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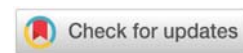
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\*Corresponding author: Nandita Gautam, Department of Public Health Dentistry, Institute of Dental Sciences, Bareilly, India, E-mail: [nanditagautam63552@gmail.com](mailto:nanditagautam63552@gmail.com)

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## Research Article

# Assessment of oral health among elderly living in old age homes and within family set up in Bareilly city: A cross-sectional study

Nandita Gautam<sup>1\*</sup>, Shivalingesh KK<sup>2</sup>, Anushtha Kushwaha<sup>1</sup>, Lubna Shoaib<sup>3</sup> and Vertika Mahar<sup>4</sup>

<sup>1</sup>Department of Public Health Dentistry, Institute of Dental Sciences, Bareilly, India

<sup>2</sup>Professor & Head, Department of Public Health Dentistry Institute of Dental Sciences, Bareilly, India

<sup>3</sup>Department of Periodontology, Institute of Dental Sciences, Bareilly, India

<sup>4</sup>Department of Conservative Dentistry & Endodontics, Institute of Dental Sciences, Bareilly, India

## Abstract

**Introduction:** Aging is a natural process but at the same time, the aging population has substantially increased. Socially this stage is considered the total of one lived experience.

**Materials and methods:** The sample size has been 200 which is 100 in each group. Individuals beyond 60 years of age and who will be able to cooperate with the study were included in the study. World Health Organization oral health assessment form (2013) was used to record the oral health status of the subjects. The data were entered into an excel sheet and transferred to SPSS V. 21. for statistical analysis and Chi-square and ANOVA tests were done.

**Results:** On assessment, 83 percent of old-age home residents and 68 percent from the family group did not have a periodontal pocket. Nonetheless, 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. In comparison among elderly within the family set up and old age, homes reported a statistically significant difference between the 2 groups ( $p < 0.001$ )

**Conclusion:** The findings of this study revealed that the institutionalized geriatric population suffers from a wide range of dental illnesses, the most frequent of which is dental caries. For the same, many of them require extensive treatment.

## Introduction

“Forty is the old age of youth; fifty is the youth of old age.” French means the natural process of waxing and waning of the body aging which starts at a very young age but is visible only in old age [1]. India is in a phase of demographic evolution. There has been a sharp increase in the number of elderly persons between 1991 and 2001. It has been projected that by the year 2050, the number of elderly people would rise to about 324 million. India has thus acquired the label of “an aging nation” [2]. In India the size of the elderly population, i.e persons above the age of 60 years is fast growing. As per the census of 2011, the elderly population constitutes 8% of the population of India. In rural areas, around 8.1% of the population is above the

age of 60 years, while in urban areas 7.9% of the population is above the age of 60 years [3].

Oral health is gaining global attention because it is closely linked to general health and the quality of life. Among adults 65 years old or older, missing natural teeth and chronic oral diseases, such as dental caries, periodontal diseases, oral infections, oral mucosal lesions, and temporomandibular disorders, are common [4]. Older people often suffer from chronic illnesses for which daily medications are needed. One common oral side effect of medications is hyposalivation [4]. Caries or mucosal infections dramatically increase with the impairment of the saliva function, giving rise to various oral health complications [4]. These problems make the fulfillment

of basic daily needs (e.g., chewing and communication) more difficult, leading to consequential physical health problems, such as nutritional inadequacy and psychosocial distress (e.g., low self-esteem and social insufficiency). The institutionalized elderly population is a vulnerable subpopulation and is often care-dependent with poor oral health [4].

Keeping these points in mind, an attempt was made to assess the oral health status among the geriatric population of Bareilly city living in old age homes and the family setup.

## Materials and methods

The cross-sectional study was conducted (December 2019 – November 2020) in the residential societies (Suresh Sharma Nagar, Green Park, and Sun City) and old age homes (Vradhjan Avas Grah) of Bareilly city. For the current study estimated sample size was rounded to 200 (using G Power V 3.1 Software) and divided into two groups as mentioned above i.e. 100 in each group. Geriatric population living in old age homes (Group-1) and a family set up (Group-2) in Bareilly city. The objective of the study was to assess oral health status among the geriatric population of Bareilly city living in old age homes and the family setup.

