

# Oral healthcare-seeking behavior and perception of oral health and general healthcare among WHO indexed age groups in East-Coast India

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## ABSTRACT

**Introduction:** In a country where 30,570 dentists graduate per year, it is staggering to acknowledge that only 10% of dentists serve the rural people, who constitute around 68.8% of the country's population. **Aim:** To find out the oral healthcare-seeking behavior, profile, and pattern in Tenali Mandal among WHO recommended index age groups. **Materials and Methods:** A cross-sectional, multilocality, single-visit study was done to acknowledge the oral healthcare-seeking behavior, profile, and pattern in Tenali Mandal, Guntur, Andhra Pradesh. There are 9 villages, 2 peri-urban, and 1 town present in the Tenali Mandal and the study was conducted following the National Pathfinder Survey. **Results:** Around 35.4% of the study participants utilized dental services while most of them sought care in the last 1-6 months (23.4%) and the main reason for the last dental visit was tooth pain (13.1%), followed by decayed tooth without pain (6.9%). Dental care-seeking behavior among the age group of 12 years was 1.611 times more when compared to 65-74 years age group which was statistically significant ( $P \leq 0.010$ ). For dental care-seeking behavior among gender, the males utilized 0.982 times less when compared to females which was not statistically significant ( $P \leq 0.881$ ), while for the place of residence, urban place was 2.707 times more utilizing the services when compared to rural place which was statistically significant ( $P \leq 0.001$ ). **Conclusion:** The results of the study indicates that the barriers of oral healthcare-seeking behavior among dental health conditions poses public health problems in the study area, as well as it is an important baseline indicator against which target for oral health improvement can be set and monitored.

**Keywords:** Behavior, care-seeking, India, oral health

## Introduction

Oral health has long been recognized as an integral part of general health, particularly given the Indian population's growing life expectancy, oral health plays a critical role in improving an

individual's quality of life. Unfortunately, the trend indicates a rise in oral health problems in developing countries such as India.<sup>[1]</sup> A multitude of problems exist when it comes to rural population in terms of developing oral healthcare. For a country where 30,570 dentists graduate annually, it is astonishing to note that only 10% of dentists represent rural citizens, who make up about 68.8% of the country's population.<sup>[2]</sup> Though inaccessibility to dental care is one of the major challenges, inadequate use of facilities is yet another formidable challenge that mitigates rural India's potential

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for improving oral health status.<sup>[3]</sup> With a pronounced diversity inherent in Indian culture, variations in oral health among people from different socioeconomic and religious backgrounds may be anticipated, considering the variations in cultural values, social norms, and oral hygiene practices.<sup>[4]</sup>

Oral healthcare data creates an actionable roadmap to provide oral preventive health services in the primary care setting and strengthen the referral process from primary care doctors to dentistry. Oral healthcare-seeking behavior/utilization is the actual involvement of members of the public at healthcare facilities that reflects the number of visits every year or the number of individuals with at least one visit in the previous year as a significant method for oral health policy decision-making.<sup>[5]</sup>

This study is mainly focused to determine the oral healthcare-seeking behavior in Tenali Mandal, Guntur (Dist.), Andhra Pradesh among WHO recommended index age groups.

### Aim and Objectives

To find out the oral healthcare-seeking behavior, profile, and pattern in Tenali Mandal among WHO recommended index age groups. To document self-reported oral health diseases that the population suffered in recent times along with the type of service received, place, avenue, and personnel involved in delivery of health services and also to determine the factors influencing pattern of oral healthcare-seeking behavior.

### Material and Methods

A cross-sectional, single-visit, multilocality, pretested (Cronbach's  $\alpha$  value of 0.7) and interviewer-administered questionnaire-based study was done to generate evidence on oral healthcare-seeking behavior.

#### Study population

Both males and females of WHO recommended index age groups- 5 years, 12 years, 15 years, 35–44 years, and 65–74 years.

#### Sample size calculation

All the five WHO index age groups were selected from each site of 4 urban, 2 peri-urban, and 9 rural sites where 20 individuals from each group i.e. a total of 100 individuals from each site were selected resulting in sample size of 1500 and for the age groups of 5 years, 12 years, and 15 years the questionnaire was administered to their parents/guardians.<sup>[6]</sup>

Each site 5 age groups =  $5 \times 20$  questionnaires = 100

15 sites =  $100 \times 15$  = 1500 sample size.

