

Oral health status among the geriatric population - A cross sectional study

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Objective. The objective of the study was to assess the various oral changes in geriatrics patients.

Methods. This was a cross-sectional, observational study among the geriatric subjects visiting outpatient department of our institution. A total of 450 geriatric subjects visiting the dental clinic were examined for various oral changes. The various oral changes were entered into a structured proforma by a trained dentist after recording the demographic details, habit history, systemic illness. Chi square test was applied to check the association between qualitative data and Student t-test was used for analysis of quantitative data.

Results. A total of 450 elderly patients in the age range of 60-90 years with a mean age of 67.12 years were enrolled in the study. Majority of them were males (66.4%). Oral manifestations were divided into hard tissue and soft tissue findings. Among the hard tissue, the prevalent findings were partially edentulous followed by periodontitis, wasting disease, dental caries, completely edentulous. Soft tissue manifestations were gingivitis followed by oral cancer, leukoplakia, candidiasis, smokers melanosis, gingival enlargement.

Conclusions. The maintenance of oral health in the elderly population should be given importance not only on emergency basis but by encouraging them to pay regular visit to their dentists thereby they could lead a better quality of life.

Key words: geriatrics, oral manifestations, observational study

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INTRODUCTION

As aging affects all parts of the human body it is necessary to recognize the various changes that occur in each individual. As age advances, cumulative effects on oral health become evident affecting both the hard and soft tissues. Oral health maintenance in the geriatrics is gaining importance as the life span is rapidly increasing in both developed and developing countries. Hence, chronic non-communicable diseases are increasing and is one of the leading causes of disability and mortality among the geriatric population ¹. About 7.7% of the Indian population are elderly and geriatric dentistry is in its infancy in India ². There are very few studies done

with relation to oral changes in the geriatric population except concerning oral cancer³⁻⁵.

Early identification of age-related changes and oral diseases will help dental professionals provide dental care. In addition, with regular follow-ups quality of life among the geriatric people, especially with systemic diseases can be ameliorated. Issues associated with aging can be overcome by conducting community outreach programs focused on creating patient awareness and lifestyle changes to positively influence oral health. Therefore, this study was aimed to assess the various oral changes in geriatric patients.

METHODS

This was a cross-sectional, observational study among the geriatric subjects visiting Manipal College of Dental Sciences, Mangalore, Karnataka, India. Four hundred and fifty geriatric subjects visiting the dental clinic were examined for various oral changes. Those above 60 years were considered as geriatrics⁶. Each patient was explained the details of the study. Consent from individual patients was obtained to participate in the study. The various oral changes were entered into a structured proforma by a trained dentist after recording the demographic details, habit history, systemic illness. The study protocol was approved by the institutional ethical committee. The study subjects included were those above 60 years and willing to participate in the study. The patients who were mentally ill, dependent on others, not cooperative were excluded from the study. The sample size was 450 and was calculated assuming the prevalence of the dental disease among older persons as 50 at 95% confidence interval with 5% precision and 5% error using <http://samplesize.sourceforge.net>.

STATISTICAL ANALYSIS

Using SPSS (17.0 version) statistical analysis was done. (Java (TM) Platform SE binary-IBM Corp: London: UK.) Tabulation of descriptive statistics was done. To check the association between qualitative data Chi square test was applied whereas Student t-test was used for analysis of quantitative data. The impact of various factors involved with disease occurrence was assessed using logistic regression analysis. The p-value of ≤ 0.05 was considered to assess the statistical significance.

RESULTS

A total of 450 elderly patients in the age range of 60-90 years with a mean age of 67.12 years were enrolled in the study. Majority of them were males (66.4%) and semiskilled (55.8%) while 14.7% were illiterate.

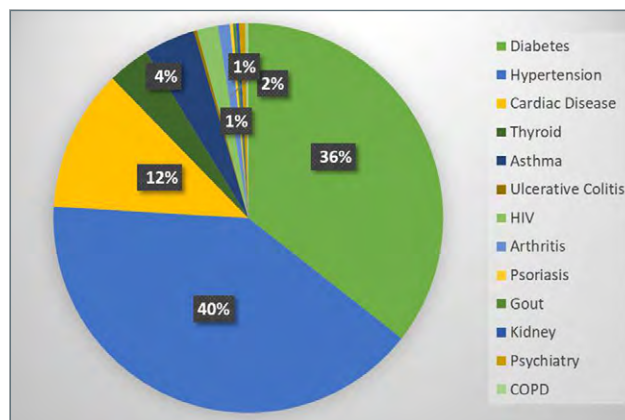


Figure 1. Prevalence of systemic diseases among the geriatric population.

