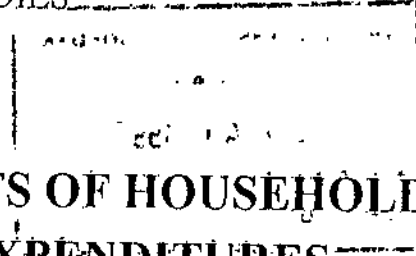
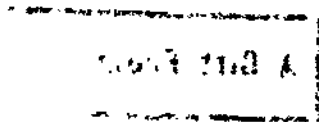


UNIVERSITY OF JORDAN
FACULTY OF GRADUATE STUDIES



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**DETERMINANTS OF HOUSEHOLD
HEALTH EXPENDITURES
IN JORDAN**



AMANI FAHED ABUL-ETHEM NSOUR

SUPERVISED BY
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عميد كلية الدراسات العليا
[Handwritten signature]

SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN
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This Thesis was defended successfully on:- May, 6, 1995

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DEDICATED
TO MY FATHER AND MOTHER
WITH LOVE

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ABSTRACT

Determinants of Household Health Expenditure in Jordan

Amani Fahed Abul Ethem Nsour

Supervised By:- Dr. Farid Nussair

The main purpose of this research was to study the following:

- First: The determinants of household health expenditure.
- Second: The type of health services consumed.
- Third: The proportion of expenditure on health out of all expenditure.
- Fourth: The amount of money spent on different health services in absolute J.D.
- Finally: To make appropriate recommendations.

The current study utilized data drawn from a household survey covering a national sample of households in Jordan "Household Expenditures and Income Survey" [HEIS] conducted by the Department of Statistic in 1992.

The statistical analysis used was descriptive statistics, correlation analysis, differences between proportions, and multiple regression analysis.

Results obtained showed that almost 12.8% of the study population did not expend on any type of health service.

The proportion of household expenditure on health was 2.3%, while the average annual household health expenditure was 95.8 J.D. The bivariate

analysis, using differences between proportions, showed that there was a significant statistical difference, with a negative association, in the proportion of household health expenditure in the following independent variables:

- Household size group $P=0.05$
- Work sector group of the head of household $P=0.01$
- Household residency group $P=0.003$

While in the regression analysis, where we control for the covariates, the following variables were statistically significant, with a negative association, (except for a number of households with members 65 years and over, it was a positive association):-

- Work sector group of the head of household $P=0.0001$
- Household residency group $P=0.0001$
- Household size group $P=0.0001$
- Household income group $P=0.0001$
- Sex of the head of household $P=0.005$
- Age group of the head of household $P=0.0113$
- Number of household members 65 years and older $P=0.0022$

The R^2 of the model of the regression analysis was 0.0417.

The main recommendation centers around decentralization of health services, the extension of health insurance coverage and content of the available package of care, to avoid any misallocation and inequities in health service utilization.

Finally the study revealed a scope for further research in the field of health expenditure in Jordan.

Chapter One

Background and Significance of the Study

Introduction

In any society, one of the ultimate objectives of the economic system is to deliver goods and services to its members. The success of an economy can be measured by its ability to provide a wide range of consumer goods for its people, to feed them, to shelter them, and to offer them access to good health.[1]

The primary health care approach is now generally accepted as the most likely path to lead to "health for all by the year 2000". Therefore, there is an essential need for pooling the resources in the interest of better coverage, greater effectiveness, and increased efficiency on the part of health services. Unplanned expenditures on health will never lead to full coverage because resources are very limited. At the same time the rise in health expenditures have accelerated substantially; the population increases and thus there is an increase in demand, price inflation, and a rise in the proportion of elderly in the population which has shifted care from acute illness to more expensive long term chronic illness. Also, people's health needs and expectations will continue to change and increase with the rapid development in health technology, and this is affected to a great extent by demographic and socio-cultural factors.[2]

Socio-cultural and demographic factors affecting expenditures on health services have mainly been studied in industrial countries, but little is known about socio-cultural factors affecting expenditure on health services in developing countries. Only household surveys can give a general view of

who are the users and non-users of health services, and more precisely, which groups are utilizing which facilities. Such research is necessary to identify risk groups and risk areas of the population intended for coverage by the health system and to plan further action and programmes to reach non-users or underusers, thus avoiding any misallocation or inequity in health services distribution.[2]

Certain features and events concerning health expenditure in Jordan have led to the belief that it is of appreciable magnitude and that it is increasing with time. These include:-

Since Jordan is considered to be a small country with limited resources, the resource balance* was (-22%) in 1991 [3], it was classified by the World Bank, according to a 1991 report, in the lower middle income groups [3]. During the period (1980-1991) the average annual production growth rate was -1.7% , the gross domestic investment** for the same period was (-6.9%) [3].

Also prices have been accelerating substantially, and the average annual rate of inflation was 1.6% in 1991 [3].

The population is increasing, and therefore there is an increase in quantities demanded. In 1980 the average annual growth rate of population was 3.7%, by 1991 it had increased to 4.7%. [3]

footnote:

* Resource balance is the difference between exports and imports of goods.

** Gross Domestic investment is calculated by deducting total consumption from GDP.

At the same time the health sector has witnessed significant progress in all its aspects. This has led to a rise in the proportion of elderly in the population that had shifted care from acute to long term chronic illness, (the life expectancy increased from 46 years in 1961 to 66 years in 1991. [3]

Also people's health needs and expectations will continue to change and increase with the rapid change and development in health technology, especially as we know that Jordan spends too much on sophisticated hospital services, (the share of public expenditure for health absorbed by tertiary and secondary care hospitals is 70%. [3]

In addition the present user fees create several classes leading to inefficiency, inequity, and multiple coverage.

Problem of the Study:

The present study is going to answer the following research problems:

- First: What are the types of health services used by Jordanian households?
- Second: What is the proportion of expenditure on health out of overall expenditure?
- Third: How much money is spent on different health services in absolute J.D.?
- Fourth: What are the determinants of household health expenditure in Jordan?

Significance of the Study:

The significance of the study lies in the following :-

- Understanding the way in which the population pays for health services is considered to be an essential prerequisite for the formulation of actual or proposed public policies, e.g. health insurance. It is essential for allocation of limited and scarce resources, according to the actual need of population.
- It helps in reformation of health insurance plans, and determining the priorities of health insurance.
- It is essential for financing health services, and determining the amount of money needed for health care.

Objective of the Study

This study is concerned with four fundamental objectives:

1. To study the types of health services used by Jordanian households.
2. To find the proportion of expenditure on health from overall expenditure.
3. To find the amount of money spent on different health services .
4. To study the determinants of household health expenditures in Jordan.

Hypotheses Formulation:

Hypotheses No. 1: There is no relationship between the age of the head of household and the proportion of health expenditure out of overall expenditure.

Hypotheses No. 2: There is no relationship between household size and the proportion of health expenditure out of overall expenditure.

- Hypotheses No. 3: There is no relationship between number of children less than five years in the household and the proportion of health expenditure out of overall expenditure.
- Hypotheses No.4: There is no relationship between number of household members 65 years and over, and the proportion of health expenditure out of overall expenditure.
- Hypotheses No.5: There is no relationship between sex of the head of household, and the proportion of health expenditure out of overall expenditure.
- Hypotheses No.6: There is no relationship between education of the head of household and the proportion of health expenditure out of overall expenditure.
- Hypotheses No.7: There is no relationship between work sector of the head of household and the proportion of health expenditure out of overall expenditure.
- Hypotheses No.8: There is no relationship between annual household income and the proportion of health expenditure out of overall expenditure.
- Hypotheses No.9: There is no relationship between household residency and the proportion of health expenditure out of overall expenditure.

Data Source Limitations

The current study utilizes data drawn from a household survey covering a national sample of households in Jordan, "Household Expenditures and Income Survey" [HEIS], conducted by the Department of Statistics in Jordan in 1992.

There are significant limitations in this survey data, since the 1992 household expenditure and income survey was not designed to study the determinants of household health expenditure in Jordan. It lacks the following information: First, the need of household for health services, for example the presence of a handicapped or chronically ill member in a household is associated with a higher expenditure on health per household; Second, whether the household is covered by any type of health insurance, because this has a great effect on health expenditure. The above mentioned points are considered to be shortcomings of this study.

The Main Assumptions of the Study:

Throughout the study a number of implicit and explicit assumptions have been made. The following is a summary of the most important of these assumptions:

1. The current study utilizes secondary data collected by the Department of Statistics. Therefore it is assumed that the data collected secured several criteria for quality such as validity and reliability of the information, since the Department of Statistics has had extensive prior experience in conducting such surveys.
2. It is assumed that the need for health services is reflected by number of household members, number of children less than five years, and

number of household members 65 years and over, since the extremes in age are periods of vulnerability secondary to immature or aged coping mechanisms.

3. It is assumed that health insurance coverage is reflected by work sector of the head of household, and that heads of households working in public sectors are more likely to be covered by a health insurance plan than heads of household working in the private sector.
4. It is assumed that availability and accessibility of health services is reflected by household residency, since it is expected that health services are concentrated in urban rather rural areas.

Chapter Two

Methodology

Sample Design and Population Study:

The current study utilizes data drawn from a household survey covering a national sample of households in Jordan "Household Expenditures and Income Survey" [HEIS] conducted by the Department of Statistic in 1992.

Households were selected using a stratified random sample to produce statistically unbiased estimates that are representative for the overall population in Jordan. The sampling specification required the selection of 8000 households distributed in different geographic location (i.e. to all Governorates) and to different urban and rural residency. The frame used was the most updated list of households available to the Department of Statistic at the time of the survey.[4]

The unit of analysis which was considered is the household expenditure on health, since household expenditure is the most appropriate unit of analysis for studies on the consumption decisions, and these decisions are made at the household level, and are determined by characteristics of the household rather than the individual.[5]

Data Collection Instrument:

HEIS was a four-rounds household interview survey using a structured questionnaire. The questionnaire included four sections:

- a. household characteristics;

- b. household members' characteristics;
- c. income;
- d. expenditures on food, tobacco, and beverages, and on other services and commodities (including health expenditures).

Each round of household interviews was of a three month duration, the questionnaire was distributed at the beginning of each round, hence reduced recalls.

455057

Quality of Data

- The data secured several criteria for quality. The distribution of the population sample in the survey, broken down by their residence (urban/rural) and Governorates matched the population characteristics provided from updates of the latest census conducted. The sampling specification required the selection of 8000 household distributed to different geographic locations (i.e. to all Governorates and to different urban and rural residency).
- The Department of Statistics has had extensive prior experience in conducting household interview surveys through collaboration with the Economic and Social Committee for Western Asia (ESCWA). Hence individuals or limited resource institutions are incapable of running a similar study.
- Data was collected for one year so it is a longitudinal survey to overcome any seasonal variation that could increase or decrease expenditures.

- Finally the data was subject to editing at several stages, including field editing, and editing by data processing staff using programs which check for internal consistency.

Nevertheless, there remain some aspects of the data where the possibility of deliberate misreporting of information is expected. In particular we expect that there may be serious underreporting of income owing to unrealistic fears that this data might be used by the Tax Department.

Statistical Analysis

The statistical techniques that are going to be used are:

1. Descriptive statistic such as frequencies, means, standard deviation and proportion of annual household health expenditure.
2. Correlation between independent and dependent variables.
3. Differences between proportions to test the null hypotheses.
4. Regression analysis to control for the covariates.

Variables and Measurements

1. Expenditures on the following health services:
 - 1.1 Medicines:
Any kind of drug or medical preparation prescribed or not prescribed by physician.
 - 1.2 Hospital Expenses:
Expenses for any service connected with hospital.
 - 1.3 Physician Fees
Expenses for any contact with a doctor of medicine.

1.4 Dental Fees

Expenses for any visit to a dentist, dental surgeon, or any person for dental care.

1.5 Laboratory Test and X-ray Expenses.

1.6 Miscellaneous and other expenses including:

- Expenses for eye glasses and contact lenses
- Expenses for midwives
- Fees for treatment abroad
- Purchases of wheel chairs, crutches, corrective shoes, syringes, needles and other similar items.

2. Proportion of Health Expenditure out of all Overall Expenditures

$$= \frac{\text{Total Health Expenditure}}{\text{Total Expenditure}} \times 100\%$$

3. Amount of J.D. Spent

The total amount of Jordanian Dinar spent on all health services, by all members of household in 1992, (US \$1.00 = J.D. 0.66 July 1992)

Independent Variables and their Operational Definition:

1. Demographic Structure

1.1 Age of the head of household: This refers to the age of the head of household at the time he/she received the questionnaire without including fractions of months. It includes the following categories:

- less than 35 years
- 35 years-44 years

- 45 years-54 years
- 55 years and over

1.2 Number of Household Members (Household size)

Number of individuals related by (blood, marriage, or adoption) residing in the same sample housing. Unrelated individuals residing in the same sample housing unit were treated as a member in the household, it includes the following categories:-

- small household size (1 to 5 members)
- medium household size (6 to 10 members)
- large household size (more than 10 members)

1.3 Number of children below five years.

1.4 Number of household members 65 years and older.

1.5 Sex of the head of household.

2. Social Structure

2.1 Education of the head of household

It includes the following categories:

- Illiterate
- Read and write, elementary
- Preparatory, secondary
- College, university

2.2 Work sector of the head of household

It was categorized into two:

1. Private Sector
2. Public Sector, which include the following:-
 - Government (central, local)
 - Semi governmental, and public authority.

- Joint ventures (private and public sector).
- Government commodities and services.
- other public sectors.

3. Enabling Factors:

3.1 Family

Annual family income in J.D.

The income recorded was the total of all income received by all family members during 1992, income from all sources was included, wages, salaries, rents from property and help from relatives.

Quattile categorization of income was done:

- less than 1725 J.D
- 1725 J.D - 2889 J.D
- 2890 J.D - 4839 J.D
- 4840 J.D - and above

3.2 Community:

Household residency according to urban, rural areas.

Urban areas: households located in places of 5000 inhabitants or more.

Rural areas: households located in places of less than 5000 inhabitants.

Independent variables:

<u>1- Demographic structure</u> 1-1 Age of head of household 1-2 Number of household members 1-3 Number of children below 5 years 1-4 Number of household members ≥65 years 1-5 Sex of head of household	<u>2- Social Structure</u> 2-1 Education of the head of household 2-2 Work sector of the head of household	<u>3- Enabling factors</u> 3-1 Family annual income of the household in Jordanian Dinar (J.D.) 3-2 Community household residency according to urban, rural areas
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Dependent variable

Proportion of health expenditure out of all expenditure for Jordanian households
--

Conceptual Framework

Chapter Three

Literature Review

The major part of this review will concentrate on related work concerning health expenditure in different countries since similar studies done in Jordan are limited. Samawi and Jaghiber (1990) interpreted the relationship between health expenditure and other variables. On a survey done by the Department of Statistics in Jordan for the year 1986 the following results were obtained.

In rural areas, the average annual health expenditure was 5.5 J.D per capita, i.e. 1.4% of total expenditure, while in urban areas, it was 11.3 J.D, i.e. 1.9% of total expenditure [6]. It was also found that the average annual household health expenditure was inversely related to the number of household members. The expenditure on health varies according to occupation, those working in service sectors spent more on health services than those working in agriculture and industry. In a household where the household head was of higher education, health expenditure was more than those of lower education.[6]

The above mentioned study differs from this study in that:-

1. It utilized data drawn by the Department of Statistics in Jordan "Household Expenditures and Income Survey" for the year 1986.
2. It did not include the independent variables that were analyzed in this study such as age, work sector of the head of household, (income, number of children less than five years, number of household members 65 years and over).

- 3- It did not investigate the type of health services consumed, and the amount of money spent on different health categories in absolute J.D.
- 4- It was just an interpretation and mainly depended on descriptive statistics, i.e. neither correlation analysis nor difference between proportions, or regression analysis were done.

A recent analysis of health expenditures in New Zealand carried out by Derlin and Richardson in 1993 concentrated on the total expenditure on health related to the national income. It also provided some information on whether health services are equally distributed irrespective of income. Data was obtained through a household survey [5].

It was found that "Spending on health care is unequally distributed across income groups, in particular, the highest income households spend six times as much on dental care as the lowest income household". [5:127]

The reason for this unequal distribution lies in the fact that dental care expenditures are financed largely through out of pocket payment.[5]

"The relative equality of spending on general practitioners probably also reflects the greater imperative to seeking medical rather than dental care given that:

1. The consequence of postponing or avoiding dental treatment carry little risk of fatality.
2. In contrast to the nature of many medical problems, dental illness rarely intrudes normal role obligation". [5:126]

The analysis of health expenditure in New Zealand differs from this study in that it was intended to analyze the total health expenditure related to the national income and did not analyze the effect of other independent variables on health expenditure such as age, sex, education, work sector of the head of household, household size, income, residence etc...

In the United States, Feldstein (1968) estimated the correlation between the dependent variables, which included (gross medical care expenditures, hospital expenditures, dental expenditures, drug expenditures, and physician fees), and the independent variables which included (mean family income, age of the head of the household, families with members less than five years, and more than 65 years, and education of the head of household) [7]. The following results were obtained:

- (1) Mean family income variable had positive correlation in almost all of the dependent variables except with hospital expenditures.
- (2) The education variable had a positive effect except when physician visits was the dependent variable.
- (3) The demographic variables (age of the head of household, families with members less than five years, and more than 65 years) had no effect in all the dependent variables. [7]

Feldstein et al (1970) studied the effect of age of the head of household and sex of patient on the expenditure for health care. Results obtained showed that age of the head of the household did not show to be statistically significant, but it is the sex of the patient that is relevant.[7]

In the U.S.A., Newman and Anderson (1972) showed that the use of dental services was much higher for the upper income groups, and it was suggested that dental care is viewed by society as much less necessary than other services.[8]

The National Center for Health Services Research in the United States reviewed the expenses for medicines prescribed in ambulatory care in 1982.[9] and the following results were obtained:

1. Average annual expenses were highest for persons 65 years or over at \$93/person/year. The least was \$20/person/year for those 18 years or below.
2. Females had higher mean annual expenses for prescribed medicine (\$50)/year than males \$41/year.
3. Those in families with low income and low educational levels had mean annual prescribed medicine expenses above the population mean of (\$46/person). They were \$57 for those with incomes less than \$12,000, and \$65 for those in families whose head had less than 9 years of education.
4. Those not in the labor force had much higher annual prescribed medicines (\$71) than others (\$35 for the employed and \$39 for the unemployed).

This may indicate that those who were in the labor force were more likely to be healthier and more likely to be insured than the unemployed or those not participating in the labor force.

The National Center for Health Services Research in the United States reviewed personal health services expenditures in 1982 with different population characteristics (age, sex, income, education)[10]. It showed that the expense per person varied by most of these characteristics. The range was widest among age groups, those aged less than five years had out-of-pocket expenses of \$97 compared to \$326 for those 65 years and older. Females spent \$230 on average compared to \$175 for males. Lowest income groups spent on average \$ 241/year while those in the higher family income were just below \$200. The average out of pocket expenses for the total population was \$205.

The Center also reviewed the distribution of total out of pocket expenses among various types of health services for the entire population in 1982.[11] The results showed that the ambulatory physician care accounted for almost one third of all personal health care expenditures for children under five years, only one sixth of all expenses for persons above 55, and one fourth for the least educated.

