



“A study of Dental prosthetic status and treatment needs of adult population in a tertiary hospital in central India”

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ABSTRACT

Aims: The study aimed to evaluate and compare the dental prosthetic status and treatment needs of adult population in central India in relation to the age.

Methods: A total of 1779 people aged 35–74 years selected from jan 2016 to jan 2017 through convenient sampling, were surveyed, using the WHO survey criteria, 1997.

Results: Different forms of prosthesis were present among patients in the upper (19.9%) and lower (19%) arches, respectively. Prosthetic treatment need was recognized in subjects, 56.4% for the upper and 57.2% for the lower arches, respectively. The prosthetic status and treatment needs differed statistically with respect to age.

Conclusions: More than half of the surveyed adult populations were in need of some or the other forms of prosthesis.

KEYWORDS : prosthetic status

Introduction:

Is is true that tooth loss profoundly affects the psychosocial well-being of the patients.[1] It leads to a decrease in the height and width of the alveolar bone leading to a decrease in the size of denture-bearing area, radical alteration in the facial appearance giving rise to a “dished in” appearance, and reduced masticatory efficiency, leading to diminished nutritional intake. Hence, to prevent or ameliorate decrements in oral health-related quality of life, removable or fixed prosthetic treatment for edentulousness is often recommended.[2]

Gutkha or kharra eating is very common in this part of central India and Literature review indicates that oral cancer is a significant public health problem besides this, there is hardly any scientific data regarding their oral health status.

Against this background, the present study was undertaken as a part of hospital population-based oral health survey to formulate an oral health-care provider program. The primary aim of the study was to evaluate the dental prosthetic status and treatment needs among the 35–74-year-old adults of central India, with the secondary objective of comparing the prosthetic status and treatment needs in relation to age.

Materials and methods:

A cross-sectional study was conducted among the adult population aged 35–74 years. The study was conducted for 12 months (January 2016–January 2017), and the study sample comprised all the patients examined during that period. Using the formula, the sample size derived was 1800. Only those in the age group of 35–74 years were included. Person with any acute illness and not willing for the examination were excluded from the study. During the stipulated survey period, a total of 1779 patients were examined. The enrolled patients were first interviewed to obtain general information and sociodemographic variables. This was followed by oral examination, which was performed by a single calibrated (intra-examiner consistency of 88%) examiner who assessed the dental prosthetic status and treatment needs according to the criteria described in the WHO Oral health assessment form 1997.[3]

The WHO Code and criteria were as follows:[3]

Prosthetic status

Code 0: No prosthesis
Code 1: Bridge
Code 2: More than one bridge
Code 3: Partial denture
Code 4: Both bridge(s) and partial denture(s)
Code 5: Full removable denture
Code 9: Not recorded.
Prosthetic need

Code 0: No prosthesis needed
Code 1: Need for one-unit prosthesis
Code 2: Need for multi-unit prosthesis
Code 3: Need for a combination of one- and/or multi-unit prosthesis
Code 4: Need for full prosthesis (replacement of all teeth)
Code 9: Not recorded.

Informed consent was obtained from the patients. The data were compiled and subjected to descriptive and inferential analysis using the SPSS software version. Univariate analysis was performed using Chi-square test at 5% level of significance.

Results:

Of the total 1779 patients examined, 1103 (62.0%) were males and 676 (38.0%) were females. Three hundred and thirty-three (18.7%) were professionals, 752 (42.3%) were semi-professionals, 324 (18.2%) were skilled/semiskilled, and 371 (20.9%) were unemployed.

Table 1 represents the prosthetic status of the upper arch and lower arch in the different age groups. Overall, 79.1% were free of prosthesis, 18.7% had partial prosthesis (Code 1, 2, 3, and 4), and only 2.2% had full removable prosthesis (Code 5). Overall in lower arch, 81% were free of any prosthesis, 17% had some kind of partial edentulousness for which prosthesis was placed, and only 2% had full prosthesis. The highest percentage for Code 0 (no prosthesis) was reported in the age group of 45–54 years (83.8%).

Table 2 represents the prosthetic treatment need of the upper arch and lower arch. Overall, 43.4% did not need any kind of prosthetic treatment. Fifty percent were in need of some or the other forms of partial prosthesis (Code 1, 2, and 3) and only 6.4% needed full prosthesis (Code 4)

Overall in the lower arch, 43.8% did not need any kind of prosthetic

treatment. Nearly, 49.8% were in need of some or the other forms of partial prosthesis and only 7.4% needed a full prosthesis. A statistically significant difference was seen between the treatment need codes and the age.

Discussion:

In the present study, it was observed that some or the other kinds of prosthesis (Code 2, 3, 4, and 5) were present in 19.9% of the patients in the upper arch and 19% of the patients in the lower arch. Compliant with the fact that tooth loss steadily increases with age[4] and comparison with the tooth loss figures[5] provided by a study, (people with tooth loss in different age groups being; 59.1% [35–44 years], 83.2% [45–54 years], 81.3% [55–64 years], and 94.1% [65–74 years],) the percentage of people in Jizan with prosthetic rehabilitation appears to be low. In addition, other study reports[6,7] have showed a greater percentage of people with prosthesis.

