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Dental care satisfaction among adult population in Isfahan, Iran and its influencing factors

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Original Article

Abstract

BACKGROUND AND AIM: The aim of this study was to assess the level of dental care satisfaction among Iranian adult population and to identify socio-demographic factors and factors related to dental service that affect satisfaction.

METHODS: A self-administrated valid and reliable 21-item questionnaire was designed and distributed among 1360 adult population living in Isfahan, Iran, using multi-stage proportional cluster sampling. It consisted of 5 main sections including demographic questions, perceived oral health status, oral health behaviors, barriers in receiving the demanded care and some 5-point Likert scale questions to assess the satisfaction level. Chi-square and analysis of variance were used to compare variables. People were classified as satisfied/dissatisfied based on their total score with score of 26 as the cut-off point. A logistic regression model was used to identify the factors affecting the level of satisfaction and to estimate their effect size.

RESULTS: The mean age of participants was 31.2 ± 11.3 and they mostly reported to have dental visits during the last year. The mean satisfaction score was 3.34 out of 5 (53% were satisfied) and the least and the most satisfaction was in regard to waiting time and the convenience to access, respectively. Logistic regression showed that participants in lower age group [odds ratio (OR) = 0.7], those who reported their oral health status as poor (OR = 0.8) and those who had to spend more time to reach dental care setting (OR = 0.6) and those who had to wait more (OR = 0.5) were less satisfied.

CONCLUSION: About 53% of participants were satisfied which was much lower than percentage of satisfied people in developed countries and the level of satisfaction was associated with socio-demographic, behavioral and also dental service.

KEYWORDS: Patient Satisfaction; Dental Care; Adult; Iran

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Patient satisfaction is becoming an important field of research recently with the introduction of the concept of 'consumerism'.[1] Evaluating the patient satisfaction with health care could be considerable way of evaluating the quality of care and provider-patient relationships and has been considered an important indicator of the efficient utilization of health services. This concept assesses an individual's attitude to the health services received and, is progressively being used in dentistry like other fields of medicine.[2,3]

Measuring patient satisfaction is a useful measure for evaluation of health systems, particularly evaluating the "process" of care or the professional activities associated with providing care.[4] Patient satisfaction is believed to have dramatic influence on compliance and consequently treatment quality.[2] Dissatisfaction might be a reason for switching dental providers and to influence health-related behavior, health status and health outcomes of patients.[5,6] Furthermore,

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dissatisfaction may result in raising complaints with dental care and inducting considerable levels of stress on dentists.[7]

Patient satisfaction is a multidimensional concept including the technical aspects of care or those related to the process of diagnosis and treatment, interpersonal, accessibility/availability, financial access, efficacy/outcomes, continuity of care, facilities, and general attitudes about overall care.[7]

In developing countries, ensuring adequate access to oral health care services and improving the level of oral health status are the major concerns for health policymakers.[1] In Iran, private practices provide more than 80% of dental services in cities (including about 60% of the population). Only a limited number of dentists (about 10% of 25000) are employed by the public sector, offering service to 45% of the population.[8] Currently, national reports reveal that the dentist to population ratio is about 30 dentist per 100000 populations.[9]

In different parts of the world, the concerns and satisfaction of adult population about dental health care services have been studied. In a study conducted in Nigeria, high level of satisfaction was reported in 53% of patients which was related mostly to the communication skills and rapport of staff with the patients.[10] In another study to determine dental care satisfaction among UK adult population, most of people (89%) were satisfied with the quality of care delivered to them and only 2% had raised complained.[11]

Studies assessing adults' concerns regarding dental care services in Iran are scarce. Some limited sporadic studies have been undertaken to assess dental care satisfaction provided mostly by public providers which revealed a low level of satisfaction.[12]

Having information about public opinions and concerns about the oral health services provided to them is vital for planning an efficient and responsive dental health service.[13] Therefore, this study aimed to determine the level of dental care satisfaction among the Iranian adult population with regards to public and private dental services, and also to identify socio-demographic and some of the factors related to dental service that might have a predictable effect on satisfaction with dental care.

Methods

This study was a cross-sectional study carried out in Isfahan, Iran, in 2014. This study was approved by the ethics committee of Isfahan University of Medical Sciences (registration number 390045). Isfahan is the second biggest city in the country with about 900 active dentists and a lot of private and public dental clinics. Participants also signed informed consent to participate.

