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Original Article

Dentistry Section

Prevalence of Edentulism, Associated Factors, Perceived Treatment Needs and Barriers for Dental Care among the Elderly in a Rural Area of Puducherry, India: A Community-based Mixed-method Study

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ABSTRACT

Introduction: Edentulism is a significant cause of poor oral health among the elderly in India. It affects their quality of life, particularly in terms of nutrition, phonetics and aesthetics. Most studies assessing edentulism in India are hospital-based, which may not provide an accurate representation of the general population. Therefore, community-based studies are essential to accurately estimate the prevalence of edentulism and enable the planning of specific strategies to promote oral health.

Aim: To estimate the prevalence of partial and complete edentulism, identify the associated factors, assess the treatment needs and evaluate the perceived barriers influencing the treatment needs of the affected population.

Materials and Methods: This was a community-based, mixed-method study conducted in Department of Preventive and Social Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, India. The study was carried out over six months from May 2017 to October 2017 and included 328 elderly individuals aged 60 years and above. A pretested semi-structured proforma was used to collect data. Quantitative data on the extent of partial and complete edentulism and treatment needs were collected, while perceived barriers to seeking treatment were assessed qualitatively through in-depth interviews. Data analysis was performed using Statistical Package for Social Sciences (SPSS) software version 22.0, with a p-value of <0.05 considered statistically significant.

Results: The mean age of the participants was 71.4±7.6 years. The overall prevalence of edentulism was found to be 297 (90.5%) (95% CI=86.7%-93.2%). Of these, partial edentulism was found in 253 (13.4%) (95% CI=72.1%-81.4%), while 13.4% (95% CI=10.1%-17.7%) were completely edentulous. Out of the 297 edentate subjects, 65 (22%) participants reported a perceived need for dental treatment, while 232 (78%) did not perceive a need. Similarly, 285 (96%) participants were professionally determined to need dental treatment and 12 (4%) did not require dental treatment. Age, gender and tobacco use had a statistically significant association with edentulism (p-value <0.05). About 227 (76.4%) of the edentate subjects reported difficulty in chewing. The striking findings revealed a low level of denture use among the participants, with only 20 (6.7%) of the 297 edentulous individuals using dentures. The most common perceived barriers to treatment were a lack of awareness regarding oral health, unaffordability and a lack of social support.

Conclusion: The study found a high prevalence of edentulism among the elderly, with significant disparities between perceived and actual needs for prosthetic treatment. Only a small proportion of participants use dentures or seek dental care, emphasising the importance of targeted interventions to raise oral health awareness, reduce treatment costs and provide social support. Policymakers should prioritise oral health promotion programs for the elderly in order to bridge these gaps and improve their quality of life.

Keywords: Denture, Geriatric, Health services accessibility, Oral Health, Prosthesis, Quality of life

INTRODUCTION

The world is currently experiencing a phase of demographic transition, with the elderly population being the fastest-growing segment due to an increase in life expectancy, improved healthcare and a decline in fertility rates [1]. In India, the proportion of the elderly has steadily increased from 5.6% in 1961 to 8.6% in 2011, with nearly 71% of them residing in rural areas [2].

The burden of oral diseases is rising among the elderly. Edentulism is one of the most common causes of poor oral health [3]. In India, the prevalence of complete edentulism among the elderly population aged 65 years and above varies widely, ranging from 19% to 32% [4].

Tooth loss has significant aesthetic, psychological and functional consequences, including impairments in mastication, communication, food choices and nutritional status [5]. Most oral diseases share modifiable social and behavioural risk factors with Non Communicable Diseases (NCDs) [6-8]. Several socio-economic and behavioural factors [9] are associated with the oral health of the elderly, including age [10], gender, lower socio-economic status, low literacy levels, tobacco use and alcohol consumption [11,12], as well as oral hygiene practices and perceptions toward dental treatment [13,14].

Dental care is a part of primary healthcare; however, the services rendered are limited to very few states in India. Dental health services are mostly delivered through a large, unregulated private sector. Furthermore, access to dental healthcare is widely non existent in rural areas across India. Economic instability, high levels of dependence, social isolation and lack of awareness about services are more pronounced among the elderly in rural areas than their urban counterparts [15]. Despite being universally recognised, edentulism is often considered a sign of aging and is largely overlooked. The perceived need for dental care is much lower than professionally defined health needs [16,17]. As

a result, a significant gap exists between the prevalence of edentulism and the treatment received in India [18].

