

# Dental Prosthetic Status and Prosthetic Needs of Patients Visiting Gandaki Medical College, Western Nepal

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## ABSTRACT

**Introduction:** The study of prosthetic status and prosthetic need will help us to find out the degree of treatment required in the population which will help to frame the health care services.

**Objective:** The objective of the study was to find out the prosthetic status, prosthetic need in different age groups and their correlation with socio-economic status in patients visiting Department of Prosthodontics, College of Dental Surgery, Gandaki Medical College, Pokhara, Nepal.

**Materials and Methods:** The patients visiting Department of Prosthodontics, College of Dental Surgery, Gandaki Medical College, Pokhara, Nepal were screened. The demographic profile of the patients was obtained and clinical examination for prosthetic status and prosthetic need was done based on WHO method.

**Results:** There were total of 309 patients who visited the department during the study period. There were 133 (43%) male and 176 (57%) female patients. The majority of patients had no prosthesis in upper arch 78.6% and 83.8% in lower arch. The number of patients with replacement of missing teeth in upper arch was 66 (21.4%) and in lower arch were 50 (16.2%). There were 159 (51.5%) of patients requiring one or the other form of prosthesis in upper arch and 161 (52.1%) of patients in lower arch.

**Conclusion:** The majority of patients had no prosthesis 78.6% in upper arch and 83.8% in lower arch. The need of prosthesis was 51.5% in upper arch and 52.1 % in lower arch.

## Keywords

*Prosthetic need, Prosthetic status, Socio-economic status*

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## INTRODUCTION

Oral health is a state of being free from mouth and orofacial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking and psychosocial wellbeing<sup>1</sup>.

Poor oral health and loss of teeth affects the dietary intake, nutritional status, phonetics and esthetics in addition to general health<sup>2</sup>.

Oral health is a gateway to the general health and both are determined by the socioeconomic status of an individual. Studies in the past have shown correlation between socioeconomic factors and oral health<sup>3-5</sup>.

The prosthetic status and need of population of this area has not been studied. This study aims to find out the prosthetic status and need of patients visiting Out Patient Department of Prosthodontics, Gandaki Medical College.

**MATERIALS AND METHODS**

This is a hospital based cross sectional descriptive study carried out at outpatient department of Prosthodontics, Colege of Dental Surgery, Gandaki Medical College Teaching Hospital and Research Center, Lekhnath, Pokhara. The duration of the study was a period of six months from Nov 2017 to April 2018. All the patients attending outpatient Department of Prosthodontics above 18 years of age were screened after obtaining consent. Ethical clearance was obtained from the Institutional Review Committee. Those patients who denied giving the consent were excluded from the study. Total 309 patients were screened. Data relating to age, sex, socio-economic status, prosthodontic status and prosthetic need were obtained. The prosthetic status and needs were recorded by a single examiner based on WHO Oral health assessment form 1997<sup>6</sup>.

**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

**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)

Modified Kuppuswamy socio-economic scale in context of Nepal was used to classify subjects according to socio-economic status<sup>7</sup>. The obtained data were entered in Microsoft Excel 2003 and further analyzed by SPSS version 25 to study the distribution of patients according to age and sex and to find out the prosthodontic status and need of the population.

**RESULTS**

There were total of 309 patients who visited the Department during the study period. There were 133 (43%) male and 176 (57%) female patients (Table 1). The majority of the patients had no prosthesis 243 (78.6%) in upper arch and 259 (83.8%) in lower arch (Table 2, 3). There was statistically significant difference between prosthetic status of upper arch and the age groups (P<0.001). The number of patients with replacement of missing teeth in upper arch was 66 (21.4%) and in lower arch were 50 (16.2%) (Table 2,3).

There were 159 (51.5%) of patients requiring one or the other form of prosthesis in upper arch and 161 (52.1%) of patients in lower arch. There was statistically significant difference between prosthetic need in upper and lower arch in relation to age groups (P<0.001) (Table 4,5). The upper middle class group of patients visited the department more 218 (70.6%) (Table 6).

