VOLUME - 13, ISSUE - 09, SEPTEMBER - 2024 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Dentistry

ASSESSMENT OF ORAL HEALTH STATUS AND TREATMENT NEEDS AMONG THE GERIATRIC POPULATION ATTENDING PRIMARY HEALTH CARE CENTRES

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ABSTRACT

Introduction: The world is undergoing a demographic transition, and the proportion of elderly people is growing faster than any other age group. According to the United Nations Population Fund (UNFPA) and the International Institute for Population Sciences (IIPS) "India Ageing Report 2023," 149 million people, or around 10.5% of the country's total population, were 60 years of age or older in 2022. Various studies have indicated that elderly people may face several barriers to dental treatment, which increases the prevalence of oral diseases in this population. Moreover, these studies suggested that elderly people have a higher prevalence of oral diseases, such as dental caries and periodontal disease. **Aim:** The present study was aimed to assess the oral health status and treatment needs of elderly population attending primary health care centre at Rajanagaram, Andhra Pradesh. **Materials and Methods:** A descriptive cross-sectional study was conducted to assess the oral health status and treatment needs among the elderly attending primary health care centre at Rajanagaram, Andhra Pradesh. The study was conducted among 800 subjects divided into three sub groups based on age. The statistical analysis was performed using SPSS 20 software. Chi-square test was used to compare the categorical variables and ANOVA test to evaluate the quantitative variables. $P \leq 0.05$ was considered statistically significant. **Results:** A significantly higher bleeding score of 20.9% in the elderly males and 79.1% in the elderly females was reported in the Group 1. The mean CPI score of 2.1939 +/- 0.68 was seen in the elderly males of all age groups and 1.9453 +/- 1 was seen in elderly females. The mean DMFT score of 1.8809 +/- 1.06 was seen in the elderly males of all age groups and 1.9909 +/- 0.96 was seen in elderly females. About 30.8% required preventive or routine treatment in the form of restorations, 49.4% required prompt treatment in the form of dentures and 19.9% required emergency treatment in the form of extractions. **Conclusion:** The current study's findings support the notion that elderly people have poor oral health, with greater rates of dental caries and periodontal problems, poor prosthetic status, and increased needs for prosthetics.

KEYWORDS : Geriatric population, Oral health status, Treatment needs

INTRODUCTION

Health is one of the most valuable assets an individual might possess. Oral health has recently been recognized as equally vital to overall health. Oral health refers to an individual's ability to eat, speak, and socialize without discomfort or disgrace, enhancing a sense of overall wellness. Since oral disorders are so common and have such a large social impact, they can be categorized as public health issues. It is believed that oral health knowledge is a requirement for engaging in health-related behavior.[1]

The percentage of elderly people is increasing more quickly than that of any other age group as a consequence of the global demographic shift.[2]. Healthcare professionals and government organizations place a high priority on health promotion for the elderly in an effort to improve their quality of life. Oral health is usually disregarded while discussing health issues among the elderly.[3] The present study was owed to assess oral health and treatment needs among the geriatric population attending primary health care center.

Materials & Methodology

A total of 800 subjects of which 418 male and 382 female subjects meeting the inclusion and exclusion criteria were selected. The total number of subjects were reclassified into three sub groups namely Group I,II,III of age ranges 60-70, 71-80, 81 & above. Subjects above the age of 65 years and those who were willing to participate in the study are included. Subjects below the age of 65 years and those who were not willing to participate are excluded in the study.

After obtaining the approved Institutional ethical certificate, the subjects meeting inclusion and exclusion criteria attending primary health care centres in and around Rajanagaram and willing to participate in the study, were selected to carry out the study. After obtaining the informed consent, the selected subjects were seated comfortably with the aid of the available infrastructure and furniture. On the table, supplies and instruments were organized ensuring the examiner could easily access them. The clinical evaluation included inspecting the oral cavity using a basic mouth mirror and a CPI probe under adequate lighting. WHO Oral health assessment form for Adults, 2013 was followed. Sufficient numbers of autoclaved instruments were taken to avoid interruption during examination. Gloves and disposable masks were used during the inspection. The used instruments were collected separately, washed, disinfected with chemical method, and autoclaved at primary health care centres.