Community-based studies on the prevalence of edentulism among the elderly remain limited, as the majority of existing research has been conducted in hospital settings [19-20]. This creates a gap in understanding the true prevalence and contributing factors of edentulism in community-dwelling elderly populations, who may differ significantly from hospital-based patients in terms of access to dental care, health behaviours and overall oral health status. The National Oral Health Program is still in its infancy and data on oral health is limited [21].

Therefore, the present study was conducted to assess the prevalence of edentulism, associated factors, treatment needs and perceived barriers among the elderly in a rural area of Puducherry.

MATERIALS AND METHODS

A community-based mixed-method study (concurrent quantitative and qualitative design) was carried out among the elderly population at the Department of Preventive and Social Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry, India. The rural centre provides comprehensive healthcare to a population of 10,074 across the four villages of Ramanathapuram, Thondamanatham, Thuthipet and Pillaiyarkuppam, which contain 2,234 households. The elderly constitute 8.5% of the total population here. The study was conducted over six months, from May 2017 to October 2017.

Ethical clearance was obtained from the Institutional Ethics Committee (JIP/IEC/2017/0203). Informed consent was obtained from all participants in the study.

Inclusion and Exclusion criteria: Elderly individuals aged 60 years and above were included in the study. Elderly individuals who were terminally ill or suffering from cognitive dysfunction were excluded from the study.

Sample size calculation: Assuming the proportion of edentulism among the elderly population is 16.3% [22], with an absolute precision of 4% and an alpha error of 5% (95% confidence level), the calculated sample size was 328 individuals. This sample size was determined using OpenEpi version 3.0. From the line list of all elderly individuals in the rural field practice area, 328 elderly people were selected from all four villages using simple random sampling with OpenEpi software.

Study Procedure

Quantitative study design: A pretested semi-structured proforma was developed in English and then forward and back-translated into Tamil to ensure cultural relevance. The questionnaire was specifically designed for the present study, incorporating relevant literature and expert feedback. It was particularly modelled on the World Health Organisation (WHO) questionnaire for adults [23]. It was pretested among a small group of elderly participants (n=20) to refine the questions for clarity and appropriateness, ensuring they were easily understood by the target population. This pilot study helped identify any potential issues with the wording or structure of the questions before the main study commenced. However, the authors did not formally assess the validity of the questionnaire. The entire sample population (n=328) was subjected to the questionnaire as part of the data collection process. The broad domains included socio-demographic characteristics such as age, gender, education, health insurance, occupation, social assistance, socio-economic status, marital status, chronic conditions and health risk behavioural factors, including tobacco use, alcohol consumption and oral hygiene habits. Discomforts faced due to the state of teeth during the past 12 months were also assessed. The perceived need for treatment was analysed using the responses to the yes/no question asked of participants.

Additionally, an intraoral examination was performed by a qualified dentist, which included domains such as the number of natural teeth present, the presence of dentures, satisfaction with dentures and the need for prosthesis. This examination utilised a standardised protocol with a mouth mirror and periodontal probe under artificial illumination (torchlight), while patterns of missing teeth were identified according to Kennedy's classification [24]. Professionally determined treatment needs were based on the absence of teeth, the presence of unsatisfactory dentures and the absence of prosthesis as recommended by the dentist at the time of inspection.

The outcome variables were the presence of partial or complete edentulism (yes/no) and treatment needs.

Qualitative study design: A subsample of the study population (n=8) with edentulism was identified using purposive sampling for in-depth interviews to explore the barriers to seeking treatment for edentulism. Interviews were conducted until the information reached theoretical saturation. The confidentiality of respondents was maintained throughout the study. Each interview lasted for 30 to 35 minutes. The selected study participants with edentulism were categorised into two groups: prosthesis users and non users. The interviews with the five non users included topics such as perceptions of oral health, feelings about tooth loss, the need for dental treatment, factors impeding treatment-seeking and their interest in seeking care if financial assistance were provided. For all three denture users, the duration of denture use, reasons for seeking treatment and satisfaction with using dentures were elicited.

Interviews were transcribed in the language of record (Tamil) and then translated into English. Manual content analysis was conducted. Codes and themes were generated. Statements were identified as the units of analysis.

