



Barriers Perceived by Geriatric Population in the Utilization of Oral Health Services Among Tertiary Dental Hospital Visitors in Chennai –A Cross-Sectional Study

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ABSTRACT

Oral Health service planning requires information regarding utilization rate. To explore the barriers in the use of oral health care services as perceived by the elderly with dental treatment needs in Chennai. A face to face interview was conducted for 250 patients aged ≥60 years selected on convenient sampling after giving consent. The validated study tool comprised of open ended questions. It was found in this study that a statistically significant link exists between single oral health barrier perceivers and their demographic profile such age, gender, religion and their past dental experience such as the duration and type of dental treatment procedure underwent. Felt oral health needs in 136(54.4%) of the subjects among those reporting single barrier was low despite having oral health problems. The Felt lack of oral problem was the major and preliminary barrier followed by time and financial constraints which were impediments from professional care and these factors need to be taken in account while planning geriatric oral health care delivery system and policies.

Keywords: Financial coverage, Dental treatment, Health insurance, Outpatient policy, Senior citizens, Barriers, Utilization of health care services.

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INTRODUCTION

Ageing does not just affect the elderly but also everyone of our society in one way or other. As per the Ministry of statistics and programme implementation, a drastic increase in old-age dependency ratio from 9.8 to 20 in India is expected which necessitates immediate concern [1]. The WHO estimates amplification to 227 from 60 million elders by 2050. India is a densely populated country well known for its unity in diversities which makes it a greatest challenge for universal health coverage. India is the second-largest country in the world in terms of its size of elderly [2]. TamilNadu is the second highly populated state in its elderly size and ranks first in comprising them who are living alone with 13.7% [2, 3].

Several challenges force many elderly to neglect self-care. The proportion of older people is growing faster than that of any other age group in India with 40% living below the poverty line while 73% are illiterate, 90% lack social security and the dependency ratio is 12.26% [1-4]. As per UNFPA, according to the BKPAI (Building knowledge –based on Population Ageing in India) report, 26% of older men and 60% of older women in India do not have personal income and this insecurity is the major cause of vulnerability. They do not have sufficient funds to fulfil their basic needs, nearly 3/4th are dependent on others while 34% still work and 70% men contribute to more than 60% of household budget as per the NSSO (National Sample Survey Office) [4]. Oral health problems are regarded as major public health problem. Global Burden of Disease 2019 estimated that 3.5 billion people worldwide are affected by any form of dental condition. Limitation in functional efficiency increases care-giving burden [5-9].

The rural and urban distribution ratio is 68.84% and 31.16% respectively as per Census 2011. About 70% of the population is residing in rural areas where there are only 20% of hospitals which means that 80% of hospitals are serving 30% population and the number of hospitals in urban areas is 10 times the number of hospitals in rural areas. As inverse care law defined by Tudor Hart situation exists in India which describes an inverse relationship between the need for health care and its actual utilisation, achieving universal health coverage is a greatest challenge[10]. WHO report on global health expenditure in 2019 has publicized an upward shift in terms of GDP with an annual higher health spending of 6% by low and middle-income countries than 4% by high-income countries with a majority of 3/4th taken over by the private sector. A house-to-house survey conducted among 300 aged people found that about its 90% participants utilized dental care from this segment.

As per the cross-sectional data from the National Sample Survey Organization (NSSO), 8.1% and 7.9% population in rural and urban areas respectively fell below the poverty line due to unavoidable and extensive out of pocket health expenditure and data analysis from the Social Consumption of Health Survey reveals that the poor people in poorer states of the country pay significantly more to avail hospitalization in public health centers than those in the developed states which reflects that they have not benefited adequately from public health care services and are not protected against unanticipated health care costs[11]. A necessary component of population health as stated by Lantz *et al* is the delivery of oral care is Understanding the influencing factors that governs the access to dental care is an essential component for effective provision of oral health services to the community[12]. Moreover the uneven distribution ratio of dentist-population between urban and rural regions is 1:10,000 and 1:150,000 while the recommended ideal is 1:7500 according to the WHO also adds to restraint [13]. Furthermore the single greatest factor in the determination of dental visit is having a financial coverage as per the National Health Centre for Statistics in its "National Health Interview Survey". Dental insurance is a primary indicator of access to oral health care with a benefit of bringing about dental health care awareness percolating at the grass root levels [14].

