



## KNOWLEDGE OF PROSTHETIC REPLACEMENT AND EFFECT OF EDENTULOUSNESS AMONG PEOPLE OF TAKSINDU, NEPAL.

### Dental Science

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### ABSTRACT

Edentulism remains major form of disease worldwide which can lead to functional limitation and also physical, psychological, and social disability. Knowledge of treatment options for missing teeth may play a valuable role in the acceptance of the prosthesis. This study aimed to evaluate the awareness of dental prosthesis, the effect of edentulousness in their daily life and availability of the treatment options at Taksindu, Solukhumbu, Nepal. This cross-sectional study included 159 subjects with male being 84 and female 75. After explaining the nature of the study, written informed consent were taken from the participants and the structured questionnaire was filled up by the examining doctor himself/herself. The data obtained was entered and analyzed by using the software IBM SPSS Statistics version 20 and descriptive and inferential statistics were performed. Majority of study population (69.8%), irrespective of gender, were equally aware of the different forms of oral prosthetic rehabilitation. Difficulty in mastication (50.9%) was found to be main problem faced by the subjects, followed by esthetics and phonetics. Caries was found to be the major cause or tooth loss. Cost and unavailability of proper oral health care center were the main factors restraining them from getting treatment.

### KEYWORDS

Edentulousness, Awareness, Prosthetic Replacement, Effect.

#### Introduction

“Edentulous” as defined in Glossary of Prosthodontic Terms<sup>1</sup> is the condition without teeth. Edentulism, whether total or partial, remains major form of disease worldwide and various factors like education, economic condition, lifestyle, oral health knowledge, beliefs and attitude towards dental care makes direct comparison between samples of different countries and different places within same country difficult<sup>2</sup>. Edentulism can lead to functional limitation and also physical, psychological, and social disability<sup>3</sup>. Studies have shown it is more prevalent in poor population and among women<sup>4,5</sup>. Although the reason for tooth loss is multivariate, caries and periodontal disease have been considered to be the primary reason.<sup>6,7</sup>

Prosthodontics, in broad sense, is concerned with the replacement of missing or deficient teeth and/or maxillofacial tissues using biocompatible substitutes<sup>1</sup>. Knowledge of treatment options for missing teeth may play a valuable role in the acceptance of prosthesis<sup>8</sup>.

Very few research papers have been published to date on the epidemiological survey done on edentulousness in Nepalese population<sup>9</sup>. Published study mainly focuses on the urban population and the situation on rural population is still unknown. This study aimed to evaluate understanding and knowledge about partial/total edentulism, the effect of the same on daily life, educational status, and awareness of dental prosthesis and availability of the treatment options among people living at Taksindu, Solukhumbu, Nepal.

#### Material and Method

This was a cross-sectional, self-designed closed ended questionnaire based study conducted in the district of Solukhumbu, Nepal. Approval for research was taken from the institutional review committee of Kathmandu Medical College Private Limited, Kathmandu, Nepal. The questionnaire was validated and pretested and non-probability based purposive convenience sampling technique was used for sample

selection.

Total of 302 people participated in the oral screening program. Full mouth examination was done with mouth mirror and explorer using torch as light source when needed. Inclusion criteria was the participants be partially or completely edentulous, not be wearing any form of oral prosthesis and age be 15 years and older. For calculating sample size, formula mentioned below was used.

80% “Z” score = 1.28

SD = 0.5

Margin of Error = 5%

$$\text{Sample Size} = \frac{(Z \text{ score})^2 \times \text{SD} (1-\text{SD})}{(\text{Margin of Error})^2}$$

$$= \frac{(1.28)^2 \times 0.5 (1-0.5)}{(0.05)^2}$$

$$= 164$$

The formula used for sample size calculation is a standard formula for calculating sample size in a cross sectional study. Regarding Standard Deviation (SD), we have kept SD at 50% or 0.5 since we anticipate the data to be normally distributed and not skewed.

The final sample size was 159 subjects with male being 84 and female 75. After explaining nature of the study, written informed consent were taken from the participants and the structured questionnaire was filled up by the examining doctor himself/herself. Three examiners and three recorders were involved for data collection. The examiners were instructed by a specialist doctor to examine and record the data in a similar way to avoid inter examiner variability. Age, gender, educational status, pernicious oral habits and cause for edentulism

were the individual variables assessed. Age was categorized to age groups with reference to study done earlier by Raj N et al<sup>10</sup> for the sake of convenience.

The data obtained was entered and analyzed by using the software IBM SPSS Statistics version 20 and descriptive and inferential statistics were performed.

**Result**

Among the total number of participants (male=84, female=75), 8 were completely edentulous in both upper and lower arch, 5 were completely edentulous in only upper arch with some teeth remaining in the lower arch and other 146 were partially edentulous. Table 1 shows the frequency of edentulism depending on age group.

