



## REASONS FOR UTILIZING DENTAL SERVICES AMONGST ADULT POPULATIONS IN CHENNAI CITY, INDIA

Delfin Lovelina Francis<sup>1\*</sup>, Kumara Raja Balasubramanian<sup>2</sup>, Logeshwaran Ravikumar<sup>3</sup>, Geethanjali K.,<sup>4</sup> Keerthi Sowjanya G.<sup>5</sup>

<sup>1</sup>Reader, Department of Public Health Dentistry, Tagore Dental College and Hospital, Chennai, India.

<sup>2</sup>Senior Lecturer, Department of Public Health Dentistry, Tagore Dental College and Hospital, Chennai, India.

<sup>3</sup>Lecturer, Department of Public Health Dentistry, Tagore Dental College and Hospital, Chennai, India.

<sup>4,5</sup>CRRI, Tagore Dental College and Hospital, Chennai, India.

\*Corresponding Author: Delfin Lovelina Francis

Reader, Department of Public Health Dentistry, Tagore Dental College and Hospital, Chennai, India.

Article Received on 12/07/2017

Article Revised on 02/08/2017

Article Accepted on 23/08/2017

### ABSTRACT

**Aim:** To assess the level of dental services utilization among urban populations of Chennai city, Tamil Nadu, India. **Materials and Methods:** A cross sectional questionnaire survey was carried out among 472 participants aged 20 years and above during the month of January 2016 in Chennai city, India. Systematic random sampling methods were followed to collect data. 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:** A total of 472 study subjects with mean age  $40.7 \pm 3.1$  years participated in the present study. Amongst those who visited the dentist, the most common reasons for their last visit were tooth ache (pain) (46.0%), followed by dental filling of crown (22.1%), Cleaning of teeth (13.3%) and replacement of missing teeth (09.5%). It was observed that only 11(02.3%) participants visited dentist for regular dental check-up. **Conclusion:** Dental care service was majorly utilized for relieving pain, proving the fact that study participants visited dentist only when a symptomatic reasons arises.

**KEYWORDS:** Dental services, India, utilization.

### INTRODUCTION

Oral health is essential for overall health. As poor oral health affects morbidity more than mortality, the people as well as the government view oral diseases and conditions as less important than other life-threatening diseases.<sup>[1]</sup> Thus, oral health programs are getting less priority in India as a result the prevalence of dental caries was 50 - 60% and periodontal disease was about 90% thereby increasing the absolute prevalence of the oral disease.<sup>[1]</sup> Even Indian national commission on macroeconomics and health a decade back in 2005 had estimated that by 2015, India would have at least 623.1 million sufferers from dental decay and 362.48 million people would have moderate/severe gum diseases.<sup>[2]</sup>

Utilization is the actual attendance by the members of the public at health-care facilities to receive care. Utilization measures the number of visits per year or the number of people with at least one visit during the previous year, this serves as an important tool for oral health policy and decision-making.<sup>[3-6]</sup> Mooney argues that access is merely a question of supply, while utilization depends upon both demand and supply.<sup>[7]</sup> Studies have also shown

dental care were undertaken only when a symptomatic reason arises.<sup>[8]</sup>

Thus many factors were related to utilization for dental service and some would be knowledge about dental care, unpleasant experience and socioeconomic status.<sup>[9]</sup> This implies that people use health services at "proportional and appropriate" rates to their existing need for care.<sup>[10]</sup> So measuring access to dental health services form a fundamental step to construct health policies and provides opportunities for early diagnosis and treatment of diseases. It also allows forecasting the effective use of health services, promotes social justice, and improve the effectiveness and efficiency of health services.<sup>[11]</sup> Thus concept of access to health services is complex and allows integrating the perception of health needs with the demand and effective use of services.<sup>[12]</sup>

Added to this, there are only limited studies on the utilization of dental services among urban population and in order to improve oral health outcomes among urban population an adequate knowledge about reasons for utilizing dental services is essential. Hence this study was undertaken to assess the pattern of dental services

utilization among urban population of Chennai city, Tamil Nadu, India.

## MATERIALS AND METHODS

A descriptive, cross-sectional questionnaire survey was carried out among 472 participants aged 20 years and above during month of January 2016 in Chennai city, India. 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 required for estimating proportion was calculated using the formula:  $N = 1.96pq/d^2$  where  $p$  is the prevalence of utilization of dental services which was calculated from pilot study among 50 participants and was found to be 0.50. The final sample size was estimated to be 462 considering 5% allowable error and assuming 20% possible non-response. Since each houses in a selected wards were included, a final sample arrived was 472 participants. 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 472 individuals was selected from these 30 wards. 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.

The study was conducted after obtaining ethical approval from the Institutional review board of Tagore dental college and hospital, Chennai. Residents aged 20 years and above of both the sex, those who have visited dentist at least once in their life time and those participants able to provide a written informed consent were included in the study. Residents who were not present at their home at the time of survey and unwilling residents were excluded from the survey. Thus, a total of 472 residents from several zones of Chennai city participated in the study after satisfying the inclusion criteria and exclusion criteria. Only one participant 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 survey, 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.

