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Access to dental care among 15–64 year old people

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Abstract:

INTRODUCTION: The current study aims to study people's access to oral and dental health-care services and their satisfaction with the services provided to them.

MATERIALS AND METHODS: A descriptive study with multi-stage sampling was conducted on 1360 people aged 16–64 years residing in Isfahan city, Iran. The required data were collected by a questionnaire which comprised of three main parts: demographic characteristics, patients' access to oral and dental health-care services and its barriers and participants' satisfaction with access to services. Data were analyzed by SPSS statistical software.

RESULTS: The results showed 40% of participants reported an average level for oral health, and 82% of them did not have any problems regarding access to dental care facilities. The main causes of their dissatisfaction were high cost of services (60%) and insufficient health insurance coverage (40%). About 73% reported that they had to spend 30 min or less to access to a dental health-care facility. In addition, 50% of participants were satisfied with the provided services. The main reported reasons for referring to dentists were oral and dental problems (69%) and regular check-ups (15%). There was no significant relationship between participants' gender, education level, insurance coverage, and access to dental health-care centers ($P > 0.05$).

CONCLUSION: Most participants were satisfied with access to dental healthcare, but they were dissatisfied with the costs and inadequate insurance coverage. About half of the participants were satisfied with the services provided to them, and the highest level of satisfaction was reported for easy access to health-care centers.

Keywords:

Dental care, personal satisfaction, persons

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Introduction

Access to high-standard physical and mental health-care services is a fundamental right of every human being. In fact, there is a strong tie between easy access to health services and national health system development, which can have a significant influence on the effectiveness and efficiency of health-care systems.^[1,2]

Equity in access to health-care facilities is one of the main goals of policymakers in development of national documents in many countries.^[3] Therefore, evaluation of health-care access should be considered as

an important indicator in assessment of the quality of a nation's health system.^[2]

Oral diseases can cause problems in speech, nutrition, and proper social relationships.^[4] Current studies have found a relationship between oral health problems and some chronic diseases such as diabetes and cardiovascular diseases.^[4,5] Therefore, regular monitoring of health-care accessibility and quality is a necessity.^[6]

Assessment of dental and oral health-care services should include various aspects, including oral health status in the community, assessment of oral health-related quality of life, health-care access, and obstacles impeding this access

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and people's satisfaction with the dental care services provided to them.^[1]

Assessment can be conducted by both using the data provided by health providers and people who have received the services.

So far, several studies^[7-11] have investigated the number of dentists, medical workforce distribution, and the quality and quantity of dental materials and equipment available in health centers.

However, more studies should be conducted on the obstacles that impede people's access to quality dental health-care services.

According to Bayat *et al.*, insurance services have improved people's access to dental health-care services; therefore, there is a significant relationship between dental insurance and demand for dental care.^[8]

In 2011, Bayat *et al.* conducted a study on the relationship between insurance coverage and the kind of treatment people have chosen to solve their dental problems. The findings indicated that the number of tooth extraction was more among people without health insurance. However, there were no differences between the participants with and without health insurance regarding the number of other treatments they chose.^[9]

There are many pieces of evidence which show that less effective services actually produce less satisfaction.^[10,11] Five studies conducted in Australia, New Zealand, Canada, UK, and the USA suggested that more than half of their participants were dissatisfied with health-care services, and they believed that fundamental changes were required to solve the problems.^[11] However, a recent study has indicated that most of the people are satisfied with access to dental health-care services.^[12] As an example, in the USA, 74% of citizens were satisfied with the quality of health services.^[13] In addition, in the UK, oral health status has improved significantly during the last four decades; however, there are still some major equity and access issues.^[14]

According to a study conducted by Pakshir, during a 10-year period between 1988 and 1998, decay missing filling teeth index decreased from 4 to 1.5 among children aged 12.^[15] However, it increased to 1.8 in Iran in 2003.^[16]

According to a study conducted by Brodeur *et al.*, the main risk factors associated with increased chance of tooth cavities included low income not visiting the dentist regularly (once a year) and lack of insurance or inadequate insurance coverage.^[17]

Given the importance of assessment of accessibility of dental health-care services and paucity of studies on this

subject, the current study was conducted to investigate access to dental services among people aged 15–64.

