

The analysis of patient preferences for oral and dental care: Factor analysis model

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Abstract

Aim: This study is the in terms of patient preferences for oral and dental care, as it includes determining the factors that affect the preferences of patients in the treatment of oral and dental care and the analysis of other factors such as how the demographic characteristics are effective in these factors.

Materials and Methods: In the study, a 14-item questionnaire form consisting of one section was used. The first 13 items consisted of demographic and descriptive questions. Item 14 consisted of 5-point Likert-type 18 questions regarding the investigation of reasons. The questionnaire was applied by the physician who was responsible for the patient's treatment.

Results: Four factors emerged as a result of the factor analysis. When grouped by the content of the questions included in the factors, the first factor was about the characteristics of the hospital staff, the second factor was about the basic functioning of the hospital, the third factor was about the accessibility of the service provided by the hospital, while the cost factor that can be expressed as the monetary value of the service provided by the hospital consisted of a single question.

Conclusion: It was concluded that the quality of treatment service, the approaches of physicians and assistant staff, hospital conditions and access to service and cost were effective in-patient preferences for oral and dental care services.

Keywords: Dentistry; factor analysis; health behavior; patient preferences

INTRODUCTION

Living a healthy lifestyle is one of the most important needs of a society. Oral and dental care may be a health problem that is sometimes delayed but it must be treated like other illness. People start making choices from the moment they start the day. Today, efficient results can be obtained in many fields and sectors by analyzing the reasons for preference in the background of people's decision-making processes with various methods. Determining the factors affecting the preferences of patients in the healthcare industry appears as an important issue for the development of health institutions.

Patient satisfaction is a function dependent on the benefits that patients expect from the service they receive, the challenges that the patient avoids, the performance that patients expect from the service, the compatibility of socio-cultural values (for himself/herself and family culture, social class and status, their own taste and habits, lifestyle, prejudices) of the service. Patient satisfaction is the difference between the expectations of patients before receiving the service and their perceptions after receiving the service (1-3). Patient satisfaction can also

be considered as a psychological level of satisfaction with what the patient hopes and finds from the hospital. Factors such as modern equipment in the healthcare center preferred by people, the manner of approach of the dentist and the assistant staff, the quality of treatment, pain control, waiting time, the status of access to dental care, and the amount of time allocated for treatment affect patient satisfaction. It is possible to find numerous survey studies conducted to reveal patient satisfaction in the healthcare industry in Turkey (4-7). However, when these studies were reviewed, it was found that the reasons of patients for preferring state and private hospitals and their satisfaction have been analyzed. The number of studies on oral and dental care that people consider different from their general health needs is limited. This study is the in terms of health behavior in patient's oral and dental care, as it includes determining the factors that affect the preferences of patients in the treatment of oral and dental care and the analysis of other factors such as how the demographic characteristics are effective in these factors. This study to be specifically conducted in Aydin province is believed to serve as a model for other studies to be conducted throughout Turkey. In addition, since the study

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was conducted with the joint attempt of the faculty of dentistry and the faculty of economics, it will be effective in developing a multidisciplinary approach to the issue.

MATERIALS and METHODS

The aim of this study was to measure the factors effective in preferring this institution in patients admitted to the Faculty of Dentistry of Aydın Adnan Menderes University for dental treatment and the face-to-face survey method was preferred as a data collection tool. Ethics committee approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Aydın Adnan Menderes University Faculty of Medicine (Decision Date: 05.03.2020; No: 2020/37) to conduct the study.

In the study, a 14-item questionnaire form consisting of one section was used. The first 13 items consisted of demographic and descriptive questions. Item 14 consisted of 5-point Likert-type 18 questions regarding the investigation of reasons. The questionnaire was applied by the physician who was responsible for the patient's treatment. Within the scope of the study, the data obtained through the questionnaire forms were transferred to the computer environment using the Statistical Package for the Social Sciences (SPSS 22.0) software, and this software was used for the analysis of the data. In the analysis, factors affecting patient preferences were determined by the factor analysis method.

RESULTS

The study included 313 patients admitted to Aydın Adnan Menderes University Faculty of Dentistry and participation in the study was based on volunteering. In order to analyze the results obtained as a result of the study, the general information on the respondents was first included. The information on the demographic characteristics, professions, and income and educational levels of the respondents in the first section of the questionnaire are summarized in Table 1.