Expenses for dental services represented as much as one third of all health care expenditures for the 6 to 18 years age group. This type of expense increased by income and education. Households headed by females tended to have lower levels of expenditures (\$250) than families headed by males (\$325).[7]

The above mentioned studies which were carried out in the U.S.A. differ from this study in that:-

1. As U.S.A is considered to be a developed country and "the pattern of health expenditure would appear to fit into a spectrum reflecting,

economic, socio-political, philosophical, and socio-cultural attitudes toward health" [12:39], the above studies cannot be applied to Jordan.

2. International comparisons are difficult and need careful interpretation, because absolute comparison expressed in an international currency, usually US dollars, in a fixed year can be radically affected by exchange rate fluctuations and inflation rates.[13]
3. In addition, the relative purchasing power of a given expenditure for health service inputs also varies between countries, because a country which spends more on health services is not necessarily providing more or better inputs, as the extra expenditure may partly or wholly be caused by higher prices.[13]

Concepts and Theoretical Orientation

For the appreciation of the nature of this study, and the questions it sought to answer, it is essential to look at and understand a few concepts related to the utilization of health services, needs and demand for health service, and the special characteristics of health services.

Utilization of Health Services

The utilization of health services is an interaction between consumers and providers, and it is influenced by sociocultural, organizational, consumer-related, and provider related factors, as shown in figure [1].

Socio-cultural

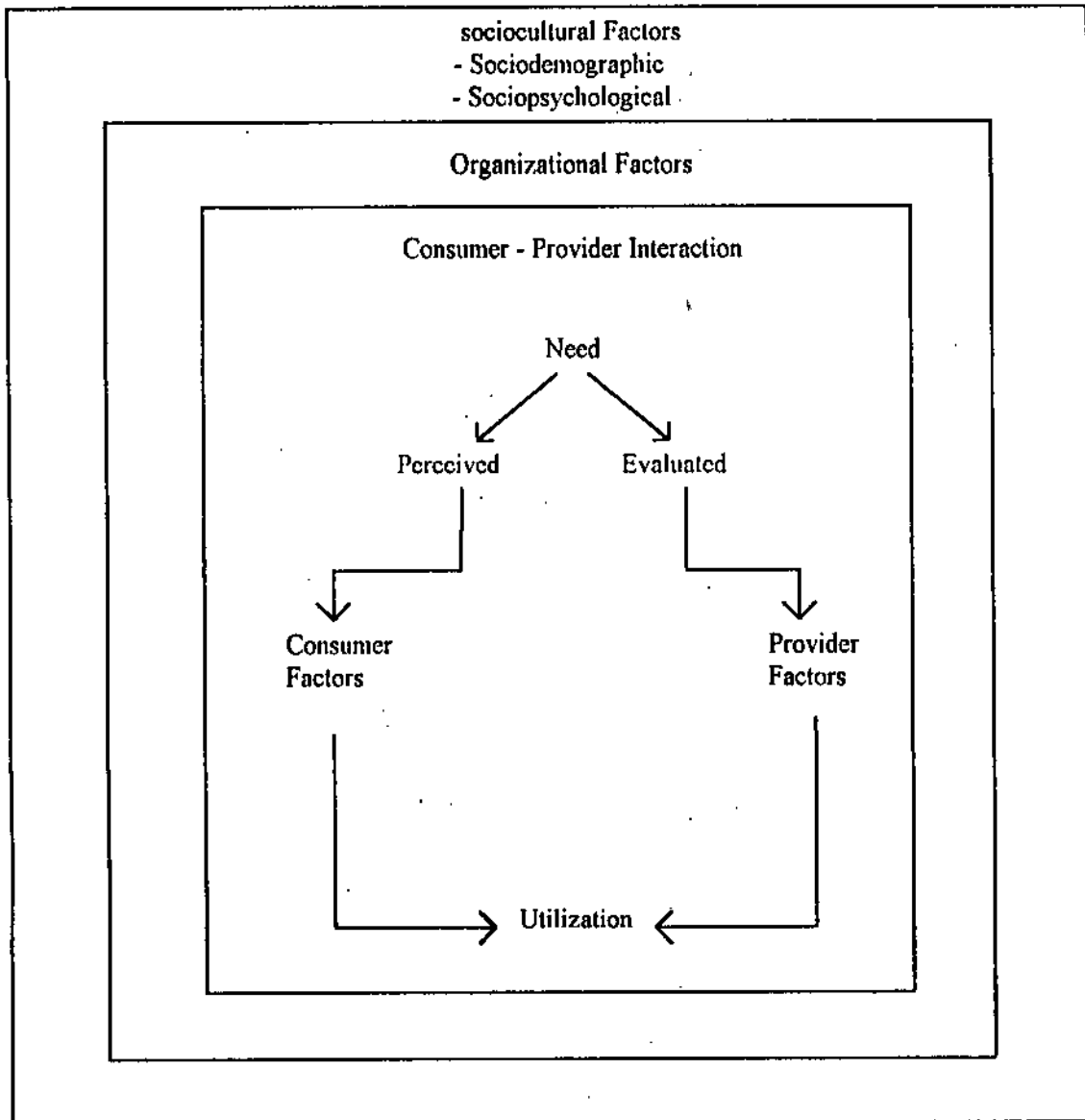
Sociocultural factors affecting utilization of health services can be divided into two categories:

Sociocultural factors affecting utilization of health services can be divided into two categories:

- a. Socio-demographic factors include age, sex, race , marital status and socio-economic status (education, occupation, income).
- b. Psychological factors: Researchers have long been aware that persons perceive illness symptoms differently, and therefore persons behave differently in seeking care according to their perceptions. In addition to illness perception, attitudes or beliefs about medical care, physicians and diseases influence utilization.[14]

Several sociological studies have looked at the patterns of health services utilization by different sub-groups of society. Zola (1966) compared the presenting symptoms of Italian and Irish patients in the out-patient clinics in Boston hospital. He reported very different sets of complaints, (more eye, ear, nose, and throat, complaints from the Irish) and more pain experienced by Italians. [14]

Figure (1) Determinants of Health Services Utilization



Source: G.E Alan Dever : Epidemiology in Health Services Management, Aspen Publication, Rockville Maryland, 1984 pp(212)

Organizational Factors

This involves the availability of resources, geographic and social accessibility, characteristic of the structure, and process of delivery of care.

1. **Availability of Resources**: refers to the volume, and type of existing resources compared to that required to meet population needs.
2. **Geographical Accessibility**: is the relationship between the location of supply and location of clients (off need)[14]
3. **Social Accessibility**: refers to the other non-spatial and non-temporal characteristics of resources that may facilitate or obstruct use of services. Social accessibility may be divided into two dimensions: acceptability and affordability. The former refers to psychological, social, and cultural factors, while the latter refers to economic factors [14]
4. **Characteristic of Care Structure and Process**: the way services are delivered may have an impact on utilization. The mode of remuneration of physicians, (fee for service, or others) bring about different patterns of utilization.[14]

Consumer Related Factors

Many characteristics and attributes of consumers [clients or patients] are related to utilization. The illness level or need for health care is one. Others include mobility status, chronic activity limitation status and disability days, financial ability, and insurance coverage.

Provider Related Factors:

These factors can be divided into two groups:

- a. economic characteristic
- b. provider characteristic.

a. Economic Characteristic:

The traditional interaction between supply and demand does not hold true in the medical market. On the contrary, the alternative "demand-shift" or inducement hypotheses states that medical practitioners have the ability to generate demand for their services because supply creates demand.[14]

One of the first studies to suggest such an hypotheses was carried out in (1972) by Fuchs and Kramer. This study reported that supply factors, technology, and number of physicians appear to have decisive importance in utilization of, and expenditures for doctors services. It states that medical practitioners have the ability to generate demand for their services, while consumers are not really aware of their health service needs, and are are not able to evaluate which provider may offer better care. Furthermore, consumers are unable to make rational decisions to utilize services.[14]

b. Provider Characteristics:

Physicians behavior in generating utilization of services has been related to their degree of specialization, their medical school, their hospital of residency, and finally to other factors such as auxiliary health personnel, equipment and technology, and innovation .[14]

Special Characteristics of Health Services

There are special characteristics of health services that affect health services utilization. These are:

- a. **The Role of Physician:** A special characteristic of health services involves the role of the physician who operates on both sides, (supplier and demander). It is the physician who provides the consumer directly with services, and determines the service needed from other suppliers - hospitals, suppliers of drugs and medicines, number of days spent at hospital, etc. [15]
- b. **Consumer Ignorance:** Consumers are less informed about medical services than about anything else they buy. They can shop around and compare goods and services they wish to buy but there is no objective information available concerning the quality of health services. Also the prices, quantities, and qualities of medical services are undisclosed to most consumers.[15]
- c. **Unpredictability of Illness:** Individuals and families, through careful budgeting, may plan what goods and services they will buy, and how much they will save. Some medical and health services can be planned for in this way, and others cannot. A family may plan to fulfill predictable medical and health needs such as physical examination or immunization shots, but it is difficult to plan for illnesses or accidents.[15]
- d. **A "Right" to Good Health:** Most people regard good health as a "right". They believe that a sick person should have access to medical services regardless of income. The basic idea that health services are

essential needs and people have a right to receive them, is in direct conflict with the idea that prices should be the sole determinant of the distribution of health care services.[15]

- e. **Spill-over Benefits:** Benefits that flow to the specific users of goods and services are called direct benefits. As people use the goods and services there may be indirect or social spill-over benefits to other individuals. The best illustration of social spill-over benefits in health services involves communicable diseases, the use of medical services to recover from a disease that is contagious directly benefits the user of the service and indirectly benefits others.[3] However, benefits from many medical services flow only to the individual users of these services, for example a heart or kidney transplant benefits primarily the individual receiving the transplant.[3]
- f. **Nature of Demand:** The most obvious distinguishing characteristic of an individual's demand for medical services is that it is not steady in origin, but irregular and unpredictable. Medical services, apart from preventive, afford satisfaction only in the event of illness. In addition, the demand for medical services is associated with considerable probability, there is some risk of death, and a more considerable risk of impairment of full functioning.[15]

Traditionally, demand studies have grouped factors affecting demand into: taste; price; income

Taste: The primary determinants of an individual's demand for health care is the status of his health. For example, an individual's myopia (short-sightedness) may generate a demand for eye glasses, other

determinants of an individual tastes may include his education, as it makes consumers more aware of the utility and limitations of health care, also family size, marital status, and the tastes of others such as his doctor or hospital administrator may affect his demand for health.[16] Also health services include components which may have many substitutes, for example inpatient hospital care includes hotel type and other general nursing services that can be provided through suitable care at home. This point was supported by a study cited by Fuchs (1972) showing that those living alone tend to stay hospitalized longer than those living with relatives.[16]

Price: The study of price elasticity of demand for health care has two components:

- a. nominal price charged which is measured by the amount of out-of-pocket expenses; and
- b. the value of the consumer's time; if a person is self employed, the cost of his time while hospitalized or seeking care may be a more important factor in deciding how long to stay in the hospital than is the total hospital charge paid mostly by third party.[16]

Income: Studies of income elasticities of demand face more problems than do those of price elasticity of demand, and a serious source of bias exists owing to the correlation between ones income and cost of ones time, i.e. high income reflects a higher cost of time of hospitalization because of a higher foregone income during hospitalization.[16]

Consumer Demand for Health Services

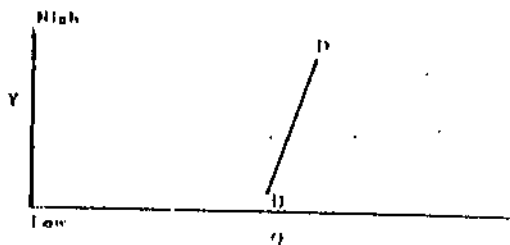
Consumer demand for health services can be classified by order of urgency and hence the priority in which medical care has been sought.

1. Demand arising from any serious emergency situation where death is the alternative.
2. Demand for treatment of not so serious conditions, such as acute illness where life is not threatened or a chronic illness where management of the problem is needed.
3. Demand for services for early detection of developing medical problems.[7]

Using a chart whose vertical axis income [y] and whose horizontal axis measures the quantity of these services demanded [Q]:

1. The demand curve for life sustaining health services as a function of income.

Figure (1) Consumer Demand for Life-Sustaining Health Services as a Function of Income.



Source: Lewis E, Weeks, Berman: Economics in Health Care, Aspen Systems Corporation, Germantown Maryland, 1977.

The demand curve DD reflects relatively slight effect of income on the demand for services to treat emergency/services illness as shown in Figure [I], i.e. Level of income may not play a major role in the quantity of such services demanded, except in the sense that the higher ones income the greater maybe ones access to the institution and personnel producing such services, so such demand is not usually a direct function of individual income.[7]

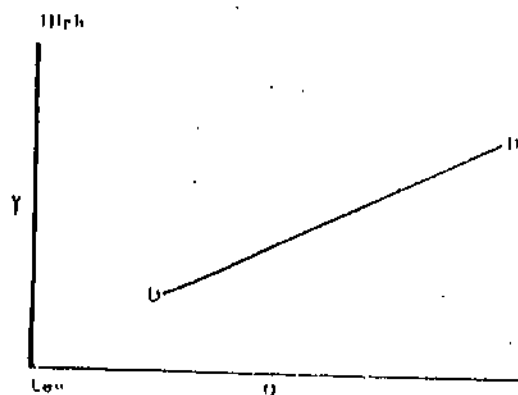
II. Income and Demand for Curative Services

The demand for curative services to treat problems that are not life threatening. A set of relationships based on two points can be seen:

1. The superior nature of medical services vis-a-vis most other goods and services.
2. The fact that with higher incomes, the marginal utility of other goods or services which might have been very high when incomes were low, now diminishes rapidly and medical services yield higher utility, also the linkage between education and income level to be very strong. Hence other factors explaining the increased demand for services to alleviate these acute but not death inducing illness may be related to a different set of values or to the possession of more information which leads to greater rationality in the allocation of one's income.[7]

Consumer demand for health services to alleviate minor health problems as a function of income is well illustrated in Figure (II):

Figure (II) : Consumer Demand for Health Services to Alleviate Minor Problems as a Function of Income

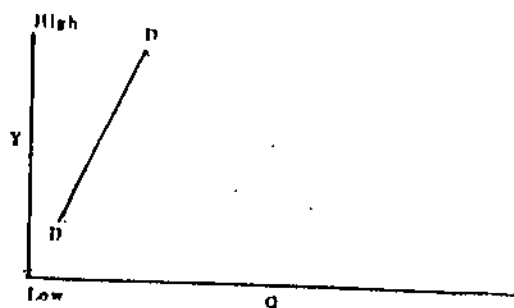


Source: Lewis E, Weeks, Berman: Economics in Health Care, Aspen Systems Corporation, Germantown Maryland, 1977.

III. Income and Demand for Preventive Services

The total quantity of such services demanded to be low at all income levels (The curve is close to the vertical axis) as shown in Figure (III).

Figure (III) : Consumer Demand for Preventive Health Services as a Function of Income



Source: Lewis E, Weeks, Berman: Economics in Health Care, Aspen Systems Corporation, Germantown, Maryland, 1977.

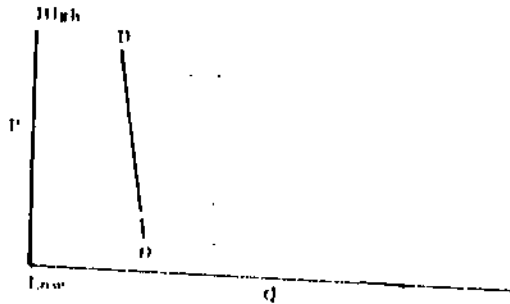
The reason is found in the very uncertain knowledge that the consumer possesses about the value of such services from a medical viewpoint and accordingly their dollar value, for example, spending \$100 on a series of tests that are interpreted by the physician as indicating that the patient is in good health may merely confirm what the person already believed to be true. For those on higher incomes, \$100 may seem to be a small price to pay for such assurance.[7]

Effect of Price on the Demand for Health Services

I. Price and Demand for Life Sustaining Services

Figure [IV] shows that the quantity demanded is relatively insensitive to the price of the service, the reason is that these services are generally not consumed under what might be called "pleasant circumstances". [7]

Figure (IV): Consumer Demand for Life-Sustaining Health Services as a Function of Price

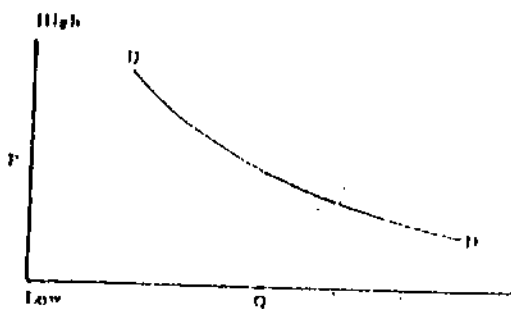


Source: Lewis F. Weeks, Berman: Economics in Health Care, Aspen Systems Corporation, Germantown Maryland, 1977.

II. Price and Demand for Other Curative Services

The lowering of price results in a substantial increase in demand as shown in Figure [V]. Several explanations for this can be offered.

Figure (V): Consumer Demand for Health Services to Alleviate Minor Health Problems as a Function of Price



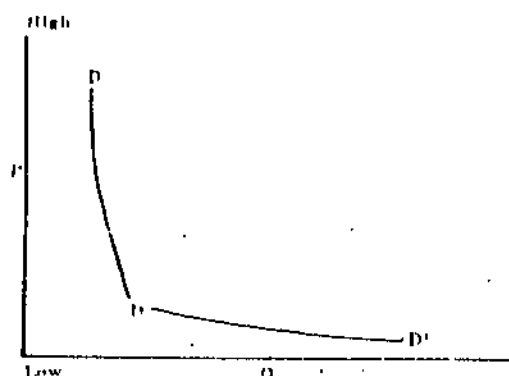
Source: Lewis F. Weeks, Berman: Economics in Health Care, Aspen Systems Corporation, Germantown, Maryland, 1977.

- a. A lower price makes a given service more attractive vis-a-vis other alternative purchases such as home remedies, non-professional advice, etc.

- b. Insurance may lower the price of a given service literally to zero which removes any economic barrier.
- c. Lowering the price makes the service available to a broader market.[7]

III. Price and Demand for Preventive Services

Figure (VI): Consumer Demand for Preventive Health Services as a Function of Price



Source: Lewis E. Weeks, Berman: Economics in Health Care, Aspen Systems Corporation, Germantown, Maryland, 1977.

As shown in Figure [VI], the segment of demand DD curve indicates that few consumers buy these services at high prices, and only a somewhat larger number buy these services. To shift the demand for these services even further to the right to increase total consumption as represented by the DD' segment of the demand curve would require a substantial educational effort and improvements in techniques of practice to reduce the uncertainty attached to the value of such services.[7]

International Health Expenditure

To compare health expenditure internationally one has to consider both public and private expenditures, also national health expenditures related to GDP.

Table (3.1) classifies health expenditures in 1990 for countries according to demographic region and economy.

