



Original Research Article

Barriers in utilisation of dental services among older people in South Kerala

Reethu Salim^{1,*}, Ramankutty V¹¹Achutha Menon Centre for Health science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala, India

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ABSTRACT

Background: The utilization of dental services among older people is an important parameter in health service planning. Studies show that the utilization of dental services among older people in India is low. This study aims to explore the barriers in the utilization of dental services among older people.

Materials and Methods: A cross-sectional study was done on 399 older people to examine the barriers in the utilization of dental services among the older population, who are defined as people aged 60 years and above, in South Kerala. Circular systemic random sampling was used to recruit the sample from the district of Kollam in Kerala. All the study participants, as defined by the inclusion criteria were considered for the study.

Results: The mean age of the study population was 65.3 ± 5.5 ($n=399$). The main barrier that prevented older people from utilizing oral health care was their adaptation to the present health situation 343(86), followed by perceived high expense 309(77.4). The frequency of previous dental visits among participants was highest in the past year 129(33.4). More than half of the participants 244(61) had visited a dentist to extract their teeth and only 7(1.7) had visited the dentist for their routine dental check-ups. A 206(51.4) participants had visited a private clinic to receive dental care and 70(17.7) had visited a government facility to take dental care. The main reasons for visiting a particular centre among the participants were accessibility 168(42.2), and the least reported reason was the familiarity of the dentist 32(8).

Conclusion: To minimize the barriers to utilization of dental services and to address the health needs of the increasing older population, the health system needs to be strengthened especially the primary health care centres with the need to integrate oral health programs and emphasis on health promotion.

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1. Introduction

Good oral health is more than having good teeth; Oral health is integral and essential to general health and wellbeing. It implies freedom from oral diseases, disorders, and pain. Oral health is a determining factor in the quality of life. Oral diseases restrict daily routine activities causing loss of work each year the world over. Furthermore, the psychosocial impact of these diseases often diminishes the quality of life.¹

WHO emphasized that despite improvements in the oral health of populations in several countries, global oral

health problems persist. Oral diseases such as dental caries, periodontal disease, tooth loss, oral mucosal lesions, and oral cancers are major public health problems worldwide.¹ Oral problems are among the main public health concerns in India also. Oral problems cause pain, agony, functional, and aesthetic issues as well as the loss of working man-hours. Hence, in the long run, they are bound to have a significant impact on our economy.

Even though dental diseases are not an important cause of mortality, these may adversely affect the general health of people, especially older people. Poor oral health and untreated dental diseases can have a significant impact on the quality of life, and increase the risk of other chronic ailments such as cardiovascular diseases among

* Corresponding author.

E-mail address: reethusalim123@gmail.com (R. Salim).

older people. Poor oral health leads to poor nutrition, and both these factors create a vicious cycle, which may lead to the overall deterioration of health.¹

Oral health of the older population is a global concern that involves a high prevalence of missing teeth, dental caries, periodontal disease, and wasting diseases. The negative impact of poor oral conditions on daily life is particularly significant among older people. Extensive tooth loss reduces the chewing ability and affects food choice. Research had been done in various parts of the country to assess the oral health status of older people. The cross-sectional survey done by Doifode et al on 5,061 older people revealed that dental caries (43.2%) and periodontal diseases (34.8%) were the most common dental disorders.² A nationwide survey conducted by the Dental Council of India (DCI) on 18,233 older people from 19 states of the country, reported a prevalence of 85% and 80% among the 65–74 year-olds for dental caries and periodontal disease respectively.³ The burden of oral diseases on older people was mentioned in multicentre studies done in various parts of rural and urban India. These studies report a high prevalence of dental caries, periodontal diseases, and missing teeth.⁴ A study conducted among older residents in geriatric homes reported that 86.3% and 88.0% of the subjects had no prosthesis in the upper and lower arch respectively.⁵ A similar finding was found by Shenoy et al. in a study conducted in geriatric homes in Mangalore, reporting that 88% of the subjects were fully edentulous, and only 12% had complete dentures. Studies conducted among the older population revealed a high burden of unmet oral health care needs.⁶

Many studies done in India had revealed that utilization of dental care is limited due to the lack of perceived need for care and accessibility, availability and affordability of services.⁷ Interestingly, the economic status of the person is a major predictor affecting oral health in India. The shortage of dental services and low availability of resources in the public sector and lack of oral health policies for older people is still concern.¹ Attempts should be made to improve the quality of life of the population through research, education, provision of services, and the promotion of policies.