**Table 1:** Distribution of subjects according to age and gender

Age (years)	Male N (%)	Female N (%)	Total N (%)
18 - 30	9 (29)	22 (71)	31 (10)
31 - 40	11 (30.6)	25 (69.4)	36 (11.7)
41 - 50	40 (47.1)	45 (52.9)	85 (27.5)
51 - 60	23 (35.9)	41 (64.1)	64 (20.7)
>60	50 (53.8)	43 (46.2)	93 (30.1)
<b>Total</b>	<b>133 (43)</b>	<b>176 (57.0)</b>	<b>309</b>

P>0.01

**Table 2:** Prosthetic status of upper arch according to age groups

Age groups (years)	Prosthetic status N (%)					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
18 - 30	31 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
31 - 40	27 (75)	8 (22.2)	0 (0)	1 (2.8)	0 (0)	0 (0)
41 - 50	73 (85.9)	6 (7.1)	1 (1.2)	5 (5.9)	0 (0)	0 (0)
51 - 60	45 (70.3)	4 (6.3)	2 (3.1)	9 (14.1)	0 (0)	4 (6.3)
>60	67 (72.0)	10 (10.8)	3 (3.2)	8 (8.6)	0 (0)	5 (5.4)
<b>Total</b>	<b>243 (78.6)</b>	<b>28 (9.1)</b>	<b>6 (1.9)</b>	<b>23 (7.4)</b>	<b>0 (0)</b>	<b>9 (2.9)</b>

P<0.001

**Table 3:** Prosthetic status of lower arch according to age groups

Age groups (years)	Prosthetic Status N (%)					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
18 - 30	29 (93.5)	2 (6.5)	0 (0)	0 (0)	0 (0)	0 (0)

31 - 40	31 (86.1)	3 (8.3)	2 (5.6)	0 (0)	0 (0)	0 (0)
41 - 50	69 (81.2)	11 (12.9)	0 (0)	5 (5.9)	0 (0)	0 (0)
51 - 60	53 (82.8)	2 (3.1)	2 (3.1)	6 (9.4)	0 (0)	1 (1.6)
>60	77 (82.8)	3 (3.2)	1 (1.1)	9 (9.7)	0 (0)	3 (3.2)
<b>Total</b>	259 (83.8)	21 (6.8)	5 (1.6)	20 (6.5)	0 (0)	4 (1.3)
P<0.053						

**Table 4:** Prosthetic need of upper arch according to age groups

Age groups (years)	Prosthetic need N (%)					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
18 - 30	16 (51.6)	8 (25.8)	7 (22.6)	0 (0)	0 (0)	0 (0)
31 - 40	20 (55.6)	9 (25.0)	5 (13.9)	2 (5.6)	0 (0)	0 (0)
41 - 50	43 (50.6)	25 (29.4)	9 (10.6)	8 (9.4)	0 (0)	0 (0)
51 - 60	34 (53.1)	10 (15.6)	10 (15.6)	3 (4.7)	7 (10.9)	0 (0)
>60	37 (39.8)	13 (14.0)	14 (15.1)	10 (10.8)	17 (18.3%)	2 (2.2)
<b>Total</b>	150 (48.5)	65 (21.0)	45 (14.6)	23 (7.4)	24 (7.8)	2 (0.6)
P<0.001						

**Table 5:** Prosthetic need of lower arch according to age groups

Age groups (years)	Prosthetic need N (%)					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
18 - 30	14 (45.2)	13 (41.9)	3 (9.7)	1 (3.2)	0 (0)	0 (0)
31 - 40	20 (55.6)	8 (22.2)	6 (16.7)	2 (5.6)	0 (0)	0 (0)
41 - 50	48 (56.5)	12 (14.1)	19 (22.4)	6 (7.1)	0 (0)	0 (0)
51 - 60	32 (50)	4 (6.3)	16 (25)	7 (10.9)	5 (7.8)	0 (0)
>60	34 (36.6)	8 (8.6)	20 (21.5)	11 (11.8)	17 (18.3)	3 (3.2)
<b>Total</b>	148 (47.9)	45 (14.6)	64 (20.74)	27 (8.7)	22 (7.1)	3 (1.0)
P<0.001						

**Table 6:** Prosthetic status of upper arch according to socio-economic status

Socio-economic status / N (%)	Prosthetic status N (%)					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
Upper / 24 (7.8)	17 (70.8)	6 (25)	0 (0)	1 (4.2)	0 (0)	0 (0)
Upper-middle / 218 (70.6)	168 (77.1)	18 (8.3)	6 (2.8)	20 (9.2)	0 (0)	6 (2.8)
Lower-middle / 64 (20.7)	55 (85.9)	4 (6.3)	0 (0)	2 (3.1)	0 (0)	3 (4.7)
Upper-lower / 2 (0.6)	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Lower / 1 (0.3)	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
<b>Total</b>	243 (78.6)	28 (9.1)	6 (1.9)	23 (7.4)	0 (0)	9 (2.9)
P<0.798						