Scores given after the examination as:

For CPI index: 1 - Gingival bleeding, 2 - Pockets measuring 4-5mm, 3 - Pockets measuring 6 mm and above, X - Excluded

sextent indicative of missing tooth component

For DMFT index: 0- Sound tooth, 1- Decayed tooth, 2- Filled tooth, 3- Missing tooth due to caries, X - Missing tooth other than caries

For Treatment needs: 1- Preventive or routine treatment needed, 2- Prompt treatment needed, 3- Immediate treatment needed

All the data obtained was entered into Microsoft Excel Sheet and was subjected to statistical analysis.

RESULTS

The sample size included 800 subjects with age ranging from 60 years to 80 years & above among which 361 (45.1%) were males and 439 (54.9%) were females. The study population was divided into 3 groups based on the age such that group I included age ranging from 60-70 years; group II included 71-80 years; group III included 80 & above years.

Majority of the participants in the present study were in the age group of 60-70 years (49%) of which 197 (50.3%) are males and 195 (49.7%) are females followed by the age group 71- 80 years (43.4%) of which 139 (40.1%) are males and 208 (59.9%) are females and age group 81 years and above (7.6%) of which 25 (41.0%) are males and 36 (59.0%) are females.

In Group 1,mean age of males is 65.7 years, while females is 65.3 years. The mean age of males in Group 2 is 74.7 years whereas females is 75.3 years and the mean age of males in Group 3 is 83.2 years and females is 83.3 years. Males in the study had an average age of 70.6 years, while females had an average age of 71.5 years.

The mean CPI score of 2.1939 +/- 0.68 was seen in the elderly males of all age groups and 1.9453 +/- 1 was seen in elderly females. A p-value of 0.000 was found between the mean CPI scores of each group which is regarded extremely significant. The mean DMFT score of 1.8809 +/- 1.06 was seen in the elderly males of all age groups and 1.9909 +/- 0.96 was seen in elderly females. A p-value of 0.001 was found between the mean DMFT scores of each group which is regarded as extremely significant. A mean score of 1.8920+/- 0.63 indicates the treatment needs in the elderly males whereas 1.8907 +/- 0.75 in elderly females. A p-value of 0.000 was found between the mean treatment needs scores of each group which is regarded extremely significant. **(Table 1)**

	GENDER	N	Mean	Std Deviation	P Value
CPI	Male	361	2.1939	0.68400	0.000
	Female	439	1.9453	1.00078	
DMFT	Male	361	1.8809	1.05919	0.001
	Female	439	1.9909	0.96747	
R^xNEEDS	Male	361	1.8920	0.63418	0.000
	Female	439	1.8907	0.75663	
P<0.05= statistically significant					

Table 1. Gender wise distribution of Mean, Standard deviations of CPI, DMFT & Treatment needs

A significantly higher bleeding score of 20.9% in the elderly males and 79.1% in the elderly females was reported in the Group 1; Group 2 recorded 0% of males and 100% of females, whereas Group 3 reported 5% of males and 95% of females. Pockets measuring 4- 5mm was observed in 67.5% males & 32.5% females in Group 1; 79.7% males & 20.3% females in Group 2 and 85.7% males & 14.3% females in Group 3. Pockets measuring 6mm and above were reported 43.9% in males, 56.1% in females of Group 1; 4.2% males and 95.8% females of Group 2 and 20% males and 80% females of Group 3. The excluded sextent indicative of missing tooth component was recorded as 58.1% in males and 41.9% females in Group 1 ; 41.7% males and 58.3% females in Group 2 and in Group 3, it was 40% males and 60% females.**(Table 2)**

Table 2. Gender wise distribution of CPI, DMFT, Treatment needs Scores among different age groups