#### Sampling technique

National Pathfinder Survey (Stratified cluster random sampling)

### Inclusive criteria and exclusive criteria

Subjects with the following criteria were included in the study

- Both male and female subjects of WHO recommended age groups.
- Subjects who are available on the day of the study

Subjects with the following criteria were excluded from the study

- Uncooperative and mentally challenged
- Nonresidents of the study area.

### Ethical clearance

Ethical clearance was obtained from the Institutional Ethics Committee of SIBAR Institute of Dental Sciences with IEC protocol no: Pr. 35/IEC-SIBAR/CIR/15/B and an informed consent were obtained from all the study participants prior to the start of the study while the study was done from July 2017–September 2017.

### Formulation of questionnaire

A pretested, interviewer-administered questionnaire was used which consisted of 2 parts. The 1<sup>st</sup> part of the questionnaire includes sociodemographic details, 2<sup>nd</sup> part consists of 8 questions regarding the utilization of oral health services, and a single common question regarding the importance of both general and oral health.

Through pilot test internal consistency of the questionnaire was tested and yielded a result of Cronbach's  $\alpha$  value (0.81) which was satisfactory.

### Statistical analysis

Statistical package for social sciences (IBM SPSS, Chicago) version 20.0 was used for the analysis and  $P$  value of  $\leq 0.05$  was regarded as statistically significant. Statistical tests such as descriptives, Chi-square test, Spearman's correlation, and binomial logistic regression were used.

### Results

The study sample comprised of 1500 subjects who were equally divided among WHO index age groups. Out of 1500 subjects, 52.8% were females and 47.2% were males [Table 1] with 60% of the study participants belonging to rural areas followed by urban (26.7%) and peri-urban (13.3%). Majority of them belonged to open category (O.C) caste (53.1%)

Only 35.4% of the study participants utilized dental services while most of them sought care in the last 1–6 months (23.4%) and the main reason for the last dental visit was tooth pain (20%), followed by gingival problems (7.2%) [Table 2].

When asked about nearest available facility, its distance, place of care sought, and their experience regarding treatment

**Table 1: Distribution of study population according to the demographic profile**

Demographic Profile	Frequency	Percent	
Age	5 years	20.0	
	12 years	20.0	
	15 years	20.0	
	35-44 years	20.0	
	65-74 years	20.0	
	Total	1500	100.0
Gender	Male	708	47.2
	Female	792	52.8
	Total	1500	100.0
Marital status	Married	600	40
	Unmarried	900	60
	Total	1500	100.0
Place	Urban	400	26.7
	Peri-urban	200	13.3
	Rural	900	60.0
	Total	1500	100.0
Caste	ST	34	2.3
	SC	201	13.4
	BC	468	31.2
	OC	797	53.1
Socioeconomic Class (BG Prasad SES 2019)	Upper class	308	20.5
	Upper-middle class	451	30.1
	Middle class	602	40.1
	Lower-middle class	95	6.3
	Lower class	44	2.9

received most of them reported utilizing private dental services (85.4%) with distance from their residence less than 5 km (52.6%) and majority sought care from private dental clinics (33.3%) followed by dental college and hospital (1.5%) while the main reason for the selection of particular center/place was accessibility (18.7%) followed by doctors reputation (11.7%) and lastly they reported that they were very much relieved from suffering after they sought care. Majority of the participants has spent around 251–500 INR (21.3%) for their last dental visit and the main mode of payment was out of pocket (34.7%) [Table 3].

Decayed tooth without pain (8%) was the prominent reason among those who had not utilized the services and predominant barriers found for not seeking care was lack of time (4%), followed by high cost (2.1%), does not affect my work (1.9%), and milk teeth shed-off (1.9%). Moreover, a majority (38.1%) of the respondents had reported that oral diseases are as important [Table 4].