Regardless of all the preventive and promotional activities on oral health, the prevalence of dental diseases among people is high globally, problems remain in many communities around the world - particularly among underprivileged groups in both developed and developing countries. Dental caries and periodontal diseases are considered the most significant global burden of oral health from historic times.^{7,8}

Utilization is the actual attendance by the people at oral health care facilities to receive care. In regions where adequate dental manpower is available, the utilization of oral health care services is low thereby widening the oral health differences across the social-

economic classes.⁷ Various factors like demographic, behavioural, socioeconomic, cultural, and epidemiological, etc. Contribute to people's decision to either forgo care or seek professional assistance for dental problems.

Traditional treatment of dental disease is expensive; it is the fourth most expensive disease to treat in most industrialized countries. In industrialized countries, the burden of oral disease has been managed through the establishment of an advanced oral health care system. Some countries are providing public health services including dental care for children and disadvantaged populations.¹ There is a trend observed in industrialized countries by saving the dental expenditure for curative services and investing in preventive care whereby reducing the prevalence of dental diseases. In most developing countries, the importance given to oral health care is low. In these countries, resources are primarily allocated to emergency oral care and pain relief.

In developing countries, oral health services are mostly offered at the district level hospitals of urban areas, and little importance is given to preventive services and more emphasis on curative services. Due to the limited availability of resources children and adults suffering from severe tooth decay, teeth are often left untreated or are extracted to relieve pain or discomfort. Public health issues associate with tooth loss and impaired oral function are therefore expected to increase in many developing countries.¹

Studies had shown that oral health care utilization is low among older people, particularly among the socio-economically disadvantaged group due to significant barriers that exist. Previous studies suggest that there is a significant barrier to access oral health care among the older population. Dental care costs, lack of time, and lack of awareness with regards to accessibility and availability have been important barriers to the utilization of dental services among older adults.⁹ Besides the cost of dental care, oral health literacy, lack of perceived need for care, and dental fear are also important factors influencing dental visits by the older population.

In India, people encounter various obstacles in the utilization of dental services. These barriers can be removed by motivating people and making them aware of the oral health problems that remove anxiety and fear so that they develop a positive attitude towards dental treatment.

This study aims to examine the barriers in the utilization of dental services among the older population in South Kerala.

2. Materials and Methods

The study was conducted in Kollam, a southern district of Kerala state, India. The cross-sectional study was done on older people residing in both urban and rural areas of the district. The sample size was calculated using Open

Source Epidemiologic Statistics for Public Health (Open Epi) version 3.03a. Using the formula $n = [DEFF * Np(1-p)] / [(d^2 / Z^2 * 1 - \alpha / 2 * (N - 1) + p * (1 - p))]$ and by taking 71% needed dental extraction in a study done in South India as the referent.¹⁰ At 95% confidence level the required sample size was 317 older people from the whole district. The sample was enhanced by 20% to accommodate the non-response rate and rounded to whole numbers. So the total sample size is 381 rounded off to 400.

The study areas were selected by generating a random number (lottery method) separately for rural and urban. The participants were recruited from rural and urban areas of the district using circular systematic random sampling. That is, the total numbers of older people were divided by the number of people required in each stratum (rural and urban) to identify the sampling interval in each stratum. In each category, the first person will be identified by a random number from one to the last number corresponding to the last person in the list and the random number was selected. The person who corresponds to the random number was selected from the list, from that stratum. The Successive participants were circularly selected from the list by adding sampling interval successive to the first random number. The older person was contacted personally or with the help of ASHA workers in the concerned area. People who had given consent for the study were approached directly at their current residences, workplaces, or any other convenient place of their choice.

All the eligible older people defined by age, who were a permanent resident of the district and was willing to provide informed consent were included into the study. People with dementia were excluded. A total of 399 older persons of both genders were interviewed by the principal investigator over 3 months.

Data were collected from 5-10 people per day. The time taken for each person was 20-30 minutes to collect and record the information. The study involved the completion of a structured questionnaire which included socio-demographic details and a questionnaire on past dental visits and barriers in the utilization of dental services. The questionnaire was translated to the local language (Malayalam). The questionnaire was administered by the principal investigator to avoid bias. The purpose of the study was explained to all participants and consent was obtained. The study was approved by the Institute Ethics Committee of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala.