STATISTICAL ANALYSIS

Data entry was done using EpiData Version 3.03 and data analysis was conducted using SPSS software version 22.0. Categorical variables were summarised as proportions. The prevalence of partial and complete edentulism was summarised as percentages with a 95% Confidence Interval (CI). The possible association of categorical variables such as socio-economic status, gender, diet, chronic conditions, etc., with the outcome categorical variable (presence/absence of edentulism) was tested for statistical significance using the Chi-square test. Treatment needs (both perceived and professionally defined health needs) were summarised using percentages. A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 328 elderly individuals (aged 60 years and above) were included in the study. Of these, 99 (30.2%) were from Ramanathapuram, 112 (34.1%) were from Thondamantham, 102 (30.1%) were from Pilliyarkuppam and 15 (4.6%) were from Thuthipet. The mean age of the participants was 71.4±7.6 years. Approximately 90% of the study participants were unemployed and belonged to the Below Poverty Line (BPL) group. Out of the 328 participants, 50% reported their teeth and gums as being in very good condition, 25% stated they did not know the status of their oral health, 18% rated their condition as average and the remaining 7% described it as poor. The socio-demographic, clinical and behavioural characteristics of the participants are presented in [Table/Fig-1].

Characteristics	Number (n)	Percentage (%)
Age (years)		
60-69 (young old)	127	38.7
70-79 (middle old)	134	40.9
80 and above (old old)	67	20.4
Gender		
Female	184	56.1
Male	144	43.9

Education		
No formal education	230	70.1
Primary or less	45	13.7
Secondary and more	53	16.2
Occupation		
Unemployed	304	92.7
Employed	24	7.3
Socio-economic status*		
Below Poverty Line (BPL)	289	88.1
Above poverty line	39	11.9
Social assistance†		
Present	319	97.3
Absent	9	2.7
Health insurance		
Present	2	0.6
Absent	326	99.4
Marital status		
Single	6	1.8
Married	143	43.6
Widowed/Divorcee/Separated	179	54.6
Chronic conditions		
Diabetes	75	22.9
Hypertension	114	34.8
Cardiovascular disease	12	3.7
Asthma	16	4.9
Tobacco use#		
Current users of smokeless form	64	53.4
Current use of smoked form	56	46.6
Alcohol use		
Current drinker‡	31	9.5
Oral hygiene practices		
Used toothpaste	167	50.9
Used toothpowder and brick powder	43	14
Never used any oral hygiene aid	90	27.5

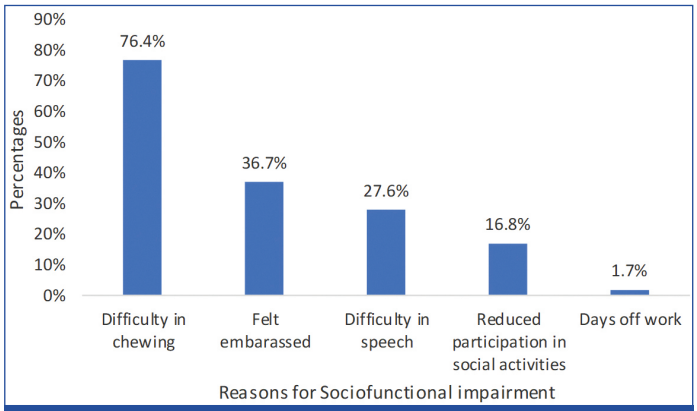
[Table/Fig-1]: Socio-demographic and clinical characteristics of the study participants residing in the rural field practice area of Jawaharlal Institute Rural Health Centre (JIRHC), N=328.
*Socio-economic status as per colour of the ration card. †Social assistance of any type
#Current user: One who has smoked tobacco/used smokeless tobacco at least once in the last thirty days; ‡Current drinker: One who has had at least one drink (Regular Beer 285 mL) in the last 30 days

Prevalence of edentulism: The prevalence of edentulism among the elderly was 297 (90.5%) (95% CI=86.7%-93.2%). Partial edentulism was found in 253 (13.4%) (95% CI=72.1%-81.4%), while the remaining 13.4% (95% CI=10.1%-17.7%) (n=44) had complete edentulism in either or both arches. Half of the total study participants, 166 (50.6%), had at least 20 teeth. Among the 253 study participants with partial edentulism, Kennedy's Class III was the most predominant in both maxillary and mandibular arches. In the maxillary arch, 80 participants (41.7%) exhibited Class III partial edentulism, while in the mandibular arch, 96 participants (46.4%) were classified as having Class III [Table/Fig-2].