From the randomly selected single block, one house was identified randomly to start the study (Group-2). The immediate next house or nearby house visit was made to find elderly study subjects in the selected area. This procedure was repeated till a desirable sample size of 100 was reached. The nature, purpose, and objectives of the study were explained to the elderly chosen for the study, and confidentiality was assured. During the visit, every effort was taken to relax the elders. After taking written informed consent the elderly were interviewed using the pretested proforma. Interview and examination of female participants were carried out in presence of a female attendant. It took around 45 min to examine one participant

### Selection of study population from old age homes

When deciding to conduct the present study, there were 8 old age homes in Bareilly city. The study population was selected from 3 randomly selected old age homes out of 14, which shelter both males and females.

Ethical clearance was obtained from the Institutional Review Board (IRB) of the dental college, Bareilly. The sample size has been scientifically estimated using G Power V 3.1 Software which yielded a minimum sample size of 200 which is 100 in each group. Subjects who were willing to give their consent, individuals beyond 60 years of age, and who will be able to cooperate with the study were included in the study. While Subjects with cognitive impairment and reported psychological problems were excluded from the study. A modified case history proforma consisting of demographic details, and information related to psychological and systemic health was used to collect data from the subjects World Health Organization oral health assessment form (2013) was used to record the oral health status of the subjects. The data were entered into an excel sheet and transferred to SPSS V. 21. for statistical analysis and the chi-square test was used.

## Results

A cross-sectional study was conducted (December 2019 – November 2020) in the residential societies (Suresh Sharma Nagar, Green Park, and Sun City) and old age homes (Vradhjan Avas Grah) of Bareilly city.

The participants were above 60 years of age. In the 60-69-year-old age range, 31% of the subjects came from a family setting, and 43% were seen in an old age home, which was the highest percentage among the study participants. In the 70-79-year-old age range, 32 percent were detected in both categories. Old age homes accounted for 25% of the population over the age of 80, while residential society accounted for 37%. The mean age (mean SD) was determined to be 73.85 8.44 (residential society group) and 76.84 8.90 (old age home group). In a comparison of age among the study subjects, there was a statistically significant difference between the 2 groups ( $p < 0.001$ ) as shown in Table 1, Graph 1.

From Table 2 it was discovered that out of 200 elderly people, 100 (50%) were men and 100 (50%) were women. In the group living with family members, there were 66 men and 34, whereas, in the old age homes, there were 30 men and 70 women. There was no statistically significant difference between the two groups when the gender distribution of the study individuals was compared Graphs 2-6, Table 3.

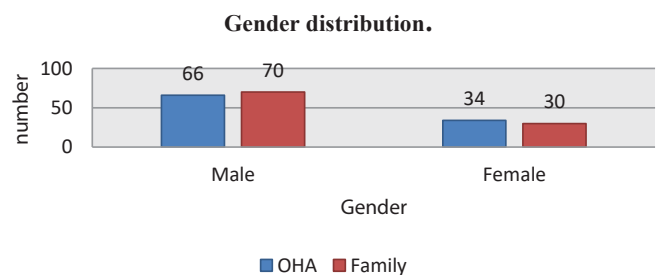
## Discussion

Oral health problems in the elderly have been linked to a higher rate of tooth loss, dental caries, and the highest incidence of periodontitis, xerostomia, and oral pre-cancer/cancer all over the globe. This study was conducted since there is scant data about the oral health of geriatrics at old age institutions in Bareilly city. The findings of the present study were in agreement with those of a study performed by Sujatha

**Table 1:** Age Group distribution among elderly of within family set up and old age homes.

Age Group	Old Age Home		Within Family Set up		P - Value
	No	%	No	%	
60-69	43	43	31	31	0.118#
70-79	32	32	32	32	
>80	25	25	37	37	
Total	100	100	100	100	
Mean Age(mean± SD)	73.85 ± 8.44		76.84 ± 8.90		0.019*

#statistically not significant, \*statistically significant.



**Graph 1:** Gender distribution among elderly within the family set up and old age homes.



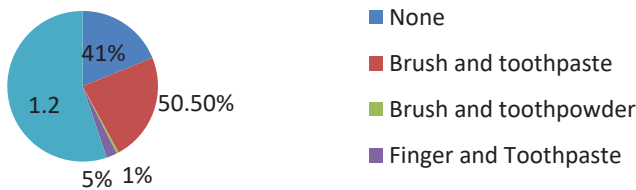
KB, et al [5], which found that 83 percent of those aged 65 to 70 years old and 17 percent of those aged 71 to 74 years old.