2.1. Statistical analysis

The data were entered and analysed using the statistical package, SPSS/Version 17. Descriptive statistics, Chi-square tests, and multivariate analysis were used in the data. P-value ≤ 0.05 was considered significant.

3. Results

The mean age of the study population was 65.3 ± 5.5 . Ninety two percentage of the study population were married and 40.3% of the study population had completed matriculation. Fifty two percentage of the study population belongs to below poverty line.

The past dental visit among participants were maximum in the past one year 129(33.4). More than half of the participants 244(61) had visited a dentist to extract their teeth and 7(1.7) had visited the dentist for their routine dental check-up.

The result depicts that as age increases the number of visits to dentist decreases. A relationship is seen between no dental visit and income. People belonging to BPL group have 16% no dental visit compared to APL group of 11.4%.

The questionnaire barrier in utilisation of dental services was divided into 2 main domains. They are personal barriers of the older people and barriers associated with dentist and dental treatment. The responses of the participants were recorded and ranked based on the barriers they faced. The main barrier that prevented people from taking oral health care was their adaptation to the present health situation 343(86), followed by dental treatment is expensive 309(77.4) and the least reported barrier is getting the advice from the physician 112(28.1).

The most reported barriers associated with dentist and dental treatment are long waiting hours 262(79.1) and the least reported barrier is lack of understanding of the scientific terms and treatment options explained by dentist 212(64).

3.1. Association between socio-demographic details and barriers in utilisation of dental services

The association between socio-demographic details and barriers in the utilization of dental services shows a significant association ($p < 0.008$) between age and the Need to get approval from the treating doctor (cardiologist, neurologist, etc) before undergoing any dental procedure. As age increases people are more prone to systemic diseases and their complications. Taking dental treatment without consent from the treating physician is difficult. So, as age increases people have to get consent from the physician for every dental procedure.

An association is also seen between education and Managing chewing with the existing teeth ($p < 0.010$) and Does not think of taking dental treatment at this older age ($p < 0.013$). Dental literacy is an important factor to maintain proper oral health. So, people with lower levels of education tend to manage their oral health problems on their own and think taking dental treatment at this age is not essential. The level of education decreases and the barriers in utilisation of services increases.

Table 1: Socio demographic and socio economic characters of the study population (n=399)

S. No.	Characteristics	Categories	Frequency n (%)
1.	Age (65.3± 5.5)	60-69 years	302 (76.2)
		70-79 years	88 (21.5)
		80-89 years	9 (2.2)
2.	Marital status	Married	372 (92.3)
		Others	27 (6.7)
3.	Education status	Post-graduation	8 (2.0)
		Graduation	60 (14.8)
		Completed secondary education	64 (16.0)
		Completed matriculation	159(40.3)
		Primary education	107 (26.8)
		No formal education	1 (0.3)
4.	Occupation	Office work	44 (11.0)
		Skilled	41 (10.0)
		Semi-skilled	32 (8.3)
		Unskilled	128 (32.3)
		Presently Unemployed	154 (8.5)
5.	Income	AY	39 (9.8)
		BPL	208 (52.1)
		APL	152 (38.0)
6.	Systemic diseases	Present	274 (68.7)

There is an association found between work and Does not think of taking dental treatment at this older age ($p<0.013$) and Does not think dental care as an emergency care ($p<0.010$). Most of the participants are presently unemployed or unskilled workers. So, as the work category goes down the tendency of the people to take dental treatment goes down.

A significant association between income and Dental treatment is expensive ($p<0.001$), severity of systemic diseases prevent people from getting dental care ($p<0.010$) and does not think dental care is emergency care ($p<0.020$). As the income decreases the utilization of dental services also decreases and people tend to take dental treatment only in case of acute pain and they don't consider dental treatment as an emergency need.

4. Discussion

Over 96.7% of participants felt that they needed dental treatment in the past year. This was in contrast to the results reported by Andréa Maria and Pradeep, where only, 55% and 40% respectively, of the study participants reported a need for dental treatment.^{11,12}

The percentage of people who had ever visited a dentist in their lifetime is 82.7%. Seventeen percent of the people reported that they had never visited a dentist. These results contradict the studies done by Folasayo Adunola and Subramani and colleagues where 33.8% and 44% of the participants did not have any dental visits respectively.^{13,14} The dental visit among older people in the past year was 33.4%. These results correspond to the study done by Bommireddy.¹⁵ This number was higher than the 6%

reported by Kakatkar et al. in 2011.¹⁶ These results show that there is only a very less number of people taking dental services which shows that various barriers exist in the utilization of dental services.

