



ISSN Print: 2394-7489
ISSN Online: 2394-7497
IJADS 2017; 3(3): 27-30
© 2017 IJADS
www.oraljournal.com
Received: 06-05-2017
Accepted: 07-06-2017

Dr. B Kumara Raja
Senior lecturer,
Department of Public Health
Dentistry, Tagore Dental College
and Hospital, Chennai

Prosthetic status and treatment needs among elder's in old-age homes of Bengaluru city, India: A cross-sectional survey

Dr. B Kumara Raja

Abstract

Context: The estimation of treatment need is an important requirement in oral health care planning. Among the many diseases and disabilities that the elderly suffer from, diseases related to the oral cavity occupy an important place. In this regard, loss of teeth in the elderly is a major concern.

Objective: To assess the dental prosthetic status and treatment needs among elderly residing in old-age homes of Bengaluru city, India.

Materials and Methods: A cross-sectional survey was conducted among 15 old-age homes in Bengaluru city, India using stratified random sampling method in which 376 elderly subjects aged 60 years and above were examined. Data was collected using a validated questionnaire which record demographic details, oral hygiene practices, oral health habits and recording of prosthetic status and treatment needs were carried out using World Health Organisation (WHO) oral health assessment form (1997). Descriptive statistics and chi – square test was used for statistical analysis.

Results: Out of 376 elderly residents 150(39.9%) were male and 226(60.1%) were females in which, nearly half of the residents had no prosthesis respectively. Need for full prosthesis was more among males (21.3%) and nearly 20.1% elderly female required one-unit prosthesis.

Conclusion: The prosthetic status of people living in old-age homes of Bengaluru city, India was very poor and there existed a high unmet need for prosthetic care.

Keywords: Elder's, prosthetic status, prosthetic needs and old-age homes

1. Introduction

Edentulism is defined as the loss of all permanent teeth and is the terminal outcome of a multi-factorial process involving biologic processes like caries, periodontal disease, pulp pathology, trauma and oral cancer ^[1].

According to the world health organization, adults should have a minimum of 21 functional teeth to provide the ability to experience a good dietary intake without the need for a denture ^[2].

In India, the prevalence of edentulousness varies from 60 to 69% of 25 years and above age group ^[3]. A wide range of prevalence of edentulousness (partial and complete) in Indian population was reported by different studies, varying from 5.6 % in 6 year - old children to 91.2 % in elderly over the age of 65 years. The prevalence of tooth loss among the general population over the age of 15 years was 38.2% to 62%, with the prevalence of complete edentulousness with a range of 1 to 2.5%. However, the prevalence of edentulousness in elderly was found to be in the range of 70.3% to 91.2%. The full edentulousness among this elderly group was 14.2 to 35.4% ^[4].

Rapid modernization and urbanization had led breaking up of families into nuclear families with elder's get transferring to old-age home since they are left alone and have no relatives for them. So elders in old age homes are a distinct population with a lack of family support. Moreover the issues of loneliness and loss or separation from loved ones add to the already existing social insecurities decreasing their ability to cope with problems of old age ^[5].

Dental care and treatment needs is a greater problem for the institutionalized elderly than for people in the same age group who are not in institutions, which sets them at a greater risk of suffering deterioration in dental and oral health. This is due to a combination of difficulties such as the cost, the lack of oral hygiene offered by homes, the complications of transporting

Correspondence

Dr. B Kumara Raja
Senior lecturer,
Department of Public Health
Dentistry, Tagore Dental College
and Hospital, Chennai

the elderly and the fear of the participants themselves. Added to this, there is a lack of interest and competence in this field on the part of dental and medical science, the nonexistence of organised dental care for the institutionalised, difficult psychological and social conditions prevailing in nursing homes causes further burden [6]. Moreover dental care of institutionalised elder's is often limited to the emergency care and is not aimed at retaining teeth by means of restorative treatment and daily oral care [7].

Thus, information regarding prosthetic status and treatment need among elderly people is very much required, to limit their disabilities and to ensure their rehabilitation in daily life and to promote their oral health by improving their quality of life. Moreover, as of today, only limited records are available regarding the prosthetic status of elder's in the old-age home of Bengaluru city, the present study was taken up to assess the prosthetic status and treatment need of the elder's associated with old-age homes of Bengaluru city, India.

