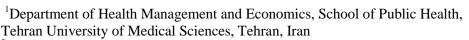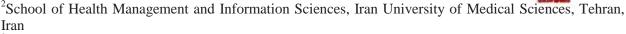# The relationship between patient satisfaction and service quality in outpatient departments: A cross-sectional study

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Abstract

Background and Objectives: The healthcare industry is increasingly growing in a competitive atmosphere. One of the key issues for the survival of healthcare organizations is patient satisfaction. This study aimed to investigate the impact of health service quality and demographic characteristics on patient satisfaction with outpatient departments at teaching hospitals affiliated with Tehran University of Medical Sciences in Iran.

Methods: This cross-sectional study was conducted in 2019. A sample of 400 patients referring to outpatient departments at teaching hospitals was recruited through a multistage systematic random sampling technique. A valid and reliable questionnaire was used to collect data which were then analyzed by using descriptive tests and linear regression in the SPSS 23 software.

Results: The mean scores of service quality and patient satisfaction were 3.73 ± 0.51 and 3.61 ± 0.97 out of 5, respectively. Moreover, patients' demographic characteristics, like age, marital status, residence area, as well as service quality dimensions, such as admission process, physician consultation, service costs, accessibility, and appointment were identified as the most effective factors on patient satisfaction.
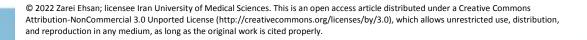
Conclusion: The admission process was the most important determinant of patient satisfaction. Therefore, physicians and reception staff are advised to provide patients with useful information and cost-effective service to increase their satisfaction. Nonetheless, it seems necessary for teaching hospitals to establish plans which facilitate payment, appointment, and examination process.

Key words: Patient satisfaction, Service quality, Outpatient service

Background and Objectives

The healthcare industry is increasingly growing in a competitive atmosphere. Patient satisfaction is one of the key issues for the survival of healthcare organizations[1] since satisfied patients tend to continue using healthcare services from quality institutions and recommend them to others[1,2]. Patient satisfaction refers to patients' assessment of their healthcare experiences, expectations, and quality of care[3] and reflects their judgments of their interactions with service providers[4]. It is becoming one of the essential constructs of healthcare services and is associated with completing treatment and an increased likelihood of getting better[5]. The issue has also gained importance to managers during planning, solving organizational problems, and recognizing the overall level of a health unit performance[6]. Although customer satisfaction is not an adequate requirement for re-visit intention, it is considered to be a valuable prerequisite for patients' loyalty[7].

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Service quality, in health sectors, consists of technical (outcome) quality and functional (process) quality. Technical quality refers to the diagnostic-therapeutic skills of healthcare providers and the accuracy of medical diagnosis and procedures, while functional quality is about the provision of healthcare services to patients, such as admission processes, physical environment, and waiting time, inter alia[8]. Traditional evaluations of patient satisfaction mainly focused on technical and physical features of healthcare delivery, and patients' feedbacks were not taken into consideration[9]. However, nowadays technical quality of care is less important than other factors[10]. The assessment of medical services based on clinical effectiveness has a number of constraints. Therefore, healthcare organizations are required to improve their clinical skills and focus on communication with patients if they want to deliver efficient, low cost, and quality services. This way healthcare providers can gain patients' trust[9].

Patient satisfaction is a multidimensional concept which contains influential factors, like demographic characteristics, waiting time, information provision, technical competence, interpersonal factors, and physical environment[11]. Over time, the relationship between patient satisfaction and service quality has increased, meaning that patient satisfaction is considered as one of the most important results of quality improvement[12]. Several systematic reviews specified a significant association between patient satisfaction and elements of healthcare service quality which has been recognized as one of the key predictive factors of patient satisfaction. It was also found that waiting time and doctor-patient relationship had the greatest impact on patient satisfaction[11, 13]. Furthermore, a significant association was found between patient satisfaction and their demographic characteristics, such as age and health status,

that is, older and healthier patients were usually more satisfied[14, 15]. The measurement of the relative weight of quality dimensions can also lead to more effective administrative activities, resource allocation, and decision making, and guarantee patient satisfaction[16]. However, healthcare systems in most developing countries are not efficient and face serious financial problems and, therefore, have difficulties to resolve issues related to patient satisfaction. Satisfied patients may demonstrate favorable behaviors which are important for the success of healthcare providers in the long run[17].

