

# The Affecting Factors of Healthcare Services Demand in terms of Health Services Use: A Field Application

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## ABSTRACT

The main purpose of the study is to reveal the factors that influence the demand of health services and the relationship between them and demographic characteristics. The study was conducted in Edirne city center in 2015. Systematic sampling was used to select the sample. Convenience sampling was conducted and the significance level was set as  $p < 0.05$ . Data analysis was performed with the help of using SPSS version 20 software and the Mann Whitney U, Kruskal-Wallis and mean tests were performed. Data on factors affecting the health services demand were collected in five categories: economic factors, characteristics of the health institute, attitudes and behaviors of the physician, attitudes and behavior of nurses and auxiliary staff, and the physical environmental specifications of the health institute. According to the results, gender, family members, personal income, and perception of economic level affect the demand for health services. In addition, a clean environment and quality of healthcare services, medical equipment for diagnosis and treatment in health care facilities, adequate laboratory and analysis unit, information provided about diagnosis and treatment by doctors, and the reliability of healthcare services provided by doctors emerged as the factors most affecting health demand. It is recommended that managers responsible for managing healthcare facilities know the factors affecting the demand for healthcare, especially in cases where the possibility of choice exists.

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## Introduction

Health is a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity, according to the World Health Organization. By another definition, health is defined as being stay away from avoiding physical and mental disorders, having normal bodily functions and mental wellness within limits considered acceptable by the community <sup>[1]</sup>. Health services should be presented as a priority, owing to their importance for individuals and society <sup>[2]</sup>. A variety of factors are harmful to human health, and society should be protected from the influence of such factors. Patients with physical and mental ability and work acclimated to the faculties with reduced (rehabilitation) activities undertaken to are considered as health services <sup>[3]</sup>. Health care services can be divided into four groups; preventive health services, curative health services, rehabilitative health care services and health promotion services <sup>[4]</sup>. Immunization, protection via drugs and serum, family planning, food safety to improve nutritional status and promote healthy eating habits, health education, and environmental interventions that prevent health problems caused by the physical, biological, and social environment are examples of preventive health services <sup>[5]</sup>. Services including diagnosis-treatment-diagnostic processes after the occurrence of the symptoms of disease or illness are considered curative health services. These services, compared with preventive healthcare, include more specific benefits, but include social benefits owing to the increased efficiency resulting from the treatment of disease <sup>[2]</sup>. Rehabilitative healthcare services aim to minimize the results of permanent disability and to render individuals who have congenital or acquired disease attain their best possible level of physical, psychological, social, and professional functioning, in order to be useful to themselves, their families and society <sup>[6]</sup>. The services for improving the health of people is defined by the WHO as the process of improving health by increasing the power of control over their health <sup>[1]</sup>. Pender deals with issues such as self-efficacy, health responsibility, exercise, nutrition, interpersonal relationships and stress management in health promotion theory; individuals are at the forefront in the development of health <sup>[7-8]</sup>.

Health is concerned with the growth of the entire society, regardless of its current level of development. Individuals who constitute the society

want to live better and healthier, and thus demand for health services is increasing <sup>[9]</sup>. Owing to the fact that the resources required for health services, such as buildings, equipment, manpower, money, time, technology, knowledge and experience, are limited, the cost of health services is rapidly increasing <sup>[10]</sup>. So, the scarcity of the resources will be used in the provision and finance of health services is one of the main problems in the whole societies <sup>[11]</sup>. Since the 1960s, increases in healthcare costs in developed countries are greater than the average inflation; as a result, the share of health spending in GDP has been greater when compared with other sectors <sup>[12]</sup>.

### *The General Characteristics of Health Care*

Health services include all services dealing with the diagnosis and treatment of disease, or the promotion, maintenance, and restoration of health. They include personal and non-personal health services <sup>[1]</sup>. The market is defined as the healthcare market, from which health services are sold and bought <sup>[13]</sup>. The unique characteristics of the health sector are seen as effective in the functioning of the health care market <sup>[14]</sup>. These characteristics can be summarized as follows:

**Labor Intensive:** although technological development in the healthcare sector is second only to the space sector, the value of labor remains, since the production and delivery of health services depend largely on individual effort <sup>[15]</sup>.