Materials & methods

A cross-sectional descriptive survey was performed in the month of June 2015 over a period of three months. A total of 70 old age homes were registered under elder's helpline office of Bengaluru city, India. A convenience sampling was performed in which 15 old age homes were selected and all the elders in those homes were included in the study. All participants aged 60 years and above and who wish to give the consent were included and elders who were severely ill and uncooperative were excluded.

The ethical clearance was obtained from the institutional review and ethical committee of V.S. Dental College and Hospital, Bengaluru. The required official permission for the study was obtained from the chairman or trust member of each old age homes.

A pilot study was done among 30 elderly patients visiting the department of public health dentistry, V.S Dental College and hospital, Bengaluru India for proper planning and execution of the study and these subjects were not included in the main study. Oral examination was carried out by a single well-trained examiner, who was calibrated in recording the WHO proforma on patients. The intra-examiner reliability was assessed using kappa statistics which was found to be 0.82 which reflected a high degree of agreement in the observations.

Data collection

The data was collected through a validated structured questionnaire which was given personally by the researcher to the participants. The questionnaire was made in both English & local language (Kannada). The validity was checked by back translation method, involving blind back translation into English. The validity of translation was verified by experts in both languages. Elderly participants who were unable to read

and write got assistance from their respective old age home managers or caregivers. The questionnaire dealt with socio-demographic factors (age, gender, education, type of institution, time in the institution), oral hygiene behaviours, oral health behaviours and World Health Organization (WHO) oral health assessment form 1997[2] was used to record the prosthetic status and prosthetic need.

The subjects were made to sit on a chair and examination was done in an open area under a natural light if the residential home does not have the open area or corridor.

During the assessment of the study subjects, if any treatment required, they were informed about it and referred to the V.S Dental College and Hospital for further care. All the subjects were provided a referral card for which they would receive treatment at the dental hospital.

Statistical analysis

The data were analysed using statistical software statistical package for social sciences (SPSS) version 19. For the inferential statistics, Chi-square analysis was used to obtain any statistical difference between groups. A two-sided p - value of < 0.05 was set as statistically significant.

Results

In the present study, a total of 376 elder's from various old age homes participated among which 150 (39.9 %) were males and 226 (60.1 %) were females. The Majority of participants aged between 60 and 70 years with a mean age of 68.45 ± 3.4 .

Table 1 shows the distribution of dentition status according to gender in which 114(50.4%) females were partially edentulous and 51(22.6%) elderly females were completely edentulous when compared to elderly men.

Distribution of study subjects according to the prosthetic status depending upon gender are shown in [Table 3]. Removable partial denture was seen more among males compared to females. Interestingly none of the elderly participants had a bridge. Both male and females had an equal need for prosthetic treatment and results were found to be statistically significant at $P < 0.001$.

Data regarding prosthetic need showed, [Table 4] majority of the elderly females (20.3%) required one-unit prosthesis followed by full removable denture (12.9%) and requiring multiple unit prosthesis (08.4%). A significant difference was found between the prosthetic needs for male and females. ($X^2 = 18.19$; $p = 0.0001$).

Table 1: Distribution of dentition status according to gender

Gender	Dentate (all teeth present)	Partially edentulous	Completely edentulous	Total
Male	77(51.3%)	48(32%)	25(16.7%)	150(100%)
Female	61(26.9%)	114(50.4%)	51(22.6%)	226(100%)

Table 2: Distribution showing the prosthetic status among elderly males and females

Prosthetic status	Male	Female	Total	χ^2 value	P value
No prosthesis	75(50.0%)	111(49.1%)	186(49.5%)	35.03	0.00001*
Bridge	00	00	00		
More than one bridge	00	00	00		
Partial denture	20(13.3%)	07(03.1%)	27(07.2%)		
Both bridge and partial denture	00	00	00		
Full removable denture	13(08.7%)	02(00.9%)	15(03.9%)		
No prosthesis required	42(28.0%)	106(46.9%)	148(39.4%)		
Total	150(100%)	226(100%)	376(100%)		

*** Significant at $P < 0.001$

Table 3: Distribution of subjects showing the prosthetic need of males and females.