	Maxillary arch		Mandibular arch	
Kennedy's classes*	n	(%)	n	(%)
Class I	33	(17.2)	19	(9.2)
Class II	42	(21.9)	41	(19.8)
Class III	80	(41.7)	96	(46.4)
Class IV	37	(19.2)	51	(24.6)

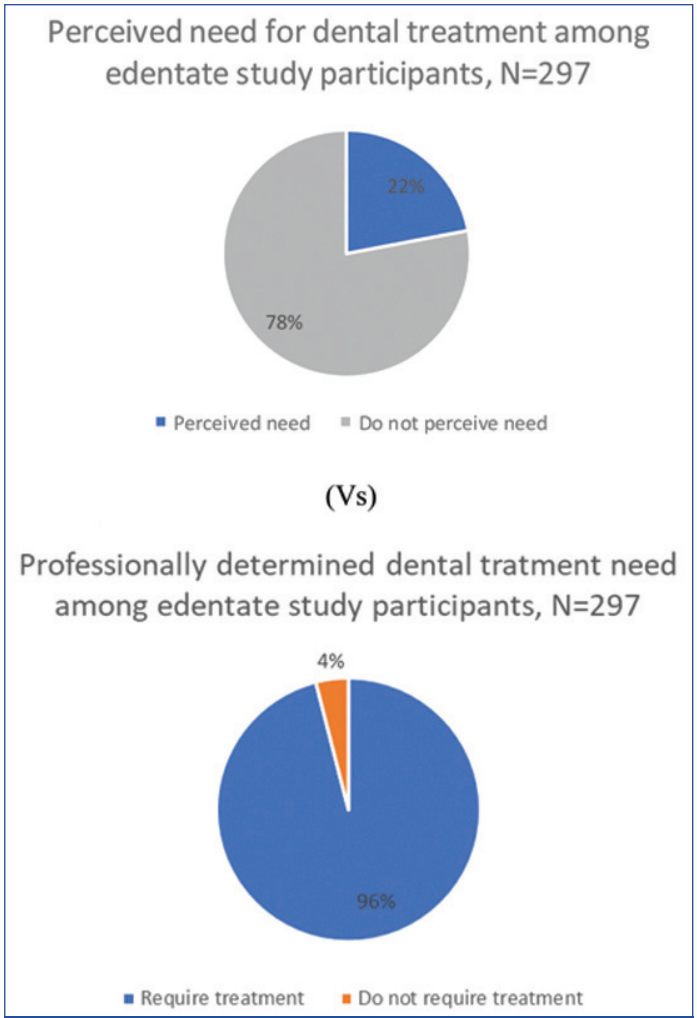
[Table/Fig-2]: Kennedy's Classification of partial edentulousness of the study participants residing in the rural field practice area of Jawaharlal Institute Rural Health Centre (JIRHC), N=253.
*Modifications are not included to avoid complexity

Approximately 227 participants (76.4% of 297) with edentulism reported difficulties in chewing [Table/Fig-3]. Additionally, around 82 edentate individuals (27.6% of 297) experienced challenges in speech and pronunciation. Nearly 109 participants (40% of 297) felt embarrassed about the appearance of their teeth, while 50 individuals (17% of 297) reported reduced involvement in social activities.



[Table/Fig-3]: Socio-functional impairment among the study participants with edentulism during the past 12 months, N=297.
Out of 297 participants, 227 (76.4%) participants with edentulism experienced difficulty in chewing. Around 109 (36.7%) of the edentate subjects felt embarrassed. About 82 (27.6%) of the edentate subjects had difficulty in speech/trouble pronouncing words. About 50 participants (16.8%) had reduced participation in social activities

Although 285 (96.3%) of the edentate study participants required treatment as per professional assessment, only 65 (22%) perceived a need for any dental treatment [Table/Fig-4]. Additionally, nearly



[Table/Fig-4]: Perceived need versus professionally determined need for dental treatment among the edentate study participants, N=297.
Out of 297 edentate subjects, 65 (22%) participants reported perceived need for dental treatment and 232 (78%) did not perceive need. Similarly, 285 (96%) participants were professionally determined need for dental treatment and 12 (4%) did not require dental treatment