**Information Asymmetry:** the asymmetric information in the health sector refers to the physician having more information than the patient and at being dominant in the physician-patient relationship. The patient cannot question the healthcare provided by the physician in detail and only feels the satisfaction and dissatisfaction as a result of the service. This difference in levels of information between patient and physician is referred to as information asymmetry <sup>[16]</sup>.

**Moral Hazard:** Moral hazard is defined as "the intangible loss-producing propensities of the individual assured or as that which "comprehends all of the nonphysical hazards of risk." Insurance writers have tended very strongly to look upon this phenomenon as a moral or ethical problem, using emotive words such as "malingering" and "hypochondria," considering it alongside outright

fraud in the collection of benefits, and providing value-tinged definitions such as "moral hazard reflects the hazard that arises from the failure of individuals who are or have been affected by insurance to uphold the accepted moral qualities" or "moral hazard is every deviation from correct human behavior that may pose a problem for an insurer"<sup>[17]</sup>. Healthcare has many characteristics except these: externalities, the high level of specialization, uncertainty, the existence of some restrictions in entering the market, and the lack of storage facility demand individual participation in the production process; healthcare is generally lacking in standards in contrast to other goods and services; the expensive nature of such services and necessary teamwork are the other best known characteristics<sup>[9-18]</sup>.

### **Health Demand and Influencing Factors**

Demand is an economic concept and refers to giving up any asset in exchange for a desired good or service. Need is related to demand but these are different concepts. While demand refers to economic change, need describes the lack of goods or services sensed individually<sup>[19]</sup>. When economists discuss the demand for healthcare services or other goods and services, they speak of solvency and requests. Healthcare demand should not be confused with desire and need. For instance, if a person suffers from toothache owing to tooth decay, but he/she does not go to the dentist and postpones going, this represents a need but not demand. The health need, however, is mandatory and is an important need for the continuation of life; it is an important factor affecting the demand for healthcare services<sup>[4]</sup>. Individuals make choices about medical care. They decide when to visit a doctor when they feel sick, whether to go ahead with an operation, whether to immunize their children, and how often to have checkups. The process of making such decisions can be complicated, because this may involve accumulating advice from friends, physicians, and others, weighing potential risks and benefits, and foregoing other types of consumption that could be financed with the resources used to purchase medical care<sup>[20]</sup>. According to Grossman, consumers demand health for two reasons; as consumption goods (which allow the consumer to feel better) and investment goods (good health status increases the consumer's quality of life and productivity)<sup>[21]</sup>. Healthcare demand is affected by many factors, such as price, income,

preferences, financing methods, physical facilities and the health attitudes and behaviors of healthcare personnel<sup>[22]</sup>. Price elasticity is low in healthcare because it is of vital importance to life<sup>[23]</sup>. Thus, healthcare demand is affected little by price changes<sup>[9]</sup>. The relationship between demand and price can be reduced to zero in countries where healthcare services are free and provided by the governments<sup>[21]</sup>. Price elasticity can be changed according to the type of the service; for example, price elasticity is higher in the pharmaceutical and therapeutic tools than are physician and hospital care services<sup>[23]</sup>. The price is another factor that impacts the demand for health services and its effect on the demand for health services is higher than price<sup>[9]</sup>. When other factors affecting the demand are constant, income elasticity is used to measure the impact of the changes in income on the quantity of demanded services. The income elasticity has been measured as 1.35 for total health expenditure per capita, 0.20 to 0.57 per person for a medical examination, 0.01 to 0.04 for hospitalization and 0.6 to 3.2 for dental expenses in studies on health services<sup>[24]</sup>. Another factor that impacts the demand for healthcare is people's preferences<sup>[25]</sup>. The demand for aesthetic services, dental services, preventive health services, and hair and skin care services is closely related to consumer preferences. The hospitality service, which is related to the people's priorities and preferences, also affects the demand for health services<sup>[25]</sup>. The structure of the health system and the manner of funding healthcare services also play an important role in the health demand in any country. While the countries that use direct funding have a low coefficient of demand, the countries that fully or partly use state healthcare financing have higher demand coefficients<sup>[26]</sup>.

Moreover, the different factors, such as population and structure of the population, the severity of the need for health services, the behaviors and attitudes of doctors, nurses and other health staff to patients, increased urbanization and industrialization, changes in family structures, and developments in medical technology have also affected the demand for health services<sup>[21;26-27]</sup>.