Prosthetic need	Male	Female	Total	χ^2 value	P value
Need for one unit prosthesis	10(06.7%)	46(20.3%)	56(14.9%)	18.19	0.0001*
Need for multiple units	17(11.3%)	19(08.4%)	36(09.6%)		
Need for combination of one or multiple unit prosthesis	16(10.7%)	17(07.5%)	33(08.8%)		
Need for full prosthesis	32(21.3%)	29(12.9%)	61(16.2%)		
No prosthesis required (includes one who already has prosthesis)	75(50.0%)	115(50.9%)	190(50.5%)		
Total	150(100%)	226(100%)	376(100%)		

*** Significant at $P < 0.001$

Discussion

The prosthetic status in the older population has not been addressed increasingly in the past years, especially among institutionalized and underprivileged populations and it continues to be a neglected issue, so the present study was done to assess the prosthetic status and treatment needs of elders in the old-age homes of Bengaluru city, India.

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. On examining the dentition status of elderly residents, it was noted that 22.6% and 50.4% of elderly females were completely and partially edentulous respectively when compared to elderly male. Moreover, 51.3% of elderly males were dentate when compared to 26.3% of females.

The possible reason for this might be females usually depend on male members of their families to take them for treatment. Coupled with the lack of access, a lower level of education and lack of employment could be possible reasons for more females being edentulous than males.^[8]

A possible explanation for edentulousness among the study subjects might be due to socio-economic status, literacy level and marital status, smoking or chewing tobacco and alcohol consumption. Other factors such as oral hygiene practices, social and cultural beliefs and attitudes, perception regarding oral health and function, and philosophy of the dentist, might also have influenced oral health in the elderly

Al – Dwairi ZN^[9] and Shah N *et al.*^[10] also suggested that a significant relationship between socio-demographic variables and edentulism with age, education level where socio-demographic status played a vital role in edentulism and denture demand.

Findings of the present study showed that nearly half of the elderly residents had no prosthesis in upper arch 75(50%) and lower arch 111(49.1%). Similar Shrivastav A *et al.*^[11] reported 86.3% and 88% of elderly residents had no prosthesis in upper and lower arch. Kumar GA *et al.*^[12] reported 74.2% elders had no prostheses in Hyderabad geriatric homes. One more study done by Shenoy RP *et al.*^[8] in Mangalore residential home also found 88% of residents had no prosthesis.

Lesser utilization of dentures in our study might be due to a lack of utilization of dental services in the elderly population. The elderly subjects usually become dependent on others due to their impaired physical or mental condition. Being in elder's home gives further impetus to their being dependent, which may lead to their higher unmet prosthetic needs.

One of the interesting findings of the present study was none of the elder's wore bridges or fixed partial dentures. Studies done by Chaware S^[13] *et al* and Shrivastav A *et al*^[11] also showed only 5% and 2.5% of participants had bridge respectively. The possible reason might be due to high cost of treatment and unawareness about fixed partial denture.

The need for the full prosthesis 21.3% was more than the need for the one-unit prosthesis, multi-unit prosthesis or combination of one-and/ or multi-unit prosthesis among males. These findings were similar to study reported by Shenoy RP *et al.*^[8] were 50.7% and 43.8% of males required full prosthesis in upper and lower arches. Slade *et al.*^[14] also reported similar results among non-institutionalized elders. In contrast Deogade SC *et al.*^[15] reported 42 % need for multi-unit prosthesis was more than other needs and Shrivastav A *et al.*^[11] also reported 35% need for single unit prosthesis was more when compared to other needs among males.

It was also seen that need for a single unit prosthesis (20.3%) was more than need for a multi-unit prosthesis (8.4%) and full prosthesis (12.9%) among females. This finding was similar to results of Shrivastav A *et al*^[11] and Kumar GA *et al.*^[12]. In contrast results reported by Deogade SC *et al.*^[15] and Shenoy RP *et al.*^[8] showed the need for full prostheses was more among females. Chaware S *et al.*^[13] reported 30.62% of elderly were in need of complete denture in both jaws and 16.25% were in need of combination prosthesis.

A possible explanation for higher prosthetic need among these institutionalized elderly may be due to reduced salivary flow rate, quality and quantity, lowered immunity and the reduced ability of the body to repair itself, which may aggravate the process of the degradation of the oral tissues^[15, 16].