	Frequencies (n)	Percentages (%)
Sex		
Female	183	58.5
Male	130	41.5
Age		
< 20	13.1	13.1
21-30	29.7	29.7
31-40	26.2	26.2
41-50	16.3	16.3
51-60	8.0	8.0
61 <	6.7	6.7
Marital Status		
Married	184	58.8
Single	125	39.9
Other	4	1.3

Professions		
House wife	63	20.1
Student	68	21.7
Retired	27	8.6
Worker	36	11.5
Official	39	12.5
Academic staff	37	11.8
Unemployed	13	4.2
Other	30	9.6
Income Rate		
0-2.000	114	36.4
2.001-5.000	159	50.8
5.001 <	40	12.8
Education Level		
Primary school	49	15.7
Secondary school	44	14.1
High school	85	27.2
University	120	38.3
Postgraduate	15	4.8

Table 2. Features related to health institutions

	Frequencies (n)	Percentages (%)
Health Insurance		
Social Security Institution	250	79.9
Green Card	13	4.2
Private health insurance	35	11.2
No guarantee	14	4.5
Preference of hospital		
Refer from other hospital	35	11.2
Doctor specialty	55	17.6
Relatives recommendation	102	32.6
Internet search/comments	25	8.0
Any References	96	30.7
Hospital Apply		
Refer from other hospital	27	8.6
Emergency	18	5.8
Internet	60	19.2
Telephone	32	10.2
Any appointment	176	56.2
Regular (every 6 months) dental examination		
Yes	72	23.0
No	241	77.0

Given the demographic characteristics of the study group in Table 1, the mean age of the participants was 35.41 years. The majority of the participants were in the age range of 21-30 years with 29.7%, followed by those in the age range of 31-40 years with 26.2%, 41-50 years with 16.3%, 51-60 years with 8%, and above 61 years with 6.7%. Of the respondents, 183 were female (58.5%), while 130 (41.5%) were male. Considering the marital status of

the respondents, of the participants, 58.8% were married, 39.9% were single, and 1.3% was in the other group. Of the participants, 38.3% were university graduates, while 27.2% were high school graduates, 15.7% were primary school graduates, 14.1% were secondary school graduates, and 4.8% were postgraduates. Given the professions of the participants, the rate of students was 21.7%, followed by housewives with 20.1%. In term of the level of income, the rate of those with a monthly income of 2.001-5.000 TL was the highest with 50.8%, followed by those with a monthly income of 2.000 TL with 36.4%, and those with a monthly income above 5,000 TL with 12.8% as a result of the high rate of participation of students.

The frequency and percentages of the respondents' responses to oral and dental care are given in Table 2. When the responses to the other questions were analyzed in terms of general admission types of those who preferred the faculty of dentistry, the health insurance of 79.9% of the participants was Social Security Institution. While 11.2% of the participants had private health insurance, the rates of the patients admitted with green card (a health card for uninsured people in turkey) and without insurance were 4.2% and 4.5%, respectively. Considering

the type of admission to the hospital, the majority of the participants were found to come to the institution upon the recommendation of their relatives with 32.6%, while 30.7% of the participants came to the hospital without any referring or recommendation, as well as without searching on the internet. When the respondents admitted to the faculty of dentistry for treatment were asked about the type of admission to the hospital, it was found that 56.2% came directly for treatment without any pre-application. Moreover, it was found that 77% of these participants did not prefer regular oral dental treatment every 6 months.

The results of the factor analysis carried out according to the responses given to the Likert-type questions are presented in Table 3. Four factors emerged as a result of the factor analysis. When grouped by the content of the questions included in the factors, the first factor was about the characteristics of the hospital staff, the second factor was about the basic functioning of the hospital, the third factor was about the accessibility of the service provided by the hospital, while the cost factor that can be expressed as the monetary value of the service provided by the hospital consisted of a single question.

Table 3. The results of the factor analysis carried out by responses given to the Likert-type questions are presented. The Kaiser-Meyer Olkin coefficient was 0.89 and the result of Bartlett's test was significant ($p < 0.01$)

Propositions that Form Factor	Personal Characteristics (Physician and Assistant Staff)	Treatment Quality	Access to service - Physical Condition	Cost
I recommend this institution to others	.751			
I receive a friendly service from the employees of this institution	.748			
My physician allocates enough time for me and informs me	.748			
I find this institution reliable	.729			
The medical devices required for my dental treatment are available in this institution	.669			
I think my treatment was rapidly performed	.661			
I like the approach of this institution that I preferred to the patient	.657			
I think the doctors of this institution that I preferred are experts in their fields	.621			
I preferred this institution because it provides a friendly service.	.637			
Making an appointment for treatment in this institution is simple and easy.		.667		
I preferred this institution upon the recommendation of a friend		.622		
This is my first admission to this institution		.577		
My appointment is on time		.553		
Since I thought that this institution has the latest equipment, I preferred to be treated in this institution		.429		
My previous service was effective in preferring this institution			.770	
The physical appearance, cleanness and comfort of the hospital was effective in my preference for this institution			.715	
The reason I prefer this institution is that it is easy to access to the hospital.			.418	
I think the prices of paid services are affordable				.587

DISCUSSION

In many fields, factors affecting the preferences of individuals are analyzed. Especially in today's rapidly changing conditions, the preferences made in the consumer society turning into a social structure that reacts massively require a multiple factor analysis in every field. The preference of the individual for admitting to which health institution to receive healthcare service in the case of illness and what factors affect this preference are becoming a research topic of increasing interest. In this context, the primary research question in the study is what people care about when making preferences for oral and dental care. While examining this research question, what factors affect the preferences of patients for oral and dental care and the role of personal characteristics in these factors will be analyzed. Furthermore, this study aims to reveal a result that includes the effect of individuals' behaviors towards oral and dental care on this industry.

