who will use those facilities frequently and as needed; and secondly, those who never, or rarely, use the services. There could be several reasons for the behaviour of this latter group. These could include a lack of trust in modern methods of treatment or a lack of access to the services due to mobility or other reasons. Undoubtedly, this would be an area for useful further investigation in the future.

5. What examination of questions of access was possible in this study indicated that the vast majority (more than 85 per cent) of the users of primary health care services in all five areas owned their own cars. This high level of car ownership meant that most respondents used cars to reach the clinics. Only about 15 per cent of respondents walked to the health centre, even though considerably more than that lived within one km. of the clinics. Only 10 per cent of the users used other types of transportation, mainly a friend's car, or taxi. Because personal car use was so widespread, no significant differences were found in the pattern of transportation used by respondents across the study areas.

Easy access was the dominant reason given by 72 per cent of respondents to explain their choice of health centre, but this is a much more important reason in the more remote areas than in either Buraydah City or even the Buraydah Rural area. Whereas around 90 per cent of visitors in Al-Asyah and Dariyah chose a centre because of its close proximity to their homes, this factor accounted for only half of users of health centres in Buraydah City.

The importance of the proximity factor on patients' decision on where to go for primary health care was also confirmed by the results of the study of travel distance and travel time. Over two thirds of the patients came from less than five km. and can be considered to live close to their clinics. Only 11 per cent travelled more than 15 km.. These results suggest that most users only travel quite short distances for health care. Nevertheless there were some variations between areas. Whereas less than 7 per cent of the users in Buraydah City and its rural area travelled 15 km. or more to reach the clinic, between 13-18 per cent had travelled this distance in the other three areas.

In examining the relationships between travel distance, means of transport and utilisation rates, the survey provides some evidence to suggest that the distance to be travelled to reach the health centre does have some influence on the utilisation rates. Respondents who travelled a shorter distance (less than one km.) tended to use the clinics more frequently than those that had to come further. Much the same results were obtained when the accessibility factor was examined in terms of travel time. It is worth noting, however, that about a third of users who came from each distance or travel time zone were frequent users. This could indicate that there is a large group of patients who need frequent medical attention. For these the distance and travel time to get to the clinic are factors of less importance to them than the essential need for regular care.

The means of transport clearly was also a strong influence on utilisation rates. Visitors with their own transport, or those who could reach the clinics on foot, tended to consult the physicians much more frequently than those who had to depend on someone else for transportation.

Given the low density of settlement in at least some of the survey areas it is surprising that the majority of users live so close to the health centres. This could indicate that the existing pattern of health facilities is now sufficiently well distributed to meet local health care needs. However, it is not possible from this survey to tell if the people who are more distant from the centres use them much less because they cannot make the journey, or consider the journey not worthwhile, or because they do not need to seek care more frequently. Nevertheless, it could be concluded that, in general, poor accessibility to health care is no longer a major influence on health care for the communities studied, or their utilisation behaviour. Rather, their care standards and levels of clinic use are probably influenced more by individual factors of age, education, custom and environment. More research needs to be done on this.

6. The analysis of the user's attitudes towards use of folk healing indicated that, as for the use of the modern services, individual patient factors are the most important influences on people's behaviour and attitudes to seeking care by traditional methods. Age, educational level, nationality and social type appeared to be major influences here. The survey showed that one out of every five users of modern clinics also had made one or more recent visits to a folk healer. In the more rural and desert areas of Dariyah and Al-Asyah/Qubah, as many as one person in three had used these traditional methods, but the proportion fell to one in ten in the urban area. Although use of folk healers was found to be relatively common among all clinic users it was much more common among those over 50 years of age, the nomads and the less educated.

No less than three in ten of the least educated had used a local healer in recent months. In fact the three sub-groups of the population who used the health centres most frequently were also the most frequent users of the traditional healers.

7. Finally, in addition to these relationships established above, some other general findings worth noting include the following:

There is evidence that the health record system - by which each patient is registered with a health centre - has been quite widely adopted even though is was only put into practice a few months before the survey was conducted. About two thirds of the total users of the primary health centres said they were registered at a health centre in Al-Qassim. These percentages were particularly high among those in the more remote and rural areas and indicate that even bedouins and villagers will cooperate with the health authority to make the system run more effectively. This should encourage the health authority to introduce other refinements such as a proper referral system and a health educational programm to help the public to look after their own health and to be better informed on how to use the health facilities.

In general, users of the primary services seemed satisfied with the quality of the services and the physicians at the local health centres. The level of satisfaction was found to be especially high among those in the rural areas. The results also show that the physician was the most important factor influencing how patients rate the services. There was little criticism of the very short time most physicians spend with each patient.

The length of time patients have to wait to be seen by the physicians was seldom excessive, and the overwhelming majority of respondents were satisfied with the waiting time, the waiting rooms and the standard of cleanliness of the clinics.

There was criticism, however, of the quality of some physicians and of their lack of understanding of the language and the local cultural conditions.

13.2 LIMITATIONS OF THE STUDY:

As a first exploratory work in medical geography at this scale in Saudi Arabia, a number of limitations have to be recognized. These include:

1. The very limited data available from official sources, not only on health care in Saudi Arabia in general and Al-Qassim Province in particular, but also in terms of the basic data on the demographic and socio-economic characteristics of the population which is central to this type of research.

2. The sample survey was limited to adult males only > 15 years who were attending the clinics. This was because the writer could not interview females. The survey was also limited by the fact that all the interviews were conducted at the clinics so that no information was collected on those who do not use the clinics. Therefore, the survey has found out nothing about these two sections of the population, the women and the non-users. The questionnaire did, however, include several questions seeking information about the respondents' households. In fact the 1375 cases analysed in this study represented families totalling 11,830 persons.

3. With no previous work of this type conducted in Saudi Arabia, the writer felt it was necessary to examine many variables which might relate to the use of primary health care before he could identify the most important ones. In turn this meant that the questionnaire had to collect a wide range of data on the users of the health services in terms of their demographic, socio-economic, housing and mobility characteristics, as well as on their attitudes towards the use of the modern and traditional medicine. This conditioned the form of the questionnaire and meant that he could not ask

supplementary questions to more fully explore the most important relationships revealed between patients' characteristics and their use of care facilities.

13.3 RECOMMENDATIONS:

Despite these limitations it is believed that this research has contributed to the understanding of the use of the health services in a non-western country, about which little is yet known. The study has also provided a great deal of empirical data in the immediate subject area and it is hoped that it will provide a foundation for future research in Saudi Arabia in the field of health in general and on the geography of health care in particular.

The results of the research suggest that several recommendations for further work can be made.

1. This research has shown that several socio-cultural factors, such as age and education, are important influences on the use of primary care facilities. But the exploratory nature of this research has meant these factors could not be fully explored and more work needs to be done on some of them. In particular, the varied behaviour of individual sectors of the population, like the elderly, some of whom seem to make little use of primary health care services while others are frequent users, would benefit from further study.

2. In focusing on the use made of the primary care services in particular areas, some attention was paid in this thesis to the illnesses which brought patients to the centres. But much more study is needed on patterns of ill health and health trends at the local and regional levels to more fully assess future health care needs. Patterns of ill health over the next few years, for example, could be examined in relation to the other characteristics of the population and possible environmental influences. In this way one could see how

effective the primary care system and the referral system is in improving health conditions of particular communities.

3. This study has been limited to the use of primary health care services by adult males where it appears that levels of use of health centres are generally high. This seems to be partly the result of the easy access that most men have to the clinics, and because clinics are now well distributed across the region. But no research has yet been done on the use of the basic health care facilities by women and children. They have far less mobility. In particular women's satisfaction with the level of provision of primary health care centres may be lower than those expressed by most men. Furthermore, there are few female physicians in the health centres to meet the needs of female patients. The attitudes of this sector of the population to the primary health care system needs proper research attention.

4. Because the great majority of users of health centres have been shown to live close to the centres, further research could usefully be carried out on how best to meet the developing health care needs of these local communities, especially the smaller rural ones where alternative sources of care are not readily accessible. These developing health needs could include the requirement for more dental care, better maternity and neonatal care, and proper health education, little of which is yet found in most rural clinics. Clearly such facilities cannot be provided in every rural clinic. How to provide an effective network of these more advanced facilities would need research on an area's settlement pattern, demography, its health needs, and the best way to define health centre catchments so as to site these new facilities in accessible locations.