Most studies in Iran have mainly focused on the assessment of the relationship between inpatient service quality and patient satisfaction[18-20] without evaluating hospitals or outpatient services. While outpatient departments are one of the most important parts in health systems[21] because they refer most patients to inpatient departments, and patients judge the overall hospital services on the basis of the services they receive in clinics[22]. Therefore, the current study aimed to investigate the relationship between health service quality and patient satisfaction with outpatient departments at teaching hospitals affiliated with Tehran University of Medical Sciences (TUMS) in Tehran.

Methods
This cross-sectional study was conducted in 2019. There are 16 teaching hospitals affiliated with TUMS in Tehran (seven general and nine specialized hospitals); however, due to limited time and resources, only four hospitals (two general and two specialized) were randomly chosen. According to the data collected from outpatient departments, about 400 individuals referred to healthcare services every day of the week except Fridays, that is, approximately 10.000 people per month for each department; therefore, the research population consisted of

40.000 people. Based on Cochran formula ($\alpha < 0.05$), the sample size was calculated to be 380; however, the number of patients was increased to 400 to avoid response bias. The participants were required to have a sound perception of quality, so patients aged 18 and above who matched the selection criteria were included in the study. A questionnaire was completed by the patients just after visiting their doctors, prior to leaving the hospital, but 14 patients refused to take part in the study, and they were substituted by other patients. The patients were recruited through a multistage systematic random sampling technique. The budget share of each hospital and the number of questionnaire distributers were determined in proportion to the size of hospital (number of beds). Outpatient departments work from Saturday to Thursday; consequently, a systematic sampling technique was employed to provide the patients with an opportunity to participate in this study. Data were collected from May–June 2019 by three research assistants who attended the outpatient departments for at least 10 days to get more accurate information about service quality; they explained the aims and procedures of the study to the patients and distributed the consent forms among them. Nevertheless, if any of the participants could not complete the questionnaire (e.g. due to insufficient literacy or health problems), the assistant asked their opinion and filled out the questionnaire for them.

Data collection tool

Data were collected by using a questionnaire which was designed and validated in a previous study[23]. In this study, Cronbach's alpha coefficient was used to calculate the reliability of the instrument which ranged from 0.6 to 0.9 for service quality dimensions and 0.81 for patient satisfaction. The questionnaire included seven themes on socio-demographic and eight main themes on hospital outpatient service quality. The themes consisted of 37 sub-themes, that is, accessibility (3 items), appointment (2 items), waiting time (2 items), admission process (3 items), physical environment (6 items), physician services (11 items), disclosure of information to patient (7 items), and cost of services (3 items). There were also seven items on patient satisfaction which were designed based on previous studies[5, 24, 25]. The patients were required to indicate the degree to which they agreed with the items by using a five-point Likert rating scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Data analysis

Data were analyzed by SPSS 23. The mean scores for service quality, and the overall satisfaction were calculated. The normality of the data was confirmed by Kolmogorov-Smirnov test. In this study, patient satisfaction was considered as a dependent variable and service quality, and patient demographic features were the independent variables; therefore, descriptive tests and linear regression analysis were applied to measure the effect of service quality variables and demographic characteristics on patient satisfaction.

Results

According to Table 1, 52% (n= 206) of the respondents were from specialized hospitals. About 55% (n=221) of the patients were male and 73% (n=290) were married. According to the findings, 86% (n=344) of the participants lived in urban areas, and 66% (n= 265) were primary and secondary school graduates. Finally, 46% (n=182) of the patients reported their health status to be fair.

Table 1. Socio-demographic data of the sample (N= 400)

Variables	Per cent	Number
Gender		
Male	55.3	221
Female	44.8	179
Marital status		
Married	72.5	290
Single	22	88
Widowed	2.5	10
Divorced	3	12
Residential Area		
Urban	86	344
Rural	14	56
Education level		
No schooling	2.3	9
Primary and Secondary school	66.3	265
University	31.5	126
Health status		
Excellent	6.8	27
Good	31.3	125
Fair	45.5	182
Poor	16.5	66
Hospital type		
Specialized	51.5	206
General	48.5	194

As highlighted in Table 2, the lowest mean score (2.64 ±1) was pertinent to patient waiting time, while the highest mean scores were related to physician consultation (4.17 ±0.6) and service costs (4.15 ±0.84). Regarding the sub-themes, the lowest and highest mean scores were related to Q_7 (Delay and waiting in the clinic to see the doctor) (2.20) and Q_{27} (Observing the patient's privacy) (4.45). Moreover, the mean score and the standard deviation for the overall service quality were 3.73 and 0.51, respectively.