A self-administrated 21-item questionnaire was designed which consisted of 5 main sections: demographic questions (age, educational level, sex, region of living), perceived oral health status of the participants, oral health behaviors (such as their dental visits pattern, the site at which dental service were rendered to them, self-care behaviors), barriers and difficulties in receiving the demanded care (travel time, appointment and office waiting time, emergency waiting time, dental fears, insurance coverage, cost of services, ease to select a dentist) and finally 8 questions to assess the level of their satisfaction. Satisfaction was considered as a multi-dimensional concept including the quality of care, interpersonal relationship, accessibility, waiting time, office working time and distance to the care delivery sites (one question for each domain). Participants were asked to determine their level of satisfaction with each of these domains using a 5-point Likert scale (ranging from 1 = strongly dissatisfied to 5 = strongly satisfied) resulting in a total score between 0-40 for each of the participants. The cut-off point of 26 was considered for separating the satisfied and dissatisfied groups based on the sum of satisfaction scores. This cut-off score was defined based on the recommendations about defining cut-off scores for Likert scales[14] and also the opinions of the main investigators of this study.

Items for the questionnaire were

developed based on literature review of previous studies and the specific characteristics of oral health care system in Iran.[8,15,16] A group of experts including two experts in oral public health, one in community medicine and five in health care centers confirmed the content validity of questionnaire; Experts were asked to give score to each question based on the relevance of questions with goals (questions with high relevancy = 1, moderate = 2 and low or uncertain = 3). Questions that scored 2 or 3 were deleted or were modified accordingly. For assuring the reliability of questions, a pilot study was carried out on a group of 100 persons. The Cronbach's alpha coefficient was above 0.7. The face validity of questionnaire was also assured in the pilot study based on the opinion of participants.

According to sampling formula and considering 50% (maximum percent) for the percentage of satisfied patients with regards to dental services and considering 27% as the maximum error, it was estimated to need 1360 patients for the survey.

The included samples were patients between 15-64 years old living in Isfahan. Method of sampling was multi-stage proportional clustering; from the 17 geographic regions (clusters) in Isfahan (according to the available clustering map in Vice Chancellery of Health Affairs, Isfahan) and according to their average sex and age distribution, 80 participants were randomly selected in each cluster. In each cluster, 13 women and 13 men in the age range 15-24 and 25 women and 27 men in the age range 25-64 years were considered.

Questionnaires were distributed among participants in selected clusters during August-October 2014 by 4 calibrated interviewers. Participants were chosen from population at social places such as parks, mosques, shopping centers and thoroughfares. They were asked to fill-out the questionnaires and return them in the place and not to consult with anyone else.

SPSS software (version 18, SPSS Inc., Chicago, IL, USA) was used to summarize the main results using descriptive and analytical statistical tests. The frequency of responses for each questions were calculated. Chi-square and analysis of variance (ANOVA) tests were used to compare variables. A logistic regression model was used to identify the potential factors affecting the level of satisfaction with dental services and to estimate their effect size. Statistical significant was set at 0.05 level for all the tests.

Results

Among the 1630 participants in this study, the mean age was 31.2 ± 11.3 and they were mostly in age range 25-64 years. About 12% had academic degrees and majority had diploma (i.e. graduated from high school) (Table 1). Women consisted 51.3% of participants (n = 697).

Table 1. Distribution (frequency and percentage) of participants and comparison between male and female according to socio-demographic and dental visit scheme

Variables		Total [n (%)]	Men [n (%)]	Women [n (%)]	P
Age group (year)	15-24	442 (32.5)	221 (50.0)	221 (50.0)	0.280
	25-64	918 (67.5)	442 (48.1)	476 (51.9)	
Sex			663 (48.8)	697 (51.3)	
Education	Illiterate	26 (1.9)	24 (23.5)	78 (76.5)	< 0.001
	Under diploma	519 (38.1)	260 (58.7)	183 (41.3)	
	Diploma	651 (47.9)	295 (45.3)	356 (54.7)	
	University degree (BSc, MSc and PhD)	164 (12.1)	84 (51.2)	80 (48.8)	
Last dental visit	< 1 years ago	683 (50.3)	314 (47.4)	369 (52.9)	0.060
	1-2 years ago	333 (24.5)	163 (48.9)	170 (51.1)	
	> 2 years ago	265 (19.5)	138 (52.7)	127 (51.1)	
	Never	78 (5.7)	47 (60.3)	31 (39.7)	
Reason for last visit	Regular visit for examination	203 (15.1)	100 (49.3)	103 (50.7)	0.320
	Visit upon pain and discomfort	920 (68.6)	438 (47.6)	482 (52.4)	
	Visit for other reasons (orthodontics, ulcers)	218 (16.3)	116 (53.2)	102 (46.8)	