World spending on health totaled around \$1,702,455 million or 8% of global income, Sub-Saharan Africa \$12,080 million or 4.5% of global income, Middle East region \$38,961 million or 4.1% of GDP, formerly Socialist Economies (FSE) and Established Market Economies (EME) \$1,532,340 million or 8.7% of Global income.[3]

The total annual health spending ranged from less than \$10 per capita in several Africa and Asian countries, Somalia \$8 per capita, 1.5% of GDP, Sudan \$12 per capita, 3.3% of GDP, to more than \$2,700 in USA, 12.7% of GDP.[3]

There was considerable variation within regions. In the Middle East region, Egypt spends \$18 per capita, 2.6% of GDP, Saudi Arabia \$322 per capita, 4.8% of GDP, and Jordan \$48 per capita, 3.8% of GDP.[3]

Hence the share of GDP devoted to health tends to rise with income. Rich countries differ from poor ones even more in health expenditure than in income.[3]

Table (3.1) Health Expenditure for Different Countries

Demographic and Economy	Total Health Expenditures (Official Exchange Rate U.S dollars)		Health Expenditures as a Percentage of GDP		
	Millions 1990	Per Capita 1990	Total 1990	Public Sector 1990	Private Sector 1990
- Sub-Saharan Africa	12,080	24	4.5	2.5	2.0
Sudan	300	12	3.3	0.5	2.8
Somalia	60	8	1.5	0.9	0.6
- India	17,740	21	6.0	1.3	4.7
-China	12,969	11	3.5	2.1	1.4
-Other Asia and Islands	41,752	61	4.5	1.8	2.7
- Latin America	46,660	105	4.0	2.4	1.6
- Middle East	38,961	77	4.1	2.4	1.7
Egypt	921	18	2.6	1.0	1.6
Jordan	149	48	3.8	1.8	2.0
Syria	283	23	2.1	0.4	1.6
Saudi Arabia	4784	322	4.8	3.1	1.7
Israel	2301	494	4.2	2.1	2.1
- Formerly Socialist Economies of Europe (FSE)	49,143	142	3.6	2.5	1.0
- Established market Economies (EME)	1,483,196	1,860	9.2	5.6	3.5
France	105,467	1,869	8.9	6.6	2.3
USA	690,667	2,763	12.7	5.6	7.0
Japan	189,930	1,538	6.5	4.8	1.6
Switzerland	16,916	2,520	7.5	5.1	2.4
- FSE and EME	1,532,340	1,340	8.7	5.4	3.4
- Demographically developing group	170115	41	4.7	2.3	2.5
World	1,702,455	323	8.0	4.9	3.2

Source: World Bank, World Development Report 1993, Investing in Health, Oxford University, 1993, PP(210,211).

The sheer size of the expenditures on health shown in Table [3.2], makes it critical to understand the impact of government policies on people's health. But governments profoundly influence health in less direct ways, through their policies toward education, water supply, sanitation and other important sectors for health, as well as through regulation of health system, health providers and insurers.[3]

Governments further affect health by their impact on household income and educational levels, by financing, public health services and by providing care directly. [3]

Table (3.2): Global Health Expenditure, 1990

Demographic Region	Percentage of World Population	Total Health Expenditure [billions of dollars]	Health Expenditure as Percentage of World Total	Percentage of GDP Spent on Health	Per Capita Health Expenditure [dollars]
Established market economies	15	1,483	87	9.2	1,860
Formerly socialist economies of Europe	7	49	3	3.6	142
Latin America	8	47	3	4.0	105
Middle East	10	39	2	4.1	77
Other Asia and islands	13	42	2	4.5	61
India	16	18	1	6.0	21
China	22	13	1	3.5	11
Sub-Saharan Africa	10	12	1	4.5	24
Demographically developing countries	78	170	10	4.7	41
World	100	1,702	100	8.0	329

Source: World Bank, World Development Report 1993 Investing in Health, Oxford University, 1993 PP(52)

There are huge differences in health status among populations. For example, life expectancy ranges from forty years or less in some countries of sub-Saharan Africa to seventy five or more in the established market economies.[3]

In sub-Saharan Africa half of all deaths occur under age five, in the established market economies half occur after age seventy four. Child

mortality rates exceed 200 per 1000 in several African countries, but are below 20 in the richest countries.[3]

These factors help to explain the huge differences. The first is human behavior, both health and the capacity to improve health are related to income and education, and the changes in behavior that wealth and education bring. The Second factor is the amount and effectiveness of expenditure in the health system. The third factor is the range of diseases present, this is determined largely by environmental and economic factors.

Effective health policy takes account of different disease prevalences but is not simply determined by them.[3]

Differences in health spending are an obvious starting point in the search for an explanation of differences in health.

Many countries spend too much on sophisticated hospital services of low cost effectiveness, and too little on essential public health and clinical services. The share of public expenditures for health absorbed by tertiary and secondary care hospitals for example is as high as 70 to 75 percent in Jordan and Venezuela.[3]

Tertiary care hospitals alone may consume 30 to 50 percent of the health budget. In Brazil 64 percent of public health spending in 1965 was for preventive and public health activities, but by the mid-1980s the share had dropped to 15 percent and hospitals absorbed fully 70 percent of expenditure.[3]

The resulting weakness of primary care network leads patients to seek care in hospitals; up to 80 % of cases crowding hospital emergency rooms could be treated as effectively but more cheaply at the primary level.[3]

Spending on health services is becoming a subject of major concern for all governments, because the bulk of money in health care goes to a small proportion of the population, i.e. for those who are seriously ill.[7] For example in the United States 30 percent of health expenditure is spent on people in their last 60 days of life.[17]

A study done in the U.S.A. tracing trends in health spending from 1928 to 1980, Table (3.3), shows that health expenditures are concentrated among the top 1 percent of those spending money for health care.[17]. In a study update, Merck and Monfiet found that trend toward concentration has increased. In 1987 the top 1 percent of spenders accounted for 30 percent of health spending, and nearly half of the top spenders in 1987 were elderly.[17] In contrast the bottom half of the population, in terms of spending, accounted for only 3 percent of total spending.[17]

Table (3.3) Distribution of Health Expenditures for the U.S. Population, by Magnitude of Expenditures, Selected Years, 1928 - 1987

Percent of U.S. Population Ranked by Expenditure	1928	1963	1970	1977	1980	1987
Top 1 percent	-	17%	26%	27%	29%	30%
Top 2 percent	-	-	35	38	39	41
Top 5 percent	52%	43	50	55	55	58
Top 10 percent	-	59	66	70	70	72
Top 30 percent	93	-	88	90	90	91
Top 50 percent	-	95	96	97	96	97
Bottom 50 percent	-	5	4	3	4	3

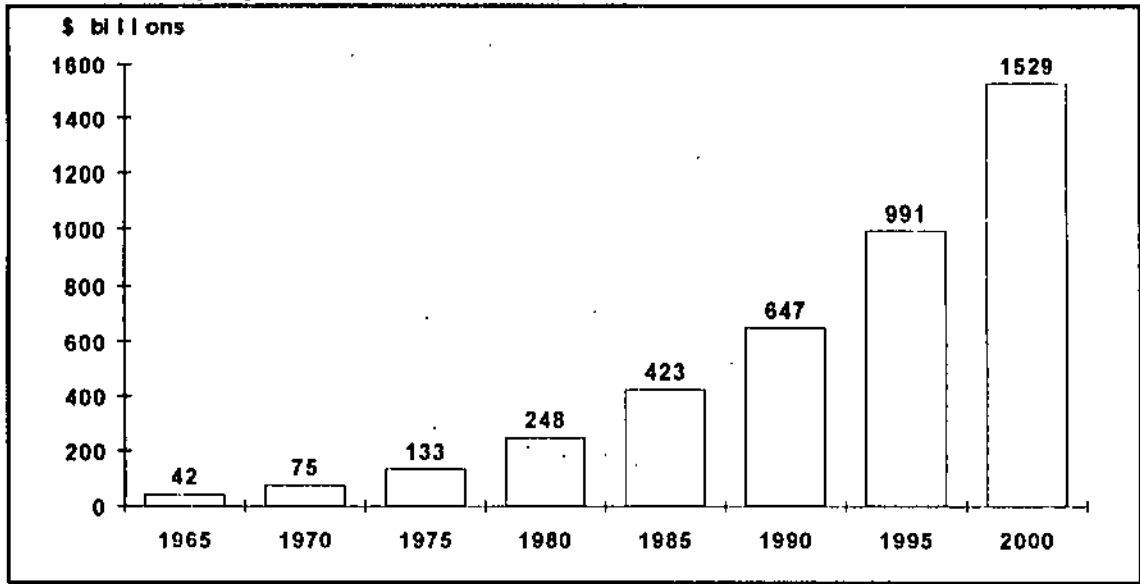
Source: Agency for Health Care Policy and Research, *The Concentration of Health Expenditures: An Update U.S 1993*, pp 146-147

It was found that even in the richest countries, not all health needs of the population can be met due to increased expectation by the population, and the rapid progress in health care technology. This was accompanied by a significant increase in health sector spending and it is more evident in countries with limited resources.[12]

Patterns of health expenditure in developing countries mainly depend on governments which accept major responsibility for the health of their citizens, and health care is accepted as a basic human right. At the same time, they share the cost of health care with national, local, and foreign agencies.[12]

Figure (2) shows the national health expenditures in U.S.A in selected years from 1965, (this was the year that Congress passed laws establishing the Medicare and Medicaid Programs) to the year 2000. Data shown for the years 1990, 1995, and 2000 are projected data. This projected data indicates that national health expenditures will top the \$1 trillion mark in the late 1990s, reaching \$1.5 trillion in the year 2000.[15]

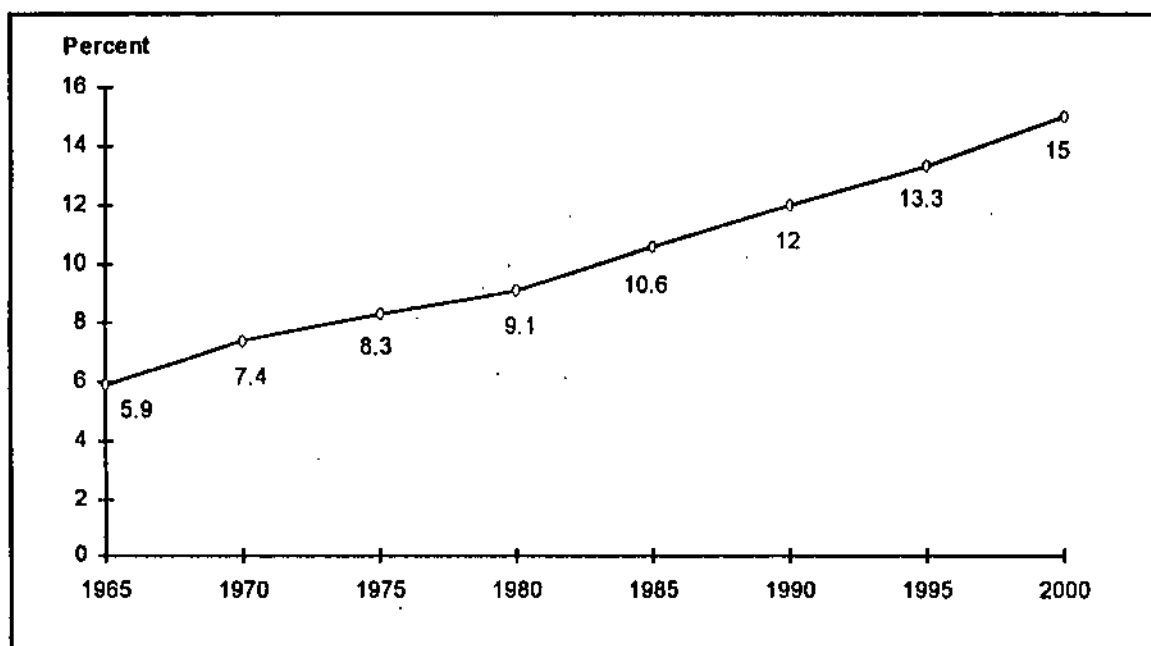
**Figure (2): National Health Expenditure in Selected Years 1965 to 2000
[Projected 1990, 1995, and 2000]**



Source: Sharp, Register, Leftwich: Economics of Social Issues, Ninth Edition, IRWIN, Boston, 1990, PP 236.

Expenditures on health have grown faster over many decades than the Gross National Product (GNP), and are projected to continue to outpace the growth in the overall economy, as shown in Figure (3). Between 1965 and 1990 national health expenditures, as a percent of the GNP, increased from 5.9 percent to 12 percent. It is projected that these expenditures will represent 15 percent of the total value of final goods and services produced in this country in the year 2000.[15]

Figure (3): National Health Expenditure as a Percentage of the GNP in Selected Years, 1965-2000 (Projected in 1990, 1995 and 2000) in U.S.A.



Source: Sharp, Register, Leftwich: Economics of Social Issues, Ninth Edition, IRWIN, Boston, 1990, p.p 237.

The three main components of the increase in health care expenditure are prices, population, and changes in use and/or services. [14]

It has been calculated that for the period 1965-1980 price increases accounted for 58 percent of the growth in health care expenditure, population growth 9 percent and increased health care consumption, 33 percent. [14]

This phenomenon of rising health expenditures has been occurring in virtually all of the Western World and in developing countries, where it is less evaluated. [14]

An important factor in explaining the rapid growth in health care costs in United States is that physicians and hospitals are paid predominantly on a

fee-for-service basis. Countries experiencing moderate spending growth [Canada and Japan] also use fee-for-service for outpatient physician service, but have devised other ways of controlling expenditures: a uniform fee structure and aggressive peer review of doctors spending patterns in Japan, and fixed overall budgets for hospitals in Canada.[3] Countries with low levels of spending (United Kingdom) or low recent growth of costs (Denmark, Germany, and Sweden) set overall limits on payments to both doctors and hospitals.[3] The method of limiting payments to doctors varies widely, Capitation (per patient under continuous care) in Britain, fee for service in Germany, and salaries in Sweden. In Germany as a means of controlling expenditure, fees for providers are reduced if the volume of services exceeds the anticipated level.[3]

Health Services in Jordan

There are many sectors in Jordan that provide health service to population and the level of services differ from one sector to another.

Sectors that provide health services can be classified as:

1. **Public Sector** which includes:
 - a. **Ministry of Health**
Provides all types of services, prevention, primary, secondary tertiary, and long term services.
 - b. **Royal Medical Services**
Provides some preventive services but emphasizes mainly on primary, secondary, tertiary, and long term services.

c. Jordan University Hospital

An educational hospital providing services from primary up to long term services.

d. Social Security Corporation (SSC)

The SSC finances retirement pensions and medical expenses created by work injuries and is considering increasing its range of health coverage.

2. International Sector

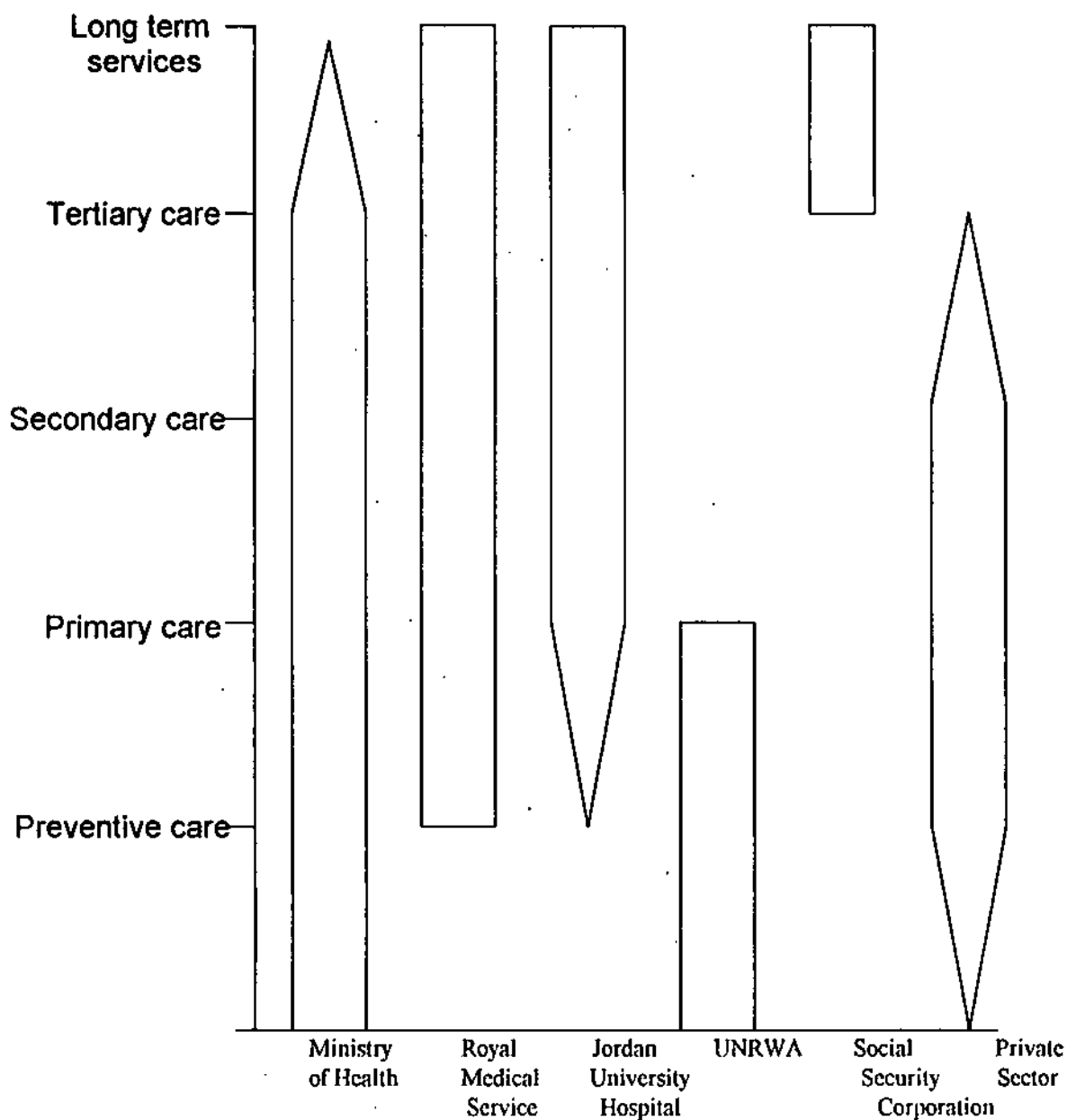
United Nations for Relief and Works Agency (UNRWA) provides services for Palestinian refugees in Jordan, and emphasizes mainly on prevention and primary health services.

3. Private Sector

Partially provides prevention services but mainly emphasizes on primary, secondary, and highly specialized and sophisticated services.

Figure [4] clearly illustrates all the above mentioned sectors and the type of services provided.[6]

Figure [4] : The level of Health Service Provided by Different Health Sectors in Jordan



Source: Samawi, Jaghbeer, "Health Status in Jordan", Higher Council for Science and Technology, Amman, 1990. [P.P 102]

Overview of The Health System and Health Expenditure in Jordan

During the past 25 years, health indicators in Jordan have improved significantly: life expectancy at birth increased from 49 years in 1965 to 66 years in 1991, and infant mortality fell from 114 to 37 per 1,000 live births during the same period, and maternal mortality was 40 per 100,000 births

which is considered to be low for a country with a high total fertility rate.[18]

In 1991, the share of health expenditures in GDP was about 9 percent. The private sector provides a high and rising share of health care (40% of initial patient contact in primary health care, and over 50% of specialized ambulatory care).[18]

As shown in Table (3.4) more than half the doctors (general and specialists) are in the private sector. The public sector has more hospital beds, while most pharmacists and dentists are private.[18]

Table 3.4: Number of Health Specialists Hospitals and Beds in both the Public and Private Sectors (1991)

	Public	Private
General Practitioners	1636	2629
Specialists	1254	876
Dentists	335	1142
Pharmacists	220	2000
Certified mid-wives	462	163
Certified nurses	1884	542
Health assistants	3859	324
No. of hospitals	28	28
No. of beds	4282	1596

Note: Doctors in the Private Sector include unemployed or returnees. The public sector includes Ministry of Health, Royal Medical Services and Jordan University Hospital.