5. There is some evidence that some people overuse the primary services because they are so readily available. Others visit a range of facilities for one health problem.

This suggests that the effect of the introduction of the record and registration system on the patterns of use of primary health should be monitored to see what effect it has on this aspects of use. There may be a need for public education to teach people on how to best use their local health facilities.

6. This study has shown that the folk healers still command widespread support especially in the more rural and desert areas. There is a need to have a proper survey of their use to see how far that use integrates with the primary care system.

7. All of the above recommendations for further research could be conducted at different scales or in other areas. But the writer's research has also shown that there would be value in developing some of the research begun in Al-Qassim at the very local scale to complement what has been done here at the regional and sub-regional scale.

13.4 AN ILLUSTRATION OF THE POSSIBLE VALUE OF FURTHER RESEARCH IN AL-QASSIM AT THE LOCAL SCALE:

The research reported in this thesis has shown that marked geographical variations occur in the use of primary health care facilities between different areas and between different sectors of the population.

But the writer's sample of health centre patients in the five areas used was aggregated from 23 Ministry health centres and also included patient samples from two hospital outpatient departments. This aggregation of the data was necessary given the exploratory nature of the research and the immediate aim to examine the possible spatial variations in use of services across the whole Province. Nevertheless, the aggregate scale analysis has the obvious drawback that there could be variations in patients' use of health care within each chosen

area. The research has also suggested that different groups within the patient samples in each area use the facilities differently.

Therefore, a further recommendation for future research is a need to examine possible variations between centres within each area in order to see how particular health centres are used, and how different groups of patients at each centre use those services. As an illustration of the value of the very local scale of analysis, this final section of the chapter points to the behaviour of visitors to only four of the health centres - two in Buraydah City and two in the most remote desert area of Dariyah - to see the types of association that might be established at this more local scale, and which were not so clear at the sub-emirate scale of analysis.

The chosen health centres for this in Dariyah sub-emirate are Dariyah, the sub-emirate capital, and As-Samaurayah, one of the smallest settlements in its area with a largely nomadic population. As-Sfra'a, in the north of Buraydah City, and As-Salmeyah, in the south, were chosen from the health centres in Buraydah City. Attention is therefore focussed on the 100 respondents sampled from the two centres in Buraydah City and the 99 sampled from the two in Dariyah sub-emirate. In any development of this research larger patient samples would, of course, be needed.

It is not difficult to establish major differences in the main demographic and socio-economic characteristics of the users of these centres. These were clear in the analysis of the larger samples considered in Chapter Ten, of which these present 199 patients are a part.

At the two centres in Dariyah, for example, nomads accounted for nearly one third of the users but none were found at the centres in Buraydah City. Related to this one finds there were more poorly educated persons amongst the users in Dariyah

(53.5 per cent) whereas the better educated made up the largest proportion (43.0 per cent) of the users in Buraydah City. High income persons and non-Saudis were twice as numerous in Buraydah as in Dariyah. Even with samples of no more than 100 patients these differences were statistically significant between the two areas. No statistically significant differences were found between the ages of the users in the two areas, however, although the Dariyah centres attracted rather more elderly people than the Buraydah City centres. In these respects these small sub-samples seem representative of the broader samples used earlier.

As an illustration of how socio-economic conditions affect health care use at this local scale, it is useful to point to possible relationships between two of the variables - educational level and age of the patients - and the use made of health care services in the two areas. Three aspects of this can be briefly considered - the frequency of use of primary health centres, the use of folk healers, and reasons for health centre visits. The tendency already reported for people in the remote area of Dariyah to make more frequent visits to health centres and to use folk healers more often is more characteristic of the less educated than of other members of the population there. These types of behaviour were less common among patients in Buraydah City but it does seem that the less educated patients at the Buraydah clinics are also the more frequent visitors both to clinics and folk healers. That is, there is some evidence that education influences these two aspects of health care behaviour. The present samples are too small to provide statistically significant results but it also seems clear that while the more highly educated in both the Dariyah area and in Buraydah City are less frequent visitors to health centres, several of the well educated in Dariyah still used folk healers. On the other hand, in Buraydah City very few health centre users in any of the educational classes used folk healers. This is

probably because they were not considered necessary and are not so readily available in the city.

Similarly, when the ailments which brought people to the health centres in each area are examined in relation to their educational level, it again appears that the health problems are related to the educational background of the patients. In Dariyah chest diseases were common with persons of all educational levels, gastric problems were more common with the less educated, and ear, nose and throat problems were more common for those with more education. In Buraydah City, in contrast, gastric problems were the single largest health problem and did not seem to vary with educational level of the patients. But chest diseases were rather more common amongst the poorly educated people in Buraydah City. Dental needs, and a range of unspecified health problems, were also more common with the better educated in Buraydah City.

When one looks at frequency of utilisation of health centres and use of folk healers according to the age of the patients across the two areas, other patterns are found. Visitors to the Dariyah centres made more frequent visits overall than in Buraydah City, and the pattern did not vary very much by age groups. That is, age by itself is not a clear explanatory variable of visit frequency. On the other hand, it appears to be a more explanatory variable in the use of folk healers where the older people in Dariyah were more likely to use folk healers. In contrast, the few who used folk healers in Buraydah City included young as well as middle aged patients.

When one examines the ailments which brought patients to health centres by different age groups, it seems that the common chest diseases in Dariyah afflict persons of all ages and by no means only the older groups. Gastric problems were rather more common with the middle age groups. This parallels what was found earlier, that these health problems more commonly affect the less educated, most of whom would be

middle aged or elderly. In Buraydah City the common gastric problems that affect all educational groups were also seen to be common to all age groups, whereas chest diseases may be more common amongst the older persons. This fits with the fact that chest problems appear more common with the less educated in the city.

In brief, a further stage in this research, using larger patient samples than taken here, could usefully employ a multi-factor approach to attempt to see which groups of factors - age, education, social type, income, and others - can together help to explain the variations in use of health facilities. With this type of approach more could be learnt of regional and local variations in health and this could, in turn, help in the provision of more effective health care.

NOTES

[1] It was estimated that M.o.H. facilities alone would require an additional 45,497 employees between 1985 and 1990 to run 45 new hospitals with 9,264 beds and 98 diagnostic/maternity centres and an additional 1,103 primary health centres. Manpower increases of this scale are difficult to accomplish, however, because medical manpower worldwide is in short supply, especially in certain specialisations, and takes years to train. Existing health service facilities in Saudi Arabia, particularly those of the Ministry of Health, are already understaffed. (M.o.P, 1985a, p. 61).

[2] These regions are not quite the same as the 14 administrative provinces. For example, Makkah province is divided into three health regions (Jeddah, Makkah and At-Ta'if), while the three areas of Al-Jawf, Al-Qurayyat and the Northern administration area are all included in one health region (the Northern health region).

[3] At the present time the M.o.H. is headed by a Cabinet Minister responsible for the formulation of health policy. Beneath him is an elaborate hierarchy headed by two deputies, one responsible for the implementation of the policies and the other for planning and development.

[4] The third development plan in 1980 stated that it was intended to " review the organisation, administration and management of the medical services, as a preliminary stage to completing the establishment of an integrated hierarchy of medical services at the national, regional and district levels." Yet not all of the work of the Ministry was to be decentralised. "The planning of medical services will be centralised and the administration and management decentralised through a hierarchy of responsibility and authority." (M.o.P., 1980, p.349).

[5] The proportion of the total government budget devoted to the M.o.H. actually fell over the period to well below 3 per cent in most years. It rose again after 1982. This more recent rise partly reflects the decline in total government income with the fall in oil revenues since 1982. The M.o.H. budget was protected to some extent from this fall in the most recent years when the M.o.H. took more than 4 per cent of total government expenditure.

[6] Al-Rabiah (1984) has estimated that 15 per cent of all health facilities in the Kingdom are provided by the private sector. Sebai (1987) has suggested that health spending by ministries other than the M.o.H. may also represent 36 per cent of the nation's total spending on health.