Materials and Methods

This study (no: 390045) was approved by vice chancellor of research and technology at Isfahan University of Medical Sciences. This cross-sectional study was conducted during a 3-month period on 1360 individuals aged 15–64 in Isfahan, Iran in 2016.

Multistage cluster sampling was used to select the participants. Isfahan was divided into 18 clusters, and 80 persons, who referred to the health center of each cluster, were selected by simple random sampling.

Data were collected by questionnaire and clinical examination. First, the oral health status of participants was assessed and categorized into five levels:

1. Low oral health status
2. Below average oral health status
3. Average oral health status
4. Above average oral health status
5. High oral health status.

Four calibrated interviewers filled out the questionnaires. The participants were asked to answer questions about dental healthcare not any other medical fields without any consultation with each other.

The questionnaire was designed based on two questionnaires used by the US Health Research Center and the US Health Insurance Organizations: (New York State Department of Health) and (Island Peer Review Organization).^[14] It was changed using other national questionnaires used in this regard.

Then, validity of the questionnaire was confirmed by a team of specialists (2 oral health specialists, one social medicine specialists, and 5 experts in health-care system working in the health centers of Isfahan). The reliability of the questionnaire was tested by Cronbach's alpha in a pilot study conducted on 100 participants of the study population ($\alpha = 0.7$).

The questionnaire included six parts:

1. Demographic characteristics
2. Self-report oral health status (using 5-point Likert scale from excellent to poor) and a question about "having pain" during the last 12 months
3. Questions on the participants' current oral health-care behaviors, including referral to dentists and its reasons, location of receiving dental services, having a family dentist, and oral health behaviors
4. Barriers to accessing dental health-care services, factors and reasons which impede access (in this study, some factors were considered as internal factors).

These factors included missing and forgetting dentist appointments, unwillingness to go to the dentist, fear of dentistry, and fear of getting infectious diseases from dental office. The other factors were considered as external factors

5. Assessment of indexes associated with dental care access
6. Assessment of participants' satisfaction with provided dental health-care services, using a 5-point Likert scale from completely dissatisfied^[1] to completely satisfied.^[5]

The collected data were analyzed by SPSS version 21 (SPSS Inc, Chicago, IL). To analyze the descriptive data, descriptive statistical methods were used. Linear regression and Pearson correlation tests were also used to analyze the influence of the mentioned variables on participants' access to dental health-care services and satisfaction with the services they received.

Results

A total of 663 men (48.8%) and 697 (51.3%) women took part in the study. In the age groups of 15–24 and 25–64, 442 (32.5%), and 918 (67.5%) people participated in the study, respectively. Most of the participants had high school diploma (47.9%) and only 1.9% of them were illiterate [Table 1].

The findings for the current status of oral health among the participants.

The oral health status of 46.8% of participants was reported above average [Figure 1].

During the past 12 months, 59% of them had visited dental care centers and reported easy access to dental health-care services.

Further, 68.6% of the participants reported oral health problems as the main reason for referral to dental office, and 15.1% of them visited dental offices for regular checkups.

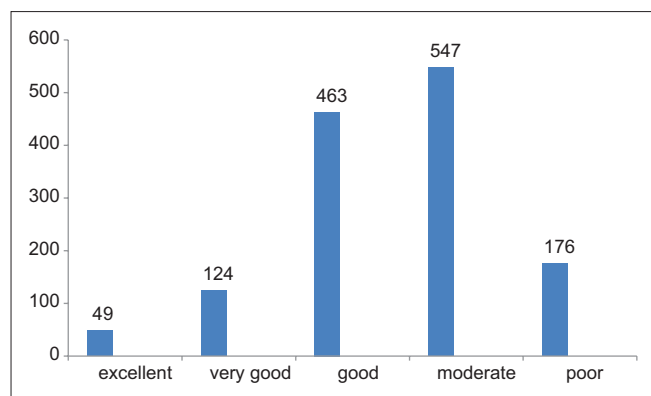


Figure 1: Distribution of participants, opinion on their oral and dental health

To receive dental services, 51.4% referred to private centers, while 32.3% referred to public centers, and 54.8% of them had a family dentist.