Source:- The World Bank, Health Management Project, Hashemite Kingdom of Jordan Unpublished Report, 1993.

The Ministry of Health operates an extensive primary health care network with about one health center per 6000 people, and an average 30 minute travel time to the nearest clinic. This is high density by international standards.[18]

As shown in Table (3.5) the distribution of Ministry of Health beds and doctors is uneven across Governorates. The number of health specialists per 10,000 people varies from 5 in Amman to 27 in Karak, while the number of hospital beds per 10,000 people varies from 3.8 in Amman to 7.5 in Balqa.[18]

Table 3.5: Ministry of Health Beds and Specialists in 1991

	Health Specialists	Doctors	Nurses and mid-wives	Beds
Amman	(5)	(1.2)	(0.3)	(4)
Zarqa	(6)	(1.4)	(1.5)	(4)
Balqa	(17)	(2.3)	(1.1)	(8)
Irbid	(7)	(1.1)	(0.6)	(6)
Mafraq	(23)	(3.3)	(1.5)	(5)
Karak	(27)	(3.3)	(0.3)	(6)
Tafeelah	(23)	(2.7)	(1.6)	(7)
Ma'an	(14)	(1.7)	(0.6)	(6)

Notes:- Health specialists include general practitioners, specialists, dentists, nurses, health assistants, pharmacists, nutritionists, etc.

Source:- The World Bank, Health Management Project, Hashemite Kingdom of Jordan Unpublished Report, 1993.

This can partly be explained by the concentration of the private sector in Amman, Zarka, and Irbid which have the lowest per capita supply of public health care.

The private and public sectors are geographically complementary. The private sector is stronger in major cities, while the public sector serves more rural areas.[18]

Health Care Financing:

Although most costs are financed by government spending, and patients' fees, there are four systems of social protection involving health insurance. They differ widely and cover populations of unequal size or incomes.

The Social Security Corporation (SSC) is financed by taxes on private formal sector employment. Contributions are made both by enterprises (10% of pay) and by employers (5% of pay).

Large private companies also provide supplementary health insurance.[18]

There is no public health insurance as such, but the term is used by the Ministry of Health, and Defense to describe funds for civil servants and military personnel and their dependents.[18]

The military provides free health care in Royal Medical Services (RMS) facilities in return for a premium paid by all military personnel, amounting to 1.1% of the basic salary with a ceiling contribution of 1.5 J.D per month. These payments provide about 14% of the budget (about 3 million J.D. per year). This provides free access to RMS and use of Primary Health Care (PHC) at heavily subsidized fees.[18]

Civilian insurance covers eligible civil servants, and provides free treatment in MOH hospitals, and lower fees in PHC. Premiums are 2% of the basic salary with a ceiling of 8 J.D. per month. Premium total is about 5 million J.D yearly.[18]

Households identified as poor by the Ministry of Social Development, those who hold an indigent card, disabled patients, and blood donors (with an appropriate card) receive the same benefits as civil servants.

All other households have access to the primary health care centers and are charged subsidized fees, which are higher than those of the military or civil servants.

Government Health Spending

Health care in Jordan is among the best in the Middle East but has been achieved with a costly health system. Public and private spending on health care increased from 6% of GDP in 1979 to about 9% in 1991, with public expenditures rising from 3.1% of GDP in 1979 to 3.7% of GDP in 1991.[18]

Trends: Between 1985 and 1990, the share of government spending on health rose from 3.8% to above 5%. This is higher than most countries of the region with the exception of Tunisia and Iran (Table 3.6)

Table 3.6 Government Expenditures on Health (% of Total Expenditures)

	1985	1986	1987	1988	1989	1990
Egypt	2.6	2.4	2.5	2.4	2.8	---
Iran	8.1	6.1	6.0	7.1	8.3	7.6
Jordan	3.8	4.2	5.4	4.1	5.8	5.0
Syria	---	1.5	1.6	1.3	1.3	1.9
Yemen	4.3	4.5	3.5	3.6	3.9	3.7
Morocco	2.8	2.9	3.0	---	---	---
Tunissia	6.1	5.8	5.9	6.3	6.1	6.1

Source:- The World Bank, Health Management Project, Hashemite Kingdom of Jordan Unpublished Document, 1993.

Table (3.7) shows MOH expenditures in 1992. An increasing share was allocated to hospitals, which now consume more than 50% of current expenditures and 80% of capital expenditures. This has shifted resources from primary health care centers which account for 34% of current expenditures and 19% of capital expenditures.[18]

Table 3.7: Ministry of Health Budget, 1992, (Thousands of JD)

	Administra- tion	Primary Care	Hospitals	Total
Salaries & Wages	1,904	15,607	14,950	32,461
Transfers	838	602	830	2,270
Utilities & Supplies	829	1,770	15,375	17,974
Total recurrent	3,571	17,979	30,896	52,446
Capital expenditures	80	3,495	14,536	18,111
Total expenditures	3,651	21,474	45,432	70,577

Source:- The World Bank, Health Management Project, Hashemite Kingdom of Jordan
Unpublished Report 1993.

Costs: The cost per day of hospitalization is higher in MOH facilities than in the private sector, suggesting that the government could save money by purchasing, instead of producing directly, health services.[18] MOH primary care per patient costs are high. The crude average cost per PHC contact is 3 J.D, and this figure is higher than the fees (1.0-2.0 J.D) for a visit to a private general practitioner where medical incomes are higher.[18]

Revenue: Cost recovery is weak. It consists of insurance premiums from public employees (4.1 million J.D in 1991), and fees (5.5 million J.D in 1991). About 80% of the estimated 70 million J.D public costs in 1991 came directly from the budget. Cost recovery totaled 3.9 million J.D in hospitals and 1.6 million J.D in primary care for that year.[18]

Charges and Collection: The charges and collection rates are low in MOH facilities. PHC collect on average about 50-80 J.D per day. Hospital fees have not been raised for years. The fee structure is rudimentary: surgical procedures have three prices for minor, medium, and major surgery, and many procedure are priced below cost.

Patients without public insurance pay fees, but charges are nominal: a delivery costs 12 J.D in MOH hospital against about 75 J.D in a private facility. A visit to a specialized doctor (if not free) costs 1.5 J.D in a MOH out-patient unit, compared to 6 J.D in the Jordan University Hospital (JUH). Fee arrangements are not always clear, for instance the relationship between the civilian health insurance and JUH is based on a contract rather than on a fee-for-service basis.[18]

Access: The present user fees create several classes leading to inefficiency and inequity. Multiple coverage is common, and many patients are entitled to be treated at MOH, JUH, and/or RMS hospitals. On the other hand many have no coverage and have to pay the full price of health services while living close to the poverty line. Some low-wage government employees are not classified as civil servants and are not eligible for preferential fees.

There are two biases in the provision of public health care: The first relates to the uneven use of hospital services compared to PHC, out-patient departments are overcrowded with self-referred clients, leading to a high out-patient visit ratio of 300 per 1000 population per year.[18]

Patients' preferences for hospitals over PHCs reflect a widely held belief that hospitals are better than primary care facilities and a concern about the quality of PHC staff. This is reflected in continuing patient

Patients' preferences for hospitals over PHCs reflect a widely held belief that hospitals are better than primary care facilities and a concern about the quality of PHC staff. This is reflected in continuing patient preference for hospital based primary care even allowing for the traveling to, and waiting at, heavily overcrowded out-patient departments. At the same time many PHC centers are underutilized, about 60% of PHC doctors see fewer than 15 patients a day.

The Second bias is the fee structure which encourages military personnel and dependents to use the system. Table (3.8) shows the distribution of patients in PHCs by insurance scheme. Military personnel and dependents account for about half of the visits, though they are only about 30 percent of the population. Insured civil servants (6 percent) and their dependents (19 percent) account for a fourth of visits.

The poor (with a health card) account for 2.7 percent of visits. Finally, 25 percent of visits are made by paying patients. These are probably from the less prosperous non-insured. [18]

Table 3.8 Source of Payment for Primary Care, 1991.

Payee	Number	Percent
Military & Dependents	2,620,038	47
Civil Service	336,437	6
Dependents	1,067,539	19
Paying Patients	1,405,872	25
Poor with Health Cards	149,428	3

Source:- The World Bank, Health Management Project, Hashemite Kingdom of Jordan
Unpublished Report, 1993.

Expenditures on health care can be studied from two points of view, consumer and provider.

Royal Military Services
 Jordan University Hospital
 UNRWA
 Private Sector
 Others (voluntary, charity, etc.....)

By finding the health budgets of all these sectors, we can determine the total expenditure on health care, and get the expenditure/capita.

Such a macro level formulation is useful to determine expenditure/capita, while much of the expenditure is not directly related to health services and health care, but goes to planning administration, environmental health services, training etc..... i.e. not immediately providing health services. Also there is no guarantee that all that is spent on health services, such as drugs, would reach the consumer as some of it is expected to be discarded. Furthermore what is on the books as samples are being sold in the market. Hence such expenditure would take an average estimate that cannot be correlated with household or individual characteristics.

2. On the other hand analysis of health expenditure depending on household surveys as source of information would allow more accurate correlation between household health expenditure versus other variables (family pattern, socio-economic status, geographic location, and insurance coverage).

Methods of Paying Health Providers:

1. Self-pay or out-of-pocket expenditure means that the consumer pays for services rather than an insurance or third party payer.

2. Cost-based reimbursement

A cost-based system reimburses the provider for the cost of services rendered such as a day of patient stay, diagnostic tests performed or a special service.

3. Fixed payment

a. Prospective revenue.

It is called prospective because a fixed amount of revenue determined by certain criteria is received by providers.

b. Prospective diagnosis-related groups.

A prospective [fixed predetermined] amount based on patient diagnosis.

4. Charges

This form of provider payment is charges, or percentage of charges.[19]

Chapter Four

Data Analysis

Study Population Characteristics:

This study builds on a national survey that was designed to collect data from 8000 households. The respondent households were 7618 distributed in all Governorates (95.2% response rate). The sample size in each governorate was proportionate to population distribution from different regions of the country. Table (4.1) shows the sample size in Amman as (3092), representing 40 percent of the study population, the Governorates of Irbid and Zarka made 25 percent and 17 percent of the study population, respectively. The Governorates of Balqa, Mafraq, Karak, Ma'an, and Tafeeleh, which are less populated, made about 18 percent of the total study population. This sample matched with the actual population distribution, as estimated by Department of Statistics for the year 1992.

Table (4.1)
The Study Population Distribution as Compared to Estimated Population by Governorates of Jordan (Jordan Household Expenditure and Income Survey 1992) JHEIS

	Sample Size	Percent Distribution of the Study Households by Governorates	Estimated Population for the Year 1992	Percentage Distribution of Jordan Population by Governorates 1992
Governorate	No.	%		%
Amman	3092	40.6	1625000	40.5
Irbid	1888	24.8	979000	24.4
Zarka	1299	17.1	622000	15.5
Balqa	420	5.5	245000	6.1
Mafraq	285	3.7	160000	4.0
Karak	281	3.7	169000	4.2
Ma'an	223	2.9	148000	3.7
Tafeeleh	130	1.7	64000	1.6
Jordan	7618	100.0	4012000	100.0

1. Age of the Head of Household

Age of the head of households was divided into four groups, less than 35 years, 35-44 years, 45-54 years, 55 and over. The frequency and percentages of each category are presented in Table (4.2).

Table (4.2)
Percent Distribution of the Age of the Heads of Households by Governorates of Jordan,
(JHEIS 1992)

Age of Head of Household	Frequency	Percent
< 35 years	2056	27.0
35 - 44 years	1801	23.6
45 - 54 years	1715	22.5
55 and over	2046	26.9
Total	7618	100

2. Number of Household Members

The number of household members was grouped into three categories: small size (1 to 5 members), medium size (6-10 members), large size (more than 10 members).

The highest proportion of household size of the study population was medium (47.8%), the lowest proportion was the large household (14.1%).

As shown in Table (4.3), the highest proportion of small household size was in Amman, Ma'an, and Tafeeleh which was around (42.2%), the lowest proportion was in Mafraq (25.6%).

The highest proportion of medium household size was in Zarka (52.6%), and the lowest proportion was in Tafeeleh (42.3%).

The highest proportion of large household size was in Mafrq (25.3%), and the lowest proportion was in Ma'an (9.0%).

Table (4.3)
Percent Distribution of Number of Household Members by Governorates,
(JHEIS 1992)

Governorate	No.	Small Household Size (1-5 Members)	Medium Household Size (6-10 Members)	Large Household Size (10 + Members)
Amman	3092	42.2	46.5	11.3
Irbid	1888	38.2	45.1	16.7
Zarqa	1299	33.3	52.6	14.1
Balka	420	30.5	51.7	17.9
Mafrq	285	25.6	49.1	25.3
Karak	281	33.1	51.3	15.7
Ma'an	223	42.2	48.9	9.0
Tafeeleh	130	42.3	42.3	15.4
Total	7618	38.1	47.8	14.1

3. Household Age Composition:

Structure of the household with regard to age was considered relevant to utilization of health services, hence two age groups were considered, those below five years, and those above 65 years as these groups are considered to be major users of health services.

As shown in Table [4.4], 59% of the households in Jordan have children less than five years, with the highest proportion (72%) in Mafrq and the lowest was in Amman (56%).

While 16% of the households have members older than 65 years, the highest proportion was 20% in Balka and Mafrq, and the lowest proportion in Amman and Zarka 14% and 13%, respectively.

Table (4.4)
Percent Distribution of Household Members with Children Less than Five Years and Adults 65 Years and Older by Governorates (JHEIS 1992)

Governorate	Number of Households	% Households with Children below 5 years	% Households with Members 65 years or over
Amman	3092	56	14
Irbid	1888	58	18
Zarka	1299	61	13
Balka	420	59	20
Ma'raq	285	72	20
Kerak	281	59	18
Ma'an	223	67	18
Tafeeleh	130	61	15
Jordan	7618	59	16

Table (4.5) shows the percentage distribution of households with or without children below five years, and with or without members 65 years and over in Jordan. The percentage of households that do not have members 65 years and over was 84.4%. The percentage of population that do not have children less than five years was 41.9%.

Table (4.5)
Percent Distribution of Household With or Without Children Below Five Years and With or Without Members 65 Years and Over in Jordan, (JHEIS 1992)

More than 65 years \ Less than 5 years	None	1	2+ ^(*)	Sub total
None	30.8	8.3	2.8	41.9
1-2	38.8	2.9	0.4	42.1
3-4	14.0	1.1	0.3	15.4
5+ ^(**)	0.8	0.1	0.1	1.0
Subtotal	84.4	12.4	3.6	100.4

(roundup effect)
n=7618

- (*) Only 5 households had 3 individuals with age ≥ 65 and 231 households had 2 individuals ≥ 65
- (**) Only 16, 6, and 2 households had 6, 7, 8 individuals below five years of age respectively

4. Sex of the Head of Household

About 92% of the households were headed by "males". Variation between Governorates ranged from 99% in Tafeeleh to 91% in Amman, Irbid, and Balka. Table [4.6] shows these variations.

Table (4.6)
Percent Distribution of the Female Headed Household by Governorates
(JHEIS 1992)

Governerate	No.	Percentage of Heads of Households(Female)
Amman	3092	9 %
Irbid	1888	9 %
Zarka	1299	8 %
Balka	420	9 %
Mafrag	285	6 %
Kerak	281	8 %
Ma'an	223	5 %
Tafeeleh	130	1 %
Jordan	7618	8 %

5. Education of the Head of Household

Level of education of the heads of households were grouped into four categories: "illiterate", "read and write - elementary", "preparatory and secondary", and lastly "college and university". This breakdown separates those who received no education, basic mandatory education, and those who received more.

As shown in Table (4.7), around 23% of heads of households were illiterate; Balka and Mafrag had the highest rates of illiteracy with 41.3% and 43.4%, respectively. While Amman and Zarka had the lowest illiteracy rates of with 17.5% and 18.1%, respectively. The highest rate of higher education (college and university) of the heads of households was seen in Amman 26.8%, and least was in Mafrag (9.5%).

Table (4.7)
Percent Distribution of the Heads of Households by Level of Education by Governorates
(JHEIS 1992)

Governorate	Education of the Head of Household				
	No.	Illiterate	Read & Write Elementary	Preperatory Secondary	College University
Amman	3092	17.5	19.9	35.9	26.8
Irbid	1888	25.1	22.5	33.0	19.4
Zarka	1299	18.1	25.7	38.6	17.6
Balqa	420	41.3	14.2	33.8	10.7
Mafrq	285	43.4	23.1	24.0	9.5
Karak	281	39.9	18.9	31.1	10.1
Ma'an	223	23.1	24.7	38.2	14.0
Tafeeleh	130	30.0	17.3	39.1	13.6
Jordan	7618	22.9	21.4	35.1	20.7

6. Work Sectors of the Head of Household

Work Sectors of the head of household were grouped into two: private and public, this breakdown reflects the differences in health insurance coverage between private and public sector.

Number of heads of households that were included were only 5392, the other 2226 heads of households were excluded and consisted of 42 heads of households working in non-profit institutions and 8 heads of households working in domestic services, as we are not sure of the type of health insurance coverage. The other 2176 heads of households (28.6% of the study population) include those who were unemployed, housewives, students, disabled, and those who had income (from bonds, shares, help from relations or from other sources), since we expect that they are not covered by any type of health insurance plan.

Table (4.8) shows that 59.6% of heads of households worked in the private sector while 40.4% worked in public sector. The highest proportion of heads of households working in the private sector (71.0%) was in Amman with lowest (22.8%) in Tafeeleh.

Table (4.8)
Percent Distribution of Households by Sector of Work by Governorates
(JHEIS 1992)

Governerate	No.	Private	Public
Amman	2192	71.0	29.0
Irbid	1339	49.6	50.4
Zarqa	916	61.4	38.7
Balka	288	58.0	42.0
Mafrag	202	50.0	50.0
Karak	183	36.1	63.9
Ma'an	171	43.9	56.1
Tafeeleh	101	22.8	77.2
Total	5392	59.6	40.4

7. Household Income

Quartile categorization of the household income was used, and the breakdown of the income levels of the households studied in the eight Governorates of Jordan is shown in Table (4.9).

The highest proportions of the households in the first quartile were in Mafrag and Tafeeleh (41.1% and 40.0%), respectively, with the lowest in Zarka (21.7%) when both were compared to the national quartiles breakdown. The highest proportion of the households in the upper quartile was in Amman (30.6%) and the lowest was in Karak (8.5%).

Table (4.9)
Percent Distribution of Households by Level of Income by Governorates
JHEIS 1992

Governorates	Income	No.	Household Income			
			First Quartile	Second Quartile	Third Quartile	Fourth Quartile
			<1725 (J.D.)	1725 - 2889 (J.D.)	2890 - 4839 (J.D.)	4840 (J.D.) and above
Amman		3092	23.2	22.6	23.6	30.6
Irbid		1888	23.6	24.8	27.0	24.6
Zarka		1299	21.7	27.3	28.9	22.1
Balqa		420	31.4	26.4	23.1	19.0
Mafraq		285	41.1	25.6	21.8	11.6
Karak		281	33.1	34.9	23.5	8.5
Ma'an		223	30.9	27.4	20.2	21.5
Tafeeleh		130	40.0	24.6	19.2	16.2
Jordan		7618	25.0	24.9	25.1	25.0

8. Household Residency

Household residency was studied according to urban and rural areas. As shown in Table (4.10), (79.3%) of the study population lived in urban areas, with (20.7%) in rural areas.

The highest proportion of households who lived in urban areas (94.0%) was in Zarka, the lowest (28.5%) was in Karak.