Oral healthcare-seeking behavior among 12 years age group was 1.611 times more when compared to 65–74 years age group which was statistically significant ( $P \leq 0.010$ ). For dental care service utilization among gender, the males utilized 0.982 times less when compared to females which was not statistically significant ( $P \leq 0.881$ ), while for the place of residence, urban place was 2.707 times more utilizing the

**Table 2: Distribution of subjects according to dental services utilization, last time of visit, and reasons for last dental visit**

		Frequency	Percent
Utilization of dental care	No	969	64.6
	Yes	531	35.4
Last dental visit	1-6months	351	23.4
	7-12 months	38	2.5
	1-2 years	104	6.9
	2-3 years	7	.5
	More than 3 years	31	2.1
Reasons for last dental visit	Decayed tooth with pain and discomfort	300	20
	General checkup	5	0.3
	Loss of tooth	27	1.8
	Gingival problems	108	7.2
	Tooth fracture/trauma	24	1.6
	Mucosal problems	2	0.1
	Retained deciduous tooth	3	0.2
	Dentinal hypersensitivity	6	0.4
	Food lodgment	25	1.7
Malodor	31	2.1	

services when compared to rural place which was statistically significant ( $P \leq 0.001$ ). Dental care service utilization among socioeconomic status, the upper middle class was 13.135 times more when compared to lower class which was statistically significant ( $P \leq 0.001$ ) while for utilization among pink card ration card holders it was 1.577 times more when compared to no card holders which was statistically significant ( $P \leq 0.036$ ) [Table 5].

## Discussion

Dental health professionals should recognize that oral health is a health norm that allows a person to eat, talk, and socialize without active disease, pain, or embarrassment, and contributes to general well-being. To lead a healthy and longer life, people should be made aware of all these information.<sup>[7]</sup>

The present study was conducted on a sample of 1500 subjects who were permanent residents of Tenali Mandal. The sample comprised of 47.2% males (708) and 52.8% females (792), showing a slight female preponderance.

### Dental services utilization

Oral healthcare-seeking behavior in the present study was 35.4% and it was on par with the studies done by others, namely, 21.4% in Pradeep *et al.* (2016),<sup>[8]</sup> 31.9% in Vikram *et al.* (2016),<sup>[3]</sup> and 36% in Priyadarshini *et al.* (2016).<sup>[9]</sup> While the access to care was higher in the studies done by 80.01% in Neha *et al.* (2019) and<sup>[10]</sup> 68% Deolia (2020).<sup>[11]</sup> It may be due to the type of region covered/ attitudes and research on trends of oral healthcare-seeking behavior and barriers towards seeking treatment provide a foundation for oral health promotion strategies being formulated and executed.

**Table 3: Distribution of subjects according to the availability of the dental facility, distance, reasons for care sought, the amount spent for oral healthcare, and mode of payment during their last dental visit**

		Frequency	Percent
The nearest available dental facility	Dental college and hospital	118	7.9
	Private clinic	1281	85.4
	PHC	3	0.2
	Do not know	98	6.5
Distance for the dental facility from your place	Do not know	104	6.9
	<5 km	789	52.6
	>5 km	607	40.5
Center/place where care has been sought	Govt. dental clinic	8	0.5
	Private dental clinic	500	33.3
	Dental college and hospital	23	1.5
Reasons for the selection of a particular center/place	Near	281	18.7
	Doctors reputation	167	11.1
	Better care	65	4.3
	Known doctor	18	1.2
Are you relieved from suffering after you sought care?	Very much	406	27.1
	Somewhat	118	7.9
	Undecided	7	0.5
Expenditure for last dental visit In INR	1-250	24	1.6
	251-500	319	21.3
	501-1000	117	7.8
	1001-5000	60	4.0
	>5000	1	0.1
Mode of payment	Out-of-pocket (OOP)	521	34.7
	Government hospital/ schemes	10	0.7

**Table 4: Distribution of subjects according to various oral health problems suffered and reasons for not seeking care to their perception on the importance of oral health in comparison with general health**

		Frequency	Percent
Various Dental problems of the participants who have not utilized the services	Maligned tooth	23	1.5
	A decayed tooth without pain	120	8.0
	Loss of tooth/teeth	21	1.4
	Swollen gums	8	.5
	Fractured tooth	15	1
	Mobile tooth	7	.5
	Malodor	32	2.1
	Dental treatment is lengthy/frequent visits are required	20	1.3
	Fear of procedures and instruments	26	1.7
	Lack of time off from work (morning or evening)	60	4.0
Reasons for refraining from seeking dental care	Laidback attitude	50	2.4
	Dental Treatment is Expensive	31	2.1
	I will go to a dentist only when I no longer can bear the pain	11	.7
	Milk teeth will shed off	28	1.9
	Extremely Important	172	11.5
Do you think oral health is as important as general health	Important	399	26.6
	Moderately Important	368	24.5
	Little Important	109	7.3
	Not Important at all	311	20.7
	Do not know / Cannot say	141	9.4