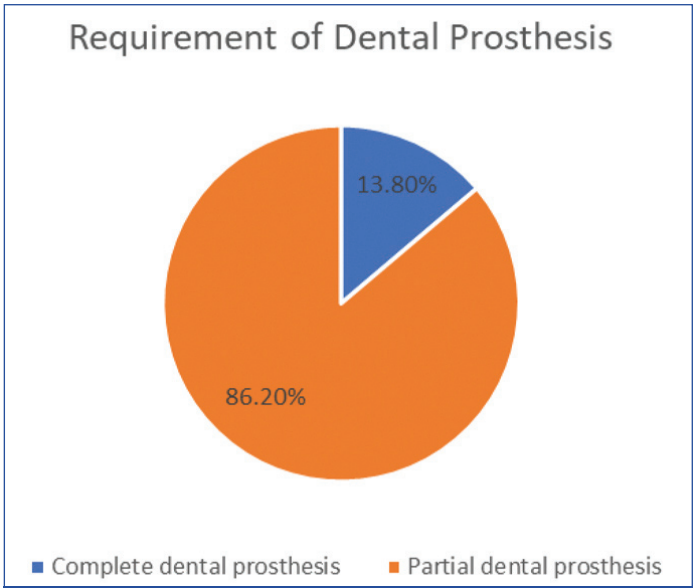
119 (40%) of the study participants with edentulism had never visited a dentist in their lifetime.

Gender had a statistically significant association with edentulism (χ^2=5.89, p<0.05). Males exhibited 29.9% more complete edentulism compared to females. There was no statistically significant association of edentulism with chronic conditions such as diabetes, hypertension and cardiovascular disease. Tobacco users reported 23.7% complete edentulism compared to non tobacco users, with a p-value <0.001 [Table/Fig-5].

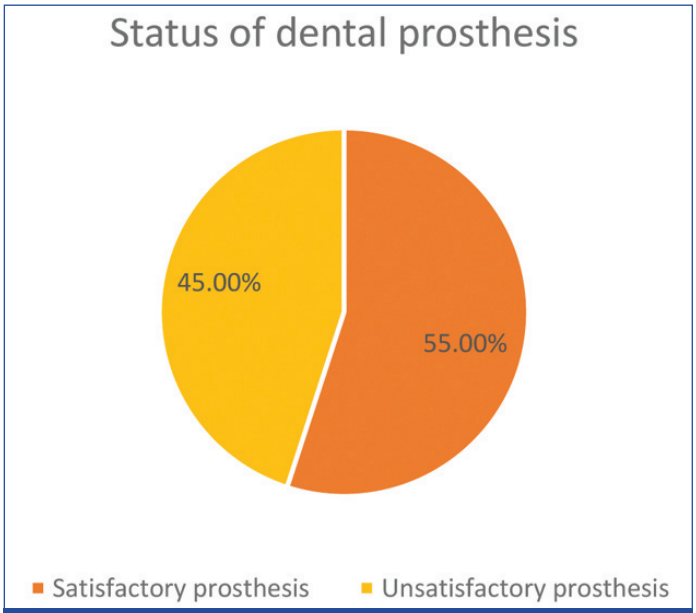
Characteristics	Frequency	Edentulism			p-value#
		Partial (n=253) n (%)	Complete (n=44) n (%)	No (n=31) n (%)	
Age (in years)					
60-69	127	97 (76.4)	10 (7.9)	20 (15.7)	0.005*
70-79	134	107 (79.9)	20 (14.9)	7 (5.2)	
80 and above	67	49 (73.1)	14 (20.9)	4 (6.0)	
Gender					
Female	184	164 (89.2)	1 (0.5)	19 (10.3)	<0.001**
Male	144	89 (61.8)	43 (29.9)	12 (8.3)	
Education					
No schooling	230	179 (77.8)	33 (14.4)	18 (7.8)	0.456
Primary or less	45	32 (71.1)	6 (13.3)	7 (15.6)	
Secondary	53	42 (79.2)	5 (9.4)	6 (11.4)	
SES†					
BPL	289	221 (76.5)	40 (13.8)	28 (9.7)	0.736
APL	39	32 (82.0)	4 (10.3)	3 (7.7)	
Occupation					
Employed	24	18 (75.0)	5 (20.8)	1 (4.2)	0.398
Unemployed	304	235 (77.3)	39 (12.8)	30 (9.9)	
Marital status					
Married	143	112 (78.3)	14 (9.8)	17 (11.9)	0.205
Single	6	4 (66.7)	2 (33.3)		
Widowed	179	137 (76.6)	28 (15.6)	14 (7.8)	
Tobacco use**					
Yes	139	87 (62.6)	33 (23.7)	19 (13.7)	<0.001**
No	189	166 (87.8)	11 (5.8)	12 (6.4)	
Tobacco forms					
Smokeless	64	51 (79.7)	0	13 (20.3)	<0.001**
Smoking	56	21 (37.5)	32 (57.1)	3 (5.4)	