Table (4.10)
Percent Distribution of Households by Urban/Rural Residency by Governorates
(JHEIS 1992)

Governerate	No.	Urban	Rural
Amman	3092	90.1	10.0
Irbid	1888	72.0	28.0
Zarqa	1299	94.0	6.2
Balka	420	65.2	34.8
Ma'raq	285	30.9	69.1
Karak	281	28.5	71.5
Ma'an	223	61.0	39.0
Tafeeleh	130	77.7	22.3
Total	7618	79.3	20.7

Household Expenditures and Income

Table (4.11) shows the average annual expenditures on "food, beverage and tobacco" and "other commodities and services". The latter includes (health, clothing, furniture, transportation, education etc...). Expenditures in absolute J.D per household and the average annual income in absolute J.D. per household are shown in the same table. The average annual total expenditure per household was 4284.53, and this exceeds average annual income per household by 62.2 J.D. There were 35 households, (around 0.5%) of the sample studied who reported total expenditures equal to zero.

Table (4.11)

Average Annual Income and Expenditures (Food, Health, and Other Expenditures), in Absolute J.D., per Household in Jordan, JHEIS 1992

Category of Expenditures	No.	Mean (Absolute J.D)	S.D.	Minimum	Maximum
Food, beverage & tobacco expenditure	7618	1739.2	1203.7	0	14429.00
Other commodities & services expenditure	7618	2545.3	2853.6	0	63602.00
Health expenditure	7618	95.8	270.0	0	12600.00
Total expenditure	7618	4284.5	3636.9	0	78031.00
Income	7618	4222.5	9093.5	0	439134.00

* 35 households reported total expenditure equal zero.

Types of Health Services Consumed

The average annual health expenditure per household was 95.8 J.D with a standard deviation of 270.

In this study expenditures on health care are divided into categories: medicine, dentist, physician, hospital, Xray and laboratory, and others including expenses for eye glasses, contact lenses, midwives, fees for treatment abroad, purchases of wheel chairs, crutches corrective shoes, syringes, needles, etc.

Table (4.12) shows that the proportion of the population that had no direct expense for health services range between 15.1% for medicine up to 92.7% for other services. Almost 12.8 percent of the study population (975 households) did not spend on any type of health service.

Table (4.12)
Percent of Households With and Without Expenses by Selected Health Care Categories,
JHEIS 1992

	Medicine	Dentist	Physician	Hospital	Xray & laboratory	Other	Total
%of Households without Expenses	15.1%	84.2 %	28.7 %	78.0 %	81.3 %	92.7 %	12.8 %
%of Households with Expenses	84.9%	15.8 %	71.3 %	22.0 %	18.7 %	7.3 %	87.2 %

n=7618

Amount of Money Spent on Health Services by Governerrates

Tables (4.13 and 4.14) show the distribution of the average annual health expenditure among various types of health services for the study population.

Medicine and hospital expenditure accounted for 73.7% of the total expenditure (34.5 JD), (36.1 JD). However, physician services accounted for 13.0% (12.5 JD) of the total health expenditures. Dental services accounted for 5.2% (5.0 J.D) and the expenditure for "Xray and laboratory test", and other expenditures were 4.2% and 4.0% of the total health expenditures (3.98 J.D, 3.76 J.D), respectively.

Table (4.13)

Average Annual Household Expenditure by Selected Health Expenditure and
by Governorates, JHEIS 1992

Governorates	Number	Medicine	Dentist	Physician	Hospital	Xray & Lab.	Other	Total health expenditure in absolute J.D.
Amman	3092	42.88	6.73	15.65	60.14	5.75	3.99	135.14
Irbid	1888	23.52	3.90	7.81	14.10	1.97	3.71	55.01
Zarka	1299	47.70	5.30	16.94	35.46	5.45	4.34	115.19
Balka	420	13.55	2.22	5.72	18.78	1.83	5.23	47.33
Maftaq	285	22.06	2.24	11.53	8.65	1.45	1.14	47.07
Karak	281	19.86	0.49	6.04	3.08	0.64	0.38	30.49
Ma'an	223	21.02	3.81	7.35	18.39	1.36	3.59	55.52
Tafeeleh	130	18.97	1.34	6.48	10.37	0.80	1.57	39.53
Jordan	7618	34.50	4.96	12.47	36.14	3.98	3.76	95.81

Table (4.14)
Percent Distribution of Household Expenditure on Selected Health Components by Governorates, JHEIS 1992

Governorate	No.	Medicine	Dentist	Physician	Hospital	Xray & Lab.	Other
Amman	3092	31.7	5.0	11.6	44.5	4.2	3.0
Irbid	1888	42.8	7.0	14.2	25.6	3.6	6.7
Zarka	1299	41.4	4.6	14.7	30.8	4.7	3.8
Balka	420	28.6	4.7	12.1	39.7	3.9	11.1
Mafraq	285	46.9	4.8	24.5	18.4	3.1	2.4
Karak	281	65.1	1.6	20.0	10.1	2.1	1.2
Ma'an	223	38.0	6.9	13.2	33.1	2.4	6.5
Tafeeleh	130	48.0	3.4	16.4	26.2	2.0	4.0
Jordan	7618	36.0	5.2	13.0	37.7	4.2	4.0

The average annual health expenditure per household for Amman and Zarka was the highest among all governorates with 135.1 J.D and 115.2 J.D respectively. The least average health expenditure per household were accounted for in Tafeeleh with 39.5 J.D and Karak 30.5 J.D. Irbid and Ma'an were identical in pattern making an average of 55.0 J.D per household yearly, while Balka and Mafraq were identical in pattern making around 47.0 J.D yearly.

The highest average annual expenditure per household on "medicines" was in Zarka 47.7 J.D, and the lowest was in Balka 13.6 J.D. The average annual expenditure on "Dentistry" was highest in Amman and Zarka, 6.7 J.D and 5.3 J.D respectively, the lowest was in Karak with 0.5 J.D yearly. Amman and Zarka had the highest annual average expenditure per household on "Physician Services" with 15.7 J.D and 17.0 J.D respectively, and Balka had the least with 5.7 J.D. The average annual "Hospital Expenses" per household were the highest in Amman with 60.0 J.D, and the lowest in Karak with 3.1 J.D yearly. The average annual household expenses on "X-ray and Laboratory Test" were the highest in Amman and Zarka with 5.8 J.D and 5.5 J.D respectively, and the lowest in Karak with 0.64 J.D. The average on "Other Miscellaneous" expenditures per household were highest in Balka with 5.2 J.D, and the lowest in Karak with 0.38 J.D.

Proportion of Health Expenditure to Total Expenditure by Governorates

Table (4.15) shows the proportion of the household health expenditure to total expenditure in Jordan at 2.3%. The highest proportion was in Zarka, and Amman, 3.0% and 2.8% respectively, while the lowest was in Karak with 1.1%.

Table (4.15)
Average Annual Household Health Expenditure, and Average Annual Household Expenditure in (J.D.), and Proportion of Health Expenditure to the Total Expenditures by Governorates, JHEIS 1992

Governorate	No.	Average Annual Health Expenditure in Absolute J.D.	Average Annual Total Expenditure in Absolute J.D.	Proportion of Health Expenditure to Total Expenditure
Amman	3092	135.14	5096.98	2.8 %
Irbid	1888	55.01	4009.74	1.6 %
Zarka	1299	115.19	4086.74	3.0 %
Balqa	420	47.33	2938.99	1.6 %
Mafrq	285	47.07	2851.50	2.0 %
Karak	281	30.49	2828.95	1.1 %
Ma'an	223	55.52	3404.68	1.6 %
Tafeeleh	130	39.53	3072.60	1.4 %
Jordan	7618	95.81	4284.53	2.3 %

Proportion of Health Expenditure to Total Income by Governorates

The average annual income per household in Jordan for the study population was 4222.5 J.D. as shown in Table (4.16). The highest average annual income per household among different Governorates was in Amman with 5124.9 J.D, followed by Balka and Zarka with 3889.2 J.D and 3830.5 J.D, respectively. The lowest average annual income per household was in Karak 2558.8 J.D.

The proportion of health expenditure to total income of the household was 3.8%. The highest proportion of health expenditure to total income was in Amman and Zarka with 5.1% and 4.4% respectively, and the lowest in Karak and Ma'an with 1.6% each.

Table (4.16)
Average Annual Household (Health Expenditure, and Income in Absolute J.D.) and Proportion of Health Expenditure to the Total Income by Governorates,
JHEIS 1992

Governorate	No.	Average Annual Health Expenditure in Absolute J.D.	Average Annual Income per Household in Absolute J.D.	Proportion of Health Expenditure to the Total Income
Amman	3092	135.14	5124.86	5.1 %
Irbid	1888	55.01	3733.90	2.4 %
Zarka	1299	115.19	3830.48	4.4 %
Balqa	420	47.33	3889.15	2.2 %
Mafraq	285	47.07	2776.08	3.1 %
Karak	281	30.49	2558.84	1.6 %
Ma'an	223	55.52	3671.34	1.6 %
Tafeeleh	130	39.53	2564.62	2.0 %
Jordan	7618	95.81	4222.53	3.8 %

Proportion Of Health Expenditure Out Of Overall Expenditure for Each Of the Following Independent Variables

1. Age of Head of Household and Proportion of Health Expenditure

The proportion of health expenditure to total expenditure of the household changed with the age category of the head of the household. Table (4.17) shows that the highest proportion of health expenditure was 2.8% when the age of the head of the household was 55 years or over, and the lowest was 1.9% when the age of the head of household was between 45-54 years.

On the other hand, the average annual household health expenditure was highest, (117.0) J.D., when the head of household was 55 years and over, and the lowest (78.2) J.D. when the head of household was less than 35 years. This may reflect that family heads with older age groups are more likely to incur the high expenditures for health services typical of the elderly.

Table (4.17)
Proportion of Household Health Expenditure out of all Expenditure by Age Group of the Head of Household, JHEIS 1992

Level of Age Group of the Head of Household	No.	Total Expenditure (J.D)	Proportion of Expenditure on Health (%)
< 35	2056	3245.3	2.5
35 - 44	1801	4320.6	2.0
45 - 54	1715	5236.6	1.9
55 and above	2046	4499.0	2.8
Total	7618	4284.5	2.3

2. Number of Household Members and Proportion of Health Expenditure

Table (4.18) shows the effect of number of household members on the proportion of health expenditure out of total expenditure of the

household. On average, it shows a negative association. The proportion of health expenditure was 2.8% when number of household members was small (1-5 members), 2.1% when number of household members was medium (6-10 members), and 1.8% when number of household members was large (more than 10 members).

Health expenditure in absolute J.D was in parallel with the proportion of health expenditure out of overall expenditure. The highest was (98.7) J.D. when number of household members was small (1-5 members), and lowest (89.0) J.D. when number of household members was large (more than 10 members). This could be due to less attention being available to the individual, or there might be underutilization in health services because these households have many other commitments.

Table (4.18)
Proportion of Household Health Expenditure out of Overall Expenditure by Number of Household Members, JHEIS 1992

Number of Household Members	No.	Total Expenditure (J.D)	Proportion of Expenditure on Health (%)
1-5 members	2903	3553.5	2.8
6-10 members	3638	4629.5	2.1
10 + members	1077	5089.8	1.8
Total	7618	4284.5	2.3

3. Number of Household Members below Five Years and the Proportion of Health Expenditure:-

Table (4.19) shows the proportion of health expenditure to the total expenditure of the household in relation to the number of children below five years in the household.

This proportion decreased on average, as the number of children less than five years increased, it was 2.5% when there was no children less than five years, and decreased to 2.0% when there was four children below five years. This is in parallel with the total health expenditure in absolute J.D. The highest was (108.2) J.D. when there was no member in the household less than five years, the lowest (67.6) J.D. when there was four children in the household less than five years. This could be explained in the experience that the parents acquire in taking care of their children without having to rely on health services as much.

Table (4.19)

Proportion of Household Health Expenditure out of all Expenditure by Number of Household Members less than Five Years, JHEIS 1992

Number of Household Members Less than 5 Years	No.	Total Expenditure (J.D)	Proportion of Expenditure on Health (%)
0	3158	4546.9	2.5
1	1578	4379.5	2.2
2	1630	3952.7	2.2
3	935	3816.4	2.1
4	240	4006.1	2.0
5 + *	77	5152.9	2.8
Total	7618	4284.5	2.3

(*) only 16, 6, and 2 households had 6, 7, and 8 individuals below five years, respectively

4. Number of Household Members 65 years or Over and Proportion of Health Expenditure:

The proportion of health expenditure to total expenditure increase, as the number of household members 65 years and over increased. As shown in Table (4.20), the proportion of health expenditure was 2.2% of the total expenditure when there was no member in the household 65 years and over, and increased to 3.6% when there were two or more members in the household 65 years and over. On the other hand health

expenditure in absolute J.D. was in parallel with the proportion of health expenditure, the highest was (145.0) J.D. when there was two or more members in the household 65 years and over, the lowest (91.4) J.D. when there was no member in the household 65 years and over. This is expected since these groups are more susceptible to chronic diseases and the elderly will become more ill and thus require extensive health services.

Table (4.20)
Proportion of Household Health Expenditure out of Overall Expenditure by Number of Household Members 65 and Over, JHEIS 1992

Number of Household Members 65 and over	No.	Total Expenditure (J.D)	Proportion of Expenditure on Health (%)
0	6428	4323.8	2.2
1	954	4163.7	3.0
2 + *	236	3701.1	3.6
Total	7618	4284.5	2.3

(*) Only 5 households had 3 individuals with age \geq 65, and 231 households had 2 individuals \geq 65 years .

Table (4.21) shows the combined effect of the number of household members who were 65 years and over, and the number of children less than five years in the same household on the proportion of health expenditure to the total expenditure.

The effect of household members 65 years and over on the proportion of household health expenditure is more apparent than the effect of children less than five years. The highest proportion was 4.1% when there was one child less than five years, and two or more members 65 years and over. The lowest was 1.8% when there was 4 children less than five years, and no member in the household 65 years and over.

Table (4.21)
 Proportion of Health Expenditure out of all Expenditure by Number of Household Members 65 Years and Over and Number of Household Members below 5 Years Old, JHEIS 1992

	0	1	2 ⁺
Number of household members 65 years and older			
Number of household members below 5 years			
0	2.3	3.1	3.7
1	2.2	2.5	4.1
2	2.2	3.2	3.3
3	2.0	2.3	2.9
4	1.8	4.0	2.7
5 ⁺ **	2.7	3.5	2.6

(*) Only 5 households had 3 individuals with age ≥ 65 years and 231 households had 2 individuals ≥ 65 .

(**) only 16, 6, and 2 households had 6, 7, and 8 individuals below five years respectively.

5. Sex of the Head of Household and Proportion of Health Expenditure:

Table (4.22) shows that the proportion of health expenditure to total expenditure for households headed by males was 2.3%, while it was 2.9% for those headed by females. This could be explained by the lower total expenditures by households headed by females. So households headed by females were more likely to spend proportionally more on health services than those headed by males.

Health expenditures in absolute J.D is not in parallel with the proportion of health expenditure to total expenditure. It was (97.5) J.D. for households headed by males, and (74.3) J.D., for those headed by females. This could be explained by the fact that males received a higher level of education, and higher level of income could increase the accessibility to health services.

Table (4.22)
Proportion of Household Health Expenditure out of all Expenditure by Sex of the Head of Household, JHEIS 1992

Sex	No.	Total Expenditure (J.D)	Proportion of Expenditure on Health (%)
Male	6980	4367.2	2.3
Female	638	3380.1	2.9
Total	7618	4284.5	2.3

6. Education of the Head of Household and Proportion of Health Expenditure

Table (4.23) shows the effect of level of education of the head of the household on the proportion of health expenditure to total expenditure. On average it showed a negative association. The proportion of health expenditure was 2.5% for households headed by "illiterates" and 2.4% for households headed by heads who either "read & write" or had

"elementary education". While for the households headed by heads with "preparatory and secondary" education the proportion of household health expenditure out of all expenditure was 2.3%. For households headed by those with high education level, "college and university", the proportion of health expenditure to total expenditure was the lowest with 2.0%. This could be explained by heads who got higher level of education enjoy other enhancing advantages, better domestic hygiene personal habits and life style and often manage to reduce the damage that poverty does to health.

However, health expenditure in absolute J.D was not in parallel with the proportion of health expenditure out of overall expenditure. On average, the least health expenditure was for households headed by those who were "illiterate", (66.5) J.D., and the highest health expenditure was (109.4), J.D., for households who had heads with "preparatory, secondary" education.

Table (4.23)
Proportion of Household Health Expenditure out of Overall Expenditure by Level of Education of the Head of Household, JHEIS 1992

Level of Education of the Head of Household	No.	Total Expenditure (J.D)	Proportion of Expenditure on Health (%)
Illiterate	1457	3101.0	2.5
Read /Write- Elementary	2613	4056.5	2.4
Preparatory- Secondary	2231	4573.3	2.3
College- University	1317	5555.9	2.0
Total	7618	4284.5	2.3

7. Work Sector of Head of Household and the Proportion of Health Expenditure:

Table (4.24) shows the proportion of health expenditure to total expenditure for households according to work sector of head of

household. Those whose head worked in the private sector were (2.6%), and (1.6%) when the head worked in the public sector.

Health expenditure in absolute J.D is in parallel with the proportion of health expenditure to total expenditure. It was (119.1) J.D. when heads of households worked in the private sector and (54.7) J.D. when heads of households worked in the public sector. This could be explained in the difference and the extent in health insurance plans provided by the public and private sectors.

Table (4.24)
Proportion of Household Health Expenditure out of Overall Expenditure by Work Sector of the Head of Household (JHEIS 1992)

Work Sector	No.	Total Expenditure (J.D)	Proportion of Expenditure on Health (%)
Private	3214	4593.4	2.6
Public	2178	3754.3	1.6
Total	5392	4254.4	2.2

8. Household Income and the Proportion of Health Expenditure:

The effect of household income on the proportion of health expenditure to total expenditure of the household is shown in Table (4.25). Quartile categorization of annual household income was done. There was a negative association between the level of annual income per household and the proportion of expenditure on health. The lowest income group of households, i.e. the first quartile, spent 2.9% on health out of their total expenditure, while households with the highest income quartile spent 2.0% on health out of their total expenditure. This could be explained that the benefit of health insurance are less likely to be

enjoyed by lower income households for which low income imposes a barrier both to seeking care and to purchasing private care.

This is not in parallel with the total health expenditure in absolute J.D. The highest health expenditure in absolute J.D. was (151.9) J.D. in households with the highest income quartile group, while the lowest expenditure in absolute J.D, was (63.3) J.D. in households with the lowest income quartile group.

Table (4.25)
Proportion of Household Health Expenditure out of Overall Expenditure by Income Group of the Household, JHEIS 1992

Quartile	Level of Income (JD)	No.	Total Expenditure (J.D)	Proportion of Expenditure on Health (%)
First Quartile	< 1725	1908	2228.6	2.9
Second Quartile	1725-2889	1898	3193.9	2.4
Third Quartile	2890-4839	1909	4365.3	2.1
Fourth Quartile	4839 and above	1903	7352.6	2.0
Total		7618	4284.5	2.3

9. Urban/Rural Residency of the Household and the Proportion of Health Expenditure

Table (4.26) shows the proportion of health expenditure to total expenditure according to urban and rural residency.

Housholds in urban areas spent proportionally more on health services (2.6%) than households in rural areas (1.5%).