A 51.4% of the participants who reported past dental visits sought care at a private hospital followed by government hospitals (17.7%) and least visited private dental colleges (6.2%). The reason for selecting a particular centre is due to the accessibility of the center as reported by 42.1%. Older people had 79.4% of one of their relatives to accompany them to the dental clinic and 28.3% reported that spouse had accompanied them for dental treatment.

The main reason for the last dental visit was the extraction of teeth 61% and 65% of participants had visited a dentist in the past year for dental extraction. These results correspond to the study done by Bommireddy et al., where 59% had undergone extraction in the past year.¹⁵ Edentulism affects the quality of life of individuals in many ways.¹⁷ As predicted, lack of required dental care will lead to edentulism. There could be many reasons for not seeking required care, one of which could be, not realizing the requirement of care itself. Petersen and colleagues had highlighted this in their report on improving the oral health of older people, that developing countries have a deficiency of epidemiological data regarding tooth loss in the older population. They further highlighted that there exist numerous barriers to the utilization of oral health services in these countries and often pain, discomfort, and non-availability of dental materials were the reasons for the extraction of teeth.¹

As age increases people who utilized dental services decreased. Comparing people across age group who didn't

Table 2: Perception of oral health needs and characteristics of last dental visit

S.No.	Components	Categories	Frequency n(%)
1.	Oral health problems in the past year (399) (1.03±0.7)	Yes	386 (96.7)
		No	13(3.3)
2.	Have you ever visited a dentist (399)	Yes	331(82.7)
		No	68(17)
3.	Past dental visit (n= 386)*	Up to one year	129 (33.4)
		From one year to five years	108 (27.9)
		From five years and above	77(19.9)
		I don't remember	17(4.4)
		I haven't visited a dentist	55(14.2)
4.	Reason for last dental visit (n=331)**	Routine dental check ups	7(1.7)
		To clean teeth	17 (4.2)
		To fill the teeth	34(8.5)
		To extract teeth	244(61)
		To place artificial teeth	24(6)
		Others	5(1.25)
5.	Where was the last dental visit (n=331)**	Private hospital	206(51.4)
		Government hospital (district hospital, CHC)	70(17.7)
		Government dental college	30(7.5)
		Private dental college	25(6.2)
6.	Major reason for visit to a particular centre (n=331)#	Affordable cost	96 (24.1)
		Easy to reach	168 (42.1)
		Familiar dentist	32 (8)
		Good service	26(6.5)
		Others	3(0.7)
7.	Accompaniment to the last dental visit (n=331)#	Went alone	68 (20.5)
8.	Accompanying to dental hospital. (n=263)	Someone to accompanied	263 (79.4)
		spouse	113 (28.3)
		son/daughter	95(23.8)
		son/daughter in law	36(9)
		grand child	7(1.8)
		helper	3(0.8)
	others	9(2.3)	

*denotes that 13 (3.3) subjects who doesn't have a dental problem at all are excluded in the further analysis. ** denotes that 68(17) subjects includes people who do not have a dental visit in their life time and people with no dental problems. # denotes the reason ranked highest by the subjects was chosen as the major reason.

have any dental visit showed a decreasing trend. No dental visit was reported in 12.3% in the 60-69 age group and 22.2% in the 80-89 age group. These results show the dependency on mobility and other barriers faced by the people as they get older. These results were contradictory to the study by Thomas S whereby it was found that 51.1% to 35.5% of the older people had decreased the use of dental services as age advances.¹⁰

Participants who were generally satisfied with their oral health did not feel the need to utilize dental services irrespective of the presence of any pathology. The reason for the low utilization of dental services among older people is due to individual's perspectives and prior experiences with the health care system.¹⁸

The rank order of perception regarding barriers in accessing dental services showed that 86% agree with the statement that managing chewing with other existing teeth shows the attitude of people towards dental care. Many other factors underlie this opinion. People tend to adapt to the settings and try to manage with other existing teeth or the other side of the mouth. This shows the complacency of people towards oral health and the low priority given to oral problems as people think dental problems are not a life-threatening disease.