[Table/Fig-5]: Socio-demographic characteristics associated with partial and complete edentulism among study participants in Jawaharlal Institute Rural Health Centre (JIRHC), N=328.
*#Statistical significance was tested using Chi-square test and p-value (<0.05) considered as statistically significant. †Socio-economic status as determined by colour of ration card.
†SES: Socio-economic status; BPL: Below poverty line; APL: Above poverty line

Prosthesis use among the study participants with edentulism: About 33 (10%) study subjects were fully dentate. Among edentate participants, only 20 subjects (6.7%) wore any dental prosthesis, of which 11 (55%) wore partial dentures in either or both arches. Nearly half of the denture users had unsatisfactory dentures in either or both arches. Although the total number of completely edentulous subjects was 44, only 9 (20%) of them were wearing complete dentures. Of the total edentate participants, 238 (86.2%) required partial dentures, while nearly 41 (13.8%) needed complete dental prosthesis. Nearly 9 (45%) of the total twenty prosthesis users had unsatisfactory prosthesis that required replacement [Table/Fig-6,7].



[Table/Fig-6]: Requirement for dental prosthesis among study participants, N=328. Of the total edentate participants, 238 (86.2%) required partial dentures and nearly 41 (13.8%) percent needed complete dental prosthesis



[Table/Fig-7]: Status of dental prosthesis among denture users, N=20. Around 9 (45%) of the total twenty prosthesis users had unsatisfactory prosthesis that required replacement and 11 (55%) participants had satisfactory prosthesis

Qualitative Results

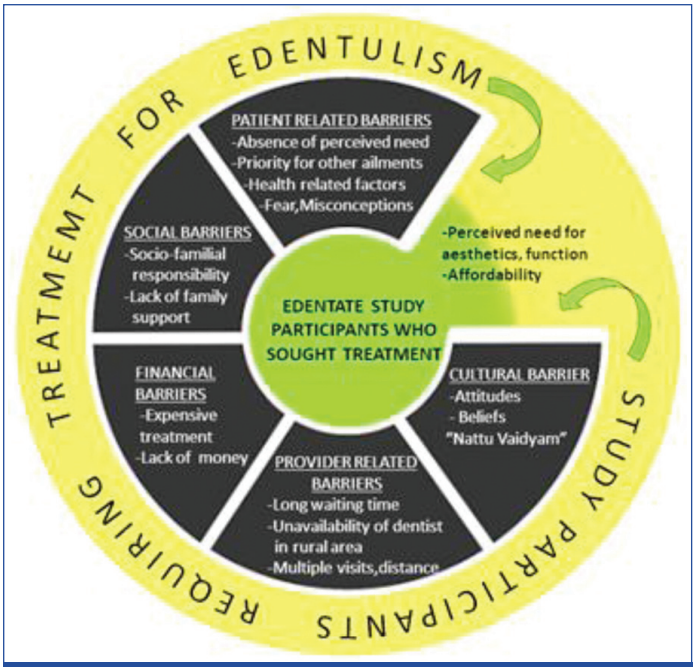
Baseline characteristics: Four men and four women were interviewed for the qualitative part of the study. Their ages ranged from 65 to 87 years. All eight interviewees had edentulism, of whom three were denture users. Three interviewees did not have any formal education. Except for three, all the interviewees belonged to the BPL status. Half of the interviewees were widowed. All participants were receiving pensions and only one interviewee had health insurance. Themes are explained in detail with codes and selected quotes.

Barriers

The barriers are categorised under the following themes [Table/Fig-8].