[7] For example, during the second plan period five hospitals were built with a total capacity of 2,275 beds at a cost of 3,084 million SR. This is equivalent to 1.3 million SR per bed. During the third plan period several additional hospitals were built often at no less cost per bed. The three in Al-Qassim Province, including the King Fahd Specialist Hospital at Buraydah with 574 beds and the Al-Bukyrayah and Al Mudnab general hospitals with 100 beds each, together cost 794,426,884 SR or 1.03 million SR per bed. The King Fahd Medical complex with 1425 beds in Riyadh cost more than 2 billion SR (573.4 million US $) (M.o.H., 1982, and 1985). This equals 1.4 million SR per bed, a higher figure to be expected for a specialist hospital.

[8] The basic elements of primary health care services in Saudi Arabia have been summarized as follows: Health education and awareness, conserving the environment, providing a comprehensive maternity and child care service, immunizing children against communal diseases, promoting healthy food and nutrition, observing and controlling communal diseases, and finally diagnosing and properly treating the common illnesses and infirmities. Treatments at primary care centres can include basic surgery, natural childbirth, dentistry, emergency measures and, finally, referring the more complicated cases to the right level of service in hospitals. Each primary health centre should provide these local services. (M.o.H., 1987).

[9] Referral from a general or central hospital to a national specialist hospital at the higher levels of the systems needs to be first approved by a general medical board. This board is headed by the director of the health affairs of the region which meets periodically, to discuss such cases. It can also decide whether a case should be referred internally or abroad if required treatment is not available in the Kingdom. But only 5548 cases were referred to the specialist, the military or the teaching hospitals by medical boards in 1986 and 273 cases were referred for treatment abroad. (M.o.H. 1986). In Al-Qassim in 1986/7 only 394 cases were officially referred, 70 to regional hospitals (including King Fahd Specialised Hospital - Al-Qassim) 220 cases to King Khalid Eye Hospital in Riyadh, 66 to King Faisal Specialized Hospital in Riyadh, with small numbers to other specialist hospitals. Three cases were referred for treatment abroad in Germany and USA, (Field Study).

[10] Simmons et al (1954) have used the sparse data on the early years of the Saudi health service to conclude that in 1951 there were eight government-run general hospitals of which six was sited in each of the six regional health districts. There were also a small non-Ministry hospital in At-Ta'if, and a special ophthalmic hospital at Jeddah. All of these hospitals were small ranging in size from 20 to 135 beds. There were also 16 government-run dispensaries located in various districts, and a number of small hospitals and

dispensaries run by the Arabian American Oil Company (Aramco) and the Trans-Arabian pipeline company (Tapline) in the eastern part of the Kingdom. All these hospitals and dispensaries employed a total of between 100-120 physicians, and 7 dentists. By 1964 there had been large increases in professional staff. Shamsuddin (1964) listed the following personnel in 1964: 500 physicians; 104 assistant pharmacists; 508 male nurses; 77 laboratory assistants; 252 female nurses; 45 X-ray assistants; 42 hakima; 7 anaesthetist assistants; 69 midwives; 40 obstetric assistants; and 108 sanitary & health inspectors (quote from Al-Swilim, 1985, p. 148).

[11] This sector of hospital provision is expected to expand even more rapidly than the M.o.H. sector to help meet the increasing demands of the population for better health care. The schemes of government loans provide private companies with up to 50 per cent of the establishment costs of private hospitals, so making it an attractive financial proposition.

[12] Details on the nationalities of non-Saudis health personnel are not available, although it is known that in the 1970s the Kingdom was heavily reliant on Egyptian physicians, nurses and technicians, with other Arab countries such as Palestine and Syria well represented. A few doctors were from Pakistan and India. At the present time Egyptian physicians are still the largest number of medical expatriates although nurses and technicians are now recruited in increasing numbers from Pakistan, India and the Far East (Philippines, South Korea).

[13] Other studies of expatriate health personnel refer to the high turnover rate among all grades of medical staff, and particularly for those from the UK and USA. Most are on short-term contracts of an average of 24 months (Nasser, 1985), and this greatly reduces their chance to gain experience of the language, the local culture and other influences on health.

[14] In many hospitals the majority of physicians are Arabic-speaking but it has been noted that in some hospitals, such as Military hospitals and National Guard hospitals, this is not the case. A recent study of the military hospitals suggested that "**...more Arabic speaking physicians, especially female physicians, should be recruited for Saudi hospitals**" (Nasser, 1985, p. 74).

[15] For example, some health statistics for Ha'il region were included with Al-Qassim's before 1980, while Najran was included in Asir. Until 1981 Al-Baha region was considered part of At-Ta'if region for health data and Tabuk came under Al-Madinah region.

[16] The estimated population of Saudi Arabia is based on the 1974 census (7,012,642). The annual growth is based on the Ministry of Planning and a UN estimate together with an annual increase of between 3.7-3.9 per cent. This gave a national

total of about 9,200,00 in 1980 and 11,980,000 in 1986. CK Health Planners (1984), in a report prepared for M.o.P., estimated the total population at 12,917,000 in 1985, with a growth rate of 3.7 per cent annually between 1980-2000. Regional percentages are based on the census of 1974.

[17] In 1980 the distribution of specialist hospitals was far less complete. There were four hospitals for infectious diseases, two in the centre of the Kingdom at Riyadh and Unizah and two in the west at Jeddah and Al-Madinah. In addition there was a leprosy hospital in Makkah. There were only two ophthalmic hospitals, both in the Western region at Jeddah and Al-Madinah. Both of the Kingdom's psychiatric hospitals were in the Western region; one with 1500 beds in At-Ta'if, the other with only 30 beds in Al-Madinah. Three of the Kingdom's four child and maternity hospitals were in the west of Saudi Arabia (Makkah, Jeddah and Al-Madinah) with a fourth in the centre at Riyadh. Only in the case of chest hospitals was there something approaching a regional pattern with one serving each of the regions of Riyadh, Al-Madinah, Asir, Najran and the East and the sixth acting as a national hospital at At-Ta'if (see Appendix **4.III)**.

[18] It can also be noted in the early 1980s that the planning and research directorate of the M.o.H. was upgraded to full departmental status to help achieve a better allocation of health facilities and staff across the Kingdom.

[19] Each indicator is based on the ratio of population to the number of staff or beds, grouped into the following classes.

For general hospital beds the classes were:
A region with one hospital bed for every 300-599 populations is considered Class A. Class B is a region which provides one hospital bed for 600-899 population, and Class C has one bed for 900-1200 populations.

For doctors the classes were:
Class A: one doctor for every 500-999 population.
Class B: one doctor for every 1000-1499 population.
Class C: one doctor for every 1500-2000 population.

For nurses: the classes were:
Class A: one nurse for every 200-399 population.
Class B: one nurse for every 400-599 population.
Class C: one nurse for every 600-799 population.
Class D: one nurse for every 800-1000 population.

[20] In 1982 the outpatient clinics of Riyadh Central Hospital (Al-Shumaisy) received over 1,300,000 patients, representing 16.5 per cent of all the outpatients dealt with in the Riyadh region in that year by a total of 14 hospitals and 183 health centres.

[21] The only region which was different in this was Jazan region where the hospital outpatient visits rose by 93 per cent against a 90 per cent increase to the health centres. This was because the number of hospitals in Jazan region doubled.

[22] The level of bed occupancy seems to be connected to the numbers of beds available. Ha'il had a low number of beds for its population and, therefore, had a higher occupancy rate than the Northern region which had plenty of beds. The low occupancy rates (39.3 per cent) in Jeddah is difficult to explain, unless private hospital beds have affected the rate of hospital bed use. The average length of hospitalisation in At-Ta'if (19.1 days) is much greater than the national average because of the location there of psychiatric and chest diseases hospitals with long-stay patients.