Table 2 . Means and standard deviations of quality dimensions

Variables	Mean	SD
Accessibility	**3.23**	**0.82**
Q_1: suitable clinic working days and hours	3.29	1.12
Q_2: Easy access to the clinic from all parts of the city	3.51	0.94
Q_3: multiple physicians and the right to choose for the patients	2.90	1.08
Appointment	**3.32**	**1.18**
Q_4: polite conduct and quickness of the clinic secretary in determining the appointments	3.36	1.28
Q_5: Providing useful information by the secretary about the physicians and the clinic	3.30	1.34
Waiting time	**2.64**	**1**
Q_6: Visiting the doctor on the pre-determined day and hour	3.09	1.15
Q_7: Delay and waiting in the clinic to see the doctor	2.20	1.21
Admission process	**3.94**	**0.76**
Q_8: clinic's admission staff behavior (security guards, receptionist, and cashier)	3.74	1.08
Q_9: Quick filing process	3.85	1.03
Q_{10}: Speed and convenience of payment process	4.24	0.83
Physical environment	**3.33**	**0.78**
Q_{11}: Clean and neat environment	3.70	1.02
Q_{12}: Decoration and arrangement of furniture in the waiting area	3.34	1.07
Q_{13}: Suitable temperature	3.56	1.02
Q_{14}: Adequate number of chairs for the patients to sit on	3.52	1.31
Q_{15}: The waiting area's welfare facilities	2.92	1.07
Q_{16}: Noisy and crowded clinic	2.99	1.02
Physician consultation	**4.17**	**0.60**
Q_{17}: Treating the patient politely	4.28	0.70
Q_{18}: Respecting the human dignity of the patient	4.13	0.79
Q_{19}: Honesty and truthfulness in dealing with the patient	4.31	0.67
Q_{20}: Good describing of the recommended treatment plan to the patient	4.10	0.81
Q_{21}: Empathy and understanding of the patient's problems	4.03	0.92
Q_{22}: Creating trust and confidence in the patient	4.03	0.91
Q_{23}: Giving simple and understandable explanations to the patient	4.04	0.84
Q_{24}: Complete and careful attention to the patient words	3.92	0.94
Q_{25}: Neatly dressed and adornment	4.38	0.61
Q_{26}: Careful and complete examination of the patient	4.22	0.68
Q_{27}: Observing the patient's privacy	4.45	0.58
Information provision to patient	**3.74**	**0.83**
Q_{28}: Explaining the examinations and treatment plan to the patient	4.25	0.76
Q_{29}: Explaining the drugs' side effects	3.81	0.96
Q_{30}: Explaining the treatment decisions and reasons why they have been chosen	3.70	1.06
Q_{31}: Answering the patients' questions	3.61	1.09
Q_{32}: Providing information regarding the future changes in the patient's health process	3.39	1.03
Q_{33}: Giving the patient additional information on the life style (diet, exercise, etc.)	3.43	1.04
Q_{34}: Giving the patient necessary information on the follow-up	3.89	0.95
Service costs	**4.15**	**0.84**
Q_{35}: Reasonable and suitable visit cost	4.29	0.86
Q_{36}: Providing quality services by the clinic vs. the paid money	4.04	1.07
Q_{37}: Valuable services received from the clinic	4.14	1
Overall Service quality	**3.73**	**0.51**

Table 3 presents the mean and standard deviation scores of the overall satisfaction with service quality. The highest mean score was related to Q_1 (Totally, I am satisfied with the clinic and its services), while Q_4 (This clinic and its services are very close to the ideal clinic in my mind) obtained the lowest. The mean score and standard

deviation for the overall satisfaction were   3.61 and 0.97, in that order.