The findings for the barriers to easy access to dental health-care services and the reasons and priorities.

According to the results, 18.3% of participants faced barriers in their access to health-care services. The most common problems included high cost of treatment (60.5%), inadequate insurance coverage (39.6%), lack of contracts between dentists and insurance organizations (34.6%), long waiting time at dental office (24.5%), limited free time (24%), and fear (23.8%) [Table 2].

The study also suggested that 46% of barriers were internal, while 79% of them were external.

According to the participants, the most common reasons for lack of easy access to dental health-care services were high cost of treatment (55.3%), long waiting time at dental office (16.3%), inadequate insurance

Table 1: Distribution of participants, academic education level

Academic education	Frequency (%)	Cumulative frequency
Illiterate	26 (1.9)	1.9
High school degree	519 (38.1)	40
Diploma	651 (47.9)	87.9
University degree	164 (12.1)	100
Total	1360 (100)	-

Table 2: Barriers and problems in dental care service access, reasons and priorities

Check all items which are your concerns in gaining access to dental care	Percentage
A. I have problems in commutation to dentistry	13.8
B. I forget to visit my dentist	14.4
C. I'm not willing to visit my dentist	19.3
D. Dental care services are not available during my free time, so I cannot include it in my schedule	18.2
E. time limit in my daily plan does not allow me to save enough time for visiting my dentist	24.0
F. It takes too much time to wait in waiting room in clinics	24.5
G. I suffer from dentophobia	23.8
I. I need someone to look after my child when I'm out in dentistry	6.7
J. I don't know how to find a dentist	11.6
K. I have problem in finding a professional dentist	17.0
L. I can't find a dentistry presenting dental services for the special patients, and the disabled	4.3
M. Expensive services are my only problems	60.5
N. I'm afraid of infectious diseases and carelessness of the dentist over hygienic observes	24.4
O. Most dental health-care centers are not covered by my insurance company	34.6
P. My insurance doesn't cover dental care services	39.6

coverage (15.8%), lack of contracts between dentists and insurance organizations (15.2%), and fear of getting infectious diseases (14.8%).

Moreover, 79.7% reported they had easy access to dental healthcare facilities.

Increasing people’s awareness of oral health-care practices (54.9%) and provision of 24-h access to dental health-care services (50.4%) were chosen by the participants as the best measures to be taken to improve the quality of dental healthcare [Table 3].

There was a significantly reverse correlation between gender ($r = -0.14, P < 0.001$) and age ($r = -0.12, P < 0.001$) among participants with ease of access to dental services; thus, men and younger people reported less access to dental health-care services. People without health insurance also reported more problems in association with access to the services ($r = 0.22, P < 0.001$).

Furthermore, 37.5% of participants reported they had waited for <1 day to receive emergency dental treatment. In addition, 69.4% had waited for <1 month to receive nonemergency dental treatments [Table 4].

The average satisfaction score was 3.43 (scale of 1–5), i.e., moderate, and overall 50% were satisfied with the provided services. The highest satisfaction level was related to the location of dental office (62%) and the lowest satisfaction level was related to the waiting time at dental office [Table 5].

The results of Pearson correlation indicated that people with easier access to the services had a higher level of satisfaction ($r = 0.35, P = 0.001$).

Linear regression analyses also showed that gender, education level, insurance coverage, and limited free time could predict access to dental health-care services up to 10%.

Table 6 shows the results of Likert scale for the oral health status of participants. The percentages of satisfied and completely satisfied and those of dissatisfied and completely dissatisfied levels were added together.

Discussion

The current study investigated the availability and barriers to access to oral health-care services and patients’ satisfaction with access to services. The results indicated that 82% of participants had no problems in receiving dental care; however, there were concerns about expensive services (reported by 60%) and no insurance coverage for dental care. Overall, 50% of participants were satisfied with dental care services.