[23] In Al-Mudnab sub-emirate, four (44.4 per cent) out of nine health centres in the area were originally chosen to be sampled. However, two problems soon became clear. The doctor at Al-Kharma'a Ash-Shamalyah was found to be on his annual holiday at the time of the questionnaire survey and no other physician replaced him, so that few patients came to the centre when the writer was there. It was therefore decided to reduce the sample there and at the neighbouring Al-Kharma'a Al-Janubyah Health centre to 25 each. A lack of patients at Rubayq - only five were interviewed in the whole day - meant that the sample there was kept to 25 to which another 25 were added by including Al-Malqa health centre about ten km. away. Two other centres provided samples of 50 each. As a result only 200 patients were interviewed at six health centres. 50 were also interviewed at Al-Mudnab hospital outpatients' department.

[24] In Al-Qassim it is easy to recognize the people of Ar-Rass and surrounding areas from the yellow or brownish staining of their teeth. This is possibly connected directly to the quality of drinking water they use in that part of the Arabian Shield.

[25] Some researchers identify a clear chronological sequence in the establishment of this central triangle of settlements. Unizah was the oldest of these settlements established in 1210, followed by Ar-Rass (1430), Buraydah (1538), Al-Khabra (1720), Al-Bukyrayah (1760), and Al-Bdaya (1880) (Shamekh, 1975; Al-Aboodi, 1979).

[26] This has seen the bedouin share of the Kingdom's total population fall from about 57 per cent in the first third of the century to 22 per cent in 1974.

[27] When the 1974 census divided Al-Qassim into 7 sub-regions each sub-region consisted of several small sub-emirates, each based on an emirate centre. This created 82 areas. At the present time Al-Qassim is officially divided into 15 main sub-emirates and these are each made up of several small sub-

emirates. For example, Fig. **7.4** shows Dariyah as a main sub-emirate with its capital at Dariyah settlement, but it includes eight other areas.

[28] Norconsult in 1983 estimated that the bedouin population in Al-Qassim has been falling on average 3 per cent per year in recent years. Bedouins in Al-Qassim in 1983 were estimated to make up 15 per cent of the population, but their number would be even lower now. The 1974 census showed that bedouin made up 25 per cent of Al-Qassim's population. Many of these could well be ones seasonally attracted from other regions like Al-Madinah and Ha'il by the grazing in Al-Qassim.

[29] Most families in Al-Qassim include not only the parents and children but the grand-parents as well, and it is normal to find three generations living under one roof. To abandon parents, when they need the help of their children, is considered a taboo and the father's authority is still dominant over wives and children.

[30] One area in need of research is changing diet and health. Diet has changed in recent years in Al-Qassim as elsewhere in the Kingdom. It probably contains less protein and mineral than formally. Dates and milk, local wheat and meat have been replaced by more rice, processed and pre-prepared food, sweets and cold drinks. Over eating and less exercise are more common and could lead to increased cardiac problems and diabetes later. A study conducted by Abdulla et al (1982) on pre-school children in Al-Asyah shows that some were suffering from malnutrition because mothers were ignorant of correct method of infant nutrition.

[31] It must be remembered, however, that the Saudi population is a youthful one so that one might expect a large number of youthful deaths because there are so many more young people in the population.

[32] The author's research found that 18 per cent of the total deaths in Buraydah Central Hospital in 1980 involved persons aged between 25-44. Over two thirds of these were males (Al-Ribdi, 1986a) and most were car accident victims.

[33] A second reason for a low level of coordination is the subordinate status of the Health Directorate in the region. The Directorate of Health in Al-Qassim annually draws up a health plan for the region. The Ministry in Riyadh in turn studies this plan before deciding on measures it sees fit to be funded for the region. The Al-Qassim Directorate than carries out this policy. But this central control can mean that the responsibility of the Health Directorate to provide health care to the citizens of the region is reduced because decisions are taken out of its hands and the priorities may be changed by the Ministry. This is common throughout all regions of the Kingdom.

[34] Only six per cent were general surgeons, six per cent were internal specialists, five per cent dentists, four per cent obstetricians, three per cent osteopaths and three per cent paediatricians. Published figures in 1986 did not show any heart and chest surgeons, while there were three specialists in brain surgery and neurology, two plastic surgeons, and three specialists in tropical diseases.

[35] This over-provision in the villages has partly resulted from competition between neighbouring villages when certain emirs of villages and tribes demanded the establishment of health centres in their settlements, despite the small number of population to be served, and even when the neighbouring town or village had a centre. For example, the villages of Al-Kharma'a Ash-Shmalyah (north Kharma'a) and Al-Kharma'a al-Janubayah (south Kharma'a)in Al-Mudnab sub-emirate each has a clinic even though they are less than 5 km. apart.

[36] Mention should be made of other M.o.H. facilities run by the Al-Qassim Directorate. These include health offices in Buraydah, Unizah, Ar-Rass and Al-Mudnab, originally set up to look after the immunization of children against communicable diseases. This function has now been taken over by the primary health care centres, so that the health offices now ensure that children have completed all their required vaccinations before issuing their birth certificates. The Directorate runs a leishmaniasis station to study the spread of the disease. It also has health institutes in Buraydah, Ar-Rass, Al-Bukyrayah and Unizah which train intermediate school graduates to work as technical and nursing staff. The first of these institutes opened in 1981. By 1986/87 357 males and 100 females had been trained, but clearly this is insufficient to meet the current and future needs of the region's hospitals and health centres.

[37] The author examined two private clinics in Buraydah which had 12 physicians between them, one an Egyptian group, the other Indian. Three of the doctors were female. The physicians included dentists, paediatricians, ophthalmologist, E.T.N. specialist, and a specialist in abdominal diseases. It was noted that 44 per cent of the patients were adult females, a much higher proportion than in the M.o.H. clinics, reflecting the importance of having female doctors available. Given the numbers of doctors, the average of 1400 visits to each clinic per month is small compared to most government health centres. This is reflected in the greater time doctors can spend with the patients, and the wider range of specialists. The clinics are also open for business for longer hours than government clinics, especially in the evening, and a duty doctor is always available. Although neither clinic visited was fully equipped to deal with child deliveries, some carry these out in the clinic, or arrange for a nurse or physician to go to the patient's home when required. One of the two private clinics visited dealt with about ten home deliveries per month.

[38] Pharmacies are licensed by the Health Directorate to ensure that each pharmacy is run by a qualified pharmacologist. But many drugs and medicines, including antibiotics, can be obtained over the counter without prescription. The M.o.H. has tried to stop this dangerous practice but its success has been limited. In a recent study (Al-Freihi et al, 1987) of the potential for drug misuse in the Eastern Province of Saudi Arabia, it was noted that pain killers and fever reducing drugs are mostly sold without prescription. While 96 per cent of chemists there claim antibiotics are only dispensed by prescription, the study concluded that 85 per cent were handed over the counter without prescription. Drug misuse was believed to be widespread and there is the need for awareness programmes to change this general attitude. This could be a problem also in Al-Qassim.

[39] The way that hospital outpatient clinics are used differs from one health system to another. In some countries like Britain, for example, the use of outpatient clinics in hospitals is limited to emergencies and to cases referred by GPs. However, this is not the case in Saudi Arabia, because the hospital outpatient department and the health centres offer similar primary health care.

[40] Although about 17 per cent of the total number of visits to all health centres in Al-Qassim 1987 took place in Buraydah City, in the same year Buraydah Central Hospital outpatient department alone received an average of 29,000 visitor per month. This was more than 43 per cent of the total visits to the five general hospitals in the region.

[41] According to the 1974 census Buraydah City had 21.6 per cent of Al-Qassim's total population, but an 1987 estimate indicates that its population had risen to 154,000 (Ministry of Municipal and Rural Affairs). This is about 28 per cent of the total population.

[42] This figure includes the population in the main settlement and the surrounding area (Qubah sub-emirate). The writer estimated the population of the settlement alone at about 3000 persons in 1987.

[43] The lowest number of visits was recorded at Ash-Shunanah health centre near Ar-Rass which had 2,290 visits in 1987, less than 4 per cent of the total number of visits to the most busy health centre.

[44] The chi-square test was used to determine whether two variables being tested were associated or not, and also to determine whether there is a significant difference between the categories. It does this by comparing the observed and the expected values for a set of figures. The figures are compared to see if the relationship is statistically significant, ie. there is a high probability that the association is not a chance happening. The level of

significance chosen for use throughout this study is the 95 per cent level so that if the chi-square value falls below 0.05 there is less than 5 in 100 probability that the observed relationship is due to chance.

