Original Article

Factors Affecting Access to Oral Health Care among Adults in Abha City, Saudi Arabia

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Aims and Objectives: To investigate the self-reported access problems to dental care among adults in Abha city, KSA.

Materials and Methods: A cross-sectional descriptive survey was carried out among adults in Abha city, Saudi Arabia. A structured, close-ended, self-administered questionnaire elicited the access and utilization of dental care among a sample of adults. Data were collected and analyzed using SPSS version 21.0 statistical software. The descriptive statistics and logistic regression analysis were performed to predict the variables associated with access and utilization of dental care.

Results: A total of 499 adults (male = 270, female = 229) participated in the study. More than half (289, 57.9%) of the participants utilized dental services and emergency services (283, 56.7%) were the most common reason to visit dentist. For most of the participants (281, 57.1%), the last dental visit was less than 1 year. Majority (409, 82%) of the participants self-funded for their treatment in private dental clinics (382, 76.6%). More than half (258, 51.7%) of the participants received restorative treatment during their last visit to dentist. Cost (39.1%) and lack of time (28.7%) were the main barriers to accessing dental care. Education and income were all involved in predicting nonutilization of dental services among the study participants.

Conclusion: Access to and utilization of dental care are the multidimensional concepts influenced by many factors. Cost and lack of time were the predominant barriers to utilization of dental services. Access to dental care is a multidimensional issue with education and income, were considered as the significant predictors of nonutilization of dental services. Similarly, income and transportation problems significantly predicted the use of private dental services. Marital status, transportation problem, health problems, and difficulty in movement were all concerned with multiple barriers to accessing dental services among the study participants.

Keywords: Access, adults, oral health care, self-report

INTRODUCTION

Oral health affects general health by causing significant pain and suffering and by changing people’s food habits, speech, and their quality of life and well-being. Oral health also has an impact on other chronic diseases.¹ Hence, overall quality of life can be improved by providing sufficient availability of medical and dental care to reduce early morbidity and mortality and preserve the function. Access to care is

Accepted: 09-07-18.
Published: 08-10-18.

Received: 30-05-18.

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How to cite this article: Almutlaqah MA, Baseer MA, Ingle NA, Assery MK, Al Khadhari MA. Factors affecting access to oral health care among adults in Abha city, Saudi Arabia. J Int Soc Prevent Communit Dent 2018;8:431-8.
defined as the timely use of personal health services to achieve the best possible health outcomes.[3] Access to dental care includes both the availability of care and the patient’s willingness to seek care.[3] Affordable and acceptable access to health care is a basic requirement and fundamental human right. However, it is more frequently observed that the people who have greater health needs are the ones who receive the least amount of care.[4]

Worldwide access to dental care varies with many developing countries having very limited access to oral health care while developed countries having much better access to oral health care for their population. Patterns of access to dental care in Australia showed that 57.6% of the dentate adult population visited the dentist last year. Further, data showed that people in older age group, people having good income, and females tend to visit dentist were more likely in the last year. More than half (53%) of the Australian population visited the dentist for routine checkups rather than for dental pain or emergency treatments.[5] On the contrary, the Saudi Health Information Survey showed that only 11.5% of Saudi Arabian population aged above 15 years visited dentist for routine checkup and nearly half (48.3%) of them visited dentist during the dental problems.[6] Another study conducted in primary health care centers of Riyadh city showed that more than half (53%) of the patients visited a dentist in the past 12 months once.[7]

High levels of tooth loss, dental caries experience, and the prevalence rates of periodontal disease, xerostomia, and oral precancer/cancer have been commonly reported globally among the older adults with poor oral health. This has a negative impact of the quality of health among the old adults.[8] Hence, access to good oral health and addressing the barriers are of great significance for overall well-being among the young and older adults.

Rural–urban inequalities in access to health care are an important issue. The rural areas often experience a more vulnerable economic and demographic situation compared to the urban regions.[9] It has been observed that health beliefs of rural people can often delay early consultation with health services and late appearance.[10]

Understanding the factors that influence the access to dental care is an essential component to effectively provide the oral health services to the population. Several reports on access and utilization of dental care have been published from capital and other larger cities from Saudi Arabia.[6,7] However, until now, there is a lack of self-reported access to dental care among residents from Abha city, Saudi Arabia. Hence, the present study was undertaken with the purpose to investigate the self-reported access problems to dental care among adults in Abha city, KSA.