Most of the participants reported to have dental visits during the last year and the most common reason was to receive treatment for pain and other discomforts not regular examination. There was no significant difference between men and women regarding their scheme of visits (Table 1).

Satisfaction with dental care: The mean score of satisfaction with dental care was 3.34 out of 5. The distribution of participants' satisfaction with different domains is shown in figure 1. Considering "strongly satisfied" and "satisfied" as one category, and "strongly dissatisfied" and "dissatisfied" as another category, it was revealed that the least satisfaction was regarding waiting time for receiving dental services and the most satisfaction was about the convenience to access and followed by satisfaction about the hygiene of dental settings. Regarding the quality of received care, 43% were satisfied. Considering the cut-off point of 26 in sum of satisfaction scores as the threshold for satisfaction/dissatisfaction, 53% were satisfied.

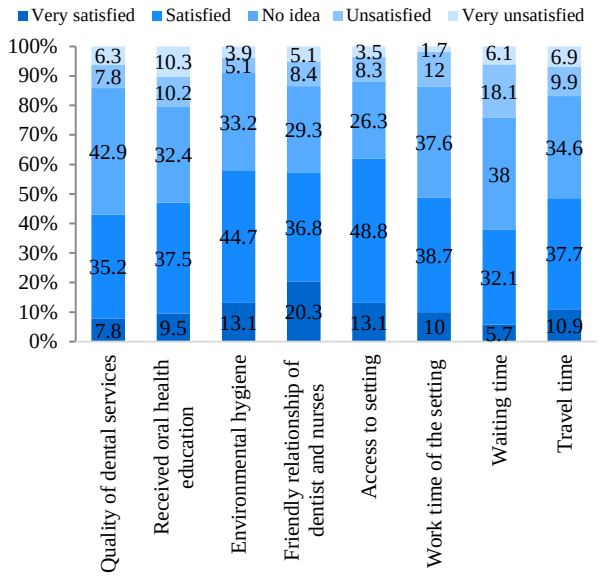

Figure 1. Distribution of participants' level of satisfaction with different domains of dental care satisfaction

Factors related to satisfaction with dental care: The frequency and distribution of factors with probable effects on participants' satisfaction with dental services are shown in table 2. Most of the participants reported their oral health status as "excellent" and 12.9% reported it as "poor". The most common setting for receiving dental care was public clinics and private offices. Almost 30% of the participants determined that they could reach the dental services delivery centers in less than 15 minutes. Among the respondents, 70% identified the mean waiting time to receive non-emergency care less than 1 month and 86% reported that they encountered no problem in their transportation to dental care centers. Almost 52.6% of the population was covered by dental insurance and 58.0% reported to have a recognized dentist for their dental care.

Table 2. Distribution of self-perceived oral health status, dental service factors, dental fear and insurance coverage among participants (probable factors affecting dental satisfaction)

Probable factors	n (%)
Self-perceived oral health status	
Poor	176 (12.9)
Moderate	574 (40.2)
Well	463 (34.1)
Very well	124 12.9 ()
Excellent	49 (6.10)
Setting of care receive	
Public clinic	425 (32.3)
Private clinic	250 (19.0)
Charity clinic	32 (2.40)
Private offices	427 (32.4)
Dental school clinic	19 (1.40)
Travel time	
< 15 min	389 (29.1)
15-29 min	588 (43.9)
30-59 min	318 (23.7)
> 1 hour	44 (3.30)
Need to emergency care	349 (25.7)
Waiting time to receive care	
< 1 month	882 (69.4)
1-3 month	251 (19.8)
> 3 month	137 (10.8)
Facing time limitation to set dental visit	556 (40.9)
Having dental fear	323 (23.8)
Having problems in payment (high costs of dental treatments)	823 60.5 ()
Insurance coverage	715 (52.7)

A multivariate regression model was designed to determine the factors with significant effect and the level of their association with level of satisfaction of

participants (satisfied/dissatisfied). The binary satisfaction variable was considered as the dependent variable.

