

Understanding Dental Status and Treatment Need of Geriatric Patients: Oral Health Trends in an Indian Population

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Abstract

Background: Comprehensive data on the oral health status and dental treatment needs of the elderly population in India is deficient.

Aim: To understand and assess the dental status and treatment needs of a geriatric population in Northern India.

Methods: A cross-sectional study was undertaken in National capital of India, New Delhi, and 412 subjects aged 60 years and above was involved in this study (259 females and 153 males). An intraoral clinical examination and a questionnaire performa were performed. The treatment needs were evaluated independently of the patient's request based on their dental and prosthetic status.

Results: The prevalence of edentulism was 75%, with gender difference (69% of the men and 81% of the women). Eighty percent wore removable dentures, 10% had natural teeth only, and 10% had neither prostheses nor natural teeth. Most of the subjects needed to redo the prostheses (50%), 60% extractions and 25% conservative treatments. The treatment needs were extensive and mainly accumulated due to lack of awareness, neglected care and economic barriers.

Conclusion: A high unmet need for perceived oral care and dental treatment existed among the sample elderly population studied.

Key Words: Elderly, Dental Health, Treatment Needs, Oral Care, Geriatric Dentist

Introduction

One of the great biological mysteries, aging is a universal process - a simple fact of being alive. Life span in the world has increased dramatically because of the discoveries in our modern medicine science and better social conditions, and it becomes the mission of health care providers to render professional service not only to substantially improve the life span but to also make the later part of a person's life more productive and enjoyable [1].

The associations between dental disease and specific medical conditions are becoming more established [2]. Oral health is not only important to the appearance and sense of well-being, but also to general body health and quality of life in elderly individuals. Oral diseases are complex, multifactorial and progressive in nature. Improving the oral health will significantly enhance the physical, social and mental attributes of geriatric individuals at home or work place.

In India, the size of the elderly population, i.e., persons with age of 60 and above (as in India, it forms the basis for classification of the elderly) is fast-growing and life expectancy of Indian population is increased to 62.36 years for males and 63.39 years for females compared with 23.8 years for both in 1901 [3]. Although the elderly population in India constituted only 7.4% of total population at the turn of the new millennium, its share is expected to increase up to 19% by the year 2025. Very few studies have been conducted in India regarding the dental health status and treatment need for elderly population. The estimation of treatment need is an important requirement in oral health care planning. The population projection is therefore required for the preparation of perspective oral plans for the future in India.

Evaluating oral health is essential as poor oral health and loss of teeth not only affect the dietary intake, nutritional status and phonetics but also compromise the general body health. Taking into account all these facts, it was essential to

conduct an oral health survey of the geriatric dental services in order to understand and evaluate the oral health of the elderly individuals and their treatment needs in Northern India. This study is aimed to prove to be useful to oral health service providers, as well as to the oral research workers, and will help in enhancing their understanding of the oral problems of the elderly in the country.

Material and Methods

This cross sectional was carried out in July 2011 – June 2012 in Safdarjung Hospital located in National capital of India, New Delhi. The 412 subjects, who were selected for this study, had to be 60 and above. Patients, who refused for the dental check-up and where it was difficult to carry one out, were excluded from the study. An intraoral clinical examination and a questionnaire performa were performed by three dentists, including first, second and third author. The performa recorded data on socio-demographic status (age and gender), the number of remaining teeth, education levels, degree of urbanization and need of the dental treatment of the study population. The number of carious teeth, teeth indicated for extraction, root stumps, and filled teeth were recorded. The diagnostic criterion of a carious tooth was a definite cavity with softened floor or walls on probing. The periodontal condition of each subject was evaluated by inspection and testing for mobility, and ranked as good, fair or poor [4]. The presence and type of prosthesis (fixed or removable) was registered for each participant. The treatment needs were evaluated independently of the patient's request based on his dental and prosthetic status, and according to the stated criteria [5]. The prosthetic index contained weighted scores, which, when added amounted to 14 points for a completely inadequate denture; 8-14 points for a new denture; 4-7 points for a major correction and/ or rebasing, and 1-3 points for a minor correction.

The investigators were instructed and trained to record proforma and the clinical findings at the Dental Department

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of Safdarjung Hospital following ethical approval from the Ethical Clearance Committee of the hospital. Written consent was obtained from the subjects. The armamentarium used in the study included mouth mirrors, instrument carrying trays, mouth masks, disposable surgical gloves, copies of the Performa, and literature for distribution. Most of the subjects were examined sitting in chairs under room illumination. Artificial illumination (torch light) was used where required.