**Materials and Methods**

**Ethical approval**

The study proposal was submitted to the Research Center of Riyadh Elm University and the ethical approval was obtained. Informed consent was obtained from all the participants once they agree to be part of the study. This study was registered with a number FPGRP/43638007/129.

**Study participants**

This was a cross-sectional study conducted among a sample of adult (aged ≥18 years) residents of Abha city. The study was conducted during September–December 2017. Abha city was divided into five sites (north, south, east, west, and center); mosques and public places were selected from these sites to collect the data by applying inclusion and exclusion criteria. Inclusion criteria consisted of Saudi nationals, healthy patients, aged ≥18 years, and able to read and understand Arabic language. Exclusion criteria consisted of expatriates and those not willing to participate in the study.

**Study instruments**

A structured, close-ended, self-administered questionnaire was prepared in the local Arabic language and distributed to the participants by one of the authors involved in the study. The same author was also responsible for answering the queries raised by the respondents. The study instrument was designed after extensive literature review.[1,3-7,11,12] Once the first draft of the questionnaire was prepared, it was validated by taking opinion of dental public health experts with regard to the simplicity and importance. Later, a pilot study was run by selecting a small sample (n = 10) of adult mosque goers, who gave their opinions to make questionnaire simple and short. Changes suggested by the participants were implemented within the questionnaire. After comprehensive review, final version of the questionnaire was then distributed to the participants for their response. Reliability coefficient was found to be 0.72. A total of 600 questionnaires were distributed among the study participants and 499 responses were obtained. Questionnaires were distributed at the main entrance of the mosques and public places in the selected sites.

The questionnaire was divided into four parts. The first part was made up of sociodemographic information of the respondents. The second part identified the physical and health status of respondents. The third part assessed the self-reported utilization of dental services. The last
part determined the self-reported barriers to access to dental care among the study participants as shown in Figure 1.

**Statistical analysis**
Data analysis was performed using SPSS version 21.0 (SPSS® Inc., IBM Corp., Armonk, NY, USA). Descriptive statistics of frequency distribution and percentages were reported. Binary logistic regression analysis was performed to identify the significant predictors of utilization of dental services and multiple barriers to access dental care among the study participants by considering appropriate explanatory variables and dependent variables. \( P < 0.05 \) was considered statistically significant.

**Results**
A total of 600 questionnaires were distributed and 499 participants filled the questionnaire and returned to the author. Thus, a response rate of 83% was obtained. In the present study, more than half were males (270, 54.1%), married (297, 59.5%), and living alone (297, 59.5%). Most of the participants worked for the government sector (448, 89.8%) having no formal education (311, 62.3%). Majority of the participants had no income (176, 35.3%) followed by <1000 SAR (165, 33.1%). Most of the participants mentioned that they do not have any transportation problems (306, 61.3%) as shown in Table 1.

Table 2 presents the physical and health status of the study participants, in which nearly one-fourth (126, 25.3%) of them complained of health problems. Similarly, more than quarter (136, 27.3%) of the study participants were on medication. Only 31 (6.2%) participants mentioned the problems of movements. On the contrary, 457 (91.6%) of the participants were able to go by walk to the doctor or dentist alone without the help and support of caregivers.

More than half (289, 57.9%) of the participants utilized dental services and emergency services (283, 56.7%) were the most common reason to visit dentist. For most of the participants (281, 57.1%), the last dental visit was <1 year. Majority (409, 82%) of the participants self-funded for their treatment in private dental clinics (382, 76.6%) as shown in Table 3.

Most of the study participants preferred dental services under government clinics (67, 13.4%) due to its quality

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### Table 1: Sociodemographic variables of the participants (n=499)

| Variables       | n (%)  |
|-----------------|--------|
| Gender          |        |
| Male            | 270 (54.1) |
| Female          | 229 (45.9) |
| Marital status  |        |
| Single          | 202 (40.5) |
| Married         | 297 (59.5) |
| Living status   |        |
| With family     | 202 (40.5) |
| Alone           | 297 (59.5) |
| Work sector     |        |
| Government      | 448 (89.8) |
| Private         | 51 (10.2) |
| Education       |        |
| No formal education | 311 (62.3) |
| Primary         | 55 (11.0) |
| Intermediate    | 133 (26.7) |
| Income (SAR)    |        |
| <10,000         | 165 (33.1) |
| 10,000-15,000   | 76 (15.2)  |
| >15,000         | 82 (16.4)  |
| No income       | 176 (35.3) |
| Transportation problem |        |
| Yes             | 72 (14.4)  |
| No              | 306 (61.5) |
| Sometimes       | 121 (24.2) |