[45] Figures computed from Norconsult reports showed that 47.8 per cent of the whole population in Al-Qassim in 1983 were then classified as illiterate. This included both male and female 9 years of age and above. The Norconsult reports also showed that 39.8 per cent of the male and female population over 9 years old had completed elementary and middle schooling, and 12.4 per cent had completed secondary schooling or had university degrees.

[46] Physicians at the health centres and hospitals' outpatients clinics are required to list the health problem or illnesses of their patients in their monthly report. The writer has based his classification of ailments on this.

[47] A teacher from a village in the Dariyah area who worked on the questionnaire survey for the writer said that his long term asthmatic condition was worse when he visited his family in the summer in the Dariyah area than where he lived and worked in the Ar-Rass area, 150 km. from Dariyah.

[48] As has already been noted in Chapter Nine M.o.H. statistics for 1986 state that about 3.5 millions visits were made to primary health care services at hospital outpatients' departments and to the health centres in Al-Qassim. 64 per cent of these visits were to health centres. The data collected by the writer for visits to 23 M.o.H., health centres give an average of six visits for person per year, but this included only registered patients who may be more frequent visitors than the non-registered. Furthermore this average hides considerable variation from area to area. It varied from an average of 15 visits per person per year in the main health centre in Dariyah to only four visits per year in Al-Janoob health centre in Buraydah City.

[49] It must be noted here that no general standards to measure the utilisation rates of primary health care services have been laid down in the literature. Phillips (1981) for example, divided users of GP services in South Wales into four categories, based on numbers of consultation per year. These range from non-users, infrequent users (one consultation on average per year), casual or average users (2-5 consultations per year), and frequent users (6-10 consultations per year) or very frequent (10 visits or more per year). But the level of use can vary from country to country because it depends on many factors such as cost of visit and the nature of local provision. For example, according to Knox (1979) patients registered with family doctors in Britain make an average of about four visits per year to their doctors. This can cover medical advice, treatments, and referral to hospital or other welfare services (p. 111). In the USA, according to Fendall (1972), the average number of visits to physicians was just

under five per person per year. Bryan (1969), presenting data related to eight developing countries, revealed that the average number of visits per persons per year ran from 0.02 in Thailand to 2.63 visits in Sudan. Fendall (1972) has suggested that in developing countries 2.5 visits per person per year would be a reasonable target. The Ministry of Health for Saudi Arabia in 1986 indicated that the average number of visits per person per year is similar to that in Britain and USA (4.8 visits). The writer has revealed an even higher figure for Al-Qassim but he has no data on the number of people who do not visit the health centres which would reduce the high average for the users.

[50] In a personal interview the writer had with the general director of Al-Qassim health affairs (Dr. A. Al-Unazy) he emphasised that most of Al-Qassim's population had registered with its nearest health centre. According to an official report in 1987 for Al-Qassim * "the family health profile practice is applied at all primary health centres in Al-Qassim, ... No inhabitant is allowed to visit any health centre that he is not registered with except for emergency cases".
* Unpublished report presented by the General Director of Al-Qassim Health Affairs to the Second Symposium of Management and Supervision on Primary Health Care, held at King Fahd Specialist Hospital, Buraydah 27-29 June 1987.

[51] Another factor favouring the faster introduction of the record system in rural areas is the greater co-operation of the people there than in the cities. The author in his field survey observed that rural people were more cooperative with his questionnaire than those in urban areas.

[52] The figure for the non-registered may be much higher than 38 per cent. There are large numbers of people who may never use the clinic or had not used it in the previous 18 months since the system was introduced. Speakers from Saudi Health Services at a symposium held at K.F.S.H , Buraydah on 27-29 June 1987, stated that they expected major problems to make the record system work in the cities, whereas it would be easy to apply in rural areas.

[53] Patients' levels of satisfaction with individual doctors can vary much more than with health centres. During the field survey the writer noted that a large proportion of the users of Al-Busur health centre (within Buraydah Rural area) said that they were very satisfied with two out of three doctors working there. One physician (from Pakistan) who had worked at the health centre for more than four years was often rated as so good that some patients at his previous post (at Al-Butain about 40 km. away) still came to Al-Busur to see him. Similarly the dentist who worked at Huwailan Health Centre (also in Buraydah Rural) attracted patients from different areas, including some from Buraydah City, because of his reputation.

[54] Sebai (1981, p. 126), in his study of Turaba pointed out that: **"The illiterate villagers, and Bedouins particularly, do not expect the physician to be meticulous in his clinical examination, but would prefer him to be quick and sharp. I once had a private clinic in Riyadh and some of my patients used to become irritated by what seemed to them lengthy history taking and examination. An older relative told me once that in India there are doctors who can diagnose disease by touching the patient's wrist or observing his gait. He was highly impressed. One of the most successful private physicians in the city of Riyadh has the reputation of seeing more than 300 patients per day. The patients in Turaba expect their physician to be sharp and quick and self-sufficient without much need for diagnostic aids".**

[55] Waiting time in larger Saudi hospitals is much greater according to Haristany and El-Torky (1985). 52 per cent of the visitors to the outpatients clinics in Riyadh Central Hospital and 39 per cent of visitors to King Abdulaziz University Hospital had to wait more than 30 minutes.

[56] The respondents were asked to state the time they would prefer to visit the physician. As shown in Table **12.6** a majority (39 per cent) preferred to visit the clinic in the morning but 28 per cent expressed no preference. This varied little from area to area except that fewer expressed a preference in Dariyah than in other areas. But waiting time was no problem in Dariyah.

[57] The operating hours of the health centres and outpatient departments usually are: Saturday to Wednesday from 7 am. to 1 pm, and from 4 pm to 7 pm. On Thursday the clinics are open from 7 am to 1 pm. The clinics are closed on Thursday afternoon and all day Friday.

[58] For example, more than one person at Ain Ibn Fuhayd health centre (in Al-Asyah area) told the writer to relay to the authorities the view that their health centre should be upgraded to become a small hospital.

APPENDICES

Appendix 3.I

Development of Health Manpower in the Kingdom, 1970-1986

	Physicians			Nurses			Technicians			
	M.o.H.	Other*	Total	M.o.H.	Other	Total	M.o.H.	Other	Total	Total
1970	789	383	1172	2253	1008	3261	1396	345	1741	6174
1975	2275	832	3107	4721	1852	6573	2923	629	3552	13232
% change over 5 years	188	117	165	109	84	102	109	82	104	114
1980	3793	2743	6536	6710	5294	12004	4443	2348	6791	25331
% change over 5 years	67	230	110	42	186	83	52	273	91	191
1985	9257	7712	16969	20707	14883	35590	10086	7441	17527	70086
% change over 5 years	144	181	160	208	181	196	127	217	158	177
1986	10359	7169	17528	24528	13547	38075	11513	6549	18062	73665
% change 1970-1986	1213	1772	1395	989	1244	1068	725	1800	937	1093

Sources: Computed from:
1. M.o.P., (1985b) Achievements of Development Plans 1970-1985.
2. M.o.H., Annual Health Reports, various issues.
* Including other government agencies and private sector.

Appendix 3.II

Distribution of Health Manpower (Percentage) by Agencies, 1980 and 1986

	Physicians		Nurses		Technicians		Total	
Year	1980	1986	1980	1986	1980	1986	1980	1986
Agencies								
M.o.H.	58.0	59.1	55.6	64.4	65.4	63.7	59.0	63.0
Other gov' agencies	23.5	20.4	27.5	22.0	26.1	23.3	26.1	22.0
Private sector	18.5	20.5	16.6	13.6	8.5	13.0	14.9	15.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Computed from:
1. M.o.P., (1985b) Achievements of Development Plans 1970-1985.
2. M.o.H., Annual Health Report, various issues.