About 13.5% of all the cancers is of the oral and maxillofacial complex and is recorded the six common cancer among the elderly segment in which any impairment of this region will impact nutritional intake which is detrimental to their overall wellbeing[15]. Numerous influential factors such as cultural, demographic, socio-economic, epidemiological and behavioural factors contribute to people's decision to either seek professional assistance or forgo care for their dental problems and its region-wise data is crucial for designing risk-based interventions [16].

As there is lack of exclusive age specific or geriatric oral health policy or programme existing in place within the present health care system of Chennai, the present study was undertaken. This paper highlights a significant aspect in geriatric dentistry which still remains as an untapped area in most developing and underdeveloped countries and is a part of the doctoral thesis. The purpose was to investigate the self perceived barriers in the utilization of oral health care services among the elderly population with a motive that the research outcome would enable policy makers in their decision- making in formulations that could result in the reduction of geriatric oral health disease burden ensuring that a public health dental reform benefits the older adults who deserve holistic care.

MATERIAL AND METHODS

A face-to-face interview was conducted for 250 individuals aged 60 years who visited a tertiary dental hospital. Institutional Ethical clearance was received from Sri Ramachandra Institute of Higher Education and Research, Chennai (EC-NI/22/DEC/85/135) for this cross-sectional study which took place for 4 months commencing in February till May 2023.

The sample size (N=250) was calculated using G-Power Software Version 3.1 with values considered from study done by Ramesh Kumar S G *et al* in 2022 [17]. The effect size was 0.30, the alpha error probability was 0.05, power was 0.80 and the degree of freedom was 24. The study participants were recruited on convenience sampling technique.

Validation approval from five experts in the field of dentistry was obtained for the study tool designed after extensive literature review. It consisted of open-ended questions to express views of the participants and was pilot tested in thirty elderly dental patients for its clarity and based on their suggestions, very few alterations were implemented, distributed for response and a reliability coefficient was determined to be 0.72. The questionnaire constituted two sections. The former section focused on data collection regarding the socio demographic background of the study participants while the latter was dealt with their self-perceived barriers in the utilization of oral health services, availability of health insurance coverage and preference of dental unit set up type along with the reasons as to why they would opt so.

The inclusion criteria involved only cooperative and consenting patients who were residents of the city. Statistical data analysis was performed using SPSS version 26. Descriptive statistics (frequency distribution

as percentages) were used and a p-value ≤ 0.05 was considered to be statistically significant. Responses to the questionnaire were analyzed using chi-square test to assess the association between demographic characteristics and their barriers perceived.

RESULTS

Majority of the interviewed 173(69.2%) were aged between 60-69 years as shown in figure 1 and the proportion of male participants was higher 146 (58.4%) as in figure 2.

About 228(91.2%) out of a total 250 are hindus while 14 (5.6%) were christians, 7(2.8%) and 1(0.4%) were muslims and jains respectively as depicted in Fig 3. It was found that about 119 (47.6%) are habituated to carry out self-home based remedial practices as a preliminary approach at the times of dental problems. Despite the fact that 91 (36.4%) of them seek professional help, purchasing medications from the pharmacy was the first opted method to get rid of dental issues in about 37(36.4%) elders (Fig 4). A notable finding from graph 3 is that 241(96.4%) of them have had a dental visit in their past despite a fact that 56(62.4%) do not have health insurance [Fig 5].

It is to be noted that 74(29.6%) have visited a dentist before two and less than five years while only 57(22.8%) have sought professional care in the last six months. Another finding that 9(3.6%) have never visited a dentist emphasizes the need of dental examination inclusion under comprehensive geriatric assessment (Fig 6).

A significant inference from the findings of this survey as shown in a Venn diagram (Figure 7) representing the distribution of the elderly subjects based on their past dental history is that the last phase of treatment plan is the second most common purpose of visiting a dentist preceded by extraction in majority of them which is generally considered as the last recommended dental treatment modality when oral conditions do not favour good outcome from all possible conservative approaches. It is also evident from this study that preventive treatments are the least underwent and prioritized.