### Table 2: Physical and health status of the study participants (n=499)

| Variables                          | n (%)  |
|------------------------------------|--------|
| Current health problems            |        |
| Yes                                | 126 (25.3) |
| No                                 | 373 (74.7) |
| Currently on medication            |        |
| Yes                                | 136 (27.3) |
| No                                 | 363 (72.7) |
| Problems of movement               |        |
| Yes                                | 31 (6.2) |
| No                                 | 468 (93.8) |
| Able walk to the doctor or dentist alone |        |
| Yes                                | 457 (91.6) |
| No                                 | 42 (8.4) |

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Figure 1: Questionnaire contents
of care. However, availability of different treatment types (204, 40.9%) was the main perceived reason to prefer dental services in private dental clinics as shown in Table 4. Intermediate level of education (odds ratio [OR] = 2.51) and income category <10,000 SAR (OR = 2.06) showed significant odds of predicting nonutilization of the dental services as shown in Table 5.

Age of the study participants showed odds of 0.982 (95% confidence interval [CI], 0.954–1.01) using private dental services, suggesting that as the age increased, participants were less likely to utilize private dental services. Female participants were (OR = 1.38) more likely to utilize the private dental services compared to male participants. Single participants compared to married participants (1.162 [95% CI, 0.60–2.24], adults working in government compared to private sector (1.88 [0.93–3.79]), participants with intermediate level of education compared to no education of the participants (OR = 1.01) and primary educational level (1.096 [95% CI, 0.49–2.44]), participants with income level 10,000–15,000 SAR (1.37 [95% CI, 0.62–3.02]) compared to no income, and adults having transportation problem compared to sometimes problem (1.9 [95% CI, 1.17–3.27]) were more likely to utilize the private dental services compared to the government dental services [Table 6].

Being married (OR = 2.13), having transportation problem sometimes (OR = 2.27), and difficulty in movement (OR = 3.296) were the significant ($P < 0.005$) predictors of multiple barriers for access to dental care as shown in Table 7.

**DISCUSSION**

In general, the findings of our study showed that more than half (57.9%) of respondents were dental service users. Most of them visited dentists when they had dental emergency and only few participants went for regular checkups. This result is in agreement with the other reported studies in Saudi Arabia.[6,7,13] However, Saudi population visited less frequently compared to neighboring Arab country.[12]

Majority of the participants visited dentist during emergency treatment. Last dental visit for most of the participants was <1 year, followed by 1–2 years, 2–5 years, and >5 years. This is suggestive of irregular pattern of dental visit and utilization of dental services among the study participants. This could be due to the fact that most of the participants did not have insurance and dental services were self-funded with long waiting periods for appointments.[14] Fear of the dentist and trouble in obtaining a dental appointment and dental anxiety were the main causes of irregular dental attendance or not seeking dental care.[15,16]

It has been argued that high-quality healthcare services tend to increase individual utilization of dental care.[17] Other reasons for that could affect the regular utilization of dental services include belief among the population that dental conditions are less life-threatening and lack of oral health illiteracy.[12]

In the present study, cost, shortage of dentists, difficulty in getting appointment, no need for treatment, and fear of dentist were the main perceived barriers to access to dental care. This result is in line with that of the reported study by Al-Ansari, in which cost, unavailability, and lack of insurance were the main reasons for accessing preventive oral health care among the study population.[14] However, Obeidat et al. reported that time constraint was the most common barrier for not attending the dental offices regularly.[12] A study conducted among elderly from Australia disclosed several barriers to accessing dental care; these include cost of services, fear

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**Table 3: Utilization of dental services among study participants**

| Variables                        | n (%)   |
|----------------------------------|---------|
| Dental service                   |         |
| User                             | 289 (57.9) |
| Nonuser                          | 210 (42.1) |
| Reasons to visit dentist         |         |
| Checkup                          | 216 (43.3) |
| Emergency                        | 283 (56.7) |
| Last dental visit (years)        |         |
| <1                               | 285 (57.1) |
| 1-2                              | 114 (22.8) |
| 2-5                              | 57 (11.4)  |
| >5                               | 43 (8.6)   |
| Payment for dental services      |         |
| Government                       | 36 (7.2)  |
| Insurance                        | 54 (10.8) |
| Self-funded                      | 409 (82.0) |
| Preferred dental clinic          |         |
| Government                       | 117 (23.4) |
| Private                          | 382 (76.6) |