### Center/place where care has been sought

In the total study population, 94.16% sought care from private dental clinic, though a bit higher but similar to studies which have reported 90%, 68.25%, and 68.25% by Thomas *et al.* (2011),<sup>[12]</sup> Vikram *et al.* (2017),<sup>[4]</sup> and Vikram *et al.* (2014),<sup>[13]</sup>

respectively which was explained by the fact that the majority of the study participants reported private clinic (85.4%) as the nearest center and which was less than 5 km (52.6%) from their place of residence and this was evident from the study by Devaraj and Eswar (2011)<sup>[4]</sup> where place of residence and

**Table 5: Binomial logistic regression between dental services utilization and independent variables**

Variables	OR	95% CI		P
		Lower	Upper	
Age groups				
5 years	0.121	0.074	0.199	0.001*
12 years	1.611	1.119	2.319	0.010*
15 years	0.777	0.539	1.121	0.177
35-44 years	1.236	0.854	1.790	0.261
65-74 years (constant)	1.000	---	---	---
Gender				
Males	0.982	0.776	1.243	0.881
Females (constant)	1.000	---	---	---
Place				
Urban	2.707	2.041	3.591	0.001*
Peri-urban	1.497	1.050	2.133	0.026*
Rural (constant)	1.000	---	---	---
SES				
Upper class	8.539	2.489	25.593	0.001*
Upper-middle-class	13.135	4.432	38.930	0.001*
Middle class	5.948	2.035	17.383	0.001*
Lower-middle class	5.182	1.650	16.278	0.005*
Lower class(constant)	1.000	---	---	---

OR=Odds Ratio, CI=Confidence Interval, \* Statistically significant

income/month were significantly associated with dental service utilization.

### Reasons for selection of particular dental center/place

Around 18.7% of the respondents reported that the main reason for selection of particular service was accessibility near, which was on par with the study done by Vikram *et al.* (2017).<sup>[4]</sup> This could be due to the fact that the private dental clinics and most of the dental college hospitals are situated within the city limits or even in the peri-urban regions and very less or virtually no dental care services are available in the rural areas. Usually the dental treatments are complex, hence, multiple visits are needed for its completion and also appointments may take longer as dental colleges will be working only during week day with day shifts mostly, which acts as a barrier for working class because missing 1 day at work, they may lose wages for 1 day's pay. Government clinics do not provide wide variety of services and the aim of the service was to relieve dental pain of the patients and they provide service for free while the treatment includes extraction and medication.

Since oral healthcare-seeking behavior was a phenomenon, which gets affected by multitude of factors, it was almost inevitable that differences exist between the studies, similarly in the present study there was complimentary and contrasting results which were observed.

### Reasons for last dental visit

Decayed tooth with pain and discomfort was the main reason for last dental visit and it was on par with the studies, 58.5% in Salunke *et al.* (2019),<sup>[15]</sup> 46.32% in Vikram *et al.* (2017),<sup>[4]</sup> 71% in

Priyadarshini *et al.* (2016),<sup>[9]</sup> and 68.5% in Shailee *et al.* (2013).<sup>[16]</sup> Besides, in the study done by the Shekhawat *et al.* (2019)<sup>[17]</sup> the main reason for last dental visit was decayed teeth followed by the tooth pain. Pain was an important factor in the utilization of dental services, and may be caused by pulpal, periodontal, and oral lesions where etiology and treatment management require an interdisciplinary approach.<sup>[18]</sup>