Appendix 4.I

Distribution of Hospitals Beds, by Health Regions, in 1980 and 1986

Health Regions	1980 No	1980 %	1986 No	1986 %	Percent Change
Riyadh	2,084	17.4	5,156	21.6	147
Al-Qassim	600	5.0	1,306	5.5	118
Jeddah	1,427	11.9	2,105	8.8	48
Makkah	1,071	8.9	2,184	9.2	104
At-Ta'if	3,006	25.1	2,386	10.0	21
Al-Baha	123	1.0	784	3.3	537
Asir	763	6.4	1,472	6.2	93
Najran	190	1.6	493	2.1	159
Jazan	335	2.8	1,276	5.3	281
Al-Madinah	767	6.4	2,227	9.3	190
Tabuk	131	1.1	622	2.6	375
Ha'il	204	1.7	692	2.9	239
Northern	335	2.8	1,152	4.8	244
Eastern	932	7.8	2,007	8.4	115
Total	11,968	100.0	23,962	100.0	994

Source: M.o.H. Annual Health Report, 1980 and 1986.

Appendix 4.II

Distribution of Health Centres, by Health Regions, in 1980 and 1986

Health Regions	1980 No	1980 %	1986 No	1986 %	Percent Change
Riyadh	152	17.1	232	16.2	53
Al-Qassim	82	9.2	119	8.3	45
Jeddah	39	4.4	69	4.8	77
Makkah	48	5.4	55	3.8	15
At-Ta'if			90	6.3	-
	77	8.7	162		110
Al-Baha			72	5.0	-
Asir	159	17.9	214	14.9	35
Najran	24	2.7	45	3.1	87
Jazan	64	7.2	104	7.3	62
Al-Madinah			101	7.1	-
	83	9.2	127		53
Tabuk			26	1.8	-
Ha'il	42	4.7	78	5.5	86
Northern	38	4.3	69	4.8	82
Eastern	81	9.1	157	11.0	94
Total	889	100.0	1,431	100.0	61

Source: M.o.H. Annual Health Report, 1980 and 1986.

Appendix 4.III

Distribution of Hospitals and Hospital Beds According to their Specialisation, by Health Regions, in 1980 and 1986

	1980							1986						
Health Regions	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Riyadh	1361	513	-	50	-	160	-	3073	1336	263	160	124	200	-
	(11)	(1)	-	(1)	-	(1)	-	(14)	(5)	(1)	(1)	(1)	(1)	-
Al-Qassim	540	-	-	-	-	60	-	929	135	-	50	100	92	-
	(3)	-	-	-	-	(1)	-	(6)	(1)	-	(1)	(1)	(1)	-
Jeddah	371	249	57	-	-	750	-	1167	648	112	-	-	178	-
	(3)	(1)	(1)	-	-	-	-	(7)	(2)	(1)	-	-	(1)	-
Makkah	771	100	-	-	-	-	200	1470	514	-	-	-	-	200
	(2)	(1)	-	-	-	-	(1)	(4)	(3)	-	-	-	-	(1)
Al-Ta'if	706	-	-	800	1500	-	-	863	278	-	600	645	-	-
	(1)	-	-	(1)	(1)	-	-	(5)	(2)	-	(1)	(1)	-	-
Al-Baha	123	-	-	-	-	-	-	634	-	-	-	150	-	-
	(1)	-	-	-	-	-	-	(3)	-	-	-	(1)	-	-
Asir	656	-	-	107	-	-	-	1262	-	-	110	100	-	-
	(5)	-	-	(1)	-	-	-	(11)	-	-	(1)	(1)	-	-
Najran	140	-	-	50	-	-	-	388	-	-	75	36	-	-
	(1)	-	-	(1)	-	-	-	(2)	-	-	(1)	(1)	-	-
Jazan	335	-	-	-	-	-	-	1053	23	-	100	100	-	-
	(4)	-	-	-	-	-	-	(7)	(1)	-	(1)	(1)	-	-
Al-Madinah	379	220	45	30	36	57	-	1447	499	54	50	120	57	-
	(3)	(1)	(1)	(1)	(1)	(1)	-	(8)	(1)	(1)	(1)	(1)	(1)	-
Tabuk	131	-	-	-	-	-	-	542	80	-	-	-	-	-
	(2)	-	-	-	-	-	-	(6)	(1)	-	-	-	-	-
Ha'il	204	-	-	-	-	-	-	632	-	-	-	60	-	-
	(1)	-	-	-	-	-	-	(2)	-	-	-	(1)	-	-
Northern	335	-	-	-	-	-	-	1002	-	-	-	150	-	-
	(3)	-	-	-	-	-	-	(8)	-	-	-	(2)	-	-
Eastern	890	-	-	42	-	-	-	1572	290	-	-	60	-	-
	(6)	-	-	(1)	-	-	-	(9)	(1)	-	-	(1)	-	-
Total	6942	1082	102	1079	1536	1027	200	16034	3803	429	1230	1639	527	200
	(46)	(4)	(2)	(6)	(2)	(4)	(1)	(95)	(17)	(3)	(8)	(12)	(4)	(1)

Sources: Computed from M.o.H. Annual Health Report, 1980 and 1986.

1- General Hospitals 2- Maternity and Children Hospitals 3- Eye Hospitals 4- Chest Diseases Hospitals 5- Psychiatric Hospitals 6- Infections Diseases Hospitals 7- Leprosy Hospitals.
Figures in brackets are the number of hospitals.

Appendix 4.IV

Distribution of Doctors, Nurses and Technicians, by Health Regions, in 1980 and 1986

A- Doctors:

Health Regions	1980 No	1980 %	1986 No	1986 %	Percent Change
Riyadh	975	25.7	2,019	19.4	107
Al-Qassim	215	5.7	757	7.3	252
Jeddah	358	9.4	1,091	10.5	204
Makkah	363	9.6	746	7.2	105
At-Ta'if			693	6.7	-
	375	9.9	1,062		183
Al-Baha			369	3.5	-
Asir	261	6.9	803	7.7	208
Najran	65	1.7	271	2.6	317
Jazan	197	5.2	631	6.1	220
Al-Madinah			929	8.9	-
	338	8.9	1,132		253
Tabuk			203	2.0	-
Ha'il	90	2.4	270	2.6	200
Northern	156	4.1	349	3.4	124
Eastern	400	10.5	1,164	11.2	191
Total	3,793	100.0	10,359	100.0	175

B- Nurses:

Health Regions	1980 No	1980 %	1986 No	1986 %	Percent Change
Riyadh	1,528	22.8	4,759	19.4	212
Al-Qassim	410	6.1	1,728	7.0	321
Jeddah	630	9.4	2,316	9.4	268
Makkah	603	9.0	1,873	7.6	210
At-Ta'if			1,693	6.9	-
	828	12.3	2,684		224
Al-Baha			991	4.0	-
Asir	386	5.8	2,093	8.5	442
Najran	107	1.6	705	2.9	559
Jazan	435	6.5	1,621	6.6	273
Al-Madinah			2,003	8.1	-
	561	8.4	2,409		329
Tabuk			406	1.7	-
Ha'il	144	2.1	739	3.1	413
Northern	267	4.0	801	3.3	200
Eastern	811	12.1	2,795	11.4	245
Total	6,710	100.0	24,528	100.0	265

Appendix 4.IV Continued on next Page

C- Technicians:

Health Regions	1980 No	1980 %	1986 No	1986 %	Percent Change
Riyadh	1,272	28.6	2,087	18.1	64
Al-Qassim	220	4.9	779	6.8	254
Jeddah	359	8.1	1,091	9.5	20
Makkah	391	8.8	780	6.8	99
At-Ta'if			694	6.0	-
	432	9.7	1,068		147
Al-Baha			374	3.2	-
Asir	259	5.8	987	8.6	281
Najran	90	2.0	304	2.6	238
Jazan	225	5.0	863	7.5	283
Al-Madinah			1,055	9.2	-
	374	8.4	1,244		232
Tabuk			189	1.6	-
Ha'il	78	1.8	386	3.4	395
Northern	190	2.3	408	3.5	114
Eastern	553	12.4	1,294	11.2	134
Total	4,443	100.0	11,513	100.0	159

Source: M.o.H. Annual Health Report, 1980 and 1986.