The second most reported barrier in dental treatment is expensive (77.4%). This result corresponds to the study done by Poduval et al., and many other authors. Dental care is predominantly provided by the private

Table 3: Last dental visit and socio-demographic characters

Variables	Last dental visit (n=386)			No dental visit	I don't remember
	≤ 1 year	1 year and up to 5 years	≥ 5 year		
Age category					
60-69	103(35.3)	84(28.8)	54(18.5)	36(12.3)	14(4.8)
70-79	25(29)	22(25.5)	19(22)	17(19.7)	3(3.4)
80-89	1(11.1)	2(22.2)	4(44.4)	2(22.2)	0
Gender					
Female	67(34.3)	53(27.1)	41(21)	26(13.3)	8(4.1)
Male	62 (32.4)	55(28.7)	36(18.8)	29(15.1)	9(4.7)
Marital status					
Married	124(33.2)	106(28.4)	75(20.1)	54(14.4)	14(3.7)
Unmarried	5(38.4)	2(15.8)	2(15.8)	1(7.6)	3(23)
Education					
Above matriculation	42(34.4)	34(27.8)	26(21.3)	4(3.2)	16(13.1)
Below matriculation	87(32.9)	74(28)	51(19.3)	13(4.9)	39(14.7)
Work					
Skilled worker and above	31(36.9)	24(28.5)	15 (17.8)	12(14.2)	2(2.3)
Semi-skilled worker and below	98(32.4)		62(20.5)	43(14.2)	15(4.9)
Income					
APL	52(34.8)	45(30.2)	32(21.4)	17(11.4)	3(2)
BPL and below	77(32.4)	63(26)	45(18.9)	38(16)	14(5.9)

Table 4: Rank order of perception regarding barriers in accessing of dental services

A	Personal barriers of older people (n=386)*	
1	Managing chewing with the existing teeth	343(86)
2	Dental treatment is expensive.	309 (77.4)
3	Use of traditional remedies (salt, cloves, eucalyptus oil etc) to relieve tooth problems.	297(76.9)
4	Does not think of taking dental treatment at this older age	276(71.5)
5	Does not think dental care as an emergency care	265(68.6)
6	No time to take dental treatment	261(65.5)
7	People will get medicines (pain killers, antibiotics, ointment etc) from medical shop hen in tooth pain.	250(64.7)
8	Severity of systemic diseases prevent people from getting dental care	253(63.4)
9	Fear of dental procedures.	203(52.5)
10	Need to get approval from the treating doctor (cardiologist, neurologist etc) before undergoing any dental procedure.	112(28.1)
B.	Barriers associated to dentist and dental care (n=331)	
1	Long waiting hours in dental hospital	262 (79.1)
2	Dentist does not give all the available treatment options.	225 (67.9)
3	Multiple visit to dentist to complete dental treatment	218 (65.8)
4	Difficult to understand what the dentist says	212 (64)

*excluded people who do not have a dental problem, # excluded people who do not have a dental problem and who do not have a dental visit in their life time.

practicing dentists in our country and there are only a few hospitals in the public sector.¹⁹ The older people who have less income are finding it very difficult to afford dental care. Affordability is an important barrier in the utilization of services. The expensive nature of dental care has steadily remained a highly rated barrier to oral health care utilization worldwide particularly in developing countries with diminishing resources and lack of strong medical insurance.²⁰ A significant association was found between the income of the person and the cost of dental treatment ($p < 0.001$). These results show that dental visits are influenced by the income of the person and the cost of dental treatment. It was found that the higher-income group found the expense of treatment less restrictive than the lower-income group.

People usually take traditional remedies (salt, cloves, eucalyptus oil, etc.) to relieve tooth problems (76.9). People find dental care to be unaffordable and tend to manage with the available home remedy. This barrier has an association with the affordability of services. “Lack of time” and “Inaccessibility to dental care” are considerable barriers among the study population as most of the study participants work on daily wages and unorganized sector, visit the dentist might lose them a whole or part of their earnings for the day leading to a low dental attendance among the study population. Our results are similar to the studies conducted by Devaraj and Eswar and Jaafar et al.^{21,22} Most of the studies had explained that pain was the most single concern of people. People tend to take treatment only in severe conditions like pain.^{8,23}

