# GERIATRIC DENTISTRY: STILL NOT MEETING THE NEEDS OF GERIATRICS

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## ABSTRACT

The specialty of geriatric medicine developed in the 1950s as a response to the particular health needs of frail older people since then the dental care for geriatric patients has been increasing day by day. The treatment and diagnosis of geriatric patient is challenging, as these patient have both systemic and oral problem. There is an escalating demand for geriatric oral healthcare in all developed and developing countries including India. Two-thirds of the world's elderly live in developing countries. This is a huge population that must receive attention from policy-makers who will be challenged by the changing demands for social and health services including oral health services. Viewing the recent Indian demographic profile and the trends in oral health, pertinent policy subjects have to be discuss concerning the oral health needs of the elderly and also the associated challenges which include strategies to improve quality of life, strategies to train and educate the dental workforce and above all the role of healthcare systems towards realization of better aged society in India and other developing countries.

**Key Words:** Geriatric dentistry, general health, oral health.

## INTRODUCTION

Aging is a natural process. Old age should be regarded as a normal, inevitable biological phenomenon. As a result of the advances made in medicine and public health measures in the last half of the 21st century, there is a substantial increase in the life span of man. Elders above 65 years (old age) have health problems as a result of aging process, which calls for special consideration.[1] Geriatric dentistry is the delivery of dental care to older adults involving the diagnosis, prevention, and treatment of problems associated with normal ageing and age-related diseases as part of an inter-disciplinary team with other health care professionals.[2] Geriatric dentistry is a science that is a multidisciplinary and multidimensional approach to the management of the oral health problems of the elderly.[3]

According to the WHO, the global population is increasing at the annual rate of 1.7%, while the population of those over 65 years is increasing at a rate of 2.5%. Both the developed, as well as the lesser-developed countries, are expected to experience significant shifts in the age distribution of the population by 2050.[4]

**Socio-demographic trends and characteristics of Indian geriatric population**

India has attained the tag of an ageing nation with the elderly population in 2013 being over 8% (100 million) and is anticipated to increase to 20% (325 million) by 2050. The elderly population was 20 million in 1951 and 57 million in 1991 followed by

a sharp increase in 2001.[5] According to observed growth rates for this period, the growth of the 60+ population was more than that of the total population.[6] The sex ratio among the elderly shows an increasing trend from 94 women per 100 men in 1991 to 105 in 2011. Eighty percent of the elderly population resides in rural areas. Nearly 75% of the elderly are economically dependent, with little difference between the urban and rural elderly. Three-fourths of the dependent elderly population is supported by their own family members. Thirty percent of the elderly are below the poverty line and only 28% of the elderly population is literate.[7] Utilization of dental care services varies between genders; being higher among females.[8] Apart from the masticatory needs, the aesthetic sense is higher among females. India's population is likely to increase by 60% between 2000 and 2050 but the number of elderly population who have attained 60 years of age will shoot up by 360% and the government should start framing policies.[9]

***Oral health services in India***

According to the World Health Organization (WHO), the provision of oral healthcare services is very little in rural parts of India where approximately 80% of the elderly reside. India has 310 dental colleges, almost one-third of the world's schools. Annually, more than 25,000 dentists graduate in India and more than 4,000 specialists graduate each year. There is a total workforce of approximately 200,000 dental practitioners in India at present, which is expected to soon swell to 350,000. Majority of the dental surgeons (~95%) work in private sector in urban and suburban areas. WHO recommends dentist-to population ratio of 1:7500. Dentists-to-population ratio in India, which was 1:300,000 in the 1960's, stands at 1:10,271 today. Dentist-to-population ratio is 1:250,000 in rural areas.[10] When dental professionals are disproportionately located in the private sector relative to a public sector that provides subsidized services, financial affordability also becomes a barrier to the care by the less well off.[11]

***Special consideration of dental care for Geriatric patients***

This population needs special consideration for dental treatment. The reasons being as follows:

- Almost all systemic diseases have oral manifestations; the first sign of which may be seen by the dental clinician.[12] Recent research suggests a relationship between oral disease and systemic diseases such as diabetes, cardiovascular disease, stroke, respiratory infections, Alzheimer's disease and other medical conditions.
- Most of the elderly population will be taking medications both by prescription and over-the counter which can cause a dry mouth or xerostomia. This would affect the ability to speak, and chew, and would increase the rate of caries, periodontal disease, traumatic ulcers, fungal infections and reduces denture retention in the edentulous patient.[13]
- It is usually observed that the elderly population will be on heavier regimens of drug therapy for various ailments so it is important that they visit the dental surgeon who is familiar with their drug needs. Specifically, as people age and as a result of the amount of drug use that occurs over a lifetime, drugs are metabolized differently than when the patient was younger. In geriatric dentistry, a dental surgeon will have to take into consideration the drug regimen that a patient is on and plan their use of prescription and follow up care accordingly.[14]
- Oral infections have a significant impact on morbidity and mortality of medically compromised patients, such as those with cancer or those undergoing chemotherapy. Elimination of oral infections before initiating radiation therapy, chemotherapy or various cardiac conditions is the standard of care in most medical institutions and needs to be practiced in all dental institutions.

- Diagnosis of Sjogren's syndrome, Wegener's granulomatosis and leukaemia can be supported by oral biopsies. Future use of saliva diagnostics is highly encouraging, including testing for cancers and many other systemic conditions.[15]

***Systemic Diseases and its dental relation***

Most common diseases seen in elderly patients are cardiovascular diseases, diabetes, respiratory diseases, blood dyscrasias and other systemic diseases which have relation with dental manifestations. Cardiovascular diseases and uncontrolled diabetes may exacerbate periodontal inflammation. Poor health of elderly population has been considered a risk factor for general health. Older individuals are more susceptible to oral diseases due to increase in chronic conditions like diabetes, heart diseases, respiratory problems, nutritional deficiencies and physical & mental disabilities.[16] It has been concluded that the oral health status of elderly people was found to be poor with higher incidence of tooth loss.[17] They are particularly at risk of root caries, which follows as a consequence of periodontitis. It has also been found that the prevalence of oral mucosal lesions was higher in older patients than in younger patients.[18] Cardiovascular diseases (CVD) and periodontitis has interrelationship because of common bacteria associated with its pathogenesis. Periodontal inflammation leads to bacteremia caused by common oral pathogens like Porphyromonas Gingivalis. These microorganism have been isolated from CVD like coronary and carotid atheromas. Therefore, CVD and Periodontitis are interrelated and commonly seen in geriatric patients.[19] Infective endocarditis, other common disease found in elderly patients has association with periodontitis. The bacteria like viridians streptococci normally found in oral cavity, whereas the bacteria found in dental plaque like Actinobacillus actinomycetemcomitans, Eiknella Corrodens, Fusobacterium Nucleatum and Bacteriodes Forsythus have been isolated from the blood sample of Infective endocarditis patients.[20]

Respiratory infections are usually caused by oropharyngeal and periodontal microorganism and bacteria. The main cause of respiratory infections and bacterial pneumonia in adults is aspiration of oropharyngeal bacteria. These micro flora habitats in inadequate oral hygiene resulting in formation of dental plaque further surving as a reservoir for respiratory pathogens.[21] The other common disease Rheumatoid arthritis (RA) is seen in elderly patients. This RA has similar characteristic of periodontitis as there is destruction of hard and soft tissues as a result of inflammatory response. However, the interrelationship as well as association between RA and periodontitis has not been proved. Diabetes Mellitus (DM) the other most common disease seen adult and elderly individuals in 21st century. It has been proved and found that the patients suffering from Type 1 and Type 2 DM have distinguished dental manifestations such as loss of periodontal attachment, gingival and periodontal abscess and early loss of teeth.[22] Dental changes in Elder patients Geriatric patients are prone wasting diseases of teeth such as attrition, abrasion, abfraction and erosion. This is because of the fact that the teeth are functional for a long period of time. Periodontal inflammation, loss of attachment, missing teeth, edentulism, ill fitting dentures, oral ulcerations, xerostomias and oral carcinomas are some of the age related changes. Further, root caries is other most common caries found in elderly patients.[23] Habits and Oral implications Elderly patient have habits such as smoking, tobacco pan and beetle nut chewing which leads to formation of precancerous or cancerous lesions. Thus, combining both systemic and oral problems the immunity declines in elderly people. Elderly people in rural areas have habit of tobacco and betel nut chewing as compared to urban population necessitating the need of integrating primary health care with oral care in rural population.[24] Further, financial constraints and lack of family support or of transportation facilities affect access to dental services in later life. Thus the untreated oral cavity has its deleterious effects on comfort, esthetics, speech, mastication and consequently, on quality of life in old age.