In the residential society category, there were 66 men and 34 women, whereas, in the old age homes, there were 30 men and 70 women. These findings contrast with those of Sujatha KB, et al. [5], who found that 65 percent of the participants were men and 35 percent were women in their research. Of the total elderly examined 50.5 percent used a toothbrush and toothpaste to clean their teeth, and 49 percent rinsed their mouth more than twice. As according to Unlüer, et al. (2007) [6] and Nagesh, et al. (2005) [7], barely 15% and 32.69 percent of the population wash their teeth, respectively, which is consistent with previous research. National Oral Health Survey

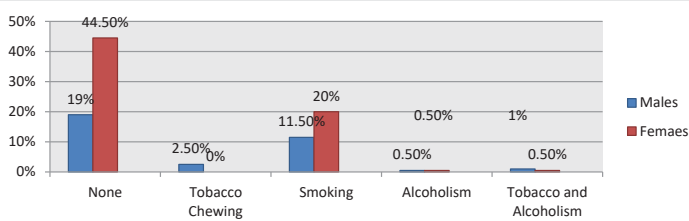
**Table 2:** Dentition Status Among Elderly Of Within Family Set Up And Old Age Home.

Dentition status	Old Age Home		Within Family Set up		Total	P - Value
	No	%	No	%		
Decayed	48	48%	52	52%	100	<0.001*
missing due to caries	12	12%	18	18%	30	
Filled	7	7%	21	21%	28	
missing not due to caries	88	88%	90	90%	178	
With bridge and abutment	56	56%	6	6%	62	

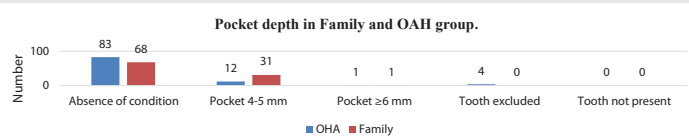
\*statistically significant.



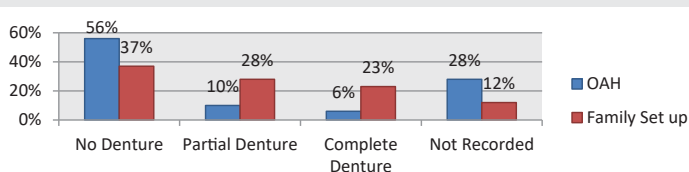
**Graph 2:** Oral hygiene practices in the elderly.



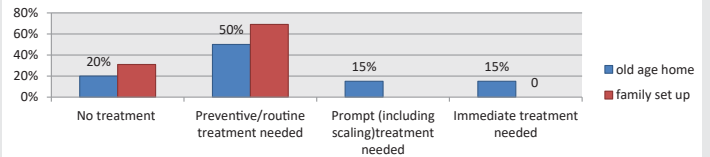
**Graph 3:** Various harmful habits among elderly within family setup and old age homes.



**Graph 4:** Pocket depth among elderly of within family set up and old age home.



**Graph 5:** Prosthesis in Family And OAH Group.



**Graph 6:** Intervention Urgency among elderly of within family set up and old age home.

**Table 3:** Loss of attachment among elderly within family setup and old age homes.

Loss of attachment	Old Age Home		Within Family Set up		P - Value
	No	%	No	%	
0-3 mm	0	0%	0	0%	0.683#
4-5 mm	0	0%	0	0%	
6-8 mm	15	15%	27	27%	
9-11 mm	9	9%	13	13%	
≥ 12 mm	0	0%	0	0%	
not recorded	0	0%	0	0%	

#statistically not significant.

(2004) MP. [8] and Gaiao, et al. (2009) [9] revealed inconsistent results, with 43.85% and 51.3 percent of senior people brushing their teeth, respectively.

### Oral health of geriatrics in old age home

Caries prevalence among dentate subjects was 48%. Similar results were obtained by the studies of Kalsbeek, et al. (1991) [10] and Cortes Martinicorena, et al. (1993) [11]. Results of Heft and Gilbert (1991) [12] and Rao, et al. (1999) [13]. The mean number of missing teeth amongst dentate participants in this study was 12 percent, which was similar to the findings of Cruz, et al. (1993) [14] (2001). Rao, et al. (1999) [15] revealed contradictory results.