**Table 7:** Prosthetic status of lower arch according to socio-economic status

Socio-economic status	Prosthetic status N (%)					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
Upper	22 (91.7)	1 (4.2)	0 (0)	1 (4.2)	0 (0)	0 (0)
Upper-middle	176 (80.7)	20 (9.2)	4 (1.8)	16 (7.3)	0 (0)	2 (0.9)

Lower-middle	58 (90.6)	0 (0)	1 (1.6)	3 (4.7)	0 (0)	2 (3.1)
Upper-lower	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Lower	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
<b>Total</b>	259 (83.8)	21 (6.8)	5 (1.6)	20 (6.5)	0 (0)	4 (1.3)
P<0.798						

**Table 8:** Prosthetic need of upper arch according to socio-economic status

Socio-economic status	Prosthetic need N (%)					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
Upper	14 (58.3)	4 (16.7)	6 (25)	0 (0)	0 (0)	0 (0)
Upper-middle	116 (53.2)	47 (21.6)	28 (12.8)	14 (6.4)	11 (5)	2 (0.9)
Lower-middle	20 (31.3)	11 (17.2)	11 (17.2)	9 (14.1)	13 (20.3)	0 (0)
Upper-lower	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Lower	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)
<b>Total</b>	150 (48.5)	65 (21)	45 (14.6)	23 (7.4)	24 (7.8)	2 (0.6)
P<0.01						

**Table 9:** Prosthetic need of lower arch according to socio-economic status

Socio-economic status	Prosthetic need N (%)					
	Code 0	Code 1	Code 2	Code 3	Code 4	Code 5
Upper	17 (70.8)	2 (8.3)	5 (20.8)	0 (0)	0 (0)	0 (0)
Upper-middle	112 (51.4)	35 (16.1)	43 (19.7)	17 (7.8)	8 (3.7)	3 (1.4)
Lower-middle	16 (25)	8 (12.5)	16 (25)	10 (15.6)	14 (21.9)	0 (0)
Upper-lower	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Lower	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
<b>Total</b>	148 (47.9)	45 (14.6)	64 (20.7)	27 (8.7)	22 (7.1)	3 (1.0)
P<0.001						

## DISCUSSION

There have been no studies done in this Western part of Nepal to evaluate the prosthetic status and need of the population. This study tried to find out the prosthetic status in the Department of Prosthodontics at College of Dental Surgery, in Gandaki Medical College.

The present study showed majority of patients had no prosthesis in upper arch 78.6% and 83.8% in lower arch. This is similar to study done by Choudhury *et al*<sup>2</sup> in India 80.89% in upper arch and 84.71% in lower arch. Nadgere *et al*<sup>8</sup> too showed similar results with 88% of population did not had prosthesis. In other study done at Jizan, Saudi Arabia by Peeran *et al*<sup>9</sup> similar results were found with majority of population had no prosthesis, 79.1% in upper arch and 81% in lower arch.

This study showed that the need of prosthesis was 51.5%

in upper arch and 52.1% in lower arch which is in contrary to findings of study done by Choudhury *et al*<sup>2</sup> and Shah *et al*<sup>10</sup>. Choudhury *et al*<sup>2</sup> showed 67.49% and 64.31% need of prosthesis respectively in upper and lower arch. Similarly Shah *et al*<sup>10</sup> showed relatively higher need of prosthesis 72%. This could be attributed to low prevalence of partial and complete edentulous in patients visiting outpatient Department of Prosthodontics at College of Dental Surgery, in Gandaki Medical College which is 2.42%, which was shown in study done by Tuladhar SL *et al*<sup>11</sup>.

In the present study 70.6% of the patients were from the upper middle class group of socio- economic status (Table 6, 7, 8, 9). Even though the patients were from upper middle class group there were more patients with no prosthesis, upper arch 78.6% and lower arch 83.8%. It can be co-related that patients are not pursuing prosthodontic treatment not because of financial constraints but it could be due to lack of awareness towards treatment.

This is a preliminary study; this study can be further extended to the general population with larger sample size and multiple centers so that the data obtained can be utilized to frame the policies by the provincial Government of this region to address the unmet prosthetic need.

## CONCLUSION

The majority of patients had no prosthesis 78.6% in upper arch and 83.8% in lower arch. The need of prosthesis was 51.5% in upper arch and 52.1% in lower arch.

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