Health expenditures in absolute J.D is in parallel with the proportion of health expenditure to total expenditure. It was 108.2 J.D for households in urban areas, and 47.2 for households in rural areas. This could be explained that households in rural areas might use cheaper public health centers than those who lived in urban areas who tend to use more expensive private health centers.

Table (4.26)
 Proportion of Household Health Expenditure out of Overall Expenditure by Urban and Rural Residency (JHEIS 1992)

Household Residency	No.	Total Expenditure (J.D)	Proportion of Expenditure on Health (%)
Urban	6042	4479.3	2.6
Rural	1576	3537.9	1.5
Total	7618	4284.5	2.3

Health Expenditure in Absolute J.D. for Each Selected Health Category Variables

1. Age of Head of Household and Health Expenditure in Absolute J.D.

The total health expenditure in absolute J.D increased as the age of the head of household increased. Table (4.27) shows that household health expenditure was (78.2) J.D. when the age of the head of the household was less than 35 y/ears, and it increased to (117.0) J.D. when the head of the household was 55 years and over.

Table (4.27)

Health Expenditure in Absolute J.D. for Each Selected Health Category and the Percentage of Health Expenditure on Different Health Categories out of Total Health Expenditure, by Age of the Head of Household, JHEIS 1992

Age of the Head of the Household (Years)	No	Medicine	Dentist	Physician	Hospital	Xray & Laboratory Test	Other	Total Health Expenditure
< 35	2056	29.4	2.4	12.4	27.9	3.9	2.4	78.2
		37.6%	3.1%	15.9%	35.7%	5.0%	3.1%	100.4%
35 - 44	1801	29.8	4.6	12.6	31.5	3.5	3.6	85.3
		34.9%	5.4%	14.8%	36.9%	4.1%	4.2%	100.3%
45 - 54	1715	34.3	7.6	11.7	40.8	4.1	3.3	101.5
		33.8%	7.5%	11.5%	40.2%	4.0%	3.3%	100.3%
55 and above	2046	43.9	5.6	13.1	44.7	4.4	5.6	117.7
		37.5%	4.8%	11.2%	38.2%	3.8%	4.8%	100.3%
Total	7618	34.5	5.0	12.5	36.1	4.0	3.8	95.8
		36.0%	5.2%	13.0%	37.7%	4.2%	4.0%	100.0%

The proportion of medicine expenditure out of total household health expenditure was the highest, 37.6% (29.4) J.D. when age of the head of household was less than 35 years, the lowest was 33.8% (34.3) J.D. when the age of the head of household was 45-54 years.

The proportion of dentist expenditure out of total household health expenditure was the highest, 7.5% (7.6) J.D., when the age of the head of household was 45-54 years, the lowest 3.1% (2.4) J.D. when the age of the head of household was less than 35 years.

The proportion of physician expenditure out of total household health expenditure was the highest, 15.9% (12.4) J.D., when the age of the head of household was less than 35 years, the lowest was 11.2% (13.1) J.D. when the age of the head of household was 55 years and older.

The proportion of hospital expenditure out of total household health expenditure was the highest, 40.2% (40.8) J.D., when the age of the head of household was 45-54 years, the lowest was 35.7% (27.9) J.D. when the age of the head of household was less than 35 years.

The proportion of expenditure on (X-ray and laboratory tests) out of total household health expenditure was the highest, 5.0% (3.9) J.D., when the age of the head of household was less than 35 years, the lowest was 3.8% (4.4) J.D. when the age of the head of household was 55 years and over.

The proportion of expenditure on "other miscellaneous" out of total household health expenditure was the highest, 4.8% (5.6) J.D., when the age of the head of household was 55 years and over, the lowest was

3.1% (2.4) J.D. when the age of the head of household was less than 35 years.

2. Number of Household Members and Health Expenditure in Absolute J.D.

The effect of number of household members on health expenditure is shown in Table (4.28). On average there is an inverse association between number of household members and household health expenditure in absolute J.D.

Health expenditure was (98.7) J.D. when number of household members was small (1-5 members) and (89.0) J.D. when number of household members was large (more than 10 members).

The proportion of medicine expenditure out of total household health expenditure was the highest 37.5% (33.4) J.D. when number of household members was large (more than 10 members), the lowest 35.7% (35.2) J.D. when number of household members was small (1 to 5 members).

The proportion of dental expenditure out of total household health expenditure was 5.9% (5.6) J.D. for medium household size, and 5.8% (5.2) J.D. for large household size, the lowest proportion was 4.1% (4.0) J.D. for small household size.

The proportion of physician expenditure out of total household health expenditure was the highest 14.0% (12.5) J.D. for large household size (more than 10 members). The lowest proportion 12.5% (12.3) J.D. for small household size.

The proportion of hospital expenditure out of total household health expenditure was the highest 41.0% (40.4) J.D. for small household size, the lowest 33.7% (30.0) J.D. for large household size.

The proportion of "Xray and laboratory test" expenditure was the highest (5.4%) (4.8) J.D. for large household size, the lowest 3.9% (3.8) J.D. for small household size.

The proportion of "other miscellaneous" health expenditure out of total household health expenditure was highest (4.5%) (4.3) J.D. for medium household size. The lowest was 3.2% (3.2) J.D. for small household size.

Table (4.28)
 Health Expenditure in Absolute J.D. for Each Selected Health Category and the Percentage of Health Expenditure on Different Health Categories out of Total Health Expenditure by Number of Household Members, (JHEIS 1992)

Number of household members	n	Medicine	Dentist	Physician	Hospital	Xray & laboratory test	Other	Total health expenditure
1-5 members	2903	35.2	4.0	12.3	40.4	3.8	3.2	98.7
		35.7%	4.1%	12.5%	41.0%	3.9%	3.2%	100.4
6-10 members	3638	34.3	5.6	12.6	34.6	3.8	4.3	95.0
		36.1%	5.9%	13.3%	36.4%	4.0%	4.5%	100.2
10 + members	1077	33.4	5.2	12.5	30.0	4.8	3.5	89.0
		37.5%	5.8%	14.0%	33.7%	5.4%	3.9%	100.3
Total	7618	34.5	5.0	12.5	36.1	4.0	3.8	95.8
		36.0%	5.2%	13.0%	37.7%	4.2%	4.0%	100.0%

3. Household Members Below five years of Age and Health Expenditure in Absolute J.D.

The effect of the number of household members who were less than five years of age at the time of the interview on household health expenditure in absolute J.D. is shown in Table (4.29).

The total household health expenditure in absolute J.D was (108.2) J.D. when there was no children under five years old, dropped to (67.6) J.D. when there was four children under five, and it was (143) J.D. for households that had five or more members below five years .

The proportion of medicine expenditure out of total household health expenditure was the highest, 41.9% (28.3) J.D., when household contained four children less than five years of age. The lowest was 32.0% (30.7) J.D. when there was one child in the household less than five years .

The proportion of dental expenditure out of total household health expenditure was the highest, 5.6% (6.1) J.D., when there was no children in the household less than five years . The lowest was 4.0% (5.7) J.D. when there was more than five children in the household less than five years .

The proportion of physician expenditure out of total household health expenditure was the highest, 16.6% (11.2) J.D., when there was four children in the household less than five years . The lowest was 11.2% (12.1) J.D. when there was no children in the household less than five years .

The proportion of hospital expenditure out of total household health expenditure was the highest, 40.9% (39.2) J.D., when there was one child in the household less than five years .The lowest was 27.2% (18.4) J.D when there was four children in the household less than five years .

The proportion of "Xray and laboratory test" expenditure out of total household health expenditure was the highest, 7.4% (5.0) J.D., when there was four children in the household less than five years . The lowest was 2.9% (2.2) J.D. when there was 3 children in the household less than five years .

The proportion of expenditure on "other miscellaneous" out of total household health expenditure was the highest 5.0% (4.2) J.D. when there was two children in the household less than five years . The lowest was 2.2% (1.5) J.D. when there was 4 children in the household less than five years .

Table (4.29)

Health Expenditure in Absolute J.D. for Each Selected Health Category and the Percentage of Health Expenditure on Different Health Categories out of Total Health Expenditure, by Number of Household Members Less than Five Years of Age (JHEIS 1992)

Number of household members less than 5 years	n	Medicine	Dentist	Physician	Hospital	Xray & Lab	Other	Total health expenditure
0	3158	40.1	6.1	12.1	41.4	4.3	4.4	108.2
		37.1%	5.6%	11.2%	38.3%	4.0%	4.1%	100.3%
1	1578	30.7	5.0	13.4	39.2	4.6	3.4	95.9
		32.0%	5.2%	13.9%	40.9%	4.8%	3.6%	100.4%
2	1630	31.1	3.8	12.6	29.3	3.5	4.2	84.2
		36.9%	4.5%	15.0%	34.8%	4.2%	5.0%	100.4%
3	935	28.3	3.4	11.8	28.0	2.2	1.9	75.2
		37.6%	4.5%	15.7%	37.2%	2.9%	2.5%	100.4%
4	240	28.3	3.4	11.2	18.4	5.0	1.5	67.6
		41.9%	5.0%	16.6%	27.2%	7.4%	2.2%	100.3%
5 +*	77	51.4	5.7	18.9	57.1	5.5	4.3	143.0
		35.9%	4.0%	13.2%	40.0%	3.8%	3.0%	99.9%
Total	7618	34.5	5.0	12.5	36.1	4.0	3.8	95.8
		36.0%	5.2%	13.0%	37.7%	4.2%	4.0%	100.0%

4. Household Members 65 Years and Over and Health Expenditure in Absolute J.D.

The effect of the number of household members who were 65 years and over at the time of the interview on household health expenditure in absolute J.D. is shown in Table (4.30).

On average, there is a positive association between household health expenditure and the number of household members that were 65 years and over.

Health expenditure of the studied households was (145.0) J.D. when there was two or more members aged 65 years and over, and it was (91.4) J.D. when there were no members in the household aged 65 years and over.

The proportion of medicine expenditure out of total household health expenditure was the highest, 38.1% (42.4) J.D. on average, when there was one member in the household 65 years and over, the lowest was 34.5% (50.0) J.D. on average when there was more than two members in the household 65 years and over.

The proportion of dental expenditure out of total household health expenditure was the highest, 5.4% (4.9) J.D., on average when there was no member in the household 65 years and over. The lowest was 2.1% (3.0) J.D. on average when there was two or more members in the household 65 years and over.

The proportion of physician expenditure out of total household health expenditure was the highest, 13.2% (12.1) J.D., when there was no

member in the household 65 years and over, the lowest was 10.3% (15.0) J.D. when there was two or more members in the household 65 years and over.

The proportion on hospital expenditure out of total household health expenditure was the highest, 47.2% (68.5) J.D., when there was two or more members in the household 65 years and over, the lowest 36.5% (40.6) J.D. when there was one member in the household 65 years and over.

The proportion on "Xray and laboratory test" expenditure out of total household health expenditure was the highest, 4.3% (3.9) J.D., when there was no member in the household 65 years and older, the lowest was 3.3% (4.8) J.D. when there was two or more members in the household 65 years and over.

The proportion of expenditure on "other miscellaneous" out of total household health expenditure was the highest, 4.1% (3.7) J.D., when there was no member in the household 65 years and older, the lowest was 2.6% (3.8) J.D. when there was two or more members in the household 65 years and over.

Table (4.30)
 Health Expenditure in Absolute J.D. for Each Selected Health Category and the Percentage of Health Expenditure on Different Health Categories out of Total Health Expenditure, by Number of Household Members aged 65 Years or Older

Number of Household Members 65 Years or Over	No.	Medicine	Dentist	Physician	Hospital	Xray & Lab	Other	Total Health Expenditure
0	6428	32.8 35.9%	4.9 5.4%	12.1 13.2%	34.3 37.5%	3.9 4.3%	3.7 4.1%	91.4 100.4%
1	954	42.4 38.1%	5.9 5.3%	14.0 12.6%	40.6 36.5%	4.2 3.8%	4.2 3.8%	111.2 100.1%
2+*	236	50.0 34.5%	3.0 2.1%	15.0 10.3%	68.5 47.2%	4.8 3.3%	3.8 2.6%	145.0 100.0%
Total	7618	34.5 36.0%	5.0 5.2%	12.5 13.0%	36.1 37.7%	4.0 4.2%	3.8 4.0%	95.8 100.0%

(*) Only 5 households had 3 individuals with age 65 years and over and 231 households had two individuals 65 years and older.

5. Sex of the Head of Household and Health Expenditure in Absolute J.D.
The effect of sex of the head of the household on the household health expenditure in absolute J.D is shown in Table (4.31).

Households headed by a male spent (97.5) J.D. on health annually, while those headed by females spent (74.3) J.D. on health annually.

The proportion of medicine expenditure out of total household health expenditure was 44.4% (33.0) J.D. when the household is headed by a female and it was 35.5% (34.6) J.D. when the household was headed by a male.

The proportion of dental expenditure out of total household health expenditure was 5.2% (5.1) J.D. when the household was headed by a male, and 4.0% (3.0) J.D. when the household was headed by a female.

The proportion of physician expenditure out of total household health expenditure was 14.0% (10.4) J.D. when the household was headed by a female, and 13.0% (12.7) J.D. when the household was headed by a male.

The proportion of hospital expenditure out of total household health expenditure was 38.3% (37.3) J.D. when the household was headed by a male and 31.6% (23.5) J.D. when the household was headed by a female.

The proportion of "Xray and laboratory test" expenditure out of total household health expenditure was 4.2% whether headed by a male or a

female, (but it was (4.1) J.D. for households headed by males, and (3.1) J.D. for households headed by females).

The proportion of expenditure on "other miscellaneous" out of total household health expenditure was 4.1% (4.0) J.D. when the household was headed by a male and 2.3% (1.7) J.D. when the household was headed by a female.

Table (4.31)

Health Expenditure in Absolute J.D. for Each Selected Health Category and the Percentage of Health Expenditure on Different Health Categories out of Total Health Expenditure, by Sex of the Head of the Household (JHEIS 1992)

Sex of the Head of the Household	No.	Medicine	Dentist	Physician	Hospital	Xray & lab.	Other	Total health expenditure
Male	6980	34.6	5.1	12.7	37.3	4.1	4.0	97.5
		35.5%	5.2%	13.0%	38.3%	4.2%	4.1%	100.3%
Female	638	33.0	3.0	10.4	23.5	3.1	1.7	74.3
		44.4%	4.0%	14.0%	31.6%	4.2%	2.3%	100.5%
Total	7618	34.5	5.0	12.5	36.1	4.0	3.8	95.8
		36.0%	5.2%	13.0%	37.7%	4.2%	4.0%	100.0%

6. Education of the Head of Household and Health Expenditure in Absolute J.D.

The total health expenditure in absolute J.D increased with the higher level of education of the head of the household. As shown in Table (4.32) it was (66.5) J.D. when the head of household was illiterate, and (109.4) J.D., (106.6) J.D. when head of household had (preparatory - secondary) degree, and (college - university) degree, respectively.

The proportion of medicine expenditure out of total household health expenditure was the highest, 40.8% (27.1) J.D., when the head of household was illiterate. The lowest was 32.5% (35.6) J.D. when the head of household had "preparatory - secondary" education.

The proportion of dental expenditure out of total household health expenditure was the highest, 6.9% (7.4) J.D., when the head of household had "College - University" education. The lowest was 3.5% (2.3) J.D. when the head of household was illiterate.

The proportion of physician expenditure out of total household health expenditure was the highest, 15.2% (10.1) J.D., when the head of household was illiterate. The lowest was 12.1% (13.2) J.D. when the head of household had "preparatory - secondary" education.

The proportion of hospital expenditure out of total household health expenditures was the highest, 42.7% (46.7) J.D., when the head of household had "preparatory - secondary" education, the lowest was 33.5% (22.3) J.D. when the head of household was illiterate.

The proportion of "Xray and laboratory test" expenditure out of total household health expenditure was the highest, 5.3% (5.6) J.D., when the head of household had "college - university" education. The lowest was 3.6% (3.4) J.D. when the head of household "read and write and had elementary" education.

The proportion of expenditure on "other miscellaneous" out of total household health expenditure was the highest, 4.9% (4.6) J.D., when the head of household "read and write and had elementary" education, the lowest was 3.3% (2.2) J.D. when the head of household was illiterate.

Table (4.32)

Health Expenditure in Absolute J.D. for Each Selected Health Category and the Percentage of Health Expenditure on Different Health Categories out of Total Health Expenditure, by Education of the Head of Household (JHEIS 1992)

Level of education of the head household	n	Medicine	Dentist	Physician	Hospital	Xray & Laboratory	Other	Total health expenditure
Illiterate	1457	27.1	2.3	10.1	22.3	2.7	2.2	66.5
		40.8%	3.5%	15.2%	33.5%	4.1%	3.3%	100.4%
Read and Write Elementary	2613	36.7	4.7	12.4	32.8	3.4	4.6	94.4
		38.9%	5.0%	13.1%	34.7%	3.6%	4.9%	100.2%
Preparatory Secondary	2231	35.6	5.6	13.2	46.7	4.6	3.9	109.4
		32.5%	5.1%	12.1%	42.7%	4.2%	3.6%	100.2%
College University	1317	36.3	7.4	14.0	40.0	5.6	3.6	106.6
		34.1%	6.9%	13.1%	37.5%	5.3%	3.4%	100.3%
Total	7618	34.5	5.0	12.5	36.1	4.0	3.8	95.8
		36.0%	5.2%	13.0%	37.7%	4.2%	4.0%	100.0%

7. Work Sector of the Head of Household and Health Expenditure in Absolute J.D.

The effect of work sector of the head of household (private, or public) is shown in Table (4.33).

The average annual household health expenditure was (119.1) J.D. when head of household worked in the private sector, and (54.7) J.D. when head of household worked in the public sector.

The proportion of medicine expenditure out of total household health expenditure was 32.0% (38.1) J.D. when head of household worked in the private sector, and 44.2% (24.2) J.D. when head of household worked in the public sector.

The proportion of dental expenditure out of total household expenditure was 5.0% (6.0) J.D. when head of household worked in the private sector, and 5.9% (3.2) J.D. when head of household worked in the public sector.

The proportion of physician expenditure out of total household health expenditure was 12.3% (14.6) J.D. when head of household worked in the private sector, and 16.0% (8.8) J.D. when head of household worked in the public sector.

The proportion of hospital expenditure out of total household health expenditure was 43.7% (52.0) J.D. when head of household worked in the private sector, and 25.6% (14.0) J.D. when head of household worked in the public sector.

The proportion of "Xray and laboratory test" expenditure out of total household health expenditure was 4.6% (5.5) J.D. when head of household worked in the private sector, and 3.1% (1.7) J.D. when head of household worked in the public sector.

The proportion of "other miscellaneous" expenditure out of total household health expenditure was 2.7% (3.2) J.D. when head of household worked in the private sector and 6.0% (3.3) J.D. when head of household worked in the public sector.

Table (4.33)

Health Expenditure in Absolute J.D. for Each Selected Health Category and the Percentage of Health Expenditure on Different Health Categories out of Total Health Expenditure by Work Sector of the Head of Household, (JHEIS 1992)

work sector of the Head of Household	N	Medicine	Dentist	Physician	Hospital	Xray & laboratory test	Other	Total health expenditure
Private	3214	38.1	6.0	14.6	52.0	5.5	3.2	119.1
		32.0%	5.0%	12.3%	43.7%	4.6%	2.7%	100.3%
Public	2178	24.2	3.2	8.8	14.0	1.7	3.3	54.7
		44.2%	5.9%	16.0%	25.6%	3.1%	6.0%	100.8%
Total	5392	32.5	4.9	12.3	36.7	4.0	3.2	93.3
		34.8%	5.3%	13.2%	39.3%	4.3%	3.4%	100.3%

8. Household Income and Health Expenditure in Absolute J.D.

The effect of annual household income on total health expenditure by the household in absolute J.D is shown in Table (4.34).