About 136(54.4%) reported single barrier 229 (91.6%) with a response that they had not seen a dentist as they did not have any specific related need since the condition of their oral structures never caused them pain or discomfort leading to trouble.

Nearly 27(10.8%) and 29(11.6%) study participants perceived time and financial constraints as barriers in their utilization of dental services respectively while 12(45.8%) expressed their ignorance as a primary barrier in addition to 9(3.6%) who reported that they were unable to access dentist due to nonavailability of an accompanying person.

Furthermore, findings of the survey as depicted in table 1 reveals that among those who reported dual difficulties included reasons such as lack of dentist at proximity and presence of co-morbid conditions while the barriers among those perceived triple barriers apart from above mentioned hitches were lack of ease in transportation as well as long wait hours at the dental office.

The results of this study as per table 2 also shows a statistically significant link between single respondents with their demographic profile such age, gender, religion and their past dental experience such as the duration and type of dental treatment procedure underwent.

Figure 1: Pie Chart Depicting the Frequency Distribution of Study Subjects Based on their Age

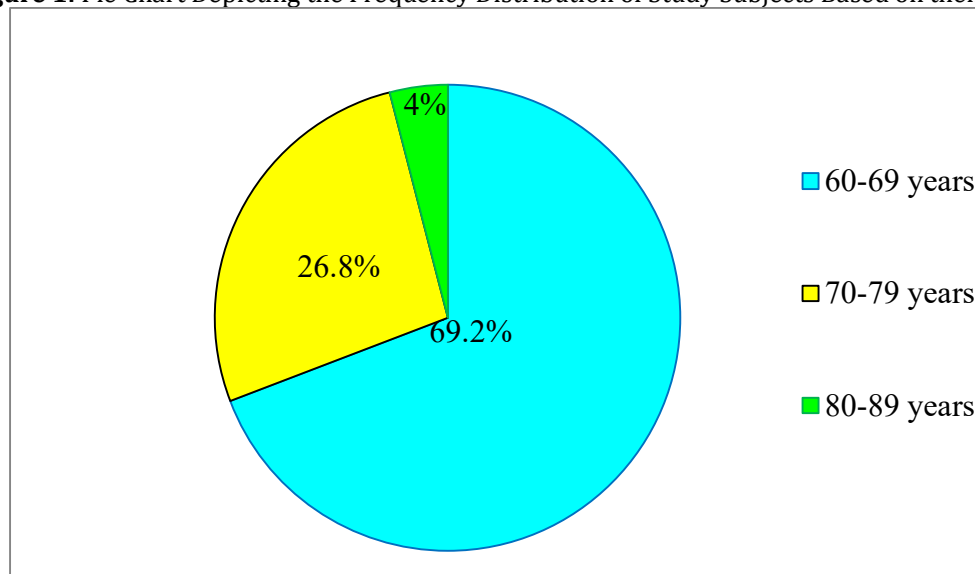


Figure 2: Chart Depicting the Frequency Distribution of Study Subjects Based on their Gender