On comparing the personal history majority of them (55.8%) brushed their teeth once daily. Most of the participants (86.4%) consumed a mixed diet. When enquired about their habits regarding smoking, using smokeless tobacco, alcohol, or a combination of any of the aforementioned, the percentage was as follows 3.3, 2.2, 5.1%, and 4.36% respectively and 84.8% did not report any adverse habits.

Most of the patients (38.6%) did not have any systemic disease (Fig. 1). Among those who had systemic diseases majority had diabetes mellitus followed by hypertension and cardiac disease. The percentages within the systemic disease category were 12.2, 14.8, and 2.66% respectively. Around 14% of the patients had a combination of diabetes and hypertension.

Oral manifestations were divided into hard tissue and soft tissue findings (Graph 2). Among the hard tissue, the prevalent findings were partially edentulous followed by periodontitis, wasting disease, dental caries, completely edentulous. The percentages within the hard tissue findings were 74.6, 64.22, 60, 58.66 and 8.4% respectively. Forty-four percent of the participants had grade I calculus and forty-six percent had extrinsic stains.

The percentages of the soft tissue manifestations were gingivitis (5.33%) followed by oral cancer (3.77%), leukoplakia (2%), candidiasis (1.77%), smokers melanosis (1.1%), gingival enlargement (1.11%). The least commonly occurring lesions were traumatic ulcer, fissured tongue followed by traumatic fibroma, geographic tongue, macroglossia, oral submucous fibrosis. Xerostomia was seen in 10.22%.

DISCUSSION

The geriatric populations are increasing worldwide, this could be attributed to better medical facilities,

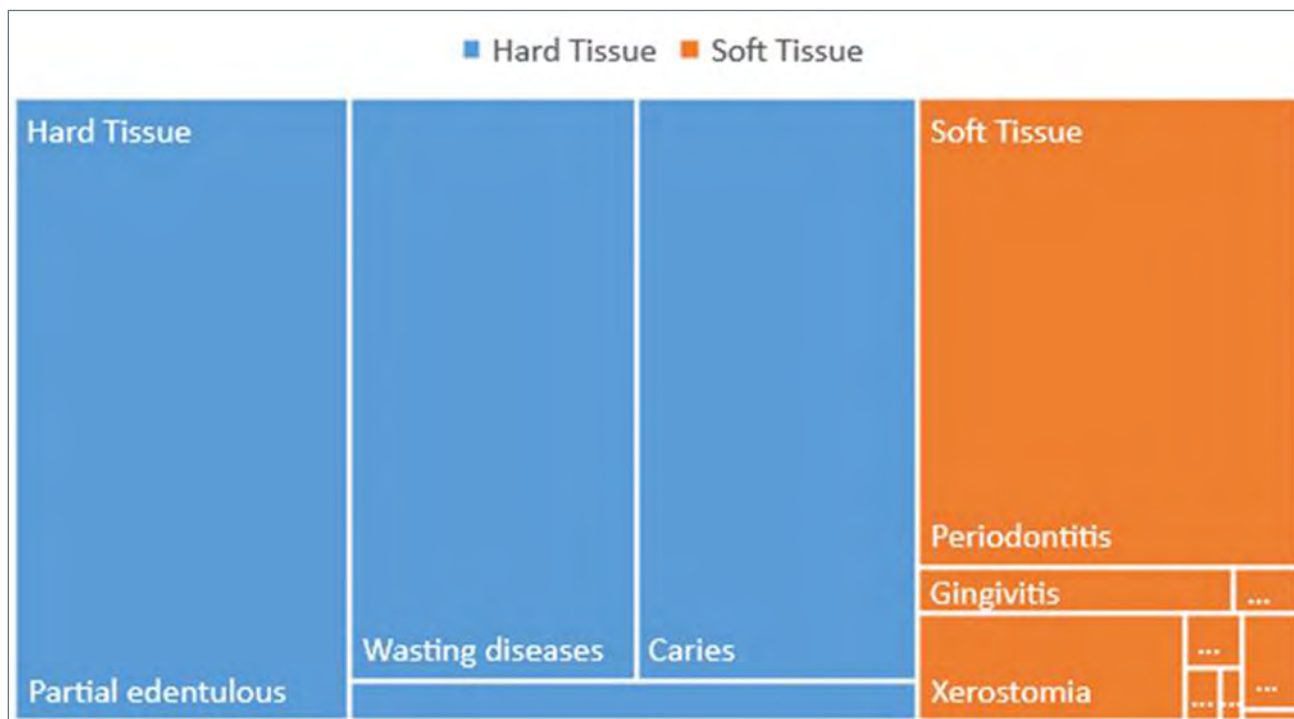


Figure 2. Oral manifestations in geriatric population.

education, etc. The mean age of the geriatric population in the present study was 67.12 years which was similar to the study done by Cheruvathoor et al. 2020⁷. In India around 40.2% of the people consumed tobacco in smoke form and around 52% in a smokeless form. A survey conducted in India showed that people who exclusively smoked tobacco was 22.1%, smokeless tobacco use was 24.7%, consumed tobacco in both forms was 8.9%⁸. However in the present study majority of the subjects did not have any adverse habits. The prevalence of adverse habits was lesser when compared to a study done by Mini et al.⁹. And almost similar to the study done by Liu et al. in 2013¹⁰. In our study only 14.7% of the elderly were illiterate, but according to Ingle 2008 around 73% of the elderly population in India were illiterate¹¹. Most of our study participants were literate and this could be attributed to the reason that majority of our patients were from the urban area.