1. Patient-related barriers
2. Financial barriers
3. Social barriers
4. Cultural barriers
5. Provider-related barriers

1. **Patient-related barriers:** One of the cited reasons for not seeking dental care among the edentate was the lack of perceived need. Three participants felt that tooth loss was normal with aging and that it was not a serious problem and was manageable. Two of them were unaware of the treatment options available for seeking dental care.



[Table/Fig-8]: Conceptual diagram representing the factors influencing the treatment needs among the eight edentate study participants selected for one-to-one interviews (n=8).

"Ye amma, my oral health is good. I don't have any pain. Even though my back teeth are moving, I can manage". (80 years, male)

Three of the total eight participants opined that their general health was poor. They felt too weak and frail to walk and seek care. Two participants expressed their fears about painful dental treatments.

"Once I had a painful extraction. I don't want to go to the dentist; I don't want any set teeth (artificial teeth). I'm okay with whatever teeth I have". (76 years, male)

These statements show that the dental problems are neglected and are not a priority for most of them.

2. **Financial barriers:** Two participants expressed their concerns about the expensive dental treatments and lack of money.

   "I can't chew anything hard. I get tooth pain frequently. Even if we want care, we don't have money for getting set teeth (artificial dentures). I asked a private clinic in the city for treatment; it is very costly". (65 years, male).

   Other reasons reported were "loss of wages" and "lack of money to travel."

3. **Social barriers:** Three participants revealed that they were no longer cared for by their families and indicated that they lacked family support, having no one to accompany them for seeking any treatment.

   One participant reported her responsibility to take care of her aged mother.

   "My teeth are in very bad shape" (covers mouth with hands). "My cheeks are sunken. I get pain often. The dentist at the city hospital informed me about artificial teeth. But I have to take care of my sick old mother (90 years). I can't go, leaving her alone". (62-year-old female).

4. **Cultural barriers:** The belief was that there was no need to replace teeth or seek treatment in the absence of pain. One participant stated, *"Occasionally, I get a toothache and then I try Nattu Vaidyam. I don't believe in dentists." (75 years, female)*.

   Another participant expressed concern about the use of artificial teeth and the unpalatable nature of dentures, stating, *"These artificial teeth, how do you insert that plastic in the mouth, shee...? God only knows what they use to make it. I have heard it will smell and is difficult to clean." (69 years, female)*

   These responses reflect the attitudes and beliefs of the subjects and the misconceptions regarding denture material.

5. **Provider-related barriers:** Three participants felt that the dental facility was far away. They reported the absence of a dentist in the rural health centre.

   "I can't walk far. There is no dentist in our area. How can I go far to get treatment? Will a dentist come here? Then I can see." (76 years, female)

   Two interviewees felt that long waiting times and multiple visits were particular problems with dental treatments.

   "I once went for an extraction. The doctor told me I had to replace the teeth. So I went with my son. They took measurements. We went twice and the doctor said about three more visits were needed; I didn't go back after that." (64 years, female)

   Prosthesis users: Two participants expressed their concerns following tooth loss. Their speech was impaired and their chewing efficiency was severely affected.

   "Amma, you see (points at the upper arch), I had a big gap here and a few back teeth were missing. Ha ha... I was unable to pronounce a few sounds and could not eat any hard food! Now I am able to chew nicely." (65-year-old male with removable partial dentures)

   Another participant felt that her artificial teeth resembled natural teeth and stated, *"I smile more now; my artificial teeth don't move; they resemble natural teeth. I can eat even non vegetarian food with ease. I am really satisfied, doctor." (68 years, female with fixed dental prosthesis.*

   Of the total eight participants, five interviewees expressed that they were willing to seek financial assistance to cover the expenses of the treatment.

DISCUSSION

In India, the proportion of the elderly is growing and the percentage of the elderly population is projected to double to over 20% of the total population by 2050 [25]. As age advances, the burden of oral diseases tends to escalate and edentulism is described as a final marker of disease burden for oral health by Study on Global Ageing and Adult Health (SAGE) [1]. Therefore, studying the prevalence of edentulism and its treatment needs among the elderly is important, as it serves as an indicator of population health and the efficiency of the current oral healthcare system.