Table 3: Frequency distribution of participants based on their suggested points in easy access to dental care services

Solutions in widening access to dental care services	1 st priority (%)	2 nd priority (%)
A. Providing transportation services to tackle commutation problems	10.4	6.9
B. Increase the number of dentists	14.5	10.2
C. Provide full time dental care services	33.0	29.6
D. Providing a list of dental health-care centers	12.2	23.9
E. Providing extended information on dental care services	26.7	27.0

Table 4: Investigating indices of access to dental services on the participants’ opinion

Items related to access indices	n (%)
By what transportation system do you usually get to dentistry?	
A. On foot	206 (15.5)
B. Buses and other public transportation services	535 (40.2)
C. Private car	559 (42)
D. Others	30 (2.3)
How long does it take usually to get to dentistry?	
A. <15 min	389 (29.1)
B. 15-29 min	588 (43.9)
C. 30-59 min	318 (23.7)
D. Longer than 1 h	44 (3.3)
If you need an emergency dental service, how long should you wait for your turn?	
A. <1 day	488 (37.5)
B. 1-2 days	260 (20)
C. 3 days to 1 week	152 (11.7)
D. More than a week	111 (8.5)
E. I have never needed an emergency dental service	291 (22.4)
How long do you wait for your turn in a nonemergency situation to receive a dental service?	
A. <1 month	882 (69.4)
B. 1 month	251 (19.8)
C. Longer than 3 months	137 (10.8)

Regarding oral and dental health conditions throughout the world, millions of children and adults are involved with tooth decay and periodontal diseases.^[13] The present study showed that a large number of participants (46.8%) described their oral and dental health conditions as excellent and good. However, in a research carried out by Eslamipour *et al.* (2010) in Isfahan, 63% of the participants described their oral conditions as good and excellent.^[18] The difference between these results might be related to the lower age of participants (13–16 years) under investigation in comparison with those in the current study.

In a field research carried out in the USA (2007) among people aged 4–65 years (a larger age group in comparison to the current study), 65.1% assessed their oral and dental health condition as good and excellent.^[13]

Table 5: Frequency distribution of the participants based on their satisfaction level

Items	Satisfied and completely satisfied, n (%)	Neutral, n (%)	Dissatisfied and strongly dissatisfied, n (%)
The overall quality of the dental service received	580 (43)	578 (42.9)	190 (14.1)
training advices received on dental care	621 (47.1)	427 (32.4)	270 (20.5)
Hygienic condition of clinic and dentist	765 (57.8)	439 (33.2)	119 (9)
Amicable relations between assistant and dentist	760 (57.1)	390 (29.2)	180 (13.5)
Location of clinic and its accessibility	826 (62)	351 (26.3)	156 (11.7)
Dental health-care center's working time	644 (48.6)	498 (37.6)	182 (13.7)
Waiting time for taking turn to receive dental services	494 (37.8)	497 (38)	317 (24.2)
Clinic's distance from home	645 (48.6)	460 (36.6)	223 (16.8)
Total satisfaction (%)	50.3	34.27	15.43

Table 6: Mean of the participants satisfaction level based on Likert scale

Question	Completely satisfied, satisfied	Average	Dissatisfied, completely dissatisfied
Quality of dental care	43	42.9	14.1
Advice for dental care	47.1	32.4	20.5
Dental office hygiene	57.8	33.2	9
Behavior of dentist and personnel of dentistry	57.1	29.2	13.5
Ease of access to dentist	62	26.3	11.7
Working time of dental offices and clinics	48.6	37.6	13.77
Waiting time for dental visit	37.8	38	24.2
Distance from dental office to home	48.6	36.6	16.8
Total satisfaction	50.3	34.27	15.43

In this study, 46% of participants experienced toothache and 54% had no pain during the past year. In a similar study done in the USA, one-third of the participants had severe toothache and gum disorders during the past year.^[13] These differences might be due to different sample size, design of the studies, and dental cares in various countries.

This could be an indicator of poor oral health conditions of Iranian, clearly highlighting large differences between health systems, economies, and cultures in different societies.