Households with higher income were generally associated with higher expenditure on health. The first quartile households had an average total health expenditure of (63.3) J.D. per household, and it increased to (151.9) J.D. per household for the fourth quartile group.

The proportion of medicine expenditure out of total household health expenditure was the highest, 40.3% (36.3) J.D., when the household income was in the third quartile group, the lowest was 31.5% (47.9) J.D. when the household income was in the fourth quartile.

The proportion of dental expenditure out of total household health expenditure was the highest 7.1% (10.8) J.D. when the household income was in the fourth quartile. The lowest was 2.8% (1.8) J.D. on average when the household income was in the first quartile.

The proportion of physician expenditure out of total household health expenditure was the highest, around 15% on average, when the household income was in the second and third quartile group. It was (11.3) J.D. on average for the second quartile group, and (13.4) J.D. for the third quartile group. The lowest was 11.0% (16.7) J.D. when the household income was in the fourth quartile.

The proportion of hospital expenditure out of total household health expenditure was the highest, 43.1% (65.5) J.D., when the household

income was in the fourth quartile group, the lowest was 31.4% (28.3) J.D. when the household income was in the third quartile.

The proportion of "Xray and laboratory test" expenditure out of total household health expenditure was the highest 4.4% (2.8) J.D. when the household income was in the first quartile group, and the lowest was 4.1% when the household income was in the third and fourth quartile. It was (6.3) J.D. when the household income was in the fourth quartile group and (3.7) J.D. when the household income was in the third quartile group.

The proportion of expenditure on "other miscellaneous" out of total household health expenditure was the highest 5.2% (4.0) J.D., when the household income was in the second quartile. The lowest was 3.2% (4.9) J.D. when the household income was in the fourth quartile.

Table (4.34)

Health Expenditure in Absolute J.D. for Each Selected Health Category and the Percentage of Health Expenditure on Different Health Categories out of Total Health Expenditure, by Level of Income of Household (JHEIS 1992)

Quartile group	Level of Income of Household (JD)	No	Medicine	Dentist	Physician	Hospital	Xray & Lab.	Other	Total health expenditure
First quartile	<1725	1908	22.9	1.8	8.5	25.0	2.8	2.5	63.3
			36.2%	2.8%	13.4%	39.5%	4.4%	3.9%	100.2%
Second quartile	1725-2889	1898	30.9	2.3	11.3	25.8	3.2	4.0	77.1
			40.0%	3.0%	14.5%	33.4%	4.2%	5.2%	100.3%
Third quartile	2890-4839	1909	36.3	4.9	13.4	28.3	3.7	3.7	90.0
			40.3%	5.4%	14.9%	31.4%	4.1%	4.1%	100.2%
Fourth quartile	4839 and above	1903	47.9	10.8	16.7	65.5	6.3	4.9	151.9
			31.5%	7.1%	11.0%	43.1%	4.1%	3.2%	100.0%
Total		7618	34.5	5.0	12.5	36.1	4.0	3.8	95.8
			36.0%	5.2%	13.0%	37.7%	4.2%	4.0%	100.0%

9. Household Residency and Health Expenditure in Absolute J.D.

The effect of household residency (urban and rural) is shown in Table (4.35). Health expenditure in urban areas was (108.2) J.D. and 47.2 J.D. in rural areas.

The proportion of medicine expenditure out of total household health expenditure was 35.4% (38.3) J.D. when households were in urban areas, and 42.0% (19.8) J.D. when households were in rural areas.

The proportion of dental expenditure out of total household health expenditure was 5.2% (5.6) J.D. for households in urban areas, and 5.1% (2.4) J.D. for households in rural areas.

The proportion of physician expenditure out of total household health expenditure was 12.4% (13.4) J.D. when households were in urban areas, and 18.9% (8.9) J.D. when households were in rural areas.

The proportion of hospital expenditure out of total household health expenditure was 38.8% (42.0) J.D. when households were in urban areas, and 28.8% (13.6) J.D. when households were in rural areas.

The proportion of "Xray and laboratory test" out of total household health expenditure was 4.3% (4.7) J.D. when households were in urban areas, and 3.0% (1.4) J.D. when households were in rural areas.

The proportion of expenditure on "other miscellaneous" out of total household health expenditure was 4.1% (4.4) J.D. when households were in urban areas, and 2.8% (1.3) J.D. when households were in rural areas.

Table (4.35)

Health expenditure in absolute J.D. for each selected health category and the percentage of health expenditure on different health categories out of total health expenditure by urban, rural residency, (JHEIS 1992)

Household Residency	No.	Medicine	Dentist	Physician	Hospital	Xray & laboratory test	Other	Total health expenditure
Urban	6042	38.3	5.6	13.4	42.0	4.7	4.4	108.2
		35.4%	5.2%	12.4%	38.8%	4.3%	4.1%	100.2%
Rural	1576	19.8	2.4	8.9	13.6	1.4	1.3	47.2
		42.0%	5.1%	18.9%	28.8%	3.0%	2.8%	100.6%
Total	7618	34.5	5.0	12.5	36.1	4.0	3.8	95.8
		36.0%	5.2%	13.0%	37.7%	4.2%	4.0%	100.0%

Hypotheses Testing

Hypotheses testing was accomplished by testing the alternative against the null hypotheses through: (I) examining the difference between the two proportions using a z test, and (II) Regression analysis to control for other variables at 0.05 significant level or better.

(I) Examining the difference between proportions the following results were obtained:

1. There was no significant statistical difference between the age groups of the head of household, and the proportion of health expenditure to total expenditure $p=0.07$.
2. There was a significant statistical difference between (small and large) household size groups, and the proportion of health expenditure to total expenditure $p=0.05$.
3. There was no significant statistical difference between (number of children less than five years) groups, and the proportion of health expenditure to total expenditure $p=0.70$
4. There was no significant statistical difference between (number of household members 65 years and over) groups, and the proportion of health expenditure to total expenditure $p=0.25$
5. There was no significant statistical difference between sex of the head of household, and the proportion of health expenditure to total expenditure $p=0.38$.

- 6- There was no significant statistical difference between different education groups of the head of household, and the proportion of health expenditure to total expenditure $p=0.37$.
7. There was a significant statistical difference between certain work sectors of the head of household, and the proportion of health expenditure to total expenditure $p=0.01$.
8. There was no significant statistical difference between household income group and the proportion of health expenditure to total expenditure $p=0.07$.
9. There was a significant statistical difference between household residence and the proportion of health expenditure to total expenditure $p=0.003$.

Correlation Analysis:

The correlation matrix is concerned with measuring the strength of association between variables. When we compute measures of correlation from a set of data we are interested in the degree of the correlation between variables, and the bivariate analysis is the first step toward understanding the nature of the relationships among variables.[20]

The (Pearson) correlation coefficient (r) gives an estimate of the variation that is explained by the regression line. It takes values between -1 and 1. The level of significance that is going to be considered is 0.05 or better.[20]

Table (4.36) summarizes the relevant results of the correlation analysis. It presents the values of correlation coefficient (r) and the significance level (p) for the correlation between the proportion of health expenditure to total expenditure and other independent variables.

Table (4.36)
Correlation Coefficient, and the Significance Level of the Proportion of Health Expenditure to Total Expenditure (as Dependent Variable) on each of the Selected Independent Variable.

Name of the Independent Variable	Correlation Coefficient (r)	Level of Significance
Work sector of the head of household	-0.13903	0.0001
Household residency according to urban,rural areas	-0.10923	0.0001
Household size group	-0.09263	0.0001
Income group of the household	-0.08414	0.0001
Number of household members 65 years and over	0.08393	0.0001
Sex of the head of household	0.04347	0.0002
Education group of the head of household	-0.03460	0.0026
Number of children less than five years	-0.03441	0.0027
Age group of the head of household	0.02516	0.0284

The results are presented in descending order of the absolute value of (r) to facilitate the interpretation between the dependent variable and each of independent variables. The results of correlation matrix appear in full text in Appendix (1).

From Table (4.36) it is clear that there are few correlation models whose (r) values are positive, which indicates a positive correlation of the

independent variable with the proportion of health expenditure to total expenditure. These variables are:- (number of household members 65 years and over, sex of the head of household, age group of the head of household). The (r) value ranges between (0.08393 and 0.02516) and their relationship are statistically significant at 0.05 level. Other correlation whose (r) values are negative which indicate an inverse correlation of the independent variable with the proportion of health expenditure to total expenditure. These variables are: (work sector of the head of household, household residency according to urban rural areas, household size group, income group of the household, education group of the head of household, number of children less than five years). The (r) value ranges between (-0.13903 and -0.03441), and their relationship are statistically significant.

Multiple Regression Analysis

A multiple regression analysis was used incorporating the dependent variable (proportion of health expenditure to total expenditure) and the other independent variables.

The regression model takes the following form:-

$$y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + e$$

This analysis enables us to ascertain the proportion of the variation in the dependent that is accounted for by our set of independent variables.[20]. The technique that has been used is forward stepwise regression. The full text of statistics of this regression is found in Appendix (1).

The following equation represents the best fit model that has resulted from that regression:

proportion of health expenditure out of all expenditure	Parameter estimate	Variable	Reference group
	0.07435218	intercept	
	-0.01013163	work sector of the head of household	private sector
	-0.00896915	Household residency	urban areas
	-0.00336572	Household size group	small household size
	-0.00153024	Household income group	first quartile group
	-0.01223887	Sex of the head of household	Male
	-0.00185731	Age group of the head of household	less than 35 years
	0.00468566	Number of household members 65 years and over	None(there is no member in the household 65 years and older
	-0.00058594	Education group of the head of household	Illiterate
		+ E	Error

Of the nine independent variables used to explain the dependent variable (proportion of health expenditure to total expenditure) all of them are found to have significant effects at 0.05 level or better, except for the number of household members less than five years of age group, and education group of the head of household while in the bivariate analysis the following variables were not statistically significant at 0.05 level. These include:-

- Age group of the head of household
- Number of children less than five years
- Number of household members 65 years and over
- Sex of the head of household
- Education group of the head of household
- Income group of the head of household

The stepwise forward regression picked the work sector of the head of household as the first in the model. This indicates that it is the most important single determinant among other variables that were studied in explaining the difference in proportion of health expenditure out of overall expenditure. Also it shows a negative association with the dependent variable (similar finding from the bivariate analysis), the beta coefficient of this variable is -0.0101 which indicate that going from private to public sector reduces the proportion of health expenditure to total expenditure by 1.01% and it was statistically significant $p=0.0001$.

The second important variable in explaining the difference in proportion of health expenditure out of overall expenditure is the household residency according to urban/rural areas. It shows a negative association with the dependent variable, which is similar to the bivariate analysis. The beta coefficient of this variable is -0.0090, which indicates that going from urban to rural areas, the proportion of health expenditure to total expenditure decreases by 0.90%, and it was statistically significant $p=0.0001$.

The third important variable in explaining the difference in proportion of health expenditure out of overall expenditure is household size group. It shows a negative association with the dependent variable, which is similar to

the bivariate analysis. The beta coefficient of this variable is -0.0034 which indicates that changing household size from small to medium decreases the proportion of health expenditure out of overall expenditure by 0.34% , and it was statistically significant $p=0.0001$.

The fourth important variable in explaining the difference in proportion of health expenditure out of overall expenditure is income group of the household. There is a negative association with the dependent variable, which is similar to the bivariate analysis. The beta coefficient of this variable is -0.0015 which indicates that, moving from the one income quartile group to the next higher income quartile group, the proportion of health expenditure out of overall expenditure decreases by 0.15% , and it was statistically significant $p=0.0001$.

The fifth important variable in explaining the difference in proportion of health expenditure out of overall expenditure is the sex of the head of household. There is a negative association with the dependent variable, while in the bivariate analysis (it was a positive association but it was not statistically significant). The beta coefficient of this variable is -0.0122 , i.e. if the household was headed by a female, the proportion of health expenditure out of overall expenditure will decrease by 1.22% , and it was statistically significant $p=0.0050$.

The next important variable after sex of the head of household in explaining the difference in proportion of health expenditure out of overall expenditure is age group of the head of household. It shows a negative association with the dependent variable which is similar to the bivariate analysis, the beta coefficient is -0.0019 , i.e. addition of an age group of the

head of household decreases the proportion of health expenditure out of overall expenditure by 0.19% and it was statistically significant $p=0.0113$.

Next in importance after age group of the head of household is number of household members 65 years and over. There is a positive association between number of household members 65 years and over and the proportion of health expenditure which is similar to the bivariate analysis. The beta coefficient of this variable is 0.0047 i.e. an increase in household by one member 65 years and over, the proportion of health expenditure out of overall expenditure will increase by 0.47% and it was statistically significant $p=0.0022$.

The least important variable in explaining the difference in proportion of health expenditure out of overall expenditure is the education group of the head of household. There is a negative association with the dependent variable which is similar to the bivariate analysis. The beta coefficient of this variable is -0.0006, that is, going from one level of education group to the next higher one, the proportion of health expenditure out of overall expenditure decreases by 0.06%, but it was not statistically significant $p=0.3488$.

The number of children less than five years of age was omitted from the regression model, $p > 0.50$. This indicates that this variable is not important in explaining the variance in the proportion of health expenditure, which is similar to the bivariate analysis, $p=0.70$, and this is against the expectation that increasing the number of children is associated with more expenditures on health.

The overall regression equation is able to account for about 0.04 of the variance in the dependent variable (R^2 of the model is 0.0417). In other words, all the variables that were analyzed in this study were able to account for about 4% of the variation in proportion of health expenditure out of overall expenditure, i.e. this model was not able to explain 96% of the variation in proportion of health expenditure out of overall expenditure, indicating that other variables should be incorporated in the model. This remains to be investigated by a separate research.

Discussion

At the start of this discussion, it is worthwhile to point out and concentrate on reviewing the available literature on the effect of demographic, social, and enabling factors that influence expenditure on health services.

1. Age of the Head of Household

Most studies have concentrated on the effect of the age of the patient rather than the age of the head of household because these studies were studying the individual factor and not household factor.

Feldstein et al (1962) found that age of the head of household was not a statistically significant variable in household health expenditure, but it is the age of patient that is relevant.[7]

In the present study population, the total health expenditure increased with the older age of the head of household, this may reflect that family heads with older age groups are more likely to incur the high expenditures for health services typical of the elderly.

The proportion of expenditure on health decreased with the older age group of the head of household, except when the head of household was "55 years and over", the proportion on health expenditure was the highest, and this could be explained by the lower total expenditure of households whose head was 55 years and over.

The proportionate of expenditures on "physician", and "Xray and laboratory test" decreased with the age of the head of household, but it seems that the age of the head of household had no major effect on the

proportion of expenditure on "medicine", "dentist", "hospital", and "other miscellaneous expenditures".

2. Household Size:

An individual's use of care will be affected by the kind of family of which he is a member.[21]

Pauly (1979) found that individuals who live alone use more health care than others. In a two person family, one individual can produce care for the other that would otherwise have to be sought from a medical care system.[21]

Buck et al (1959) found that there was an association between smaller family size, and more consultation in children. This could be explained on the basis that relatively more attention is available to the individual child in these families.[21]

Bruce et al (1968) found that children from upper social class families and from smaller families tended to consult relatively more often than other children.[21]

In our study population, it was found that total health expenditure in absolute J.D. decreased as the number of household members increased, and this is in parallel with the proportion of health expenditure to total expenditures. The proportion of expenditures on "medicine", "physician", and "Xray and laboratory test" increased with the increase in household size, while the proportion of hospital expenditures decreased as the number of household size increased. However, it seems that household size had no major effect on the

proportion of expenditure on "dentist" and "other miscellaneous" expenditures. This could be explained by: first: since there is a positive association between household size and number of children less than five years ($r=0.3$ $p=0.0001$), and as discussed a. earlier, less attention is available to the individual child in these families, b. or there might be underutilization in health services, because these households have many other commitments in the household. Second: in large families one individual can produce care for the other, that would otherwise have to be sought from medical care system. Third: since there is a negative association between household size, and the education level of the head of household ($r=-0.2$ $p=0.0001$), so these households are less likely to have the opportunity to be exposed to, to expose themselves to, and to be influenced by health information and health services programs.

Number of Household Members who were less than five years and 65 years and over at the Time of Interview:

The extremes in age are periods of vulnerability secondary to immature or aged coping mechanism. The younger ages bear the weight of ill health from congenital causes.[22]

Anderson (1977) portrays the change in utilization with age; he found that, with the exception of dental use, that use was higher at the extremes of life, and was lower in youth and young adulthood. [22]

Rous and Shapiro (1981) found that use of health services is positively correlated with age, and the increased use of services by elderly.[22]

A study on family health done by Picken and Ireland (1968) showed that increasing the number of children is associated with less expenditure on health per household, and this could be explained on the basis that relatively less attention is available to the individual child in these families.[21]

3. Number of Children less than five years of age:

In our study, as the number of children less than five years of age increase from zero to four children, both the total health expenditure and the proportion of health expenditure to total expenditure decreased. These findings are contrary to the notion that children less than five years use more preventive and primary health care.

The number of children less than five years of age had no major effect on the proportion of expenditure on "medicine", "dentist", "physician", "hospital", "Xray and laboratory test", and "other miscellaneous" expenditures.

These findings could be explained that, first: less attention is available to the individual child in these families; second: there is under-utilization in health service, because these households have many other commitments such as food, shelter etc.; third: it can also reflect the experience that parents acquire in taking care of their children as their number grows without having to rely on health services as much. But as the number of children less than five years increase to five children and more, both the total health expenditure and the proportion of health expenditure to total expenditure had increased. This might be explained in that: since the number of family members in the households who have five or more children under five years of age ranges between (12

members and 28 members) in each household so it is expected that these households consist of extended families, and the increase in health expenditure is due to the increase of household members who were elderly.

4. Number of Household Members who were 65 Years and Over

In our study population, household health expenditure in absolute J.D and in proportion to total expenditure increased as the number of household members (65 years and over) increased. This is to be expected as these groups are more susceptible to chronic diseases, and as the elderly become more ill they require extensive health services.

The proportion of expenditure on "dentist", "physician", "Xray and laboratory test" and "other miscellaneous" decreased, as the number of household members 65 years or over increased. However, it seems that there is no major effect on the proportion of expenditure on "medicine", and "hospital" and this is contrary to our expectation that household members 65 years and over use more medicine and hospital services, and thus have higher expenditure.

5. Sex of the Head of Household

Most studies were done on the effect of sex of the person on health services utilization and expenditure but few were done on the effect of sex of the head of household on household expenditures.

Nathanson (1977) reviewed the effect of sex on health service utilization in developed countries where women have lower mortality than men. It was found that women consume more physician visits than

men including preventive care, and have higher rates of hospitalization, surgery, and total health expenditures.[22]

Harris (1975) found in his study that women perceive themselves less healthy than men at every age of life and he noted that it is difficult to understand women's greater use of services unless it is presumed that their increased use is responsible for their reduced mortality.[22]

In our study, the total health expenditure in absolute J.D, was higher when the head of household was male. This could be explained by males having a higher level of education and higher level of income that could increase the accessibility to health services.

The proportion of health expenditure to total expenditures was higher for households headed by females, this could be explained by the lower total expenditures by households headed by females.

Households headed by females spent proportionately more on "medicine" and "physician" while households headed by males spent proportionately more on "dentist", "hospital", and "other miscellaneous" expenditure. However, it seems that sex of the head of household had no major effect on the proportion of expenditure on "Xray and laboratory test".