### **Materials and Methods**

The purpose of this study is to determine the factors that influence the use of health services and to analyze the relationships between these factors and

some personal characteristics. Our study is a descriptive study designed quantitatively. The study population is comprised of people aged 15 to 65 years residing in the city center of Edirne. The systematic sampling method has been used in this study: a sample of 384 was necessary to achieve a 95% confidence interval and a 5% margin of error. The questionnaire form has been used as a data collection tool in the study. Approval from the ethics committee approval was obtained before starting work. The results are based on analysis of the current 472 questionnaires. This number is above the minimum amount determined for the sample volume. The data was analyzed using SPSS 20.0 software package. Arithmetic means, and the Mann-Whitney U and Kruskal Wallis nonparametric tests were performed.

## Results

The findings of the research are discussed in three stages. First, the demographic characteristics of the participants are stated, followed by an examination of the relationship between demographic characteristics and factors that may affect the demand for healthcare services. In the last stage, the rankings of the factors that may affect healthcare demand is provided according to scores on a five-point Likert scale. 48.2% of participations are male and 52% are women; the average age is  $34.74 \pm 10.35$  years. The educational status of participants is as follows: approximately 23% attended high school, 20% primary school and 31% held a bachelor's degree. 67.4% of respondents are married, 34.5% earn less than  $\square$  1000 or less monthly and 33.3% earn 1001 to 2000  $\square$  monthly. 65.7% of respondents described themselves as middle-income and 73% described their health status as well in general. 37% of those surveyed stated that they have at least four people in their home. 42.6% reported that they visit healthcare providers regularly and 48.6% that their first preference is a public hospital. 48.9% reported applying to healthcare facilities one to three times annually.

### *Analysis of the Factors Affecting the Health Services Demand by Demographic Factors*

The factors that may affect the demand for health services are grouped under the following headings: economic factors, characteristics of the health institute, attitudes and behaviors of physician,

attitudes and behavior of nurses and auxiliary staff and the physical environmental specifications of the health institute.

When statistical analysis is performed, the distribution of property is very important. The descriptive and analytic statistics which will be applied to data showing the different distribution methods are also different. Therefore, first the test of normality was conducted to determine the most appropriate statistical methods. Since the data was not normally distributed, according to the Kolmogorov-Smirnov test, nonparametric tests were used.

As shown in Table 1, while there is no a statistically significant relationship between gender and economic factors, which may affect the demand for healthcare according to the Mann Whitney U test ( $p > 0.05$ ), there are significant relationships between gender and factors that may affect the demand for healthcare, such as characteristics of the health institute, attitudes, and behaviors of physician, attitudes, and behavior of nurses and auxiliary staff and the physical environment specifications of the health institute ( $p < 0.05$ ). Accordingly, women assign greater importance than men to the characteristics of the health institute in demand for health services. Similarly, women's demand for health services are affected more than men's by physician 'attitudes and behaviors, the nurses' attitudes and behaviors and physical environment specifications of the health institute ( $p < 0.05$ ).

According to Table 2, the relationships between number of family members and economic factors and the attitudes and behaviors of the physician was not significant, according to the Kruskal-Wallis test ( $p > 0.05$ ). Since there are more than twice the number of variables in groups, the Kruskal-Wallis test was used. This test provides a comparison with a continuous variable for three or more groups. Values are converted to serial and mean for each group compared [28]. The significant relationships between the number of family members and characteristics of the health institute, attitudes and behavior of nurses and auxiliary staff and the physical environmental specifications of the health institute have been determined according to the Kruskal-Wallis test ( $p < 0.05$ ). A pairwise comparison was conducted between the groups; the causes of this difference are explained in significance column. Accordingly, the

demand for healthcare of people living alone is affected more than for those living in crowded settings by the characteristics of the health institute, attitudes and behavior of nurses and auxiliary staff, and the physical environmental specifications of the health institute ( $p < 0.05$ ).