As for personal dental healthcare behaviors, a large number of participants (82.8%) brushed their teeth at least once a day; however, a small percentage (29.8%) used dental floss regularly.

In a study by Bayat *et al.* carried out in Tehran in 2008, 93% of participants brushed their teeth at least once a day.^[8] This result is largely consistent with the findings of the current research. Slight differences, however, might be due to more educational and cultural facilities in the capital city.

As shown in the results, the most frequent reason for the latest visit to dental health-care centers in 68.6% of participants was dental and gum disorders. In addition, 15.1% of them referred to dentist for regular checkups. Based on the results of Bayat *et al.*, 84% of participants visited their dentists due to dental problems, and only 16% did regular checkups,^[8] which is in line with the findings of the present study.

Regular dental checkup is reported to be 69.7% in Detroit, USA^[19] 57% in Finland^[20] 53% in Australia,^[21] 46% in japan^[22] and 52.3% in Britain^[23] This shows less attention to and low information of Iranians about preventive dental checkups.^[13]

Furthermore, the current study showed almost half of the participants (58.4%) visited the same dentist every time. In the USA, this figure has been reported to be 70.9%.^[13] In Australia, 39% of people have been found to have a certain program to visit their dentists, and they have had an excellent oral and dental health condition.^[24] This difference can be because of differences in study design, sample size, quality of dental treatments, and preventive cares.

The difference between figures could be a proof of less attention to and ignorance of the importance and necessity of preventive dental checkups by Iranians. Regarding the high importance of this issue, a dental health-care center must exist in all regions.^[25]

The current research indicated that one-third of the participants referred to state-run dental health-care centers and 51.4% referred to private clinics in Isfahan. In a similar research in the USA, 71% of participants received dental services in private clinics, leaving a small proportion for the state-run clinics.^[13] In Australia, 85% of dentists present dental care services in private clinics.^[26] This difference could be due to differences in dental insurance coverage and socioeconomic status of the population in various countries, quality of dental treatments, and preventive cares.

Based on a study carried out during 2001–2002 in Iran, 79% of the dentists worked in private centers and only 10% were employed in state-run dental health-care centers.^[15] However, only 50% of people visited private dental health-care centers. This might be related to differences between tariffs of dental service. It was suggested to attract more dentists to state-run clinics or extend insurance coverage in private clinics to reduce the expenses.

As it can be seen, in Isfahan, only 18.3% of participants faced barriers in accessing dental health-care services. The barriers were most frequently about expensive services and poor insurance coverage. External barriers were also highly reported by the participants.

In a field survey in the USA, poor insurance coverage by dental health-care services was reported as the second most frequent obstacle in receiving dental health services.^[13] A research in Canada showed that people under the insurance coverage and wealthy citizens had more visits to dental care centers.^[27] Therefore, it is implied that in Isfahan the priority should be given to reducing the expenses of dental services and organizing insurance coverage.

Based on the research results, 37.5% of the participants waited <1 day for an emergency dental service and only 8.5% waited more than a week for their dental visit. A similar study in the USA showed 28.7% of people waited more than a week and only 24.6% of people had to wait <1 day to receive dental health-care services.^[13] As it is shown, the waiting time for dental services in Iran is much less than that of the other countries.

This study indicated the participants were highly satisfied with easy access to dental offices, infection control and friendly behavior of dentists and dental staff. The lowest level of satisfaction was found for waiting time, which was consistent with the results of the study carried out in the USA^[13] and that of Haji Fattahy *et al.* in Tehran.^[28] In the study of Dorriz *et al.* in University of Tehran, the highest level of patient satisfaction was reported for the friendly behavior of dentists.^[29]

Conclusion

Access to dental care services was reported to be appropriate, and the most important barriers included high expenses, insufficient insurance coverage and long waiting time, respectively. Almost half of the participants were satisfied with the dental care services they received.

Suggestions

Due to lack of similar research in Iran, such studies are recommended to be carried out as a comprehensive scheme throughout the country, including urban and

rural regions through a home-to-home interview. In addition, increasing the quality of data analysis would be much more feasible through some qualitative research on similar issues.

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Conflicts of interest

There are no conflicts of interest.

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