In the current study, the prevalence of complete edentulism was 13.4%. Slightly higher rates were reported in other community-based studies in India: 15.3% among the rural elderly of South India and 19.3% in rural areas of South Delhi [26]. A multicentric study by Peltzer K et al., showed a prevalence of 16.3% (14.3-18.4%) for complete edentulism [22]. The prevalence of partial edentulism in the current study was 77%, which is similar to a study by Raja BK [27]. These findings indicate that edentulism remains a significant health issue among the elderly, particularly in rural regions.

Edentulism results in socio-functional impairment and compromises quality of life. More than three-fourths of the edentulous elderly in this study experienced difficulties in chewing and nearly 40% had difficulty in speech and felt embarrassed due to the state of their teeth. An earlier community-based cross-sectional study in the rural area of Puducherry reported chewing complaints in 42% of the study participants, making it the second most common morbidity [28]. The psychosocial impact of edentulism, including feelings of embarrassment, highlights the broader implications of oral health on well-being beyond mere functionality.

In the current study, there was a wide difference between the professionally determined treatment needs and participants' perceived needs. Similar findings were reported by Ariga P et al. Pillai RS et al., where only 14.4% and 39.3% of the participants

perceived the need, compared to 70.3% and 79.7% of the actual need for treatment, respectively [17,26]. This gap may be due to limited awareness, access to dental care, or a general acceptance of tooth loss as a normal part of aging, which prevents elderly individuals from seeking timely interventions.

Despite a perceived need of 22% among edentate elderly individuals in the current study, prosthesis use was seen in only 6.7%. Although females had a higher perceived need and were more concerned about their facial appearances, prosthesis use was found to be more common among males and participants belonging to higher socio-economic statuses. The findings were consistent with other studies [27]. Lack of financial independence, low priority for one's own health and unawareness regarding rehabilitative services are possible reasons for the reduced utilisation of dentures among rural elderly women. The reasons attributed to low perceived need included fear of dental treatment, lack of priority for oral health, lack of awareness and the belief that tooth loss is normal in old age. Similar results were also reported in other studies in South India [29].

Participants with financial constraints, lack of family support and physical weakness were less likely to utilise the services despite the perceived need. The non availability of dentists in rural areas, long waiting times, multiple visits, lack of awareness and misconceptions emerged as other deterrents to seeking oral healthcare services. Similar findings were reported by Salim R and Ramankutty V, Krishnan L et al. Bhuvaneshwari NG et al., [30-32]. These findings highlight the complex interplay of socio-economic and structural factors that hinder access to oral healthcare.

Efforts should be made to reduce the disparity between perceived and professionally determined oral health needs through suitable health education, addressing barriers and improving the utilisation of existing dental prosthetic services. Financial constraints and healthcare limitations can be addressed, at least partially, by introducing health insurance schemes or reimbursement for dental procedures. It is critical for policymakers to provide accessible, quality dental health services at the primary healthcare level to improve quality of life rather than merely addressing the burden of edentulism and associated risk factors.

The results of the quantitative component were supplemented by qualitative evaluations, which is the greatest strength of the mixed-method study. A single investigator conducted the observations and interviews; as a result, there was no inter-observer bias in the assessment of study outcomes.

Limitation(s)

The inadequate sample size to identify a possible association between edentulism and chronic conditions, as well as self-reporting bias, were limitations of the study. Due to time and resource constraints, the validity of the questionnaire was not formally assessed, which the authors acknowledge as a limitation. This highlights the need for future research on the impact of oral health on general health and susceptibility to chronic conditions in order to better understand the underlying mechanisms.

CONCLUSION(S)

More than three-fourths of the study participants had partial edentulism and complete edentulism was observed in more than ten percent. In the present study, the authors found that edentulism results in both physiological and social impairments. Despite the high prevalence, the perceived need for treatment was as low as 22%, while the professionally determined need was 96%. Less than 10% of the edentate elderly included in the study were using any dental prosthesis. Consequently, there exists a wide gap between the prevalence of edentulism, the perceived need and the actual need for prosthesis, especially among the rural population due to a lack of awareness. It is critical to formulate policies that address these gaps and meet the oral health needs of the elderly, with an emphasis on oral health promotion and prevention. The authors recommend the integration of oral healthcare services with general healthcare by establishing a higher number of "age-friendly primary oral healthcare" centres, with dedicated multidisciplinary teams and the provision of mobile dental units, particularly in rural areas.

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