The significant relationships between personal income per month, the attitudes-behaviors of physician, characteristics of the health institute, attitudes and behavior of nurses and auxiliary staff and the physical environment specifications of the health institute have not been determined according to the Kruskal Wallis test results ( $p > 0.05$ ). The statistically significant difference between economic factors and personal income has been determined ( $p < 0.05$ ). Accordingly, the demand of the people who have 0 to 1000 ₺ income per month have been more affected than those have higher income both 1001 to 2000 ₺ and +3001 ₺ per month. Similarly, healthcare demand in the monthly income of 2001 to 3000 group is affected more by economic factors than those in the ₺ 3001 and higher group ( $p < 0.05$ ).

Significant relationships among personal income per month and attitudes-behaviors of physician, the characteristics of the health institute, attitudes and behavior of nurses and auxiliary staff, and the physical environmental specifications of the health institute was not been revealed by the Kruskal Wallis test results ( $p > 0.05$ ). However, a statistically significant difference between economic factors and personal income was revealed ( $p < 0.05$ ).

Demand for healthcare services by those who described themselves as poor is affected more by economic factors than is that in middle- and high-income groups ( $p < 0.05$ ). Similarly, healthcare service demand of the people describing themselves as low income is affected more by economic factors than those described as middle- and high-income ( $p < 0.05$ ). Also, the demand for people describing themselves as high-income is less affected by economic factors than those who described themselves as middle-income ( $p < 0.05$ ).

### ***Ranking Analysis of the Factors Affecting Health Services Demand***

In this part of the study, the ranking analysis of the factor statements may affect the health services demand is explained according to their scores on the

five-point Likert scale, from highest toward lowest scores.

The ranking of the statements under the economic factors heading was as follows: the influence of increase in income on hospital choice, making the distinction between private hospitals and public hospitals as a result of increases in income, the impact on the demand of examination fees in healthcare and the increase in frequency hospital visits as a result of income increases.

The ranking of the statements under the characteristics of health institute heading was as follows: the level of the health services quality (technological innovation), providing patients with sufficient information, having expert physicians in all areas, earlier experiences, easy appointment, social security agreements, complying with the recording, less waiting time before the examination, appropriate wages, location for transport and being close, advice from relatives, and acquaintances working in the hospital.

The ranking of the statements under the attitudes and behaviors of physician heading was as follows: providing information on diagnosis and treatment, being reliable, convenient communication, caring, being a doctor specialized in the field, being kind and patient, engendering happiness, and being clean.

The ranking of statements under the attitudes and behavior of nurses and auxiliary staff heading was as follows: acting concerned, being considerate, being polite and friendly, and being clean.

The ranking of the statements under physical environment specifications of the health institute heading was as follows: the cleaning, having necessary equipment for treatment and diagnosis, adequate laboratory and analysis units, regular examination rooms, the temperature of the waiting rooms, good ventilation, enough waiting areas, the lack of patient density, and the presence of the guiding signs and writings.

Finally, the ranking scores of the five main factors that may affect health service demand is provided based on scores obtained on the five-point Likert scale. Accordingly, the factors most affecting demand for health services were as follows: attitudes and behaviors of physicians (4.42), the physical environment specifications of the health institute

(4.38), attitudes and behavior of nurses and auxiliary staff (4.37), the characteristics of the health institute

(4.01), and economic factors (3.13).

**Table 1.** Gender and the Factors Affect Health Care Demand.

	Gender	N	Mean Ranks	t	P
Economic Factors	Female	245	246,53	25351,00	0,096
	Male	227	225,68		
Character. Of The Health Institute	Female	245	251,01	24252,00	0,016*
	Male	227	220,84		
Attitudes and Behaviors of Physician	Female	245	259,67	22130,50	0,000*
	Male	227	211,49		
Attitudes and Behavior of nurses and Auxiliary Staff	Female	245	256,97	22792,50	0,00*
	Male	227	214,41		
Physical Environment Specifications of the Health Institute	Female	245	253,13	23733,00	0,005*
	Male	227	218,55		
N= 472					