6. Education of the Head of Household

Health-related and health oriented behaviors are primarily a function of valued life styles, and education is a major factor in the development of such behaviors.

The dynamics which link education and health are multiple. In the first instance, education is a process that increases the level of information about factors related to those desirable states. It does so directly through what is taught, and through the acquisition of skills which enable the person to be both more sensitive and more alert to relevant information. He is more influenced because he is more accepting of the claims of science in matters affecting day to day life. The more educated a person is the more likely he is to have the opportunity to be exposed, and to expose himself to, and be influenced by health information.[7]

Groomsman (1971) has suggested that education may enhance the "efficiency" with which the family produces health, hence it would use less medical care.[23]

In our study population, the total health expenditure in absolute J.D increase with the level of education of the head of household. This could be explained that members with a head of higher level of education would increase their ability to benefit from health information and to make good use of health services, also it increases their access to a higher level of income. But the proportion of health expenditure to total expenditure decreased with increasing the level of education of the head of household and this could be explained that first: they enjoy other enhancing advantages; better domestic hygiene, personal habits and life style, better food, and often manage to reduce the damage that poverty does to health. This means they tend to live healthier lives thus minimizing the proportion of health expenditures to total expenditure. Second: other factors that might minimize the proportion of health expenditure to total expenditures, is that heads

with higher level of education are more likely to be covered by health insurance and thus minimize health expenditure in proportion to total expenditure. Third: it could be partially explained by the increase in household expenditure with higher levels of education of the head of household.

The proportion of expenditure on dental care increased with the level of education of the head of household, but it seems that education level of the head of household had no major effect on the proportion of expenditure on "medicine", "physician", "hospital", "Xray and laboratory test", and "other miscellaneous" expenditure.

7. Work Sector of the Head of Household

Studying the effect of work sector of the head of household might reflect the differences in health insurance coverage between public and private sectors.

Many studies on national samples have shown a positive association between the use of health services and the status of being insured.

Shortel (1975) found that number of physician visits increase with the presence of any type of health insurance (medicaid, private insurance, medicare).[22] Rafferty (1975) found that the average length of stay in hospital admission increased with the presence of medicare and medicaid. Henely's (1979) found that there was an inverse relationship between the number of visits, and the extent to which the patients' payment method represented an out of pocket expenses.[22]

Steffie et al (1988) studied the patterns of receipt of preventive services with particular attention to health insurance coverage and he found that lack of health insurance was the strongest and most consistent predictor of inadequate screening.[24]

In our study population it was found that both the total health expenditure in absolute J.D., and the proportion of health expenditure to total expenditure was higher for households whose head worked in the private sector. Also heads of households who worked in the public sector spent proportionately more on "medicine", "dentist", "physician" and "other miscellaneous services", while heads of households who worked in the private sector spent proportionately more on "hospital", and "Xray and laboratory test". But in all the selected health categories heads of households in private sector have higher (expenditures in absolute J.D.), than heads of households in the public sector.

This could be explained in the difference and the extent in health insurance plans provided by the public or private sector. Employees working for private organizations that offered some form of health insurance plan had varying shares of the premium burden as these differed considerably depending on the size of the firm. Large firms were more likely to offer health insurance plans to their employees and a greater share of the premium cost. Small firms were less likely to be eligible for health insurance plans that were offered on the job.[10] So the amount of coverage that each household had greatly affected household health expenditure, because overall third party payment from any source makes care more accessible.

8. Income of the Household

A research was done in New Zealand (1993) to study the effect of income on health expenditure, and it was found that "low income which is usually associated with low socio economic status is strongly associated with ill health. This is partly because some people who would otherwise be healthy are sick because they are poor, and also others are poor as a result of ill health". [5:128]

Also it was found that as income increases expenditure on health care services increases. However, this trend is more apparent for expenditure on dental care than for any other category of health care. The highest income group spent 6.4 times the amount spent by the lowest income group. This could be explained in that: a. private dental care expenditures are financed largely through out of pocket payments, and the absence of wide spread comprehensive dental care insurance plans, meaning that private dental care expenditure are more unequally distributed than other forms of health and medical care [5], b. The role of general practitioners as gatekeepers to secondary health services may contribute to the greater equality of private expenditures for this item.[5]

Grossman (1972) shed light on the effect of income on health, either positively or negatively. Positively by increasing consumption of good housing and good food that improve health, and increase income may not affect health directly but may improve the efficiency by which health is produced, education is the prime example. Negatively, higher income may induce people to buy more "bads" such as liquor or even bad habits, such as reduced physical exercise.[23]

In our population study, it was found that high income households spent substantially more on health care than do low income households. This might be explained, that higher income group are more accessible to health services than the lower income group, who might not afford to buy these health services. Also, high income groups are associated with a head of household with higher level of education, and as mentioned earlier, the household with an educated head is more likely to have the opportunity to be exposed, and to expose himself to health information, and accepting claims of science in matters affecting health.

The proportion of health expenditure to total expenditure is inversely related to the level of income, this could be explained that: first: high income households are associated with a head of higher level of education, thus, he would be more efficient in utilization of health services, second: the benefits of health insurance are less likely to be enjoyed by lower income households for which low income imposes a barrier both to seeking care and to purchasing private care, third: high income is usually associated with high socio-economic status and thus enjoy other health enhancing advantages, better domestic hygiene, better nutrition which reduce the risk of infection and other diseases, and so these factors may lower their current demand for health care, thus minimizing the proportionate of expenditure on health, fourth: or it could be explained by the increase in household expenditure with higher levels of income of the household.

The proportion of expenditure on dental care increased with increasing household level of income, but it seems that the level of income had no major effect on the proportion of expenditure on "medicine", "physician", "hospital", "Xray and laboratory" and "other

miscellaneous". This could be explained that dental care services are unequally distributed across income groups, because it is largely financed through out-of-pocket payment; also it could reflect the greater imperative to seek medical rather than dental care, since dental illness rarely intrude normal role obligation, and carry little risk of fatality.[5]

9. Household Residency according to Urban/Rural Areas

Studying the effect of household residency according to urban/rural areas is used as a proxy for the availability and accessibility of health services, since hospitals, physicians, and other health services tend to cluster in urban areas. Also household income, and education of the head of household, increases in step with movement from rural to urban areas.[25]

Distance to health facilities limits people's willingness and ability to seek care particularly when transport is limited. There is a heavy urban bias in the distribution of health facilities. Large cities are much better served by both private and public health infrastructure than would be expected from their roles of serving rural populations and providing referral services for the surrounding population.[1]

A number of surveys showed that low income households living in rural areas have to travel considerable distances to reach the first level of referral services, usually a primary health care center or a doctor's office.[1]

Household surveys from sub-Saharan Africa and Latin America demonstrate that those in urban areas seek and obtain medical care

more often than those in rural areas. In Cote' d'Ivoire in mid-1980's an urban household was nearly twice as likely to seek care as a rural household (60 versus 36 percent)[1]

So rural areas may find difficulties in using health services, because of problems such as inability to pay, and lack of transportation.[25]

Urban integration is associated with a higher level of utilization, better information on health facilities for the public could in turn facilitate access to medical care.[25]

McLafferty (1982) has shown that the structure of urban areas is a significant factor in determining inequities in access to services.[25]

A study done by Wilbert et al (1988) found distance alone may have an important influence on accessibility, since different subgroups of the population live at varying distances from sources of health care.[25]

In our study population it was found that the total household health expenditure in absolute J.D. was higher when the household lived in urban areas, and this is in parallel with the proportion of health expenditure to total expenditure. Households who lived in urban areas spent proportionately more on "dentist", "hospitals", "Xray and laboratory tests", and "other miscellaneous" expenditures. While households who lived in rural areas spent proportionately more on "medicine", and "physician".

This could be explained that: First: health services distribution may not be homogeneously dispersed throughout the country; so the rural

person may use fewer services and less frequently than his urban counterpart because of the longer distance he must travel to reach a health service. Second: households who live in rural areas might use cheaper public health centers than those who live in urban areas where the tendency is to use more expensive private health centers. Third: urban areas, which are usually densely populated, have higher household health expenditure than rural areas which are less populated. This might be because urban households are more susceptible to different health hazards such as car accidents and air pollution which might increase health expenditures. Fourth: other intervening factors like education of the head of household, income, household size, health insurance etc. might affect household health expenditures according to urban/rural areas.

Chapter Five

Conclusion and Recommendation

Conclusion

This study has analyzed some of the factors that appear to affect household health expenditures in Jordan. These factors include demographic, social and enabling factors. The study found that:

- First: Almost 12.8% of the study population did not expend on any type of health service and the proportion of the population that had no direct expense for health service range between 15.1% for medicine up to 92.7% for "other miscellaneous" services.
- Second: The proportion of health expenditure out of overall expenditure for the Jordanian household was 2.3%.
- Third: The average annual household health expenditure was 95.8 Jordanian Dinar.
- Fourth: The results obtained from differences between proportions using a z test showed that the following variables are statistically significant with a negative association:-
1. Household size $P=0.05$.
 2. Work sector of the head of household $P=0.01$.
 3. Household residency according to urban,rural areas $P=0.003$.

While the regression analysis where the other covariates are controlled, the following variables showed to be statistically significant with a negative association except for (the number of household members 65 years and over was a positive association) and they are presented according to their relative importance in descending order:-

1. Work sector of the head of household $p=0.0001$.
2. Household residency according to urban,rural areas $P=0.0001$.
3. Household size group $P=0.0001$.
4. Household income group $P=0.0001$.
5. Sex of the head of household $P=0.005$.
6. Age group of the head of household $P=0.0113$.
7. Number of household members 65 years and over $P=0.0022$.

The regression equation was able to account for about 0.04 of the variance in the dependent variable (R^2 of the model was 0.0417), indicating that other variables should be incorporated in the model, and this remain to be investigated by a separate research.

Recommendations

Several areas need further research in order to have a better picture of the factors that determine household health expenditure in Jordan.

First: The data that will be collected by Department of Statistic in it's "Household Expenditure and Income Survey" for the year 1998, should have information about the need of each household for health services, i.e. the presence of a handicapped, chronic disease member in the household, etc.....also it should collect information about the type of health insurance plan that is offered if available, its type (premium, deductable, copayment, etc.).

Second: Since need for medical care is expected to be the major determinant of use of health care services, so further studies should include need to be accounted for any serious attempt to explain expenditure on health services.

Third: Further research needs to explore the characteristic of the population who do not use any type of health services (did not have any expenditure on health services) which made 12.8% of the study population that was nationally represented (i.e. 975 households of the study population) so further research need to address such a group, and try to offset the reasons for nonuse.

Other recommendations for health planners:-

Changing people is much more difficult than to change their environment (though the latter may itself represent no simple task) therefore efforts to increase public response should always aim at minimizing the

barriers to action, increasing the opportunities to act (which will increase perceived benefits, and providing cues to trigger responses) example of important environmental features that could be modified with good effect:-

- a. To provide value for money by ensuring that public resources go first to cost effective preventive health and essential clinical services as overspending on tertiary care cannot adequately finance more cost effective care, and cannot be equitably distributed.
- b. Decentralization of government health service in rural areas and to avoid any misallocation and inequity that are caused by mistakes in deciding where and what facilities to build.
- c. Extension of insurance: government policy should extend insurance coverage to the rest of the population, including the self-employed, the elderly, the poor, large household size, dependents of female employees, lower socio-economic class, and expand the content of the available package of care.

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Table (1)
The SAS System
Correlation Matrix
Pearson Correlation Coefficients / Probability

	TXP	HEXPN	EXPN	AGEGP	SEX	EDUGP	INCOMGP	LESS	MOR65	UR	NOH	WS
TXP	1.00000 0.000 7583											
HEXPN	0.64261 0.000 7583	1.00000 0.000 7618										
EXPN	-0.02372 0.0124 7583	0.29441 0.0001 7618	1.00000 0.0 7618									
AGEGP	0.02516 0.0284 7583	0.05635 0.0001 7618	0.14561 0.0001 7618	1.00000 0.0 7618								
SEX	0.04347 0.0002 7583	-0.02375 0.0382 7618	-0.07519 0.0001 7618	0.12500 0.0001 7618	1.00000 0.0 7618							
EDUGP	-0.03460 0.0026 7583	0.05031 0.0001 7618	0.20904 0.0001 7618	-0.46233 0.0001 7618	-0.23913 0.0001 7618	1.00000 0.0 7618						
INCOMGP	-0.08414 0.0001 7583	0.11534 0.0001 7618	-0.30850 0.0001 7618	0.12203 0.0001 7618	-0.11350 0.0001 7618	0.18943 0.0001 7618	1.00000 0.0 7618					
LESS	-0.03441 0.0027 7583	-0.04007 0.0005 7618	-0.06350 0.0001 7618	-0.39701 0.0001 7618	-0.17599 0.0001 7618	0.13400 0.0001 7618	-0.01666 0.1461 7618	1.00000 0.0 7618				
MOR65	0.03393 0.0001 7583	0.03997 0.0005 7618	-0.03048 0.0078 7618	0.39040 0.0001 7618	0.03067 0.0074 7618	-0.26330 0.0001 7618	-0.04991 0.0001 7618	-0.16779 0.0077 7618	1.00000 0.0 7618			
UR	-0.10923 0.0001 7583	-0.09152 0.0001 7618	-0.10485 0.0001 7618	-0.01435 0.2105 7618	-0.04327 0.0007 7618	-0.15915 0.0001 7618	-0.09841 0.0001 7618	0.09387 0.0001 7618	0.04309 0.0002 7618	1.00000 0.0 7618		
NOH	-0.09263 0.0001 7583	-0.01147 0.2167 7618	0.15824 0.0001 7618	0.21593 0.0001 7618	-0.15502 0.0001 7618	-0.16862 0.0001 7618	0.23610 0.0001 7618	0.29692 0.0001 7618	-0.06238 0.0001 7618	0.08838 0.0001 7618	1.00000 0.0 7618	
WS	-0.13903 0.0001 5357	-0.11107 0.0001 5392	-0.11354 0.0001 5392	-0.17567 0.0001 5392	0.02367 0.0001 5392	0.19868 0.0001 5392	-0.07097 0.0001 5392	0.09470 0.0001 5392	-0.07638 0.0001 5392	0.16719 0.0001 5392	-0.08337 0.0001 5392	1.00000 0.0 5392

Table (2)
The SAS System

Summary of forward Selection Procedure for Dependent Variable
(Proportion of expenditure on health)

Step	Variable Estimate	Parameter	Partial R**2	Model R**2	F	Prob>F
	Intercept	0.07435218				
1	WS	-0.01013163	0.0193	0.0193	105.6207	0.0001
2	UR	-0.00896915	0.0087	0.0280	48.0006	0.0001
3	NOH	-0.00336572	0.0064	0.0345	35.6342	0.0001
4	INCOMEGP	-0.00153024	0.0028	0.0373	15.5583	0.0001
5	SEX	-0.01223887	0.0014	0.0387	7.9011	0.0050
6	AGEGP	-0.00185731	0.0012	0.0398	6.4206	0.0113
7	MOR65	0.00468566	0.0017	0.0415	9.4239	0.0022
8	EDUGP	-0.00058594	0.0002	0.0417	0.8778	0.3488

Abbreviations

TXP	=	Proportion of expenditure on health
HEXPN	=	Total health expenditure
EXPN	=	Total expenditure
AGEGP	=	Age group of the head of household
SEX	=	Sex of the head of household
EDUGP	=	Education group of the head of household
INCOMGP	=	Income group of the household
LESS	=	Number of children less than five years in the household
MORE65	=	Number of household members 65 years and over
UR	=	Household residency according to urban/rural areas
NOH	=	Number of household members (household size group)
WS	=	Work sector of the head of household

ملخص**455057**

محددات الانفاق الاسري على الصحة في الاردن

أمانى فهد ابو العثم النصور

اسم المشرف:- الدكتور فريد نصير

منذ عام ١٩٧٩ تعهد الأردن في تطبيق الاستراتيجية العالمية وهي "الصحة للجميع عام ٢٠٠٠" ولكن في الوقت نفسه يعاني من شح الموارد والازدياد المضطرد في عدد السكان وبالتالي الزيادة في الطلب على كمية الخدمات الصحية ، كما ادت الزيادة في نسبة الكهولة في الاردن الى التغير والانتقال في الخدمات الصحية من الرعاية على الحالات الحادة الى الحالات المزمنة والتي عادة ما تحتاج الى وقت وتكلفة أكثر. كما أن النظام الحالي للدفع على الخدمات الصحية تؤدي الى عدم الكفاءة واللامساواة وتعدد مدى التغطية.

لقد كان الهدف الرئيسي لهذه الدراسة هو التحري عن محددات الانفاق الاسري على الصحة في الأردن ومن ثم تقديم الاقتراحات المناسبة.

كذلك هدفت الى دراسة:-

١- انماط الاستهلاك على الخدمات الصحية.

٢- نسبة الانفاق على الخدمات الصحية من الانفاق الكلي.

٣- مقدار الانفاق على الخدمات الصحية المختلفة بالدينار الأردني.

تم الاعتماد في هذه الدراسة على البيانات التي اعدتها دائرة الاحصاءات العامة في "دراسة نفقات ودخل الاسره لعام ١٩٩٢" حيث شملت هذه الدراسة جميع مناطق المملكة.

التحليل الاحصائي الذي استخدم في هذه الدراسة هو الاحصاء الوصفي، الارتباط، الفرق بين نسبي مجتمعين ، واختبار الانحدار.

ويمكن تلخيص النتائج الرئيسية لهذه الدراسة بما يلي:-

أن هناك ما يقارب ١٢ر٨٪ من عينة الدراسة لا تتفق على أي نوع من الخدمات الصحية، كما ان نسبة الانفاق على الخدمات الصحية من الانفاق الكلي للأسرة هي ٢ر٣٪ بينما معدل الانفاق السنوي للأسرة على الخدمات الصحية هو ٩٥ر٨ دينار أردني.

أظهر اختبار "الفروق بين نسبي مجتمعين" أن هناك فرق ذو دلالة احصائية واختلاف في نسبة

الانفاق الصحي وبعلاقة عكسية في المتغيرات المستقلة التالية:-

أما اختبار الانحدار فقد أظهر ان هناك فرق ذو دلالة احصائية في نسبة الانفاق الصحي وبالعلاقة عكسية في المتغيرات المستقلة التالية باستثناء (عدد افراد الاسرة الذين تساوي اعمارهم ٦٥ سنة فأكثر فان العلاقة ايجابية):-

- قطاع العمل لرب الأسرة ($P=٠.٠٠١$)
- مكان اقامة الاسرة ($P=٠.٠٠١$)
- حجم الأسرة ($P=٠.٠٠١$)
- دخل الأسرة ($P=٠.٠٠١$)
- جنس رب الأسرة ($P=٠.٠٥$)
- عمر رب الأسرة ($P=٠.١١٣$)
- عدد أفراد الأسرة الذين يبلغوا ٦٥ سنة فأكثر ($P=٠.٠٢٢$)

كما أظهرت النتائج أن R^2 لنموذج الانحدار هو ٠,٠٤١٧ .
 تتمحور التوصيات الرئيسية حول اللامركزية في توزيع الخدمات الصحية وتوسيع مدى التأمين الصحي ومحتوى الرعاية المشمولة، لتجنب سوء التوزيع، واللامساواة في استخدام الخدمات الصحية. وأخيراً، فقد كشفت الدراسة عن وجود مجال للبحث في حقل الانفاق على الخدمات الصحية في الأردن.