Fear of dental procedures (52.5%) was observed as a barrier to oral health care utilization among the older population. Fear of dental injection, the sound of the drill and instruments constituted the barrier among the people. Avoiding dental care due to fear is a well-recognized phenomenon. Older people tend to avoid stressful situations and emphasis on dental literacy also plays a key role. Studies done by Kakatker et al., Ajayi et al. and Thomas S found that dental fear is related to dental attendance.^{10,16,20}

About 71.5% of the study participant had reported that they don't need treatment at this age and 68.6% had reported that dental treatment is not an emergency need. This finding shows the inability of older people to recognize the need for dental treatment on their own and acts as a barrier to the utilization of dental services. People seek dental care only when their condition worsens. This result corresponds to the study done by Nagarjuna et al. where 50% of the study participants had reported that dental diseases are not serious.²⁴

Non-availability of all the available treatment options was reported by 67.9% of participants. Several studies indicate that considerable differences exist in dentist's decisions. One source of this variation may be professional uncertainty in diagnosing dental diseases. Literature

suggests that when professional uncertainty is more, the possibility of receiving treatment often depends on the style of practice of the dentist rather than the nature and severity of illness. When the professional agreement is good, other concerns, such as systemic diseases and financial constraints of the patient will introduce some variation into prescriptions of therapy. Considering the condition of the patient alternative treatments is usually considered for most dental problems, and these vary in effectiveness, longevity, appearance, and cost. Dentists can either prescribe the best available treatment or can deny services to those who cannot afford them; however, the majority of the dentist being considerate and ethical would provide the best treatment considering the circumstances.

The patient choice often influences treatment choice, mainly because dental caries and periodontal diseases are not life-threatening, and because the majority of dental treatment charges in India are still paid out-of-pocket by the patient.²⁵

Long waiting hours (79%) and multiple visits to the dental clinic (65.8%) are considered as major barriers reported by older people. The majority of the study population has been suffering from systemic diseases and there is no separate dental facility for older people. They had to share the resources with the general population. Older people find it difficult to wait for dental treatment for a long time. Many had reported that they had felt this situation while availing care in the public sector. A study done by Elena Borreani et al. reported that fear of dental treatment and long waiting hours are associated. The anxiety or fear of treatment along with the sound of drill will give a negative perception in older people. This anticipation is build up during the waiting hours.²⁶ Mittal et al. also reported that older people are aware of the long waiting hours but they continue to visit the same dentist whom they have trust. It is the responsibility of the dentist to reinforce the need for the older person to have a trusting relationship.²⁷

Looking into the utilization of dental services among older people, it is noticed that as age increases the utilization of dental services decreases from 35% to 11%. This may be because the young-old group (60-69) had more dental literacy and fewer barriers. It was also found that the very old group did not think that oral health was important. These results also show that barriers in the utilization of dental services are more as age increases. The dependency of older people can also be considered as a major reason for the non-utilization of dental services. This result does correspond to the finding by Anne N Åström, E.C.M. Lo and colleagues, and Bommireddy et al. that the results in these studies also show a decreasing trend of dental service utilization as age increases. It is also important to identify that the study area has very close access to oral health services provided by the government, as well as private institutions but utilization was low among them.^{15,28,29} With the increase in age, the

psychological decline in older people makes them extremely vulnerable to several chronic diseases. The treatment of pain and suffering caused by systemic diseases tends to be prioritized above dental care.¹⁰

There was not much difference in gender, marital status, education, and work in dental service utilization in the present study. This result corresponds to the study by Bommireddy et al in Andhra Pradesh.¹⁵ People with good income utilized dental services more than people with less income. This study also has a significant association with income and to the barrier “dental treatment is expensive” ($p < 0.001$). This result corresponds to the study by Kakatkar in Udaipur.¹⁶ In India minimal amount has been allotted to social security and dental insurance for older people, even though the dental services are very expensive. So, people avoid using dental services and symptomatically treat their dental problems with home care or over-the-counter medications.

5. Conclusion

The challenge for the policymakers is to bring affordable, accessible, and available dental services to older people thus reducing the burden of disease and improving the quality of life. To minimize the barriers to utilization of dental services and to address the health needs of the increasing older population, the health system needs to be strengthened especially the primary health care centres with the need to integrate oral health programs and emphasis on health promotion.

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None.

7. Conflict of Interest

None.

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Author biography

Reethu Salim, PhD Scholar  <https://orcid.org/0000-0001-9693-5705>

Ramankutty V, Former Head and Professor

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