Preferences of individuals for oral and dental care differently from other health care services also come to the fore. While patients with any illness prefer the hospitals according to whether there is a clinic in that institution to carry out the treatment of that illness, they need more information about the institution where they will be treated for oral and dental care and make preferences by observing many variables. Therefore, feedback from patients' preferences regarding oral and dental care can also guide the quality works of institutions. The results of the questionnaires conducted in this context should be considered as an opportunity for hospitals, and hospitals should seek ways to correct their deficiencies based on these results. Measuring the patients' perceptions of the received service is a widely adopted practice in the literature. To date, especially considering the international literature, different factors that affect patient satisfaction with oral and dental care services have been determined in studies. These include treatment quality, personal characteristics (physician and assistant staff), and access to service, physical conditions, and cost (8-11).

In our study, the Kaiser-Mayer-Olkin (KMO) test was used to measure whether the sample size for the questionnaire was adequate for factorization and Bartlett's test result was used for the suitability of the questionnaire items for factor analysis (12). The Kaiser-Meyer Olkin coefficient was 0.89 and the result of Bartlett's test was significant ($p < 0.01$). A Kaiser-Meyer Olkin coefficient greater than 0.50 indicates that the sample size is adequate for factor analysis, while a significant Bartlett's test indicates that the questionnaire items are suitable for factor analysis (13). The coefficient for each questionnaire item is the factor loading value and is used to explain the correlation of the item with the factor. According to Tabachnick and Fidell (2007), the loadings of each of the items on the factors should be at least 0.32. The absence of an item with a factor of less than 0.32 was another indication that the factor analysis met the criteria (14).

In our study, factors affecting the preference of the participants for the dentistry faculty in oral and dental care were found and sorted according to their significance. As a result of the questionnaires, four factors including the quality of treatment, personal characteristics (physician and assistant staff), access to service-physical condition, and finally, cost came out.

When these factors were sorted, the factor in the first group was hospital staff, while the quality of treatment, access to service, and cost were other factors. Considering the studies on patient satisfaction with oral and dental care, the factors that determine satisfaction vary. According to the international literature, physical conditions, especially waiting times, come to the fore among the major factors affecting satisfaction with oral and dental care (15, 16). Although our study includes a limited sample as a study involving the province of Aydin, it may be a feature of the social habits that the physician or hospital staff that perform the treatment are the primary factors in the patient's preference for the institution to be treated. We can speculate that people are interested in who will perform the treatment in case of illness, since they are prone to get acquainted with the person or to decide according to the other person. In this context, a similar result was demonstrated by the study of Gurdal et al. (2000) on factors of patient satisfaction/dissatisfaction in a dental faculty outpatient clinic in Turkey. Gurdal et al. seem to have concluded that the most important element of satisfaction with oral and dental care is the "relationship between dentists and patients" (17).

The fact that the cost factor had factor content in a single Likert-type question is an indication that the cost factor is alone a dimension in patient preferences. In studies conducted in this field, there are results indicating that the procedures with high cost do not mean that the quality of treatment will be high (18). The study by Sur et al. (2004) measuring patient satisfaction in the dental clinics in Turkey concluded that patients preferred state hospitals mostly because of health insurance requirements (19). It can be thought that one of the reasons for admitting to the faculties of dentistry may be the expectation of getting the same quality service with a more affordable price. In the study by Iqbal et al. (2018), the primary reason of patients for preferring faculties in the first place for dental care is the cost factor, as the dentistry unit is a part of the state sector (20). Changing costs in oral and dental care compared to other healthcare services cause patient treatment costs to differ. For this reason, it may be normal for patients to exhibit a higher sensitivity in terms of treatment costs in oral and dental care preferences.

CONCLUSION

Since oral and dental care is characteristically is delayed by patients compared to other healthcare units and the treatment certainly requires a process, the demographic characteristics of patients are considered to be a highly determinant factor in patient preferences. It was concluded that the quality of treatment service, the approaches

of physicians and assistant staff, hospital conditions and access to service and cost were effective in-patient preferences for oral and dental care services.

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