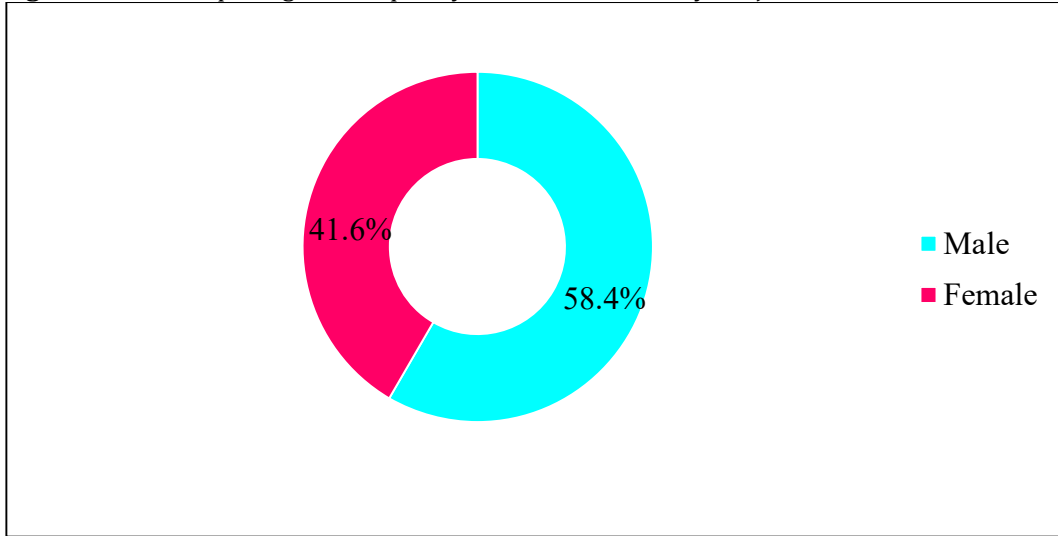


Figure 3: Percentage Distribution Based on Religion

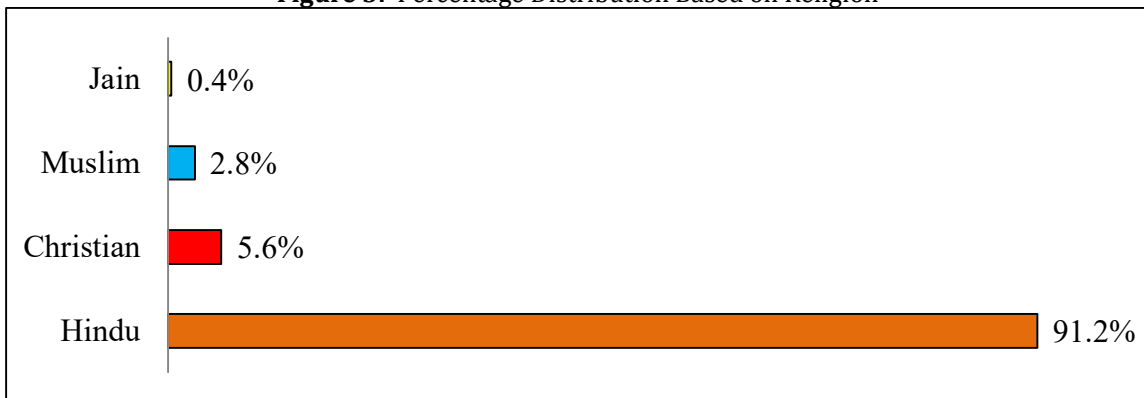


Figure 4: Percentage Distribution Based on Opted Approach for a Dental Problem

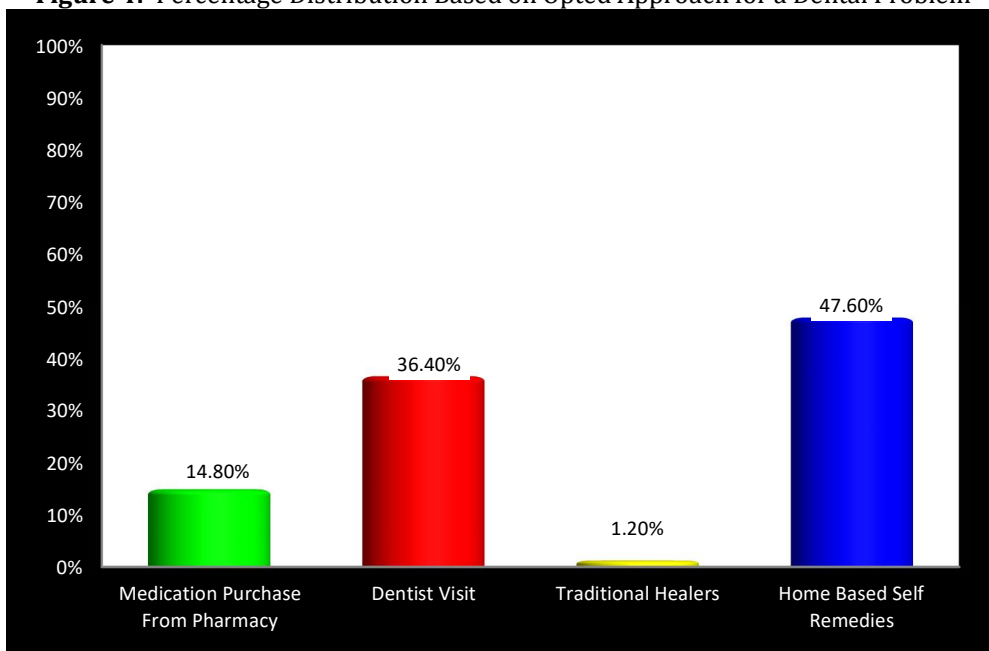


Figure 5: Percentage Distribution Based on Health Insurance and Dental Visit Experience