**Table 2.** Family Members and Factors Affect Health Care Demand

	Family Members	N	Mean Ranks	KWX2	P	Significance
Economic Factors	Alone (1)	42	278,36	6,691	0,082	no significant difference
	2 people (2)	88	235,15			
	3 people (3)	166	243,08			
	+4 people (4)	176	220,98			
Character. Of The Health Institute	Alone	42	331,48	24,81	0,000	1-2*
	2 people	88	239,69			1-3*
	3 people	166	233,23			1-4*
	+4 people	176	215,32			
Attitudes and Behaviors of Physician	Alone	42	267,99	4,337	0,227	no significant difference
	2 people	88	247,23			
	3 people	166	224,23			
	+4 people	176	235,19			
Attitudes and Behavior of nurses and Auxiliary Staff	Alone	42	283,31	8,214	0,042	1-3*
	2 people	88	248,35			
	3 people	166	223,52			1-4*
	+4 people	176	231,65			
Physical Environment Specifications of the Health Institute	Alone	42	293,21	8,312	0,04	1-2*
	2 people	88	230,93			1-3*
	3 people	166	229,58			1-4*
	+4 people	176	232,25			
N= 472						

**Table 3.** Personal Income and the Factors Affect Health Care Demand

	Personal Income £	N	Mean Ranks	KWX2	P	Significance
Economic Factors	0-1000 £ (1)	163	261,13	12,056	0,007	1-2*
	1001-2000 £ (2)	157	226,14			1-4*
	2001-3000 £ (3)	118	232,22			3-4*
	+30001 £ (4)	34	181,1			

**Table 4.** Perception of Economic Level and the Factors Affect Health Care Demand

	Perception of Economic Level	N	Mean Ranks	KWX2	P	Significance
Economic Factors	Very Poor (1)	25	288,66	34,901	0,000	1-3*
	Low Income (2)	122	285,25			1-4*
	Middle Income (3)	310	218,48			2-3*
	High Income (4)	15	125,57			2-4*
						3-4*

## Discussion

It is important to investigate the demand for healthcare, since health services concern the whole society, constitute an important part of the resources used for social welfare and have externalities <sup>[9]</sup>. The studies on factors affecting healthcare service demand can be found in the literature. In the study conducted by Cruppé and Geraedts (2011) in Germany, the "people's hospital experience," "the location of the hospital," and "being expert in the field for hospital" were reported as the factors most affecting hospital demand <sup>[29]</sup>. The findings of our study was consistent with these results. Laboratory services and the radiology department were reported as important choice criteria for health facilities in a study conducted by Angus and his colleagues in the UK <sup>[30]</sup>. The reasons of patients for choosing the university hospital have been studied by Ozturk (2014) and hoping to have better treatment, working of the staff who is familiar, advice for the hospital, the free treatment thanks to social security are found to be the most important factors <sup>[31]</sup>. The clean environment, quality level of health services, necessary medical equipment for diagnosis and treatment, the quality of the laboratories and the analysis units, the information provided by doctors about diagnosis and treatment and the reliability of the services provided by physicians were the most important factors affecting the demand for healthcare in our study. Further, the influence of increase in income on frequency of application, the level of

examination fee, increase in revenues, being a familiar working at the hospital are found the least affecting factors for the demand for health care. The effective elements which are important for the hospital choice have been determined by Tengilimoglu (2001) as fallow respectively; The locations of hospital, the physical condition and modern equipment's of hospitals, the hospital's image, the price of health care, the scope of social security, bureaucratic procedures and availability of services <sup>[32]</sup>. The findings have been detected are consistent with the findings of the Tengilimoglu' study. In the another study conducted by Ayhan and Canoz (2006) in order to reveals the factors affecting the choice of hospital while the good image in society, the scope of insurance agreement in the hospitals, advise from the familiar people about the hospitals are found as the most effective, -being close to home and workplace, being economically attractive, providing appropriate services to religion are found the least effective factors in the hospital choice <sup>[33]</sup>.

## Conclusions

Owing to the fact that individuals must become more aware and play a more active role in decisions relating to their own treatment process than in previous years, they have begun to play an active role in the selection of healthcare facilities. So, the investigation of the demand for healthcare has become even more important. Thanks to the impact

of reforms made in recent years in particular, consumers have more options from which to choose healthcare providers and thus competition has increased in the healthcare sector. At this point, health managers, especially of the healthcare facilities, have a crucial role in the health institutes preferred by individuals. Analysis of the demand for healthcare, to determine factors influencing demand can provide health managers with important information. The analysis of consumer behavior and factors affecting this behavior is extremely important in order to obtain a place in the healthcare sector in today's increasingly competitive environment. It is recommended to managers responsible for managing healthcare facilities to know the factors affecting the demand for healthcare, especially in cases where the possibility of choice exists.

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