### Reasons for refraining from seeking dental care

The main reason for not seeking care was lack of time off from the work where as other studies like Sarika *et al.* (2014),<sup>[19]</sup> Ravneet *et al.* (2014),<sup>[20]</sup> Bindu *et al.* (2016),<sup>[21]</sup> and Pradep *et al.* (2016)<sup>[8]</sup> mainly reported the high costs of dental treatments as the main reason for not seeking care viz. 90.03%, 57.5%, 68.6%, and 48%, respectively, where as poor attitudes towards seeking oral care was reported by Vikram *et al.* (2017)<sup>[4]</sup> with 43.75% and finally accessibility and affordability was also mentioned as a reason Anehosur *et al.* (2016).<sup>[22]</sup> This might be due to the fact that most of the participants were under 15 years and majority being females along with poor attitude towards dental problems due to lack of knowledge. Females who are engaged in agriculture; besides, executing the household responsibilities, may restrict to spend more time in the quest of seeking oral healthcare. According to Uma Shankaret *et al.* (2012),<sup>[23]</sup> they are largely dependent on other family members, and decisions regarding matters such as visits to the dentists are made by others while two-thirds being 15 years and below, the responsibility towards their children depends on parents attitude and anxiety. For preadolescents and adolescent's, dental attendance and compliance with preventive advice will be influenced by their stage of psychological development as mentioned by Nandhini *et al.* (2013).<sup>[24]</sup> Health behaviors are closely connected with ways of living while theories from sociology, education, and psychology describe learning and behavioral change in any individual as well as in mothers of young children. This was also proved in the study done by Sujlana *et al.* 2016.<sup>[25]</sup>

### Last time of visit for seeking dental care

In the present study, 23.4% have visited a dentist within last 6 months, which was in accordance with the study done by Devaraj and Eswar (2012)<sup>[14]</sup> where 31.4% of the study participants utilized services in less than 6 months. Time since last dental visit represents dental care that was initiated by the people and therefore, could reflect personal motivation and independent decision making.

### Mode of payment during their last dental visit

In the present study, 98.11% of the participants have paid in the form of out-of-pocket for their dental care expenses and mostly they spent around 251–500 INR. This was more when compared to study done Naidu *et al.* 2014 (54.5%).<sup>[26]</sup> Since our country does not provide dental insurance for most of the common people in India, the magnitude of out-of-pocket expenses on dental care was almost always 100% (Garcha *et al.* 2010)<sup>[27]</sup> which was not the case in countries like the United

States (Manski *et al.* 2002)<sup>[28]</sup> and Australia (Marshall and Spencer. 2006)<sup>[29]</sup> which have governmental or insurance support.

### Various dental problems of the participants who have not utilized the services

Decayed tooth without pain was the main reason for not seeking care showing the negligent behavior and this could be due to the fact that people do not go to a dentist unless severe symptoms appear as dentistry was perceived to be a useful service only when necessary but it was not a crucial part of overall health. This reflects their compliance towards one's oral health and the low priority given to oral problems as people think dental problems were not life-threatening.<sup>[14]</sup>

### Perception on importance of oral health in comparison with general health

Around 34.06% of the study population had reported that oral health was as important as general health followed by 24.5% moderately important while 7.3% said that it was little important and 20.73% had reported that oral health was not important as general health.

Most oral diseases share common risk factors with NCDs (noncommunicable diseases) such as cardiovascular diseases, cancers, diabetes, and respiratory diseases. These risk factors include unhealthy diets (particularly those high in added sugars), tobacco, and alcohol use. They result in a very similar pattern of inequalities in oral and general disease burden between different population groups.<sup>[30]</sup>

With the global improvement in life expectancy, a life-course approach to oral health will become more important. Different ages in life have different oral health needs, and the specific problems of older people, who are often also suffering from other diseases, are becoming more prevalent. Knowledge and awareness of the close associations between oral and general health are thus important for holistic care, as was the collaboration between oral and general health professionals.<sup>[31]</sup>

With inadequacy to tackle social and material determinants and incorporate oral health into general health promotion, millions suffer intransigent tooth problems and poor quality of life and end up with a great suffering.<sup>[32]</sup> Only a broader integrative strategy that takes account of the common risk factors and the root determinants of health will result in fair and equitable approaches in promoting better oral health and general health.

By validating the data on oral health provides the picture of prevalence, trends of oral disease occurrence, care sought by the populace, and also the economic impact of oral health and on overall health, by providing primary health care physicians to establish reasonable care.

### Generalizability

The sampling process assured representativeness of the population and contributes to the validity of the study. On

the other, the process of training and standardization that the research went through, and also by the high concordance obtained through kappa test ensured the reproducibility of the data.

### Conclusion

The study revealed inadequate utilization of oral health services due to the fact that dental problems are not considered as life-threatening situations when compared to general health problems. This unveiled the need of health education and awareness programs to remove the disparities in oral healthcare-seeking behaviors. The study revealed that lack of time, accessibility, and usage of self-care remedies are the most common reasons for not utilizing professional dental and general health services, respectively. There is a need to minimize these barriers by motivating people and making them aware about the oral and general health problems so that they develop positive attitude towards healthcare utilization.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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