The LOA was calculated to get an assessment of the periodontal attachment's lifetime cumulative damage. In the current investigation, the most common periodontal condition in terms of LOA was 6-8 mm, which was seen in 15% of the dentate patients. It was substantially higher than the results reported in the National Oral Health Survey and Fluoride Mapping (2004). (54.4 percent) [16], Bánóczy, et al. [17], also found a greater prevalence rate of leukoplakia amongst smokers, with a dose-response association between tobacco use and oral leukoplakia, i.e. 11.50 percent men and 20 percent women.

In the present study, the number elderly of who had partial dentures was 10%, and complete dentures in 6%. In contrast, in a study conducted by Vanishree, et al. [18], 9% of subjects had partial dentures and only 2% had complete dentures. Helöe and Kolberg [19]. Reported that 15% of subjects had partial dentures in the maxillary arch. Of 100 geriatrics, 20% required no treatment, 50% required preventive or routine treatment, 15% required prompt treatment, while 15% needed immediate treatment which is in contrast to a study conducted by Sanadhya et al. [20], in which 34 (3.5%) subjects required preventive care and 268 (27.4%) required immediate treatment.

### Oral health of geriatrics family set-up

In our study, the prevalence of tooth decay was high, at



48 percent. This finding is consistent with research conducted in France by Rober B, et al. [21] and in South Africa by Molete M. P. [22]. The majority of research was conducted in urban regions where health care services are easily accessible, owing to the degree of education and access to oral health.

Only 6% of study participants had bleeding when they were probed. These findings are lower than those of a survey conducted in Saudi Arabia, in which calculus was found to be the most common (48.2%) among the individuals and was substantially more prevalent in males. With no statistically significant differences between males and females, bleeding on probing and loss of attachment were reported in 24.1 percent and 19.3 percent of the participants, respectively. The frequency of attachment loss was analogous to Kanoute's (10.0 percent) [23] and Vatsana's results in Vietnam (9.8 percent) [24]. Tooth extraction and periodontal disorders are always the causes of tooth loss. 90 percent of the population has severe periodontitis, which can lead to tooth loss.

The prevalence of oral mucosal lesions in the current study was 13%, which is quite high when compared to the prevalence of 1.6 percent in a study performed by Gambhir, RS et al. [24].

In the current study, 28 percent of the elderly had partial dentures, whereas 23 percent had complete dentures. In research by Vanishree et al. [17], however, 9 percent of the participants had partial dentures and only 2% had complete dentures. Kolberg and Helöe [18]. In the maxillary arch, 15% of the individuals had partial dentures, according to the study.

## Conclusion

The findings of this study revealed that the institutionalized geriatric population suffers from a wide range of dental illnesses, the most frequent of which is dental caries. For the same, many of them require extensive treatment. Education for caregivers and periodic screening should be done at the community level to enhance the oral health of the geriatric population in old-age homes. On a personal level, fluoride dentifrices, mouth rinses, and chlorhexidine solution can be employed. Addressing some of these concerns may help to improve the quality of life of older people while also reducing the burden on their families, society, and country.

## References

1. Banker K, Prajapati B, Kedia G. Study of health profile of residences of geriatric home in Ahmadabad district. *National Journal of Community Med.* 2011; 2(3) : 378-382.
2. Pandve HT, Deshmukh P. Health survey among elderly population residing in an urban slum of Pune city. *Journal of the Indian Academy of Geriatrics.* 2010; 6:5-8.
3. Pandve HT, Chavan VM, Giri PA. Study of health problem and addiction pattern among elderly population in rural areas of Pune, India. *Epidemiology (Sunnyvale).* 2017; 7:2.
4. Wong FMF, Ng YTY, Leung WK. Oral Health and Its Associated Factors Among Older Institutionalized Residents-A Systematic Review. *Int J Environ Res Public Health.* 2019 Oct 26;16(21):4132. doi: 10.3390/ijerph16214132. PMID: 31717812; PMCID: PMC6861909.