Score	Age	CPI		DMFT		R^x needs		Chi Square Value			P Value		
		Male	Female	Male	Female	Male	Female	CPI	DMFT	R^x needs	CPI	DMFT	R^x needs
0	60-70	-	-	22(44%)	28(56%)	-	-	-	3.972	-	0.00	0.046	-
	71-80	-	-	11(73.3%)	4(26.7%)	-	-						
	81 & above	-	-	0	0	-	-						
1	60-70	23(20.9%)	87(79.1%)	63(61.2%)	40(38.8%)	60(40.8%)	87(59.2%)	23.700	4.533	1.289	0.015	0.104	0.525
	71-80	0	93(100%)	26(44.1%)	33(55.9%)	28(33.3%)	56(66.7%)						
	81 & above	1(5%)	19(95%)	6(50%)	6(50%)	6(40%)	9(60%)						
2	60-70	131(67.5%)	63(32.5%)	71(44.1%)	90(55.9%)	115(59%)	80(41%)	8.365	2.059	4.540	0.00	0.357	0.103
	71-80	126(79.7%)	32(20.3%)	65(36.7%)	112(63.3%)	84(49.1%)	87(50.9%)						
	81 & above	18(85.7%)	2(14.3%)	11(36.7%)	19(63.3%)	13(44.8%)	16(55.2%)						
3	60-70	25(43.9%)	32(56.1%)	23(47.9%)	25(52.1%)	22(44%)	28(56%)	29.632	1.311	3.078	0.395	0.519	0.215
	71-80	3(42.2%)	69(95.8%)	27(37.5%)	45(62.5%)	27(29.3%)	65(70.7%)						
	81 & above	2(20%)	8(80%)	4(44.4%)	5(55.6%)	6(35.3%)	11(64.7%)						
x	60-70	18(58.1%)	13(41.9%)	18(60.0%)	12(40.0%)	-	-	1.858	2.267	-	0.017	0.519	-
	71-80	10(41.7%)	14(58.3%)	10(41.7%)	14(58.3%)	-	-						
	81 & above	4(40%)	6(60%)	4(40%)	6(60%)	-	-						

Table 2. Gender wise distribution of CPI, DMFT, Treatment needs Scores among different age groups

Sound tooth was reported in 44% males and 56% females in Group 1 ; 73.3% males and 26.7% females in Group 2. Decayed tooth was reported in 61.2% in males and 38.8% in females of Group 1; 44.1% in males and 55.9% in females of Group 2 and 50% in males and 50% in females of Group 3. Filled tooth was reported in 44.1% in males and 55.9% in females of Group 1 ; 36.7% in males and 63.3% in females of Group 2 and 36.7% in males and 63.3% in females of Group 3. Missing tooth due to caries was seen in 47.9% males and 52.1% females of Group 1 ; 37.5% in males and 62.5% in females of Group 2 and 44.4% in males and 55.6% in females of Group 3. Missing tooth due to other reasons were reported in 60% males and 40% females in Group 1, 41.7% males and 58.3% females in Group 2 and 40% males and 60% females in Group 3. **(Table 2)**

Preventive or routine treatment was needed most in 40.8% males and 59.2% females in Group 1 ; 33.3% males and 66.7% females in group 2 and 40.0% males and 60% females in Group 3. Requirement of prompt treatment in the form of dentures and other treatments was needed in 59% males and 41% females in Group 1 ; 49.1% males and 50.9% females in Group 2 whereas 44.8% males and 55.2% females in Group 3. Requirement of immediate treatment needed due to pain or infection of dental and/or oral origin was reported most in 44% elderly males and 56% females in Group 1 ; Group 2 comprised 29.3% males and 70.7% females, whilst Group 3 had 35.3% males and 64.7% females. **(Table 2)**

DISCUSSION

Ageing is an ubiquitous process and an inexorable biological phenomenon. The average life span is rising globally due to advancements in medical science and improved social conditions. As a result, health professionals now have a dual responsibility to prolong life expectancy and, perhaps more importantly, to enhance quality of life in later years. Given the fact that a substantial proportion of India's population is ageing , it is anticipated that by 2025, India would have one of the highest rates of elderly people globally, i.e. 177 million (80% of them residing in rural areas). Hence it becomes necessary to collect pertinent information on the oral health of the elderly to serve as baseline data for policy formulation, monitoring and evaluation purposes.[4] Hence, the present study was carried out to assess the oral health status and treatment needs among geriatric population attending Primary Health Care Center, Rajanagaram, East Godavari District, Andhra Pradesh. The assessment of oral health status and treatment needs among 800 elderly people attending Primary Health Care center aged 60 years and above is reported and discussed here.