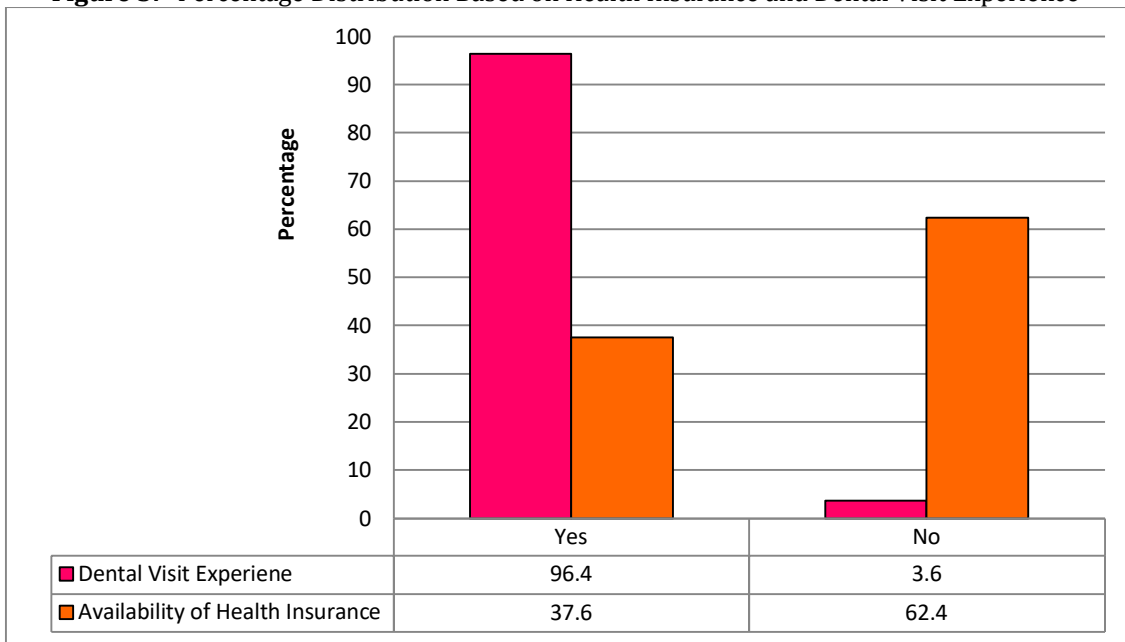


Figure 6: Percentage Distribution Based on Duration of Previous Dental Visit

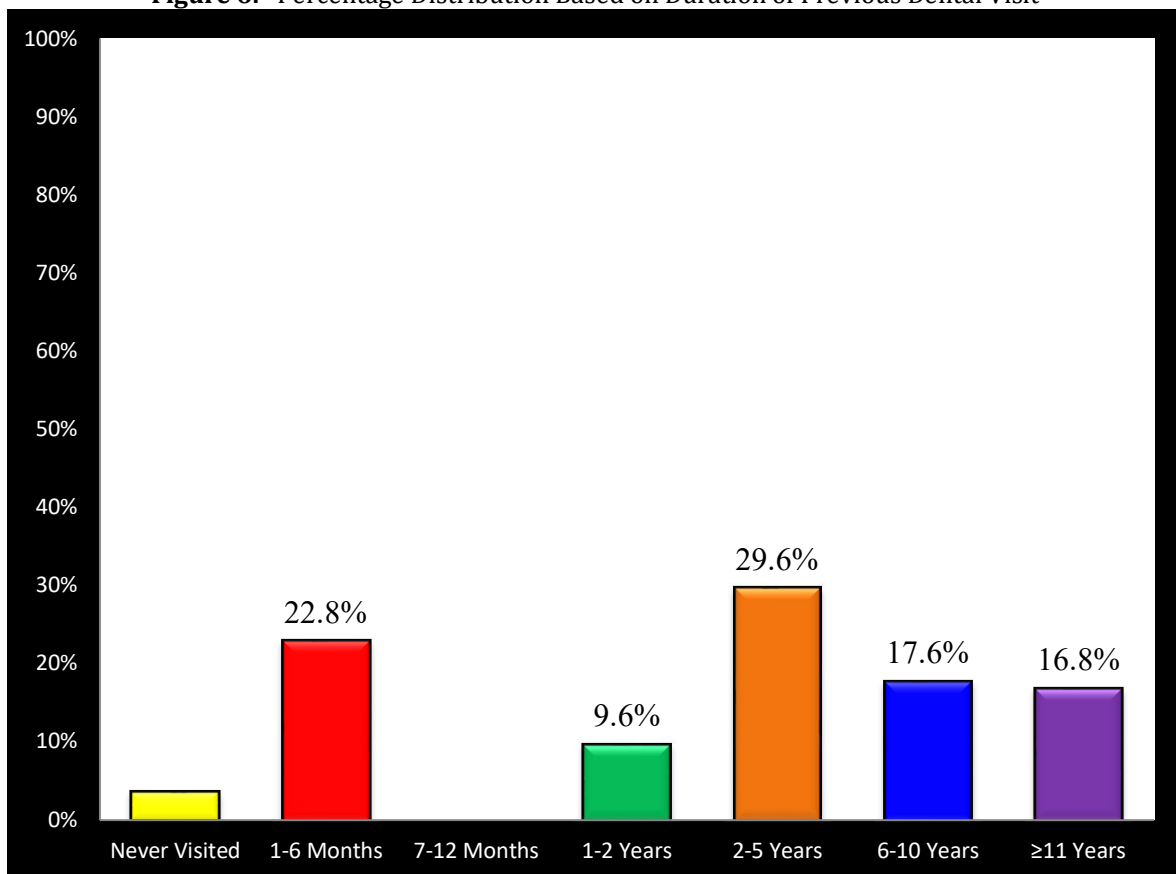


Figure 7: Venn Diagram Showing the Frequency Distribution of the Study Participants Based on their Past Dental History

