

Dental prosthetic status and needs of the residents of geriatric homes in Madhya Pradesh, India

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Abstract:

Objective: To assess the dental prosthetic status and prosthetic needs among the residents of geriatric homes of Bhopal city. **Materials and Methods:** A descriptive cross-sectional study was undertaken, and 117 subjects aged 50 years and above were examined (61.5% males and 38.5% females). **Results:** Majority of the subjects 86.3% and 88.0% had no prosthesis in upper arch and lower arch respectively and only 4.2% had complete dentures. Need for any prosthesis was among 66.6% and 76.0% subjects for upper and lower arches and nearly 35% subjects required one-unit prosthesis. **Conclusion:** Dental prosthetic status of people living in geriatric homes is very poor and there is high unmet need for prosthetic care.

Keywords: Dental prosthetic status; Prosthetic need; Geriatric home.

Introduction:

A demographic revolution throughout the world is underway. The proportion of older people is growing faster than of any other age group. It is estimated that by the year 2025, there will be about 1.2 billion people above the age of 60 years worldwide.¹ This poses tremendous challenges to health as they suffer from

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debilitating medical conditions as well as from a high prevalence of oral health problems. Globally, poor oral health among older people has particularly been seen in a high level of tooth loss, dental caries experience and high prevalence rates of periodontal disease.² Oral health-care needs of the elderly those living in long-term care facilities have been found to be significantly greater, but unfortunately these elderly are less able financially to afford it.³

Also, the oral health status in the general older people population has been addressed increasingly in the past years, but the oral health of institutionalized older people and underprivileged populations continue to be a neglected issue. Studies have been reported from the United States, Australia, Canada, India, Italy, Greece, Croatia, Fiji Islands, Hong Kong and Singapore, indicating that the dental status of institutionalized older people is generally poor.²

Very few studies have been conducted in India, regarding the oral health status and no documented data for prosthetic status and needs in institutionalized elderly of Bhopal city. Since numerous studies have suggested that elderly population have poor prosthetic status and high unmet prosthetic needs, keeping this hypothesis in mind an attempt was made to assess the prosthetic status and prosthetic treatment needs among institutionalized elderly of Bhopal city.

Materials and Methods:

A descriptive cross sectional study was conducted between the months of April and May 2010, to assess the dental prosthetic status and prosthetic needs among the residents of the two geriatric homes in Bhopal city registered with social justice department of Madhya Pradesh. A non-probability convenient sampling was followed in the present study. From the two geriatric homes, 117 inmates available at the time of study were included in the study population. Seven inmates were excluded from the study as they were severely ill and uncooperative.

Before the start of survey, official permission was obtained from the registered geriatric homes of Bhopal city. Ethical clearance to conduct a study was obtained from the ethical committee of People's College Of Dental Sciences And Research Centre. Subjects had been informed of the nature of the investigation and had been included in the study after their consent was obtained.

A pretested proforma was used for data collection. It consisted of two parts—the 1st part recorded data on socio-demographic factors (age and gender), while the 2nd part contained a section of the World Health Organization (WHO) Oral Health Assessment Form (1997)⁴ to record the prosthetic status and prosthetic need (i.e. denture wearing and need for dentures). All the examinations were done by a trained and calibrated examiner with a recording assistant. The intra-examiner variability was assessed by using the weighted kappa statistics, which was 0.93 and 0.89 for prosthetic status and treatment needs respectively. Subjects were examined seated in a chair or stool in open space under natural light, outside the home. The recorder was made to sit close to the examiner so that the instructions and codes could be easily heard and the examiner could see that findings are being recorded correctly.

Statistical Analysis: Data obtained were subjected to the Statistical Package for the Social Sciences (SPSS) Version 17.0. Data comparison was done by applying Chi-square tests to find out the statistical significance of the comparisons.

Significance level was fixed at $p \leq 0.05$

Results:

A total of 117 subjects 72 male (61.5%) and 45 female (38.5%) aged 50 years and above (age range 51-97years) formed the study population. The distribution of subjects according to age and gender is given in *Table 1*.

Table 2 shows the distribution of subjects according to their prosthetic status. Majority of the subjects 101(86.3%) for upper arch and 103(88.0%) for lower arch had no prosthesis.

Bridge was found in 3(2.5%) subjects. Subjects with partial denture in upper and lower arch were 7(5.9%) and 4(3.4%) respectively. Full removable denture in upper and lower arch was seen in

5(4.2%) subjects only. No significant differences were found between the prosthetic status of the upper and lower arches. ($\chi^2 = 0.567$; $p = 0.966$)

Table 1: Age-wise and gender-wise distribution of study population

Age groups (in years)	Gender		Total n (%)
	Male n (%)	Female n (%)	
51-60	7 (9.7%)	13 (28.8%)	20 (17.0%)
61-70	23 (31.9%)	24(53.3%)	47 (40.1%)
71-80	29 (40.2%)	6 (13.3%)	35 (29.9%)
81-90	10 (13.8%)	2 (4.4%)	12 (10.2%)
≥91	3 (4.1%)	0	3 (2.5%)
Total	72 (100%)	45 (100%)	117 (100.0%)