After completion of data collection, awareness regarding oral hygiene through instructions and products were given to independent subjects. Oral hygiene aids and oral health education literature were handed over to the caretakers of the dependant elderly individuals.

Results

Demographic data

A total of 412 subjects (259 females (62.9%) and 153 males (37.1%)) aged 60 years and above constituted the sample population. A broad distribution of the participants based on age, and gender is given in *Table 1*.

Dental status

The number of remaining teeth, state of edentulousness, education levels and degree of urbanization are analyzed and reviewed in *Table 2*. Only 25% population (19% women and 31% men) had some remaining teeth in the oral cavity, and the magnitude of edentulousness increased proportionately with rising age, poor education levels and lack of urbanization. More men were found to remain with natural teeth than women with advancing age. One-half of the dentulous population had one or more carious teeth, where 60% of them were indicated for extraction. Ten persons had one or more teeth filled with restorative material. Periodontal condition could be classified broadly into 2% as good, 30% as fair and 68% as poor.

Prosthetic status

The proportion of edentulousness and/or combined with subjects not wearing a denture increased with advancing age. Ten subjects had one or more crowns and 1% had fixed bridges cemented in the mouth. While 80% of the sample population wore removable dentures (partial or complete), 10% had neither prostheses nor natural teeth, as contrary to 10 % with natural teeth only (*Figure 1*). The complete maxillary denture was the more prevalent prosthesis both among partial

edentulous and completely edentulous subjects. Majority of the dentures were highly worn and poorly maintained. About 60% of the subjects had been wearing their dentures day and night and 43% of presented dentures were more than 10 years old.

Treatment needs

Of the total group, more than two-third needed some kind of dental treatment, according to the described criteria. Around one-fourth of the subjects required conservative (non-surgical) dental treatment through restoration of decayed teeth and endodontic therapy. There was a substantial need of extraction and dental prosthesis among the elderly patients as 60% of the patients required dental extractions and 50% of them needed to redo their dental prosthesis. The sex difference in treatment needs showed female dominance than men in need of dentures (*Figure 2*). Based on a question pertaining to whether or not they intended to see a dentist within a short time; the self assessed need for treatment (subjective criteria) was estimated to encompass 62% of all subjects.

Discussion

The New Delhi State, where the present study was carried out is known as the microcosm of India and forms the national capital of India. It represents the diverse social, ethnic and gender composition of societies of northern India's population. The result of this study applies to Northern region of India. However, there is a good reason to believe that similar findings could be made in other regions of the country with similar socio-demographic characteristics and treatment facilities. Thus, the data presented in this report might be useful and important for the national survey. Moreover, because of paucity of dental data regarding elderly population in Northern India, it is felt that it might prove a useful initiating point and reference for broader population based forthcoming studies in this country.

A simple and lucid way of discussing the oral health status of a given population is to describe the percentage of dentate and edentulous subjects. In the present study, 75% of the elderly population 60 years and above were completely edentulous. Low education levels, poor awareness, and lack of urbanization had a significant effect on the number of remaining teeth of the studied population. With respect to the current dental status findings, a relatively similar figure of 60% edentulism in those over 65 years of age was reported in

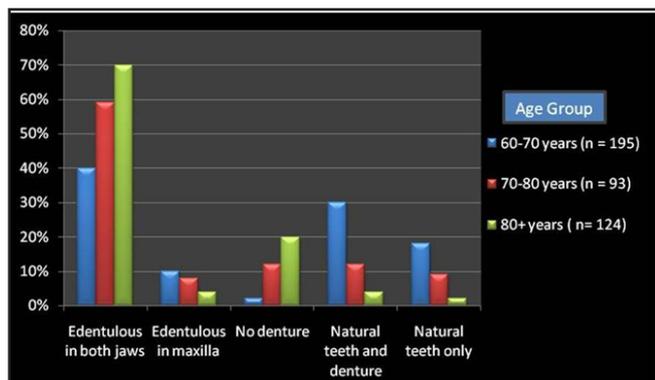


Figure 1. Occurrence of teeth and dentures according to age group in percentages.