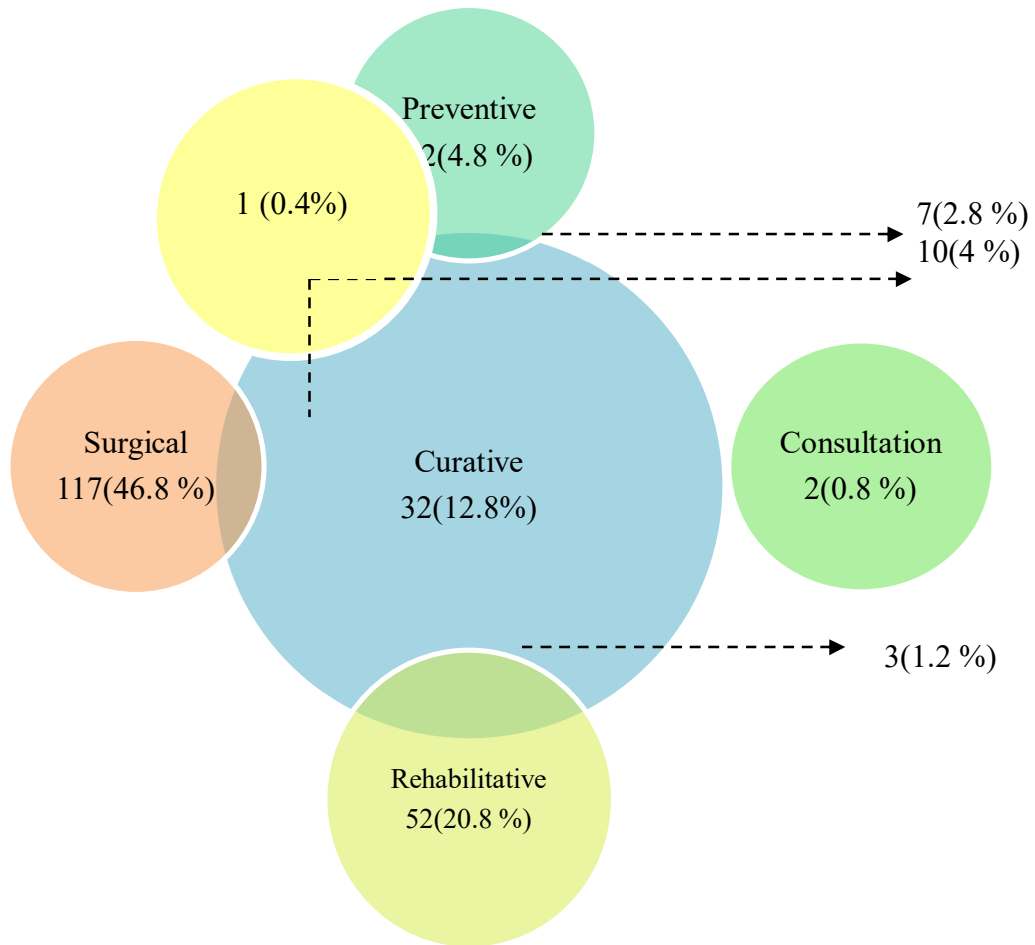


Table 1: Percentage Distribution of Study Participants Based on Their Self-Perceived Barrier

	N= 250	n	%
Single Barrier	229	91.6%	
Lack of Perceived Need		136	54.4%
Financial Constraint		27	10.8%
Time Constraint		29	11.6%
Ignorance		12	4.8%
Long Waiting Hours		2	0.8%
No Accompanying Person		9	3.6%
Transportation Difficulty		0	0.0%
COVID		4	1.6%
Aspirin Restriction		1	0.4%
Comorbidities		3	1.2%
Lack of Nearby Dentist		5	2.0%
Anxiety		1	0.4%
Double Barrier	19	7.6%	

Lack of Perceived Need and Financial Constraint	2	0.8%
Lack of Perceived Need and Time	1	0.4%
Financial and Time Constraint	2	0.8%
Lack of Perceived Need and Comorbidities	2	0.8%
Lack of Perceived Need and Dentist Nearby	2	0.8%
Comorbidities and Lack of Dentist Nearby	1	0.4%
Financial Constraint and Lack of Dentist Nearby	1	0.4%
Ignorance and Comorbidities	1	0.4%
No Accompanying Person and Comorbidities	2	0.8%
Ignorance and Time Constraint	1	0.4%
Lack of Perceived Need and Ignorance	1	0.4%
No Accompanying Person and Lack of Dentist Nearby	1	0.4%
Financial Constraint and Ignorance	1	0.4%
Lack of Perceived Need and Long Waiting Hours	1	0.4%
Triple Barrier	2	0.8%
Financial ,Time and Transportational Constraint	1	0.4%
Time Constraint , Ignorance and Long Waiting Hours	1	0.4%

Table 2: Statistical Analysis of Self –Perceived Barriers Based on the Numbers of Responses Received with Demographic and Related Parameters