**Table 1: Frequency of Edentulism depending on Age Group**

Age Group	Edentulous	Percent
15-24	9	5.7
25-34	18	11.3
35-44	30	18.9
<b>45 and above</b>	<b>102</b>	<b>64.2</b>
Total	159	100.0

56.6% of the study sample has been edentulous for more than 5 years without any form of treatment. The main reason for tooth loss was found to be caries (67.9%). Majority of them (69.8%), irrespective of gender, were equally aware of the different forms of oral prosthetic rehabilitation (Table 2) and willing for the treatment but lack of availability of service and high cost of treatment were found to be the restraining factor.

**Table 2: Awareness of types of Oral Prosthesis.**

Oral Prosthesis	Frequency	Percent
Removable Prosthesis	39	35.1
Fixed Prosthesis	3	2.7
<b>Removable and Fixed</b>	<b>60</b>	<b>54.1</b>
Removable, Fixed and Implant	9	8.1
Total	111	100.0

Difficulty in mastication (50.9%) was found to be main problem faced by the subjects, followed by esthetics and phonetics, due to total or partial edentulism. 17% even reported they don't face any problem due to their missing teeth (Table 3). Correlation indicated that there was an increase in patient problems like mastication, esthetics, etc., with increasing duration of edentulism (p=0.000, r=0.321). Increase in awareness of prosthetic rehabilitation was positively correlated with an increase in the educational level of the study subjects (p=0.000, r=0.317). (Table 4).

**Table 3: Problem faced by the patient due to edentulism**

Problem due to edentulousness	Frequency	Percent
esthetics	9	5.7
mastication	81	50.9
esthetics and mastication	30	18.9
esthetics and phonetics	9	5.7
esthetics, mastication and phonetics	3	1.9
no problem	27	17.0
Total	159	100.0

**Table 4: Correlation between variables**

	age	sex	education	duration	cause	problem	awareness
age	1	-	-	-	-	-	-
sex	-.226	1	-	-	-	-	-
education	.276	.166	1	-	-	-	-
duration	.480	.017	.248	1	-	-	-
cause	.288	-.223	-.086	.326	1	-	-
problem	-.021	.211	.189	.321*	-.080	1	-
awareness	.291	-.045	.317*	.399	.130	.273	1

\* Significance, p < 0.05

**Discussion**

In our study, we only included those participants who were partially and/or completely edentulous and not wearing any form of oral

prosthesis so that their knowledge on prosthetic replacement can be assessed and to know the exact problem they are facing due to their condition. We found no significant correlation between edentulism and gender of the patient. The ratio of male to female was almost equal (male = 84, female = 75).

The findings of the study done earlier to correlate the gender with edentulism is contradictory with some authors concluding no significant gender correlation<sup>11-13</sup> while others observed females to be more prone to edentulism than males<sup>14,15</sup>. The prevalence of edentulism categorized on age group was found to be highest among 45 years and older. The reason may be the unavailability of proper dental care center in the study area and poor oral hygiene measures among the study population which led to extraction of tooth rather in the later stages of life rather than doing conservative treatment. This finding is in accordance with other studies<sup>16-18</sup> which reported increased prevalence of edentulism with increasing age.

67.9 % of the study population lost their tooth due to caries. Periodontal disease and trauma were among the other common reasons for tooth loss. This finding is consistent with the study done by Dixit et al.<sup>19</sup> at Kathmandu, Nepal. Hence, dental caries remains to be a major cause of tooth mortality both in urban and rural population of Nepal. Difficulty in mastication alone was the major problem reported due to edentulism followed by both mastication and esthetics, which was similar to the study done by Reddy et al<sup>13</sup>. This difficulty increased with the duration of edentulism. 69.8% of the study group were aware of treatment modalities including fixed prosthesis, removable prosthesis and even dental implants and wanted to undergo treatment. Correlation value showed that this awareness to prosthetic rehabilitation increased with increasing level of education. This finding is positively comparable to the similar finding by Jayasinghe et al<sup>20</sup>.

Remaining 48 participants, after educating them about prosthetics replacement options of missing tooth, were still not willing for any treatment due to cost, unavailability of proper center in their area and their belief of prosthetic teeth not being able to meet their desired expectation. Many of them never had any problem with their missing teeth and do not feel any need for treatment.

**Conclusions**

More than two third of the study population were aware of the different treatment options for prosthetic replacement of their edentulous condition. Function and Esthetics were the main problem faced by them and many were willing to undergo treatment for the same. Caries was found to be the major cause or tooth loss. Cost and unavailability of proper oral health care center were the main factors restraining them from getting treatment.

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