The prerequisite condition for factors to be considered in the regression model was their significant association with satisfaction level through Chi-square test. People with higher educational level (P = 0.001, χ^2 = 18.6) and those who evaluated their perceived oral health as good or excellent (P < 0.001, χ^2 =41), participants reported to have insurance coverage (P = 0.039, χ^2 = 4.3) and older participants (P = 0.017, χ^2 = 59.1) were more satisfied.

More travel time (P = 0.001, χ^2 = 140.4), more waiting time (P < 0.001, χ^2 = 108), facing time limitation (P < 0.001, χ^2 = 68.8), having payment problems (P = 0.001, χ^2 = 25) and having transportation problem (P = 0.001, χ^2 = 15) resulted in less satisfaction.

Also, setting of care (P < 0.001, χ^2 = 159.6), reason for last visit (P-value < 0.001, χ^2 =14.5), and having personal willingness to receive dental care (P < 0.001, χ^2 = 35.5) were significantly correlated with level of satisfaction. People who received their care in private settings and those whose reason for the last visit was regular examinations were more satisfied compared with those who attended for treatment. Gender, need for emergency care and sense of dental fear were not significantly associated with satisfaction.

By inputting the above potential factors in the logistic regression model (Backward Wald, R^2 = 0.28), it was revealed that participants in lower age group [Odds ratio (OR) = 0.7], those who reported their oral health status as poor (OR = 0.8) and those who had to spend more time to reach dental care setting (OR = 0.6) and had to wait more (OR = 0.5) were dissatisfied (Table 3). On the other hand, participants who were personally more willing to receive care (OR = 1.5) and those who reported to have no time limitation (OR = 2.4) were satisfied. Also, people who regularly attended private clinics were more satisfied (OR = 3.13, n = 108) compared to the individuals who attended public clinics.

Discussion

This study assessed the satisfaction with dentistry and its determinants among general population in Isfahan. Patient satisfaction is usually defined as healthcare users' reaction to main aspects of their health care service experience including context, process and outcomes of the services.[17] In our study, 53% were satisfied with provided services which was much lower than percentage of satisfied people in developed countries.[5,11] The most satisfaction among 8 domains was with access and environmental hygiene which is in agreement with other studies.[18-20] In a study conducted in Greece[21] the patients' top priority about their expectations of the dental services was adherence to the protocols of antisepsis and sterilization.

Table 3. Multiple logistic regression model for factors related to being satisfied with dental care

Variables	OR	P	95% CI	
Age group	0.71	0.030	0.5	0.9
Perceived oral health	0.83	0.020	0.7	0.9
Travel time	0.60	< 0.001	0.5	0.7
Waiting time	0.52	< 0.001	0.4	0.6
Willingness to receive care	1.5	0.020	1.1	2.2
Setting of care*				
Private clinic vs. public clinic	3.30	< 0.001	2.3	4.9
Charity vs. public clinic	0.30	0.030	0.1	0.9
Private office vs. public clinic	1.80	< 0.001	1.3	2.5
Dental school vs. public clinic	4.10	0.012	1.4	12.5
Facing time limitation	2.40	< 0.001	1.8	3.3
Reason for last visit	1.50	0.070	0.9	2.2

OR: Odds ratio; CI: Confidence interval

*Public clinic was considered as the reference category

The level of satisfaction in our study was also associated with socio-demographic (age), behavioral (perceived oral health status and their self-motivation to receive dental care) and also dental service factors (waiting and travel time and setting of care). Some other factors such as reason for attendance were correlated with satisfaction when assessed separately by bivariate analysis.