**Table 4: Perceived reasons for preferring government and private dental services**

| Preferences | Variables                      | n (%)   |
|-------------|--------------------------------|---------|
| Government  | Free treatment                 | 38 (7.6) |
|             | Close to house                 | 12 (2.4) |
|             | Quality                        | 67 (13.4) |
| Private     | Quality                        | 179 (35.9) |
|             | No waiting time                | 56 (11.2) |
|             | Continued treatment            | 37 (7.4)  |
|             | Availability of different treatment types | 204 (40.9) |
|             | Easy to get an early appointment | 104 (20.8) |
of dentists, length of waiting lists, and availability of oral health care services.\textsuperscript{[18]} The cost and fear were consistent findings reported by different studies.\textsuperscript{[12,14,19]}

Retrospective life history data of elderly Europeans showed that the frequent dental avoidance is due to the lack of felt need and awareness of importance of regular dental visits.\textsuperscript{[20]}

Majority of the participants mentioned that they received restorative care followed by prostodontic, extraction, gum treatment, and orthodontic treatment during their last visit to the dentist. This high demand for restorative treatment is due to the high prevalence of dental caries among Saudi population.\textsuperscript{[21]} Moreover, restorative treatment is the most preferred therapy for the children by dental professionals.\textsuperscript{[22]} This finding is in line with that of the reported study in which restorative treatment was most commonly sought by the participants.\textsuperscript{[12]}

Providing adequate healthcare services to its citizens is a governmental priority in Saudi Arabia. Ministry
Table 7: Multiple barriers for access to dental care

| Variables                                      | B     | SE    | Wald  | df | P    | Exp (B) | 95% CI for Exp (B) |
|------------------------------------------------|-------|-------|-------|----|------|---------|--------------------|
| Age                                            | -0.024| 0.015 | 2.527 | 1  | 0.112| 0.976   | 0.948 – 1.006      |
| Gender: Male versus female                     | 0.136 | 0.235 | 0.336 | 1  | 0.562| 1.146   | 0.723 – 1.816      |
| Marital status: Single versus married          | -0.760| 0.335 | 5.159 | 1  | 0.023| 0.468   | 0.243 – 0.901      |
| Government versus private                      | 0.624 | 0.418 | 2.232 | 1  | 0.135| 1.867   | 0.823 – 4.234      |
| Education                                      | 2.877 | 2     | 2.37  |    |      | 1.18    |                    |
| No education versus intermediate               | 0.417 | 0.315 | 1.756 | 1  | 0.185| 1.518   | 0.819 – 2.814      |
| Primary versus intermediate                    | 0.659 | 0.420 | 2.468 | 1  | 0.116| 1.934   | 0.849 – 4.402      |
| Income                                         | 2.148 | 3     | 0.542 |    |      | 1.34    |                    |
| <10,000 versus no income                       | -0.087| 0.259 | 0.112 | 1  | 0.738| 0.917   | 0.552 – 1.522      |
| 10,000-15,000 versus no income                 | -0.409| 0.370 | 1.219 | 1  | 0.270| 0.664   | 0.322 – 1.373      |
| >15,000 versus no income                       | 0.185 | 0.329 | 0.318 | 1  | 0.573| 1.204   | 0.632 – 2.293      |
| Transportation problem                         | 25.691| 2     | 0.000 |    |      | 1.0    |                    |
| Yes versus sometimes                           | 0.586 | 0.327 | 3.218 | 1  | 0.073| 1.797   | 0.947 – 3.411      |
| No versus sometimes                            | -0.823| 0.259 | 10.087| 1  | 0.001| 0.439   | 0.264 – 0.730      |
| Current health problem: Yes versus no          | 0.277 | 0.302 | 0.842 | 1  | 0.359| 1.320   | 0.730 – 2.387      |
| Taking medication: Yes versus no               | -0.025| 0.305 | 0.007 | 1  | 0.934| 0.975   | 0.536 – 1.773      |
| Difficulty in movement: Yes versus no          | 1.193 | 0.438 | 7.429 | 1  | 0.006| 3.296   | 1.398 – 7.771      |
| Able to go to dentist: Yes versus no           | 0.284 | 0.399 | 0.509 | 1  | 0.476| 1.329   | 0.608 – 2.905      |
| Dental service user : Yes versus no            | -0.241| 0.225 | 1.146 | 1  | 0.284| 0.786   | 0.505 – 1.222      |
| Reason visit dentist: Checkup versus emergency| -0.309| 0.220 | 1.976 | 1  | 0.160| 0.734   | 0.477 – 1.130      |
| Clinic preference: Government versus private   | 0.059 | 0.267 | 0.048 | 1  | 0.826| 1.060   | 0.629 – 1.789      |
| Payment for service                            | 0.113 | 2     | 0.945 |    |      | 1.19    |                    |
| Government versus self-funded                  | 0.125 | 0.442 | 0.080 | 1  | 0.777| 1.134   | 0.477 – 2.696      |
| Insurance versus self-funded                   | -0.054| 0.370 | 0.021 | 1  | 0.884| 0.947   | 0.459 – 1.956      |
| Constant                                       | -0.499| 0.854 | 0.341 | 1  | 0.559| 0.607   |                    |