Apart from stress due to loneliness, loss or separation from loved ones, deaths in the family and lack of social integration, may cause physical and mental ill-health which inturn can lead to deterioration of their oral health which would have caused a high demand for prosthetic need^[17, 18]. Oral health should be incorporated into routine assessment by care staff, and the continuing dental care should be available to the residents and there should be an easy access to dental service.

Conclusion

To conclude, there exist a high unmet need for prosthetic care among elders of old-age homes of Bengaluru city, India with poor prosthetic status and extensive treatment needs. Moreover, this study also provides a baseline reference and exposes the lack of priority for oral health among the underprivileged institutionalized population.

References

1. Academy of prosthodontics Glossary of prosthodontic terms. J Prosthet Dent. 2005; 94:10-92.
2. World Health Organization. Oral Health Surveys: Basic Methods. 4th edition. Geneva, Switzerland: World Health Organization, 1997.
3. Chawdhari R, Chawdhari N. Need of implant dentistry at undergraduate dental curriculum in Indian dental colleges. Indian J Dent Res. 2011; 22:436-439.
4. Dubery RK, Gupta DK, Shetty P. Current status of Edentulousness in India: systemic review. Chhattisgarh

journal of health sciences. 2013; 1(1):72-76.

5. Mani G, Udayakumar S, Annamalai K, Ramasamy DJ. Perceived levels of stress and its correlates among residents of old age home in Kanchipuram District, Tamil Nadu. *Med J DY Patil Univ.* 2014; 7:728-31.
6. Folstein M. Mini Mental and son. *Int. J. Geriatr. Psychiatry.* 1998; 13:290-294.
7. Simunkovic SK, Boras VV, Panduria J, Zilic LA. Oral health among institutionalised elderly in Zagreb, Croatia. *Gerodontology.* 2005; 22:238-241.
8. Shenoy RP, Hegde V. Dental Prosthetic Status and Prosthetic Need of the Institutionalized Elderly Living in Geriatric Homes in Mangalore: A Pilot Study. *International Scholarly Research Network*, 2011, 1-3.
9. Al -Dwiri ZN. Complete edentulism and socioeconomic factors in a Jordanian population. *Int J Prosthodont.* 2010; 23:541-43.
10. Shah N, Parkash H, Sunderman KR. Edentulousness, denture wear and denture needs of Indian elderly – A community based study. *J Oral Rehabil.* 2004; 31:467-76.
11. Shrivastav A, Bhambal A, Reddy V, Jain M. Dental prosthetic status and needs of the residents of geriatric homes in Madhya Pradesh India. *J Int Oral Health.* 2011; 3(4):9-14.
12. Kumar GA, Maheswar G, Malathi S, Sridevi K, Ratnakar P, Someshwar B. Dental prosthetic status and prosthetic needs of the institutionalized elderly living in geriatric homes in Hyderabad. A pilot study. *J Contemp Dent Pract.* 2013; 14(6):1169-1172.
13. Chaware S, chodpage SL, Sinha M, Chavhan V, Thakare V. Prosthetic status and prosthetic needs among institutionalized geriatric individuals in Nasik city, Maharashtra. A descriptive study. *J Contemp Dent Pract.* 2011; 12(3):192-195.
14. Slade GD, Spencer AJ, Gorkic E, Andrews G. Oral health status and treatment needs of non-institutionalized persons aged 60+ in Adelaide. South Australia. *Aust Dent J.* 1993; 38(5):373-380.
15. Deogade SC, Vinay S, Naidu S. Dental prosthetic status and prosthetic needs of institutionalised elderly population in oldage homes of Jabalpur city, Madhya Pradesh, India. *J Indian Prosthodont Soc.* 2013; 13(4):587-592.
16. Navazesh M. Dry mouth: aging and oral health. *Compend Contin Educ Dent* 2002; 23(10 Suppl):41-48.
17. Yang T, Rockett IR, Lv Q, Cottrell RR. Stress status and related characteristics among urban residents: A six-province capital cities study in China. *PLoS One.* 2012; 7:e30521.
18. Wang JJ. Prevalence and correlates of depressive symptoms in the elderly of rural communities in southern Taiwan. *J Nurs Res.* 2001; 9:1-12.