In a similar study that evaluated satisfaction with the quality of dental care conducted on the adult population in UK,[11] about 90% of people were satisfied with the quality of care. Dissatisfaction was more frequent among younger participants [OR = 1.75, 95% confidence interval (CI) 1.24, 2.48, P = 0.002], problem motivated (OR = 2.24, 95% CI 1.64, 3.05, P < 0.001) and irregular attendees. In our study, older population was more satisfied. However, Lahti et al. found that older patients were less satisfied since the oral health status of older people is usually lower than younger people that might result in negative experiences or that elderly might believe that their dentist was not as supportive as they expected.[22]

In some of the studies gender of participants were correlat4ed with satisfaction. In these studies, women were generally more satisfied with dental care than men.[23-25] It is suggested that such result could be due to their greater exposure to dental services that could likely moderate the expectations of women and increase the chance of being met by the providers.[24] However, in our study there was no significant difference between men and women that could be described by the similar scheme of dental visits among them.

In a study conducted in 23 years old people in Norway, 14.6% of them were very satisfied with dental care and the gender difference was not also statistically significant. Multivariate linear regression showed that positive beliefs of the dentist, low/moderate dental anxiety, availability of dentists, and their last dental visit being not very painful/unpleasant explained 57.5% of the variance of satisfaction.[7] In another study conducted in Uganda on 1146 subjects (mean age 15.8 years) those who had painless experience in their dental visit attended dentistry more than once dentistry, evaluated their oral status positively, and those who were satisfied with their dentist's communication, expressed greater levels of satisfaction with the oral health services provided to them.[26]

A national survey in Swiss including of 15-74 aged residents (n = 1129) showed that 47.9 % of participants were satisfied and 47.6% were very satisfied. In their study, women and those with higher education were more satisfied. The most common reasons inducing satisfaction with dentists were interpersonal communication skills of the dentist and the staff. Dental fear was also a significant predicting factor for dissatisfaction with the dentist.[5]

It seems dental fear and anxiety could influence the level of satisfaction negatively, however in our study dental fear was not significantly related to dissatisfaction. This difference could be explained by firstly small percentage of people who were afraid and secondly the overwhelming dental visit behavior of our participants. Most of them (about 70%) reported to visit dentists in case of pain and discomfort which could mask the real effects of dental fear. Armfield et al. indicated that the patterns of dental visit are significantly affected by dental fear; people with higher levels of dental fear are more likely to postpone their visits until they feel serious problems and dental pain.[27]

In other studies the reason for last dental visit in more than 50% of people was regular examination.[28] On the other hand, attendance for receiving care instead of regular check-ups could itself affect dental service satisfaction negatively. In a study conducted recently in Lithuania,[29] the logistic regression model showed that higher satisfaction with dental care level was more likely for those who were recognized as check-up-based regular dental attenders (OR = 1.7). In our

study also (bivariate analysis), people who reported their reason for last dental visit as "regular check-ups" were more satisfied.

Although the cost of health care services seems to be an important barrier to the health service utilization, some investigators have indicated that 'knowing in advance what the fee will be' and 'believing that the fees are appropriate' are among the two less-important factors.[30] Newsome and Wright,[2] based on their literature review, mentioned cost as the least important issue considered by patients when selecting a dentist. In our study, cost and payment problems were not significantly correlated to level of patients' satisfaction, although in bivariate analysis people who thought dental costs were high were less satisfied.

One of the other effective factors in predicting the satisfaction of participants in our study was the setting of care delivery; those attending private settings were 1.8 to 3.3 times more likely to be satisfied. It was clarified that about 51% of participants preferred to attend private clinic and offices versus 32% who preferred public clinics. In the study conducted in Lithuania,[29] stronger satisfaction was also reported by those visiting private practices ($P < 0.001$). In Iran, just about 10% of dentists are working in public settings[8] and therefore the amount of attendance might be more than their capacity which could explain a part of this lower level of satisfaction.

In our study those who evaluated their perceived oral health as good or excellent were more satisfied. Ntabaye et al. showed that perceived oral health status was considered as an important predictive factor for satisfaction as all those who perceived their oral health status to be very good were satisfied with the provided care.[31]

Conclusion

In conclusion, in our study about half of the participants were satisfied with their received services which was much lower than percentage of satisfied people in developed countries and the level of satisfaction was associated with socio-demographic, behavioral and also dental service factors. This study represents one of the few documents to show variations in satisfaction with dental services by different levels of contributing factors in Iran. Some of these factors could be improved by considering appropriate policies such as educating public about the importance of regular check-up and improving the service quality in public dental care settings.

Conflict of Interests

Authors have no conflict of interest.

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