Parameter	p-Value		
	Single Barrier Respondents	Dual Barrier Respondents	Triple Barriers Respondents
Age	0.003*	0.735	0.157
Education	0.392	0.502	0.157
Occupation	0.692	0.302	0.157
Income	0.539	0.316	0.157
Mode adopted at times of dental problems	0.630	0.269	0.157
Gender	0.016*	0.385	0.157
Marital status	0.724	0.165	0
Religion	0.050*	0.473	0
Past Dental Experience	0.001*	0	0
Duration of previous dental visit	0.001*	0.234	0.157
Treatment procedure underwent in the last visit	0.209*	0.145	0.157
Health Insurance Availability	0.635	0.288	0.157
Type of Dental Office Set Up Preferred	0.997	0.064	0.157

*-Statistical Significance as an outcome of performing chi square test.

DISCUSSION

About 208 (83%) of the total 250 (100%) surveyed subjects are economically dependent on others as 146(58.4%) are retired and 62(25%) are unemployed. Merely, 42 (17%) receive source of income for financial support. This could possibly be due to the fact that the highest attained educational status by majority of them 125(50%) is not beyond secondary/ middle school level and it is to be noted that 29(12%) have not received any form of formal education. Thus to be more precise, 133 (53.2%) do not have income through any source and about 20/250 study subjects i.e. 8/100% receive an economical support amounting to less than or equal to Rs. 1000/- per month.