5. Sujhata BK, Gomez SSM, Mathew SN, Suresh J. Oral Health Problems among Geriatric Population and its Implication on General Health: A Cross-sectional survey. *Journal of Dental Research and Review.* 2017; 4(1): 13-16.
6. Unlüer S, Gökalp S, Doğan BG. Oral health status of the elderly in a residential home in Turkey. *Gerodontology.* 2007 Mar;24(1):22-9. doi: 10.1111/j.1741-2358.2007.00136.x. PMID: 17302927.
7. Nagesh LM, Ankola AV, Nerli S. Oral health status and treatment needs of the elderly people residing in old age homes of Belgaum city, Karnataka state, India. *J Pierre Fauchard Acad.* 2005;19(1):27-32.
8. National Oral Health Survey and Fluoride Mapping 2002- 2003 Madhya Pradesh.
9. Ribeiro Gaião L, Leitão de Almeida ME, Bezerra Filho JG, Leggat P, Heukelbach J. Poor dental status and oral hygiene practices in institutionalized older people in northeast Brazil. *Int J Dent.* 2009;2009:846081. doi: 10.1155/2009/846081. Epub 2009 May 26. PMID: 20339459; PMCID: PMC2836820.
10. Kalsbeek H, Truin GJ, Burgersdijk R, van 't Hof M. Tooth loss and dental caries in Dutch adults. *Community Dent Oral Epidemiol.* 1991 Aug;19(4):201-4. doi: 10.1111/j.1600-0528.1991.tb00146.x. PMID: 1889191.
11. Cortes Martinicorena FJ, Moreno Iribas C, Ardanaz Aicua E. Tooth loss and dental caries in an adult population in Navarra, Spain. *Community Dent Oral Epidemiol.* 1993 Jun;21(3):172-3. doi: 10.1111/j.1600-0528.1993.tb00746.x. PMID: 8348794.
12. Heft MW, Gilbert GH. Tooth loss and caries prevalence in older Floridians attending senior activity centers. *Community Dent Oral Epidemiol.* 1991 Aug;19(4):228-32. doi: 10.1111/j.1600-0528.1991.tb00152.x. PMID: 1889195.
13. Rao A, Sequeira P, Peter S, Rajeev A. Oral health status of the institutionalized elderly in Mangalore, India. *Indian J Dent Res.* 1999 Apr-Jun;10(2):55-61. PMID: 10865392.
14. Cruz GD, Galvis DL, Kim M, Le-Geros RZ, Barrow SY, Tavares M, Bachiman R. Self-perceived oral health among three subgroups of Asian-Americans in New York City: a preliminary study. *Community Dent Oral Epidemiol.* 2001 Apr;29(2):99-106. doi: 10.1034/j.1600-0528.2001.290204.x. PMID: 11300178.
15. National Oral Health Survey and Fluoride Mapping 2002- 2003 Madhya Pradesh.
16. Bánóczy J, Gintner Z, Dombi C. Tobacco use and oral leukoplakia. *J Dent Educ.* 2001; 65(1):322-327
17. Vanishree N, Sequeira PS, Rao A, Gupta N, Chandrashekar BS, Mohan AN. Oral health status and treatment needs of female beedi factory workers in Mangalore city, India. *Al Ameen J Med Sci.* 2014; 7(1):26-33.
18. Helöe LA, Kolberg JE. Dental status and treatment pattern in a group of commuting laborers in Norway. *Community Dent Oral Epidemiol.* 1974;2(5):203-7. doi: 10.1111/j.1600-0528.1974.tb01653.x. PMID: 4529673.
19. Sanadhya S, Nagarajappa R, Sharda AJ, Asawa K, Tak M, Batra M, Daryani H. The oral health status and the treatment needs of salt workers at sambhar lake, jaipur, India. *J Clin Diagn Res.* 2013 Aug;7(8):1782-6. doi: 10.7860/JCDR/2013/5887.3275. Epub 2013 Aug 1. PMID: 24086913; PMCID: PMC3782970.
20. Robert B, Mark H. Merck Manual of Geriatrics, Merck & Co., Kenilworth, NJ, USA, 3rd edition. 2000.
21. Molete MP, Yengopal V, Moorman J. Oral health needs and barriers to accessing care among the elderly in Johannesburg. *SADJ.* 2014 Sep;69(8):352, 354-7. PMID: 26548224.
22. Kanoute Evaluation of the state of oral health of the elderly in general consultation in health centers in the medical region of Dakar [Thesis in Dental Surgery]. Cheikh Anta Diop University of Dakar, Dakar, Senegal, 2007.



23. Vatsana C. The Oral Health of Elderly Population in Vietnam. *Thesesodonto-Stomatologie*. 1989; 5(1):29-34.

24. Gambhir RS, Sogi GM, Veerasha KL, Sohi RK, Randhawa A, Kakar H. Dental

health status and treatment needs of transport workers of a northern Indian city: A cross-sectional study. *J Nat Sci Biol Med*. 2013 Jul;4(2):451-6. doi: 10.4103/0976-9668.117010. PMID: 24082750; PMCID: PMC3783798.

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