The burden of disease in the elderly could be due to various lifestyle habits and also it is evident that with aging the prevalence of comorbidities increases. Hypertension and diabetes were the most common comorbidities seen in our study population followed by cardiac disease which was similar to the findings of Cheruvathoor et al.⁷. Similarly, Devi et al.¹² reported that they found a 13.9 to 46.3% prevalence of hypertension in the urban areas of India. Diabetes mellitus is

present in 20% of the elderly in India¹³. Around 14% of the study subjects had a combination of diabetes and hypertension which is a very common combination in the elderly¹⁴. It is said that we would see an increase in the prevalence of these two conditions in India due to an increase in aging, improvement in the standard of living due to urbanization, and eating junk food¹⁵.

Periodontitis and dental caries increase as age advances which could eventually lead to partial or complete edentulousness further leading to nutritional deficiency as they will have difficulties in mastication due to which they reduce the intake of hard diet¹⁶.

Edentulous: majority (74.6%) were partially edentulous in the present study which was similar to a study done by Jandial et al.¹⁷. However, our study results were in contradiction with that of Karl Peltzer¹⁸ which included 6 countries the overall prevalence of subjects being completely edentulous was 11.7% and the prevalence was less in countries like China, Ghana, and South Africa (3-9%) and more in India, Mexico and Russia (16.3-21.7%).

Periodontitis: a common manifestation in the elderly and affects more than 50% of the population¹⁹. Shaju et al.²⁰ in their article mentioned that periodontitis in India was more common in the rural areas when compared to urban areas and also there was an increased prevalence among people with tobacco-related habits. Periodontitis could result due to a decline in strength

which could lead to poor handgrip and thereby poor oral hygiene ²¹.

Dental caries: as age advances, there could be a decline of cognitive and physical functions which could lead to poor maintenance of oral hygiene resulting in an increased incidence of dental caries. Xerostomia, diet, partial denture, and Asian ethnicity are also the contributing risk factors ²¹⁻²³.

Gingivitis: a common condition is not only age-related but could also be attributed to plaque accumulation due to poor oral hygiene, trauma and tobacco use can lead to gingivitis which presents clinically as erythematous and swollen gingiva which could bleed easily ²⁴.

Oral cancer: tobacco use in various forms alone or in conjunction with the consumption of alcohol has been the most common cause of oral cancer in Asian countries ²⁵. Numerous studies have shown that the duration and intensity of tobacco consumption increase the incidence of oral cancer. While comparing the sites it was seen that the buccal mucosa is the most commonly affected site as it could be the area that is more exposed to these products ²⁶.

Xerostomia: a subjective feeling, does not depend on age alone but it could arise due to the side effects of various drugs, systemic diseases, radiation therapy ^{27,24}. Complications arising due to xerostomia are dental caries, bad breath, glossodynia, difficulty in swallowing, and articulation ²⁸. Prevalence of xerostomia in our study subjects was 10.22% which was similar to studies done by Lončar et al. and Diep et al. ^{29,30}.

CONCLUSIONS

Decline in oral hygiene habits and self-care with advancing age could be attributed to the decline in the cognitive function and mobility of an individual. The maintenance of oral health in the elderly population should be given importance as most of them are unable to perform their daily activities due to various chronic diseases, declining immune system, mental attitude, and consuming various medicaments which could also have side effects affecting the oral cavity. Hence, dental care should not be limited to an emergency basis and regular visits to the dentist should be promoted so that the elderly population can lead a better quality of life.

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Conflict of interest

The Authors declare no conflict of interest.

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Author contributions

CDE: conceptualization, data curation, writing; KN: data curation; SUN: data curation, review; RS: methodology, formal analysis; AB: review; TSB: writing, review & editing.

Ethical consideration

This study was approved by the Institutional Ethics Committee (Manipal College of Dental Sciences, Mangalore) (protocol number 20021).

The research was conducted ethically, with all study procedures being performed in accordance with the requirements of the World Medical Association's Declaration of Helsinki.

Written informed consent was obtained from each participant/patient for study participation and data publication.

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