A self-administered, structured, anonymous questionnaire was prepared in local language to collect data. The questionnaire form was divided into 2 parts. The first part of the questionnaire collected the demographic details of the individuals participating in

the study such as age, gender, educational, marital status, occupation [Table 1]. The subsequent part was designed with questions related to dental service utilization like previous dental visit, frequency of dental visit. The internal consistency of the questionnaire was pilot tested on fifty individuals, and Cronbach's alpha value of 0.88 was obtained.

Data obtained were subjected to descriptive analysis using Statistical Package for the Social Sciences (SPSS) version 19 (SPSS - Inc., Chicago, IL). For Continuous variables, the mean and standard deviation were calculated and chi - square test ( $\chi^2$ ) were performed for categorical variables.

## RESULTS

A total of 472 study subjects with mean age  $40.7 \pm 3.1$  years participated in the present study. Participants age ranged from 20 to 77 years, with the largest group of participants aged between 41 to 50 years (39.2%), with majority of participants were females (59.1%), had a primary education (55.9%), and most of the participants (48.5%) were employed. [Table 1].

Amongst those who visited the dentist, the most common reasons for their last visit were tooth ache (pain) (46.0%), followed by dental filling of crown (22.1%), Cleaning of teeth (13.3%) and replacement of missing teeth (09.5%). [Table 2] It was observed that only 11(02.3%) participants visited dentist for regular dental check-up.

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

Socio-demographic characteristics	N (%)
<b>Age</b>	
20 – 30 years	033(07.0%)
31 – 40 years	151(32.0%)
41 – 50 years	185(39.2%)
51 – 60 years	055(11.6%)
60 – 70 years	042(08.9%)
70 – 80 years	006(01.3%)
<b>Gender</b>	
Male	193(40.9%)
Female	279(59.1%)
<b>Education level</b>	
Primary education	264(55.9%)
Higher education	100(21.2%)
Graduate	013(02.7%)
Postgraduate	019(04.0%)
Illiterate	076(16.2%)
<b>Occupation</b>	
Employed	229(48.5%)
Unemployed	199(42.2%)
Retired	044(09.3%)
<b>Type of Employment</b>	
Government	075(32.7%)
Private	132(57.6%)
Self-employed	022(09.7%)

**Table 2: Utilization of oral health services according to gender.**

Reason for dental visit	Male	Female	Total
Tooth ache or pain (Extraction)	93(42.8%)	124(57.2%)	217(46.0%)
Filling of teeth (Decay)	37(35.6%)	67(64.4%)	104(22.1%)
Cleaning of teeth	22(34.9%)	41(65.1%)	063(13.3%)
Correction of irregular teeth	05(29.4%)	12(70.6%)	017(03.6%)
Replacement of missing teeth	21(46.7%)	24(53.3%)	045(09.5%)
General check up	05(45.5%)	06(54.5%)	011(02.3%)
Other Reason	10(66.7%)	05(33.3%)	015(03.2%)

$\chi^2=8.257$ ,  $df=6$ ,  $P=0.2198$

## DISCUSSION

Health care system aims to maintain and improve health outcomes but this goal can only be achieved when adequate knowledge about peoples use health services and factors associated with their use are known.<sup>[13]</sup> The knowledge on factors influencing dental service utilization may lead to equitable and more effective policies. Hence this household questionnaire survey provides a preliminary insight on patterns of dental service utilization by residents of Chennai city, India.

In the present study majority of the residents belonging to middle age group (41-50 years) visited the dentist more regularly in comparison to the older age and younger age group. A possible reason might be the fact that the younger age group had more knowledge and fewer barriers. This is contrast to Nagarjuna, et al.<sup>[14]</sup> were he reported younger age group visited the dentist more regularly. Similarly Devaraj et al.<sup>[15]</sup> also reported that older dentate adults were more likely to attend a dentist on a regular basis than the younger ones.

Pain was the major reason for the last dental visit among 46.0% of the study participants. This observation is found to be in accordance with studies reported by Gupta S et al,<sup>[8]</sup> Meng et al,<sup>[16]</sup> Nagarjuna P et al.<sup>[14]</sup> and Kadaluru UG et al.<sup>[17]</sup> This finding supports the assumption that in developing countries like India most of the people visits for dental care services only when pain arises. Moreover, Pain may interfere with daily quality of life by causing discomfort during mastication and speech.

But Sanchez Garcia S et al.<sup>[18]</sup> found Mexican elder's main reasons for dental care utilization were dental examination (44.4%), tooth restoration (35.0%), and dental cleaning (32.1%). Similarly Taiwo OA et al.<sup>[19]</sup> reported dental caries and its sequelae, to a lesser extent periodontal disease were the most frequent reasons for receiving dental treatment in their study.