Appendix 5.I

The Increase in Number of Visits to Outpatient Clinics by Health Regions, 1980 and 1986 (000's)

	Outpatient/hospitals					Outpatient/health centres					Total outpatient				
	1980		1986		%	1980		1986		%	1980		1986		%
	No	Rank	No	Rank	Change	No	Rank	No	Rank	Change	No	Rank	No	Rank	Change
Riyadh	2,778	(1)	4,228	(1)	52	4,000	(1)	6,940	(1)	73	6,778	(1)	11,168	(1)	65
Al-Qassim	720	(8)	1,258	(9)	75	984	(9)	2,207	(8)	124	1,704	(9)	3,465	(8)	103
Jeddah	1,289	(5)	1,268	(7)	-1.6	1,151	(7)	3,062	(5)	166	2,440	(7)	4,330	(6)	77
Makkah	1,806	(2)	2,427	(3)	34	1,044	(8)	2,443	(7)	134	2,850	(4)	4,870	(4)	71
At-Ta'if	1,183	(6)	1,359	(6)	15	1,583	(4)	1,670	(10)	5	2,766	(6)	3,029	(9)	10
Al-Baha *	-----		628	(12)	--	----		1,422	(11)	--	-----	----	2,050	(11)	--
Asir	1,160	(7)	1,879	(4)	62	1,610	(3)	4,155	(2)	158	2,770	(5)	6,034	(3)	11
Najran	361	(12)	609	(13)	69	333	(12)	871	(13)	161	694	(12)	1,480	(14)	113
Jazan	705	(9)	1,362	(5)	93	1,323	(6)	2,514	(6)	90	2,028	(8)	3,876	(7)	91
Al-Madinah	1,574	(3)	1,264	(8)	-20	1,508	(5)	3,538	(4)	135	3,082	(3)	4,802	(5)	56
Tabuk *	-------		1,007	(11)	--	------		570	(14)	--	-----	---	1,577	(13)	--
Ha'il	424	(11)	552	(14)	30	786	(10)	1,242	(12)	58	1,210	(11)	1,794	(12)	48
Northern	518	(10)	1,056	(10)	104	722	(11)	1,770	(9)	145	1,240	(10)	2,826	(10)	128
Eastern	1,414	(4)	2,520	(2)	78	1,857	(2)	3,854	(3)	107	3,271	(2)	6,374	(2)	95
Total	13,932	--	21,417	--	54	16,902		36,258		115	30,833		57,675		87

Sources: Computed from M.o.H. Annual Health Report 1980 and 1986.

* In 1980 Al-Baha was included with At-Ta'if and Tabuk with Al-Madinah.

Figures are rounded up.

Number in brackets are the region's rank.

APPENDIX 6.I

THESE QUESTIONS TO BE ANSWERED BY ADMINISTRATOR IN HEALTH CENTRES

FORM	No.	[ ]
SETTLEMENTS	No.	[ ]
CLINIC	No.	[ ]

[1] Type of Building:

a - Concrete [ ] Villa [ ] Flat [ ]
b - Mud house [ ]
c - Prefabricated house [ ]
d - Other [ ]

[2] Building Ownership:

a - Rented building [ ]
b - Government building [ ]
c - Other, specify .....

[3] - Water supply Yes [ ] No [ ]

[4] - Electricity supply Yes [ ] No [ ]

[5] - Number of rooms [ ]
[6] When was this clinic established ? Year [ ]
[7] Grade of Clinic: 1 [ ] 2 [ ] 3 [ ] 4 [ ] Other.....

[8] Family Health Profile:

a- Does this Clinic use the family registration system?.

Yes [ ] No [ ]

If Yes ,
b - When did you start using it ? [/198]
c - How many families, persons are already registered with this Clinic?
Number of families [ ]
Number of persons, Male [ ] Female [ ] Total [ ]

d - What percentage of the total families served by this clinic have already been registered?. (percentage %)

[9] Area normally served by this clinic centre.

Name of settlements	Distance	Population of settlement (Approx)
.....	.....	.....
.....	.....	.....
.....	.....	.....

[10] Distance to next nearest:

a - Primary health centre Name ..... Km.....
d - Hospital Name ..... Km.....
c - Red Crescent Name ..... Km.....

[11] Manpower:

[Give details of manpower below]

Total number of staff in the clinic [ ]

Specialization	Number	Nationality	Sex
a - Physicians:	.....	.....	....
1 - General Practitioner	.....	.....	....
2 - Dentist	.....	.....	....
3 - Other Specialist, specify	.....	.....	....
4 - Other [specify]	.....	.....	....
a - Nurses and Technicians:			
1 - Nurses	.....	.....	....
2 - Pharmacy assistants	.....	.....	....
3 - Laboratory assistants	.....	.....	....
4 - X- ray assistants	.....	.....	....
5 - Health inspectors	.....	.....	....
6 - Other , [specify]	.....	.....	....
c - Administrative and other Workers:			
1 - Administrative	.....	.....	....
2 - Driver	.....	.....	....
3 - Servant	.....	.....	....
4 - Keeper	.....	.....	....
5 - Other [specify]	.....	.....	....

[12] Equipment:

1 - Beds for in-patients, if any	Number	.....			
2 - Emergency room	Yes	[ ]	No	[ ]	
3 - Maternity room	Yes	[ ]	No	[ ]	
4- Dental unit	Yes	[ ]	No	[ ]	
5 - X - ray unit	Yes	[ ]	No	[ ]	
6 - Surgery operating room	Yes	[ ]	No	[ ]	
7 - Laboratory	Yes	[ ]	No	[ ]	
8 - Telephone	Yes	[ ]	No	[ ]	

If no, where is the nearest telephone? .....
and how far is it from the health centre? [..... Km.]

---

[13] Patients Visits:

Number of outpatients in the last two weeks by sex:

1- Adult Male	[ ]	2- Adult Female	[ ]
3- Children	[ ]	4- Total	[ ]

[14] Indicate the peak time of patient visits to the clinic during the day ?.

a - Morning	( )			b - Afternoon	( )
8 - 9	( )	9 - 10	( )	4 - 5	( )
10 - 11	( )	11 - 12	( )	5 - 6	( )
12 - 1	( )			6 - 7	( )

[15] Is there a peak season of patient visits to the clinic during the year ?. Yes ( ) No ( )

If Yes, specify which season.
a- Summer ( ) b- Autumn ( ) c- Winter ( ) d- Spring( )

[16] Referral - patients:

Where are most patients who need hospital treatment referred to? .....

APPENDIX 6.II

USER OF PRIMARY HEALTH CARE SERVICES QUESTIONNAIRE

FORM	No	( )
AREA	No	( )
SETTLEMENT	No	( )
CLINIC	No	( )

Dear Patient,

This Questionnaire is for a postgraduate student as a part of his Ph.D research project. The aim of this survey is to evaluate the provision of primary health care services in Al-Qassim Province. The researcher would like to know through this questionnaire the patients' opinions about these services. All the answers given will be kept confidential and will be used only by the researcher for the purpose of his study. Your cooperation in answering the following questions will be fully appreciated. Thank you for your cooperation.

Mohamed Salah Al-Ribdi
Imam Momammad Ibn Saud University, Riyadh.
Postgraduate student, University of Southampton.

PART ONE: USE OF CLINIC:

{1} Why are you here now? Because you have a health problem related to:

a. Cardio disease ( )
b. Chest ( )
c. Gastro-Intestinal ( )
d. Eye ( )
e. Genito-Urinary ( )
f. E.N.T ( )
g. Cold or Influenza ( )
h. Minor Surgery ( )
i. Other (please specify)

{2} Which of the following is the most important reason you choose this clinic rather than another?

a. Because it is close to your residence? ( )
b. Because it provides a good service? ( )
c. Because it has a good doctor (s)? ( )
d. Because it is free of charge? ( )
e. Other reasons (please specify)
1- .....
2- .....
3- .....

{3} Have you been to this clinic before?
Yes ( ) No ( )
If yes,

{4} How many times have you visited this clinic in the last 12 months for treatment or advice ?.....

{5} Do you have a health record in this clinic?
Yes ( ) No ( )
If no,

{6} Are you registered in any other clinic in Al-Qassim?

