

**BARRIERS IN UTILIZATION OF DENTAL SERVICES AMONG CHENNAI
POPULATION, TAMIL NADU, INDIA A CROSS SECTIONAL SURVEY****Delfin Lovelina Francis,^{1*} Kumara Raja Balasubramanian,² Logeshwaran Ravikumar,³ Lavanya Devi
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ABSTRACT**Aim:** To identify the barriers in utilization of dental services among urban population of Chennai city, India.**Materials and Methods:** This cross-sectional study was performed among populations residing in the urban areas of Chennai district, Tamil Nadu, India. Data were collected from 420 individuals who were selected through systematic random sampling. Data on barriers for utilization of dental services were collected by means of self-administered questionnaire. The results were analyzed by descriptive statistics and Chi-square test using SPSS version 19. All tests were set at a 0.05 significance level. **Results:** Majority of study participants 58.3% were females and the mean age of the study population were 39 ± 3.18 years with an age range of 20-67 years. The most commonly reported reason for not seeking dental care was "Didn't have any dental problem" by 190 (46.4%) followed by "Lack of time" by 116 (27.6%) and "Dental problem was not serious condition" by 036(8.6%)**Conclusions:** The highly reported reasons for non-utilization of dental service in this study were "Did not have any dental problem" indicating the low felt need among study subjects in that area.**KEYWORDS:** Barriers, Dental health services, India.**INTRODUCTION**

The prevention of oral disease and the promotion of oral health have been established as high priorities by the World Health Organization (WHO).^[1] But in developing countries like India, with increasing lifestyle disorders, change in dietary sugar component, and increasing consumption of sugary sodas and other oral deleterious habits such as tobacco and/or areca nut use, the burden of oral diseases is bound to increase.^[2]

Historically, the first dental college in India was established in 1920 and the recent statistics show presently, there are 310 dental colleges in the country out of which 292 are privately owned and only 40 are run by the government. Thus, there is a steep rise in the number of dental graduates all over the country every year and records shows that in 1970, there were only 8000 dental students graduated, but this figure raised to 30570 in the year 2010.^[3] The underlying reason for such a massive expansion could be with objective of serving oral health care needs of phenomenally increasing Indian population.

According to WHO ideal dentist-population ratio is 7500.^[3] In 2004, Dentist-population ratio in India was 1:30000 and in 2014, the ratio was 1:10000.^[4] In spite of such a large work force, most of the people in India do not have access to basic oral health care.^[5] Several studies conducted on the rural population of India have stated that the unmet treatment need of the rural population is very high and the services present are inadequate in most parts of the country.^[6-9] The inverse care law states that about 80 percent of the Indian population resides in the rural areas, most without health care access, while only 20 percent of India's dentists serve the large population of rural residents and 80 percent of dentists are serving in cities where only 20 percent of the population resides. Although dentist ratio was high in cities or urban areas, people still do not show any regular dental care or dental attendance.^[10]

In order to promote and maintain good oral health, a clear knowledge on barriers for utilization of dental services is very essential and moreover only few studies have investigated the barriers among urban population,

the present study was carried out with the aim to identify the barriers in utilization of dental services among urban population of Chennai city, India.

MATERIALS AND METHODS

A cross-sectional house-to-house survey was conducted among 420 household's in Chennai, Tamil Nadu, India during the month of January, 2016. Chennai (formerly Madras), the largest city in Southern India and the fourth largest in India is located on the Coromandel coast of the Bay of Bengal and has a population of 4,681,087 at a density of 26,902 per square kilometer according to 2011 census. The whole of Chennai has been divided into 15 zones and 200 wards by the Chennai Corporation.

Sample size was calculated by using the formula: $N = 1.962pq/L^2$ where p is the prevalence of barrier in utilization of dental services and it was calculated from pilot study. The final sample size was estimated to be 387 considering 5% allowable error and assuming 10% possible non-response it was round-off to 420 participants from each house. The sampling was based on the model of systematic random sampling, wherein, of the 200 wards, 30 wards were selected to represent all the 15 zones. The total sample size of 420 individuals was selected from these 30 wards. The sample distribution in each ward within these zones is based on the proportion of their population in that particular zone. Within each ward, every third lane or road, following the right-hand rule was surveyed. Such a sampling approach was chosen as it enabled the arrival of an equitable distribution of the entire Chennai population while ensuring that the sampling error is kept to a minimum. Another advantage is the simplicity of the administrative procedures involved.

Only one individual per house was included in study for a wider representation of the population and if head of the family was of unavailable at time of the visit, other member aged above 20 years or more was included. In the absence entire family members of that selected house, an adjacent house was visited for collecting the data.

Ethical approval to conduct the study was obtained from the Institutional review board of Tagore dental college and hospital, Chennai, India. All men and women aged more than 20 years, residents available at home on the day of survey, those who have not visited dentist till date and able to provide written informed consent were included in the study. Physically and/or mentally challenged residents and unwilling residents were excluded.

The purpose of the survey was explained to the participants and informed consent was obtained before the answering the questionnaire. A self-administered questionnaire prepared in the local language (Tamil) was used to collect data, which contained two parts. The first

part addressed the following aspects: Socio demographic characteristics such as age, gender, marital status, level of education, income and occupation. In the second part of the questionnaire, subjects were asked about barriers for utilization of dental services. The internal consistency of the questionnaire was pilot tested on fifty individuals, and Cronbach's alpha value of 0.84 was obtained. The pilot study helped to test the feasibility of the study and also ensured whether subjects understood the items in the questionnaire without any help of investigators.