A link exists between an individual's or a community's perspective and approach in to the health-care delivery system according to Aday and Anderson (1960)[18-20].

The finding that age which is one of the demographic characters has an influence on the perceived barriers in utilization of oral health care services is in concordance with the results of a retrospective study involving 1371 individuals conducted by Vashisth S *et al* in 2012. However, other features such as occupation and the educational status were in contrast to it [21].

It is important to be knowledgeable regarding evident gender specific differences of the prevalent dental diseases and the associated existing inequalities in terms of service provision so that its epidemiology could be well understood. Majority of our study subjects were male 146 (58.4%). This is in accordance with the findings of the study conducted by Kakatkar G *et al* in 2011 in which the male study participants consulted the dental many times than females [22]. This is also in accordance with the results of the World Health Survey (WHS) conducted in India in 2003[23]. Moreover, a metanalysis performed by Vineetha Karuveetil *et al* in 2022 which involved study of 13 Indian studies after scrutinization from 186 retrieved records from various scientific databases to explore if gender could be a risk factor for oral diseases in India also established a proven link [24].

The reason being lack of prioritizing oral health care needs as stated by 136(54.4%) among single barrier respondents and non availability of an accompanying person for dental visits which reflects old-age dependency among 9(3.6%) are the barriers which is in similarity with the results of a three-phase survey conducted by Goel P *et al* in 2006 and Poudyal S *et al* in 2010[25, 26].

Furthermore, this adds on to the scientific evidence found by Garcha V *et al* in 2010 which reveals a strong belief that dental conditions are not serious or life threatening could possibly be the reason for perceived treatment need only when being symptomatic[27].

The finding of dentist unavailability at proximity and financial constraint as barriers is similar as perceived by 180 geriatric individuals in a study done by Devaraj CG *et al* in 2011 while ignorance, time constraint, habit of self medication reported by our study participants that restricted them from approaching dental services is in consistency with the outcome of the a 8 months community survey conducted by **Verma H** *et al* 2012 in which 203 individuals took part[28,29].

It is very important to consider the beliefs of the community in order to deliver culturally acceptable care services. About 119 (47.6%) of the participants have reported the habit of indulging in self home based remedial practices as a preliminary approach at the times of dental problems. This finding in a part of south India coincides with the evidence of another north Indian study conducted by **Parlani S *et al* in 2011** which investigated that certain myths were chiefly responsible for stopping 227 individuals in six villages from seeking appropriate care. These results also in par with the outcome of another study conducted with a similar aim[30].

Indian literatures also reveal that other oral health beliefs such as considering tooth mortality as an extension of old age, prevention of dental caries by consumption of tobacco, treatment of oral diseases with only medicines alone, ocular loss as a consequence of dental extraction and loosening of tooth following scaling are some of the identified barriers. Another four year study in TamilNadu also revealed that 114 plant species were used to relieve toothache, treat gum disorders and as oral hygiene aids.

About 74(29.6%) have visited a dentist before two and less than five years while only 57(22.8%) have sought professional care and in the last six months. Moreover, preventive treatments are the least underwent and prioritized while the common purpose of their visit was dental rehabilitation which is usually the terminal phase of professional treatment plan.

Conclusion

This study has exposed the different dimensions of barriers encountered by the geriatric population. As they have differing needs, demands and expectations in the oral health care delivery system, amalgamation of behavioural sciences and educational intervention is the need of the hour to eliminate the "feeling-well factor" despite of having oral problems which is the major analyzed barrier in older adults.

Limitations: Though this study is an effort to understand the oral health service utilization barriers among the elderly, the homebound population and those institutionalized who may have different perspectives are not taken in to account in our study which may impact generalization.

Recommendation: Lowered felt oral health needs among the geriatric population calls for improving their awareness and motivation to increase their oral health service utilization rate.

Future Scope: Comparative studies of the perceived barriers among the elders who are institutionalized, homebound and those living alone are needed for designing and implementation of exclusive geriatric oral health care systems and policies.

Conflict of Interest

Nil

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