***Preventive measures for dental diseases***

Oral health care provider should educate patients regarding oral diseases and its prevention. The five golden rules for preventive dental diseases in geriatric patients are given below:-

1. A well balanced diet is the key to oral health and a body that is strong and free from diseases because nutrients available systemically will impact overall development, growth and maintenance of tooth structure, connective tissue, alveolar bone and oral mucosa
2. Don't eat sweet or sticky foods between meals because high sugar diet have often been associated with caries so such intake should be restricted.
3. Regular brushing after every meals or at least every meal at night which helps to keep teeth free of plaque and fight decay.
4. Choose right toothbrush that fits comfortably in hand and is easy to control. Massage your gums with your fingers after brushing and gently brush your tongue too.
5. Visit your dentist regularly.[25]

***Present scenario (barriers) of geriatric dentistry***

The specialty of geriatric medicine developed in the 1950s as a response to the particular health needs of frail older people but still barriers to dental care occur for all the groups of geriatrics. The reasons for a comparatively low utilisation rate of dental care by the elderly are as follows:

- Lack of experience and fear among dental surgeons when treating geriatric problems.
- Absence of extra financial incentives to the dental surgeons.
- Transportation and access problems to the dental surgery.
- Practical problems that exist in providing dentistry to homebound and institutionalised patients
- Negative attitudes toward the elderly need for dental care
- Difficulties dealing with debilitating and life threatening illnesses.
- The problem of informed consent and of family members or residential facility staff members with negative attitudes.

However, studies also indicate that the attitude towards dentistry is changing. Several authors have stated that as people age, a brighter picture may emerge as they will be better educated than previous generations of older adults; will have higher expectations about maintaining and preserving their natural dentition; may have the financial resources to fulfil their expectations.[26-29]

**Gerodontology – future implications for developing countries**

Geriatric oral health concerns continue to be a challenge in most of the countries as more people live longer. Resources are limited in every country. Rather than being over-ambitious in wanting to provide all treatment needed for everybody, this critique presents a road map of how we might address the present and future geriatric oral health concerns in a most efficient manner. Central and essential to oral health planning for a developing country is to have an implemented oral health policy. Only then, can we prioritize if sufficient resources are available for the whole population or for the high-risk groups. If financial resource is a constraint, then free geriatric treatment may be provided to elderly who fall below poverty line. Cost-efficiency should be a major factor in deciding what scope of treatment to offer. Presently, there is no oral health policy in India. Our suggestion is to have an implemented oral health policy which is well-articulated so that it addresses all target groups including the geriatric population. Once an oral health policy is implemented, only then can we specifically focus on the geriatric oral health issues. Dental hygienist is an operating auxiliary can be also utilized in geriatric oral health education programs. The next most important step in the forward direction is provision of geriatric dental education to undergraduate students through formation of a separate specialty. This distinctive creation will impart a voice to the health needs of the elderly both directly and indirectly through the organized conferences, seminars and other health educational meetings, all aiding in policy formulation and implementation for the aged. It

would be recommended that atleast minimum of 5–10% health budget allocation towards oral health programs and also to address the geriatric oral health concerns.[30-31]

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