According to Bhaduria US et al, 2019[5], the prevalence of periodontal diseases in accordance with CPI scores was found to be slightly less compared to the present study. In the present study, a significant association between age groups and CPI scores was observed with elderly people in the age group of 61-70 years reporting higher bleeding score (49.3%), pockets measuring 4-5 mm (52%) and in the age group of 71-80 years reporting pockets measuring 6mm or more scores (51.8%). Excluded sextant component (Code X) indicative of tooth missing due to any reason (caries or any other reason) was higher in the age group of 71-80 years.

Nandita Gautam et al [6] in 2022 reported 12 percent of the individuals in a care home and 31% of the subjects in the family setting had pocket depths of 4-5 mm, while 1% of both groups had pocket depths of 6 mm. A statistically significant difference ($p < 0.001$) was seen between the elderly groups living in old age facilities and those in family setups. Agrawal et al[7] reported no participants with healthy periodontium and the most frequently observed periodontal condition in their study was shallow pockets (4-5mm) in 52% of dentate participants which is similar to the present study.

An assessment of dentition status according to 1997 WHO Oral Health Survey Procedure in the present study showed only 8% of population with sound tooth, 21.8% with decayed tooth. Missing teeth comprised the maximum percentage of dentition status of which missing due to caries were 66.8% whereas teeth missing due to other reasons were 33.2%. In contrast to the present study, Shaheen et al.[8] reported that 32.3% teeth were decayed, teeth missing due to caries were 29.1%.The higher incidence of tooth loss in the current research has been attributed by changes in ageing and a lack of awareness about conservative treatment options. Mayson Salih et al.[9] in 2021 reported that the mean (DMFT) was 15.9 (SD ± 9.1), with 85.3%, 94.8%, and 19.3% of the participants had decayed, missed or filled teeth, respectively. 41.9% of individuals had periodontal pockets, and 84.2% experienced attachment loss. Only 14.9% had mucosal lesions while 46.2% showed signs of tooth wear. Although just 5.2% of individuals were entirely edentulous, 93.2% required at least one unit prosthesis, with only 10% having removable dentures. The primary predictors of poor oral health were female gender, poor oral hygiene behaviors, the frequency and purpose of dental visits, and a negative view of oral health. Shaheen et al[8] reported the mean DMFT of 2.80+/-4.70 whereas in the present study, it is 1.88+/-1.05 in males and 1.99+/-0.96 in females.

According to Vikram Bansal et al.[10], 47.4% of the participants had no functional teeth, while 26.9% did not employ any oral hygiene measures. 19.1% subjects reported wearing a denture. 36.8% subjects had not visited a dentist ever in their life. 28.7% subjects were suffering from pain. The largest number of individuals had a CPI score of 2, and the average number of decaying teeth per subject was 3.66.

According to Adiatman et al. (2013)[11], 29.8% of the elderly population needed no treatment, 68.1% required dental extractions, and 37.2% needed restorative care. An assessment of treatment needs in the present study indicated 30.8% required preventive or routine treatment in the form of restorations, 49.4% required prompt treatment in the form of dentures and other treatments and 19.9% required emergency treatment in the form of extractions. Prosthetic need was required in 24.1% elderly people. In contrast with the present study, Eachempati et al,[12] reported 86% were in need of prosthesis and Shenoy et al, reported 85% of participants needed prosthesis.

Both conventional and contemporary oral health practices coexist in the rural population, according to research published in 2006 by Pankaj Goel et al.[13] Most people have access to dental care (mainly through the private sector), and many elderly people were concerned about becoming edentulous due to unmet treatment needs for periodontal and dental caries. There was a statistically significant relationship identified between edentulousness and age ($p=0.005$).

CONCLUSION

The present study revealed the higher prevalence of oral problems such as dental caries, periodontal problems and edentulousness among geriatric patients and increased treatment needs. To improve the oral health of the elderly population, it is recommended to conduct periodic screenings at both the primary and community levels. Addressing these concerns can improve the quality of life for older people and reduce the burden on families, community, and the country. Government agencies should step more to improve and promote the oral health of the senior population.

Conflicts Of Interest: Nil.

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