Lack of dental awareness among the population is a major factor for under-utilization of dental services, and this may also be responsible for the late presentation of patients seeking treatment only when in pain or in need of extraction as seen in our study.<sup>[14,20,21]</sup> The present study can be generalized to entire Chennai population has it had good external validity by using a

representative sample. However, this study had some limitations because data were collected using cross-sectional study design, hence the directions of the relationships could not be identified and use of self-reported questionnaires might have affected the results as it assumed that respondents had good reading and understanding skills.

## CONCLUSION

Dental care service was majorly utilized by the participants for relieving pain, proving the fact that study participants visited dentist only when a symptomatic reasons arises. Thus, making an important task for oral health care professional to educate and motivate the population regarding the use of available services for improving oral health.

## ACKNOWLEDGEMENTS

Nil

## REFERENCE

1. Verma H, Aggarwal AK, Rattan V, Mohanty U. Access to public dental care facilities in Chandigarh. *Indian J Dent Res*, 2012; 23: 121.
2. Shah N. Oral and dental diseases: Causes, prevention and treatment strategies. In *burden of disease in India*. New Delhi: National Commission on Macroeconomics and Health Macroeconomics and Health, 2005; 275-98.
3. Shenoy R, Chacko V. Utilization of dental services due to dental pain by pregnant women in India: A qualitative analysis. *J Interdiscip Dentistry*, 2013; 3: 18-20.
4. Ravaghi V, Quiñonez C, Allison PJ. Oral pain and its covariates: Findings of a Canadian population-based study. *J Can Dent Assoc*, 2013; 79: d3.
5. Manski RJ, Moeller JF, Maas WR. Dental services. An analysis of utilization over 20 years. *J Am Dent Assoc*, 2001; 132: 655-64.
6. Poudyal S, Rao A, Shenoy R, Priya H. Utilization of dental services in a field practice area in Mangalore, Karnataka. *Indian J Community Med*, 2010; 35: 424-5.
7. Mooney GH. Equity in health care. Confronting the confusion. *Eff Health Care*, 1983; 1: 179-85.
8. Gupta S, Ranjan V, Rai S, Mathur H, Solanki J, Koppula SK. Oral health services utilization among

- the rural population of western Rajasthan, India. *J Indian Acad Oral Med Radiol*, 2014; 26: 410-3.
9. Poudyal S, Rao A, Shenoy R, Priya H. Utilization of dental services in a field practice area in Mangalore, Karnataka. *Indian J Community Med*, 2010; 35: 424-5.
  10. Aday LA, Andersen R. A framework for the study of access to medical care. *BMC Health Serv Res*, 1974; 208-20.
  11. Andersen RM, Davidson PL. Improving access to care in America: individual and contextual indicators. In: Andersen RM, Rice TH, Kominski GF, Afifi AA, Rosenstock L, editors. *Changing the U.S. health care system: key issues in health services policy and management*. 3rd Ed. San Francisco: Jossey-Bass, 2000; 3-33.
  12. Pinheiro RS, Viacava F, Travassos C, Brito AS. Genero, morbidade, acesso e utilizacao de servicos de saude no Brasil. *Cienc Saude Coletiva*, 2002; 7: 687-707.
  13. Slack-Smith LM, Mills CR, Bulsara MK, O'Grady MJ. Demographic, health and lifestyle factors associated with dental services attendance by young adults. *Austr Dent J*, 2007; 52: 205-9.
  14. Nagarjuna P, Reddy VC, Sudhir KM, Kumar RK, Gomasani S. Utilization of dental health-care services and its barriers among the patients visiting community health centers in Nellore District, Andhra Pradesh: A cross-sectional, questionnaire study. *J Indian Assoc Public Health Dent*, 2016; 14: 451-5.
  15. Devaraj C, Eswar P. Reasons for use and non-use of dental services among people visiting a dental college hospital in India: A descriptive cross-sectional study. *Eur J Dent*, 2012; 6: 422-7.
  16. Meng X, Heft MW, Bradley MM, Lang PJ. Effect of fear on dental utilization behaviors and oral health outcome. *Community Dent Oral Epidemiol*, 2007; 35: 292-301.
  17. Kadaluru UG, Kempraj VM, Muddaiah P. Utilization of oral health care services among adults attending community outreach programs. *Indian J Dent Res*, 2012; 23: 841-2.
  18. Sanchez Garcia S, de la Fuente Hernandez J, Juarez Cedillo T, Mendoza JM. Oral health service utilization by elderly beneficiaries of the Mexican Institute of Social Security in Mexico City. *BMC Health Serv Res*, 2007; 7: 211.
  19. Taiwo OA, Soyele OO, Ndubuizu GU. Pattern of utilization of dental services at Federal Medical Centre, Katsina, Northwest Nigeria. *Sahel Med J*, 2014; 17: 108-11.
  20. Ekanayake L, Ando Y, Miyazaki H. Patterns and factors affecting dental utilisation among adolescents in Sri Lanka. *Int Dent J*, 2001; 51: 353-8.
  21. Manski RJ, Moeller JF. Use of dental services: An analysis of visits, procedures and providers, 1996. *J Am Dent Assoc*, 2002; 133: 167-75.