Table 3. Means and standard deviations for the overall patient satisfaction

Items	Mean	Standard Deviation
Q_1: Totally, I am satisfied with the clinic and its services.	3.80	1.07
Q_2: This clinic and its services met my needs.	3.71	1.04
Q_3: This clinic and its services were according to my expectations.	3.56	1.09
Q_4: This clinic and its services are very close to the ideal clinic in my mind.	3.12	1.22
Q_5: I will use the services of this clinic again.	3.76	1.02
Q_6: I will say positive things about this clinic and services to others.	3.61	1.12
Q_7: I will recommend this clinic to my friends and relatives.	3.73	1.07
Overall satisfaction	**3.61**	**0.97**

The linear regression analysis, Table 4, demonstrated a positive correlation between patient satisfaction and their age, marital status (married), and residence area. The highest unstandardized coefficient was related to single patients (b= -1.31). The most significant unstandardized coefficient was observed between service quality dimensions, admission process, physician consultation, service costs, accessibility, appointment, and patient satisfaction. The R square value for all variables was 0.662.

Table 4. Regression results in determining the relationship between satisfaction and patients' demographic characteristics and service quality dimensions

Variable	b	β	t-value	Sig.
Demographic characteristics				
Age	-0.01	-0.22	-4.66	< 0.001
Gender				
Female (reference)				
Male	-0.05	-0.03	-0.91	0.36
Marital status				
Married (reference)				
Single	-1.31	-0.23	-4.79	< 0.001
Widowed	0.67	0.15	3.23	0.001
Divorced	0.23	0.09	2.51	0.01
Residential Area				
Urban (reference)				
Rural	-0.35	-0.12	-3.41	0.001
Education level				
No schooling (reference)				
Primary and Secondary school	0.02	0.01	0.30	0.75
University	-0.43	-0.06	-1.53	0.12
Health status				
Excellent (reference)				
Good	0.10	0.04	1.10	0.27
Fair	0.04	0.02	0.55	0.58
Poor	-0.44	-0.11	-2.96	0.003
Hospital type				
Specialized (reference)				
General	0.10	0.05	1.33	0.18
Service quality dimensions				
Accessibility	0.19	0.16	3.85	< 0.001
Appointment	0.13	0.16	3.72	< 0.001
Waiting time	0.005	0.005	0.11	0.90
Admission process	0.34	0.27	6.12	< 0.001
Physical environment	0.10	0.08	1.72	0.08

Table 4. Regression results in determining the relationship between satisfaction and patients' demographic characteristics and service quality dimensions

Variable	b	β	t-value	Sig.
Physician consultation	0.32	0.19	4.53	< 0.001
Information provision to patient	-0.01	-0.01	-0.25	0.80
Service costs	0.26	0.22	5.97	< 0.001

b= unstandardized coefficient; β= standardized coefficient Adjusted R^2= 0.662; F= 26.17; P> 0.001

Discussion

The current study aimed to investigate the relationship between service quality dimensions and patient satisfaction. The total mean score of service quality (3.73) in this study was less than that of the study in Nigeria where the overall mean score of service quality across all dimensions was 4.20[26]. This result is almost in accord with that of another study in Iran in which the overall service quality mean score was 3.89[5].

As stated by Cohen, R^2 values greater than 0.25 represent a significant variance in the model[27]. The R^2 value in this study was 0.662, meaning that approximately 66.2% of the variance in satisfaction was defined through the service quality dimensions and demographic characteristics as the independent variables. Therefore, the regression model demonstrated to have a relatively good predictive power. The results are in line with that of previous study conducted in Iran[5].

The mean score for patients' overall satisfaction was 3.61 out of 5 which is relatively high; this finding is in contrast with those of the studies in the Central and Eastern European countries where consumer satisfaction with the healthcare system was reported to be relatively low (53.7%). Satisfaction levels with healthcare services can be associated with patients' expectations, that is, patients with lower expectations are less critical, even patients with low level of knowledge about healthcare and their own rights may be more satisfied with services than patients with higher expectation[2].

In general, all questions obtained good mean scores; however, the highest mean score (3.8 out of 5) was related to Q1, i.e., "Totally, I am satisfied with the clinic and its services". Whereas in other similar studies in Iran (3.9 out of 5) and Ethiopia (93% out of 100), the highest mean scores were related to Q7, "I will recommend this clinic to my friends and relatives"[5, 17].

Based on the regression results, the admission process was the most significant predictor of patient satisfaction, meaning that the behavior of reception staff (courtesy, friendliness, and respect) can increase the overall patient satisfaction. This finding is in accord with those of previous studies where patient satisfaction was positively associated with quick and easy admission[11] and scheduled admission[28]. Likewise, the results of a study in Turkey referred to admission process as one of the most critical healthcare shortcomings causing patient dissatisfaction[29].