Yes ( ) No ( )

{7} Today, do you visit this clinic alone or with another individual from your family who comes with you for treatment or advice?

a. Alone ( )
b. With one ( )
c. With two ( )
d. With three ( )
e. With four or more ( )

{8} Is this clinic the one that you and your family usually use?
Yes ( ) No ( )
If no,

{9} Which other type of the following clinics do you usually use?

a. Public health centre ( )
b. Private doctor ( )
c. Private clinic ( )
d. Public hospital ( )
e. School clinic ( )
f. Other (explain).....

{10} In the last 12 months, have you ever visited another clinic in Al-Qassim for treatment?
Yes ( ) No ( )
If yes,
specify name of the clinic .....
the number of visits .....

{11} In the last 12 months, have you ever visited another clinic or hospital in another region (s) in the Kingdom?
Yes ( ) No ( )
If yes,
specify name of the clinic.....

{12} In the last 12 month have you visited a local folk healer(s) for treatment or advice?
Yes ( ) No ( )

PART TWO, TYPE OF TRANSPORTATION:

{13} What type of transportation did you use to get this clinic?

a. Walking ( )
b. Private car ( )
c. Friend's car ( )
d. Bus ( )
e. Taxi ( )
f. Other (specify).....

{14} How far is your home from this clinic?

a. Less than 1 Km.	( )	j. 25 - 29 Km.	( )
b. 1 - 2 Km.	( )	k. 30 - 39 Km.	( )
c. 3 - 5 Km.	( )	l. 40 - 49 Km.	( )
d. 6 - 8 Km.	( )	m. 50 - 59 Km.	( )
e. 9 - 11 Km.	( )	n. 60 - 69 Km.	( )
f. 12 - 14 Km.	( )	o. 70 - 79 Km.	( )
g. 15 - 17 Km.	( )	p. 80 - 89 Km.	( )
h. 18 - 20 Km.	( )	q. 90 - 99 Km.	( )
i. 21 - 24 Km.	( )	r. over 100 Km.	( )

{15} How long does it take by car to get to this clinic from your home?

a. Less than 5 Minutes	( )	f. 26 - 30 minutes	( )
b. 6 - 10 =	( )	g. 31 - 40 =	( )
c. 11 - 15 =	( )	h. 41 - 50 =	( )
d. 16 - 20 =	( )	i. 51 - 60 =	( )
e. 21 - 25 =	( )	j. More than one hour	( )

{16} Which type of road do you use to get to this clinic from your home?

a. All asphalt ( ) c. Dust road ( )
b. Part asphalt ( )

{17} For the hospital out-patient and city health centres. Is the car parking in this clinic adequate?

Yes ( ) No ( )

PART THREE, PERSONAL ASSESSMENT OF CLINIC:

{18} Usually at what time do you prefer to visit this clinic?

a. Morning ( ) b. Afternoon ( )
c. No preferred time ( )

{19} Do you think this clinic is crowded?

Yes ( ) No ( )

{20} Usually how many minutes do you have to wait until you can see the doctor?

a. 5 minutes or less	( )	e. 30 to 45 minutes	( )
b. 5 to 10 minutes	( )	f. 45 to 60 =	( )
c.10 to 20 =	( )	g. More than one hour	( )
d.20 to 30 =	( )		

{21} Do you think the waiting time for patients to see a doctor is reasonable?

Yes ( ) No ( )

{22} Do you usually find the doctor you like to see?

Yes ( ) No ( )

{23} How many minutes does the doctor usually spend with you?

a. Less than 5 minutes ( )
b. 5 to 10 = ( )
c. 10 to 15 = ( )
d. 15 to 20 = ( )
e. 20 to 25 minutes ( )
f. 25 to 30 = ( )
g. more than = ( )

{24} From your experience of the doctor you saw today how would you rate him?

a. Excellent ( )
b. Above average ( )
c. Average ( )
d. Below average ( )
e. Do not know ( )

{25} From your experience with this clinic, how do you evaluate the health services it provides you and your family?

a. Excellent ( )
b. Above average ( )
c. Average ( )
d. Below average ( )
e. Do not know ( )

{26} Do you think the emergency care in this clinic is available to the public at any time?

Yes ( ) No ( )

{27} If you or any in your household has an emergency case, which of the following clinics would you go to?

a. The emergency department in general hospital ( )
b. The nearest clinic to your home ( )
c. Private clinic ( )
d. Other (explain) .....

{28} Is the waiting room and rest area adequate?

a. More than adequate ( )
b. Adequate ( )
c. Less than adequate ( )
d. Poor ( )
e. Do not know ( )

{29} What is your opinion about the standard of cleanliness in this clinic?

a. Excellent ( )
b. Above average ( )
c. Average ( )
d. Below average ( )
e. Do not know ( )

{30} Do you think if you go to another clinic or hospital in Al-Qassim region, that your treatment would be a lot better than this clinic?

a.	Yes, certainly	( )	c.	No, certainly	( )
b.	Maybe	( )	d.	Do not know	( )

{31} Do you think if you go to another clinic or hospital in Riyadh or Jeddah, that your treatment would be a lot better than in this clinic or any other clinic in Al-Qassim?

a.	Yes, certainly	( )	c.	No, certainly	( )
b.	Maybe	( )	d.	Do not know	( )

PART FOUR, PERSONAL INFORMATION AND HOUSEHOLD AND FAMILY DETAILS:

{31}	Marital status	Married	( )	Single	( )
{32}	Nationality	Saudi	( )	Non-Saudi	( )
{33}	Social type	Settled	( )	Nomad	( )
{34}	Place of birth	.....			

{35} Age group: How old are you?

a.	15-19	( )	f.	40-44	( )
b.	20-24	( )	g.	45-49	( )
c.	25-29	( )	h.	50-54	( )
d.	30-34	( )	i.	55-59	( )
e.	35-39	( )	j.	60 and more	( )

{36} Where do you live?
a. Name of the settlement.....
Section .....
b. Farm .....Nearest settlement.....
c. In the desert .....Nearest settlement.....
{37} How long have you been living in this place?.....
{38} Is the house you live in:

a.	Owned by you or your family	( )
b.	Rented	( )
c.	Provided by the employer	( )
d.	Other (Please specify).....	

{39} What type of house do you live in?

a.	Villa	( )	d.	Nomadic house	( )
b.	Traditional house	( )	e.	Shack	( )
c.	Flat	( )	g.	Other	( )

{40} How many rooms and toilets in your house?

a. Number of rooms ( ) b. Number of toilets ( )

{41} What is the source of drinking water in your house?

a. Public utility 'tap' ( ) d. Farm well ( )
b. By tanker ( ) e. Other, specify.....
c. Home well ( )

{42} What type of electricity supply do you have in your house?

a. Public utility ( )
b. Private generator ( )
c. None ( )

{43} Does your household have a telephone?

Yes ( ) No ( )
If no, how far is the nearest telephone from your house?
Distance ..... Km. Name of settlement .....

{44} How many individuals of the following categories live in your house?

a. Children under 12 years old. ( )
b. Males above 12 years old. ( )
c. Females above 12 years old. ( )

{45} What is your level of education?

a. Illiterate ( )
b. Reading only ( )
c. Completed elementary/preparatory school ( )
d. Completed middle/intermediate school ( )
e. Completed secondary school ( )
f. University degree ( )
g. Other (specify) .....

{46} What is your occupation?

a. Government employed ( ) e. Herdsman ( )
b. Private sector employed ( ) f. Farmer ( )
c. Student ( ) g. Unemployed ( )
d. Self-employed (Trader or Businessman) ( )
h. Other, please specify .....

{47} Do you or any one in your household own a car?

None ( ) 1 car ( ) 2 cars ( ) 3 cars and more ( )

{48} Would you mind telling me what is your household monthly income in Saudi Riyals?

a. Less than 1,000 ( ) f. 9,000 - 10,999 ( )
b. 1,000 - 2,999 ( ) g. 11,000 - 12,999 ( )
c. 3,000 - 4,999 ( ) h. 13,000 - 14,999 ( )
d. 5,000 - 6,999 ( ) i. 15,000 or more ( )
e. 7,000 - 8,999

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