SE = Standard error, CI = Confidence interval

of Health is the main provider and regulator of public and private sector healthcare services in different regions of Saudi Arabia.\cite{12} Our study pointed out that most of the study participants preferred dental services from private clinics rather than government clinics because of availability of different types of treatment, quality of dental care, easy and early availability of appointment, and no waiting time and possibility to continue treatment. This finding is similar to the study reported by Obeidat et al.\cite{12} Moreover, the belief was that privately paid care can get adequate time and better care by the doctors.\cite{12}

In this study, participants preferred government clinics for its quality of care that is free of cost and close to the house. However, this finding is in contrast with the study reported by Obeidat et al., in which participants preferred government clinics mainly due to free treatment. The concept of quality of care was not a priority in government clinics due to the lack of resources and unplanned service allocations.\cite{12}

Binary logistic regression analysis was performed to predict the factors related to nonutilization of dental services, utilization of private dental clinics, and multiple barriers to accessing dental care.

Our study revealed that education and income levels of the study participants were the significant predictors of nonutilization of dental services among the study participants. This finding is similar to that of reported by El Bcheraoui et al., in which probability of the participants to utilize dental services increased with education.\cite{6} This result is in contrast with the study reported by Obeidat et al., in which age, gender, family income, educational level, employment, reported general health, dental insurance, and transportation status did not show any significant difference with regard to the utilization and regularity of dental services.\cite{12} A recent study showed that regular checkup measure taken by parents is associated with better reported oral health outcome.\cite{24} Previous studies have reported that younger aged respondents more likely visit dentist on a regular basis for preventive treatment whereas middle-aged participants visited dentist for more dental checkups compared to younger respondents.\cite{25,26}
Our study showed that the income level of the study participants was a significant predictor of nonutilization of dental services among study participants. This finding is suggestive of that low-income level respondents were less likely to use dental services. A study by Kakatkar et al. found that the higher income group had better access to dental care than the lower income group. In our study, single participants were more likely nonutilizers of dental services compared to married participants. This finding is in line with the reported study by Obeidat et al. Binary logistic regression of factors related to utilization of private dental services showed that the income and transportation problems significantly predicted the use of private dental services.

Marital status, transportation problem, health problems, and difficulty in movement were found to be the significant predictors and multiple barriers to access to dental care in this study. This may signify that access to dental care is not straightforward issue requiring multiple approaches to solve them.

While comparing the results of our study with other studies, caution should be taken due to subjectivity in responses and possible role of social, economic, and cultural factors. The size of the sample, data collection method, and restriction of study to only Abha city were all considered the limitations of the study. Hence, this study result cannot be generalized for all Saudi Adults. Further studies with larger sample size and nation studies are needed to draw closer look at access and utilization of dental care among Saudi adults.

**CONCLUSION**

Within the limitations of the study, it can be concluded that the vast majority of Saudi adults from Abha city utilized dental services during emergency rather than for routine checkups. Restorative care was the most common type of treatment they received during the last dental visit. Cost and lack of time were the predominant barriers to utilization of dental services. Access to dental care is a multidimensional issue with education and income were considered as the significant predictors of nonutilization of dental services. Similarly, income and transportation problems significantly predicted the use of private dental services. Marital status, transportation problem, health problems, and difficulty in movement were all concerned with multiple barriers to accessing dental services among the study participants.

**FINANCIAL SUPPORT AND SPONSORSHIP**

Nil.

**CONFLICTS OF INTEREST**

There are no conflicts of interest.

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