Table 2: Distribution of subjects according to their prosthetic status

Prosthetic Status	Upper Arch n (%)	Lower Arch n (%)
No Prosthesis	101 (86.3%)	103 (88.0%)
Bridge	3 (2.5%)	3 (2.5%)
More than one bridge	1 (0.8%)	2 (1.7%)
Partial denture	7 (5.9%)	4 (3.4%)
Full removable denture	5 (4.2%)	5 (4.2%)
Total	117(100%)	117 (100%)
χ^2		0.567
df		4
p value		0.966

Table 3: Number and percentage of subjects with prosthetic needs in upper and lower arches

Prosthetic Need	Upper Arch n (%)	Lower Arch n (%)
Need for one unit prosthesis	41(35%)	41(35%)
Need for multi unit prosthesis	15(12.8%)	20(17%)
Need for combination of one-and /or multi –unit prosthesis	3(2.5%)	4(3.4%)
Need for full prosthesis	19(16.2%)	24(20.5%)
Total	78(66.6%)	89(76.0%)
χ^2	0.301	

df	3
p value	0.959

Table 3 shows the number and percentage of subjects with prosthetic needs. Out of 117 residents, 78(66.6%) required prosthesis for the upper arch and 89(76.0%) for the lower arch. One-unit prosthesis for upper and lower arch was required most 41(35%) subjects, followed by need for full prosthesis, multi-unit prosthesis and combination of one-and /or multi –unit prosthesis. Full removable dentures were required by 19(16.2%) subjects for upper arch and 24(20.5%) for lower arch. No significant differences was found between the prosthetic needs of the upper and lower arches. ($X^2 = 0.301$; $p = 0.959$).

Discussion:

Very few studies have been conducted in India, pertaining to the prosthetic status and needs of people living in geriatric homes. No documented data was available for the institutionalized elderly of Bhopal city. Therefore, an attempt was made to assess the prosthetic status and need of the residents of geriatric homes in Bhopal city.

In the present study majority of the subjects had no prosthesis in upper arch 101(86.3%) and lower arch 103(88.0%). Similar findings were reported by Shenoy and Hegde⁵ in Geriatric Homes in Mangalore where 88 percent had no prosthesis in upper and lower arch. Soh *et al.* (1992)³ reported 78 percent subjects in long-term care facilities in Singapore were not having any denture. In contradiction studies by Hawkins *et al.* (1998)⁶ reported 80% of subjects wore at least one denture and Angelillo *et al.* (1990)⁷ reported 44.3% of the edentulous in both jaws wore complete dentures. Cardoso *et al.* (2011)⁸ reported higher use of upper (79.2%) and lower (37.1%) total prostheses among the elderly people of Manaus city as a result of higher utilization of dental services by them.

In the present study the low proportion of those who had prostheses can be due to the fact that older

people under use dental facilities due to lack of awareness, financial constraints and reduced mobility.⁵

The estimation of treatment need is an important stage in oral health care planning of elderly. Prosthetic need in the present study for the upper and lower arches was 66.6% and 76.0% respectively which was in accordance with 76% by Mann J *et al.* (1985)⁹ in Israel and 72% by Shah *et al.* (2004)¹¹ in India. Miyazaki *et al.* (1992) (10) in Japan reported prosthetic need of 36%.

The level of prosthetic need was higher in males (69.5% and 82% in upper and lower arches respectively) than females (62.3% and 67.7% in upper and lower arches respectively). This was in accordance with a study conducted by Palmqvist (1988)¹² and Shah (2004)¹¹ where prosthetic treatment need for male and female elderly was significantly different and male has higher need for complete denture.

In the current study, the need for single-unit prostheses (35%) was more than the need for multi-unit prostheses, combination of one-and /or multi –unit prosthesis or full prostheses which was in contrast with the study by Shenoy and Hegde (2010)⁵ in Mangalore where the need for multi-unit prostheses was more than the need for one-unit prostheses.

Higher prosthetic need among these institutionalized elderly may attribute to their old age. Factors associated with old age such as reduced salivary flow rate, quality and quantity, lowered immunity and the reduced ability of the body to repair itself, may aggravate the process of the degradation of the oral tissues.¹ Although aging alone is not responsible for the deterioration of their oral health, several other factors such as multiple chronic diseases, socio-economic factors,

lack of dental facilities and psychological factors such as depression and isolation, because of gradual loss of spouse and friends and feeling of being unwanted by family members, leading to negligence of personnel and oral hygiene and health.

Conclusion:

The findings of this study show that the dental prosthetic status of institutionalized older people living in geriatric homes is very poor and there is high unmet need for prosthetic care.

Based on the present study findings, following are the recommendations:

- * A prevention based intervention programme to reduce early tooth loss is recommended for the residents of geriatric homes which includes regular oral health screenings and oral health education programmes.
- * Oral health care facilities should be availed to the residents by taking help from government, non-government agencies and private institutions.

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