The collected data for each question were numerically coded and data were entered in the Statistical Package for Social Sciences (SPSS) software 19.0 version (Chicago, SPSS Inc.). Frequency distributions and percentages were used to analyze the results and chi-square tests were used to determine the associations between categorical variables. All tests were set at a 0.05 significance level.

RESULTS

This present study was done among 420 participants, 58.3% were females and the mean age of the study population was 39 ± 3.18 years with an age range of 20-67 years. [Table 1] shows the socio-demographic details of the study participants and a majority of participants (39.3%) belonged to the age group of 41-50 years, followed by 31-40 years (31.9%). Majorities 34.8% of the study participants were illiterate, 32.6% had primary education, and 24.5% had their higher education. Most of the participants were working under private firms and others were self-employed and only 14.2% participants were working under government organizations.

[Table 2] explains the common reason for not seeking dental services by the study participants. Majority of them 195 (46.4%) felt they did not have any dental problem and 116 (27.6%) study participants reported lack of time as a barrier for dental services. Other less commonly reported reasons were anxiety and fear of dental treatment and transportation.

[Table 3] shows association between gender and barriers in utilization of dental services, it was observed that majority of female's participants reported dental problem was not serious health issue to visit dentist, apart from that financial difficulty, lack of time, anxiety and fear for dental treatment and transportation were also considered as main barrier for utilization of dental services and the results were statistically significant ($P = 0.0000^*$).

Table 1: Distribution of study subjects according to Socio-demographic characteristics.

Socio-demographic characteristics (Independent variables)	N (%)
Age	
20 – 30 years	056(13.3%)
31 – 40 years	134(31.9%)
41 – 50 years	165(39.3%)
51 – 60 years	035(08.3%)
60 – 70 years	030(07.2%)
Gender	
Male	175(41.7%)
Female	245(58.3%)
Education level	
Primary education	137(32.6%)
Higher education	103(24.5%)
Graduate	023(05.5%)
Postgraduate	011(02.6%)
Illiterate	146(34.8%)
Occupation	
Employed	268(63.8%)
Unemployed	124(29.5%)
Retired	028(06.7%)
Type of Employment	
Government	038(14.2%)
Private	104(38.8%)
Self-employed	126(47.0%)

Table 2: Barriers in utilization of oral health services.

Factors affecting utilization of oral health services	N (%)
Did not have any dental problem	195(46.4%)
The dental problem was not serious (Beliefs & myths)	036(08.6%)
Financial difficulty	027(06.4%)
Lack of time	116(27.6%)
Anxiety and fear of dental treatment	029(06.9%)
Transportation	017(04.1%)

Table 3: Association between gender and barriers in utilization of dental services.

Barriers in utilization of dental services	Male	Female	Chi square value	P value
Did not have any dental problem	124(63.6%)	71(36.4%)	74.196	0.0000*
The dental problem was not serious (Beliefs & myths)	007(19.4%)	29(80.6%)		
Financial difficulty	08(29.6%)	19(70.4%)		
Lack of time	23(19.8%)	93(80.2%)		
Anxiety and fear for dental treatment	07(24.1%)	22(75.9%)		
Transportation	06(35.3%)	11(64.7%)		

*statistically significant

DISCUSSION

Studies on barriers for utilization of dental services provide a basis for formulation and execution of oral health promotion programs, thus the present study aimed to identify the barriers in utilization of dental services among urban population of Chennai city, India.

The highly reported reasons for not utilizing dental service in this study was “Did not have any dental problem” and this barrier was also reported by Pizarro V *et al.*^[11] and Syrjala AM *et al.*^[12] So, it can be inferred that the individual’s perceived need to visit a dentist was only if they had any symptoms such as pain, trauma etc.

This suggests that they were not aware about the maintenance of good oral health and regular visits to a dentist. Females 22(75.9%) showed higher anxiety and fear for dental treatment compared to males and a similar finding was reported by Nagarjuna P *et al.*^[13] Fukai K *et al.*^[14] Lo GL *et al.*^[15] and Holtzmnz JM *et al.*^[16]

Lack of time was reported as a barrier for not utilizing dental service by females in this study, which was also reported by Al Shammeri *et al.*^[17] Poudyal S *et al.*^[18] and Fotedar S *et al.*^[19] A possible explanation would be mostly females are largely dependent on their family members and their decisions regarding matters such as

visits to the dentists are made by other member of their families. This may be a possible reason for low dental visit pattern among females in the present study.

About 027(06.4%) participants reported financial difficulty was a barrier for utilization of dental services and similar findings were reported by **Nagarjuna P et al.**^[13] and **Devaraj C et al.**^[20] but a contrasting result were reported by **Fotedar S et al.**^[19] This barrier can be addressed by conducting free dental camps, which will be effective in screening for diseases and for providing preventive care. Transportation was also considered as a barrier 017(04.1%) among study participants which was similar to studies reported by **Nagarjuna P et al.**^[13] and **Jain VK et al.**^[21] This may be due to the fact that most of the dental college hospitals in Chennai city were located far from the city limits for utilization of the service.

While our study provides important information, there are some limitations. Barriers for utilization of dental services were evaluated on the basis of self-reported questionnaire, so it might have led to measurement errors due to misinterpretation of questions. It is the role of oral health care providers to organize free dental camps and to arrange oral health education and promotion programs to spread awareness among the people and to disseminate importance of regular dental visits. The cost of dental treatments should be revised and should be made affordable for all population irrespective of socio-economic classes.

CONCLUSION

The highly reported reasons for non-utilization of dental service in this study were “Did not have any dental problem” indicating the low felt need among study subjects in that area.

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