Physician consultation was the second determinant of patient satisfaction. This can be attributed to patients who were not aware of medicine and medical procedures and, consequently, gave higher scores to this item. Similarly, other studies revealed a significant relationship between physician consultation and patient satisfaction indicating that doctor-patient relationships, effective communication, and empathy during the consultations all play an important role in patient satisfaction[5, 13, 16].

A significant relationship was observed between service cost and patient satisfaction (coefficient= 0.26), that is, patients are satisfied if they perceive that out-of-pocket payments

are reasonable in terms of value and quality. The result matches the findings of previous studies where service costs were found to be one of the important determinants of patient satisfaction[5, 7, 30].

Accessibility and appointment were recognized as two other factors affecting patient satisfaction. These findings are reinforced by those of previous studies in which accessibility was found to be an important and determining factor in patient satisfaction[31, 32]. The importance of getting an appointment (faster and easier) has been demonstrated in another study as well[11].

The regression analysis of patients' demographic characteristics and their satisfaction highlighted age, marital status, and residence area as factors which significantly affected patient satisfaction. Although previous studies also emphasized the relationships between patients' demographic characteristics and their satisfaction with services, there are not sufficient sources in the literature to narrate the main reasons of the relationships which can be either due to differences in patients' values and expectations or the treatment they receive[33].

Regarding the patients' age, it was found that the younger patients, compared with the older patients, were more satisfied with the services. This can be attributed to old patients' frequent healthcare visits, their focus on details of provided services, or facilities which meet their special needs (e.g. wheelchair). This is consistent with the findings of other studies in which the older patients reported lower satisfaction with their hospital services[30, 34].

Moreover, a statistically significant association was found between patients' residence area and the overall satisfaction score. The respondents in urban areas were more satisfied with the services. Perhaps, patients from rural area, after travelling long distances, had higher expectations of services in the urban clinics. These results are in contrast with those of a study in Nigeria where the patients living outside the site of the clinic were more satisfied than those living within the location[35].

As for marital status, single patients were more dissatisfied with provided services, and a negative coefficient (b= -1.31) was observed between the single and married patients. This is consistent with the findings of the study by Djordjevic and Vasiljevic who conducted a cross-sectional study to assess the predictors of patient satisfaction with regard to their socio-demographic variables and found that married respondents were more satisfied with health services[36].

Finally, a limitation of this study is that the data were collected through a self-report questionnaire in hospitals, and this may lead to a bias which could have been avoided if the patients were required to answer the questions the day after referring to hospitals.

Conclusion

In this cross-sectional study a valid and reliable questionnaire was distributed among 400 patients to explore the relationship between health service quality and patient satisfaction with outpatient departments. According to the findings, admission process, physician consultation, service costs, appointment and accessibility (service quality dimensions), age, marital status, and residence area (demographic characteristics) were the most important determinants of patient satisfaction.

In order to increase patient satisfaction, it is recommended that physicians and reception staff provide better and more useful information and cost-effective services to patients. Moreover, patients were mostly dissatisfied with waiting time; therefore, the teaching hospitals are advised to establish easy payment schemes, use ticket machines, and schedule the timely presence of doctors to

examine patients. The findings of the study can be valuable for hospital managers to have a better understanding of their patients' special needs and improve their service quality.

Authors' contributions
AA, EZ, and PF contributed substantially to the conception and the design of the study. PF carried out data collection and statistical analysis. EZ, PF and RB interpreted the data. AA, EZ, RB and PF drafted and revised the manuscript. All authors reviewed and approved the final manuscript.

Ethics consideration
Ethical approval of the current study was obtained from the Deputy of Research Affairs, the School of Allied Medical Sciences, Tehran University of Medical Sciences. The permission to conduct the research was obtained from the authorities in the study settings. All participants were informed of the aims of the study and their participation was on voluntary basis. Verbal informed consents were secured from each participant since according ethical principles of Iran, no written consent is needed for studies including non-invasive clinical techniques. As for the confidentiality of the information, the participants were not required to write their names, phone numbers, or their addresses in the questionnaire; moreover, they had the right to refuse participation or withdraw from the study at any time during the study.
This research was based on an undergraduate project for which code of ethics was not required, and only the approval of the faculty research committee was sufficient.

Competing interests
The authors have no conflict of interest to declare.

Acknowledgements

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