In the present study, the burden of unmet treatment need (treatment need code 2, 3, and 4) was recognized among 56.4% of the patients for the upper arch and 57.2% of the patients for the lower arch. Only 6.4% needed full prosthesis, the majority being from the 65–74 years age group. Overall, greater percentage of people needed partial prosthesis as compared to full prosthesis which was similar to the findings of the Turkish population,[8] while contrasting to the study report by Slade et al.[9]

Partial tooth loss should also be given due importance (as total edentulousness) and considered for prosthetic rehabilitation. Literature on partial edentulousness indicates that the first mandibular molar is the frequently missing tooth, followed by the maxillary anterior teeth and the mandibular molars.[4] It can be observed that a greater percentage of people consider fixed prosthetic dentures (33.21%) over removal prosthetic dentures (16.32).[10] This was in line with the present study, in which the percentage of patients with fixed prosthesis (Codes 1 and 2) was more as compared to removable prosthesis (Code 3) (14.7% patients had fixed prosthesis vs. only 2.7% having removable prosthesis in the upper arch, 13.2% had fixed prosthesis vs. just 2.9% having removable prosthesis in the lower arch).

People with edentulousness and without prosthetic rehabilitation suggest that they are not motivated to take treatment, cannot bear the finances,[11] are not aware of the different treatment modalities,[12] have time constraints to take treatment,[11,13] or have the fear of dental treatment.[14] Since the level of education[15] also influences the treatment-seeking behavior, this may have had an impact on the prosthetic rehabilitation of the people

Even today, conventional removable dentures continue to represent the first rehabilitative option offered to the edentate in many places around the world.[16] In the present study, implants were reported in very less number of patients. Proper Cost along with creating awareness, motivation, and imparting correct knowledge about the treatment procedure may improve the implant placement among the people.

In the present study, only hospital patients were studied which may not be representative of general population. However, these areas were selected for practical reasons and treatment could be provided to the survey patients with no transportation issues.

Conclusions:

It was evident from the study that more than half of the surveyed adult population were in need of some or the other forms of prosthesis. The study confirms the relationship between increasing age and prosthetic status and treatment needs.

Tables:

TABLE 1: Comparison of the prosthetic status of the upper arch

and lower arch according to age groups

a) upper arch

Age groups (years)	Prosthetic status					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
35-44	459 (81.7)	87 (11.8)	17 (3.0)	13 (2.3)	4 (0.7)	2 (0.4)
45-54	404 (78.7)	82 (12.2)	17 (3.4)	16 (3.2)	2 (0.4)	6 (1.2)
55-64	355 (76.5)	51 (11.0)	24 (5.2)	11 (2.4)	8 (1.7)	15 (3.2)
65-74	186 (77.2)	9 (3.7)	15 (6.1)	8 (3.3)	7 (2.8)	17 (6.9)
Total	1408 (79.1)	189 (10.6)	73 (4.1)	48 (2.7)	21 (1.2)	40 (2.2)

$\chi^2=69.45, P<0.001$

b) lower arch

Age groups (years)	Prosthetic status (%)					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
35-44	469 (83.5)	82 (11.0)	13 (2.3)	14 (2.5)	3 (0.5)	1 (0.2)
45-54	425 (83.8)	40 (7.95)	25 (4.9)	11 (2.2)	1 (0.2)	5 (1.0)
55-64	369 (77.6)	42 (9.1)	28 (6.0)	17 (3.7)	4 (0.9)	13 (2.8)
65-74	187 (76.0)	15 (6.1)	11 (4.5)	10 (4.1)	6 (2.4)	17 (6.9)
Total	1441 (81.0)	159 (8.9)	77 (4.3)	52 (2.9)	14 (0.8)	36 (2.0)

$\chi^2=73.93, P<0.001$

TABLE 2: Comparison of the prosthetic treatment needs of the upper arch and lower arch according to age groups

a) upper arch

Age groups (years)	Treatment needs (%)					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
35-44	317 (56.4)	146 (26.0)	80 (14.2)	13 (2.3)	6 (1.1)	1 (0.2)
45-54	222 (44.2)	147 (29.0)	86 (17.0)	27 (5.3)	23 (4.5)	1 (0.2)
55-64	146 (31.5)	111 (23.9)	124 (26.7)	36 (7.8)	45 (9.7)	1 (0.2)
65-74	85 (34.6)	35 (14.2)	52 (21.1)	33 (13.4)	39 (15.9)	1 (0.2)
Total	772 (43.4)	439 (24.7)	342 (19.2)	109 (6.1)	113 (6.4)	3 (0.2)

$\chi^2=198.0, P<0.001$

b) lower arch

Age groups (years)	Treatment needs					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
35-44	313 (55.7)	150 (26.7)	75 (13.3)	14 (2.5)	8 (1.4)	1 (0.2)
45-54	218 (43.0)	128 (25.2)	97 (19.1)	39 (7.7)	25 (4.9)	1 (0.2)
55-64	158 (34.1)	107 (23.1)	100 (21.6)	40 (8.6)	58 (12.5)	1 (0.2)
65-74	91 (37.0)	29 (11.8)	54 (22.0)	30 (12.2)	41 (16.7)	1 (0.2)
Total	780 (43.8)	414 (23.3)	326 (18.3)	123 (6.9)	132 (7.4)	3 (0.2)

$\chi^2=169.0, P<0.001$

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