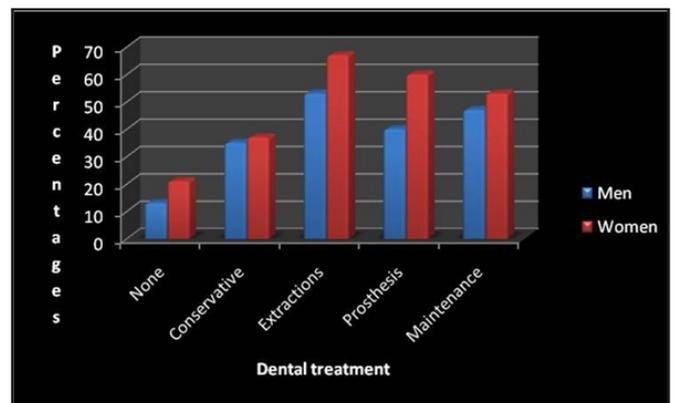


Figure 2: Treatment needs according to percentages.

a study on Istanbul population [6]. Other data from Australia, Scotland and Ireland two decades ago also indicated higher edentulism rates ranging from 75 to 80% [7]. A recent decade study on Finnish population reflected increased proportion of dentate individuals, improvements in the attitudes towards oral health as well as the increased use of dental services [8]. Similarly, in Western Europe, the rate of edentulism has changed significantly during the last decade ranging between 35% and 40% of the population [9-14]. Therefore, with the changing pattern of edentulism radically, it may be projected that there would be reduction in edentulism throughout the industrialized world over the next 20–30 years [15].

The rate of prevalence of edentulism was found higher among women in this sample. Therefore, the gender differences in treatment needs were significant, with women dominating men in need of the dentures (81% as compared with 69%). This figure is similar to that of earlier surveys [16-20] where higher prevalence of edentulism among women in all age groups was also reported. Women, in India, usually depend on their men to provide dental treatment. Moreover, poor access, lower education levels and unemployment could be the possible factor for more women being edentulous than men in the present study. As this study is considered a pilot study for an ongoing larger-scale survey, biological factors relating to tooth loss in females require further research. Interestingly, denture hygiene was significantly better in females than in males.

The frequency of dentures in the present study was similar to other studies, where around 77% of the elderly person wore dentures [21]. This study showed that 80% population had either full or partial removable dentures.

The results of the present study indicate that 11% of the population lacked the dentures in both arches. The concept of a shortened dental arch in partially edentulous subjects could be one explanation for functioning well enough without a denture. However, it was interesting and striking to note the same trend among the edentulous individuals also. This may be attributed to the fact that elderly individuals do not seek for dental treatment due to lack of awareness, poor economic status and limited physical mobility. Data from other relevant study [8,22] too showed that a relatively large proportion of edentulous population (18-20%) who lacked a denture prosthesis.

The findings of the present study reported poor fit and

retention of the complete dentures worn by the elderly population, as also found by Bilhan et al. [23]. Most of the prostheses were unsatisfactory because of being worn too long, a striking feature in elderly populations [24]. Seemingly, the longer a denture is worn the better it is tolerated no matter how badly it fits [4], because tissue changes underneath a denture are usually gradual causing progressive and low grade discomfort [25]. Moreover, many elderly people doubt their ability to use new dentures [26] and continue to suffer from compromised function of prosthetic replacements [27]. The authors recommend that regular oral care programs should be implemented with an emphasis on routine preventive and maintenance other than curative treatment. Subjective awareness of dental problems coupled with availability of dental service is the crucial need of the situation.

In the present study, subject co-operation was not always satisfactory, and many of them were not able to open their mouth properly or could keep it open only for a few moments. As a result, the duration of the oral examination was kept as short as possible: need for operative and periodontal therapy was defined without x-rays or measuring periodontal pocket depths. In this way we were able to guarantee that all patients were examined using the same criteria to obtain an overall picture of the oral health and treatment needs. Nevertheless, this method may have resulted in an underestimate of the needs.

Conclusions

From the survey of the studied sample population, the following conclusions could be made:

1. The oral condition and status of the study sample were poor with two third of the subjects were completely edentulous.
2. Females were found to be more frequently edentulous than males.
3. More than half of the denture wearers were habituated to wear their dentures throughout the day and night and rest almost another half was found to wear 10 years-old dentures.
4. The treatment needs were extensive and mainly accumulated due to lack of awareness, neglected care and economic barriers.
5. A broader look at the oral health of the elderly population involving a larger scaled study and commonly used oral health measures are the urgent need of the situation.

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