

## Original Article

### Assessment of Prosthodontic status and needs among adult population of Trans-varuna Region of Varanasi- A Cross Sectional Study

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#### ABSTRACT:

The aim of the study is to assess the Prosthodontic status and needs with respect to age, gender, educational level and socio-economic status in urban areas of Trans- Varuna region. An on-site survey was conducted in Varanasi urban region between June 2016 to December 2016. Data was acquired by means of interview and clinical examination and was statistically analysed using chi-square test. A total of 5,631 participants were enrolled for the study. Prosthodontic treatment needs were maximum in females and in the age group of 46-60 years. Intermediate and low socio-economic group (Non-working, Unskilled worker and Semi-skilled worker) were having high prosthodontic needs. This study clearly reveals that age, gender, educational and socio-economic level plays a significant role in behaviour towards prosthodontic interventions.

**Key words:** Trans Varuna Region, Prosthodontic need assessment, socio-economic status

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#### INTRODUCTION

Edentulism though rarely life threatening, but can substantially affect the physical, emotional and psychological quality of life (1,2). Tooth loss is considered as an outcome of complex interaction between disease and non-disease entities. (3) Several studies have correlated incidence of edentulism with various factors viz: age, gender, residency, educational level, occupation and socio-economic status (4-9).

Although health care and dental needs of the elderly are well known in developing countries, there are few studies and lack of robust system to organise services catering to the needs and demands of the patients. Due to limited resources and exploding population, a nation-wide survey is a big challenge in India. However, area-wise surveys can be performed to elucidate the epidemiological trends in oral health.

Trans-Varuna is the urban area of Varanasi located on the flood plain of Varuna River. According to census 2011,

Varanasi urban agglomeration had a population of 1,435,113; with 761,060 men and 674,053 women (10).

Aim of this study was to assess the Prosthodontic status and needs with respect to age, gender, educational level and socio-economic status in urban areas of Trans-Varuna region.

#### MATERIALS AND METHOD

This survey was conducted onsite in trans-varuna region of Varanasi from June 2016 to December 2016. Initially a pilot study was conducted among 50 subjects of this region. By substituting the values obtained in the pilot study in the formula

$$n = \frac{z^2 \alpha pq}{L^2}$$

We arrived to the sample size of 5,361 which was rounded off to 5,500. During the study few accompanying people

of the subjects were also examined, which lead to sample size of 5,631.

The study participants were enrolled only after confirming that they were residents of Varanasi. Subjects only above 30 years of age were included in the study. The Trans Varuna region was divided into 4 zones and one area was selected from each zone by lottery method. Scheduling was done well before the survey and subjects were informed regarding the time.

Data was collected by means of an interview which was followed immediately by clinical dental examination (Type III examination ADA) in natural light with mouth mirror and probe. Clinical examination was carried out by 3-4 trained investigators.

The intra examiner weighed kappa was 88%, 89%, 94% and 91% respectively. The inter examiner weighed kappa was also at around 87.5% (average) between examiner.

Demographic variables like age, gender, educational level and socio economic status were recorded during the interview.

Age was further divided into three groups namely, 30-45, 46-60 and greater than 60 years. Educational level was classified as illiterate, elementary (up to seventh standard), intermediate (eight to twelfth standard) and graduation and above. Socio-economic status was classified as; non-working (unemployed, home maker, retired), Unskilled worker, Semi-skilled worker, Government/ Corporate job and Businessman/ Professional/ Self employed.

Data collected was entered in MS excel and was subjected to statistical analysis (SPSS version 17, SPSS Inc, Chicago, IL, USA). Chi-square test was used to compare the significance of difference in proportion. P value <0.05 was considered statistically significant.

**RESULTS**

Both prosthodontic needs and status were maximum in 46-60 years age group to be followed by above 60 age group and least in 30-45 year age group (Table I). The difference was statistically significant. (p<0.001)

**Table 1: Prosthodontic Status and Needs in relation to Age**

	30-45 years	46-60 years	Above 60years	Total
Prosthodontic Needs	651(20.98%)	1543(49.7%)	909(29.2%)	3103
Prosthodontic Status	497(19.14%)	1238(48.97%)	793(31.31 )	2528
$\chi^2=32.931, p \leq 0.001(HS)$				

Females had significantly more prosthodontic needs and status when compared to males (Table II)

**Table 2: Gender wise distribution of Prosthodontic Needs and Status**

	Male	Female	Total
Prosthodontic Needs	1246(40.15%)	1857(59.85%)	3103
Prosthodontic Status	899(35.56%)	1629(64.4%)	2528

When education was considered, the prosthodontic statuses as well as needs were maximum in the group with intermediate education followed by illiterates. They were least in the group which was qualified maximum i.e. graduate group. The difference was statistically significant. (p<0.001) (Table III)

**Table 3 : Prosthodontic Needs and Status in relation to Education**

	Illiterate	Elementary	Intermediate	Graduate	Total
Prosthodontic Needs	797(25.60%)	446(14.37%)	1365(43.9%)	495(15.95%)	3103
Prosthodontic Status	615(24.35%)	378(14.95%)	1181(46.72%)	354(14%)	2528
$\chi^2=68.525, p \leq 0.001(HS)$					

Prosthodontic needs were least in the Government/ Corporate job group followed by Businessman/ Professional/ Self employed group and maximum was seen in semi skilled and non working group. The difference was statistically significant. (p<0.001) (Table IV)

**Table 4: Prosthodontic Needs and Status in relation to Socio Economic Status**

	Non working	Unskilled worker	Semi skilled worker	Govt/ corporate job	Business/ self employed	Total
Prosthodontic Needs	730 (23.53%)	395 (12.73%)	1157 (37.29%)	260 (8.38%)	561 (18.08%)	3103
Prosthodontic Status	671 (26.54%)	201 (7.95%)	948 (37.5%)	219 (8.66%)	489 (19.34%)	2528
$\chi^2 = 311.056, p \leq 0.001$ (HS)						

## DISCUSSION

India is a country of more than one billion peoples comprising number of religion, caste, creed, and socio demographic variance. Loss of teeth reflects a major public health problem in many countries and has a significant effect on overall quality of life. Prosthodontic treatment needs and status is a reliable measure of population's oral health status.

A directly proportional relationship was observed between age and tooth loss in National Oral Health Survey of India(11). Greater tooth loss among the older age groups may be due to the cumulative effect of dental diseases and lack of oral health care measures. Since Indian population growth rate is positive, the number of individual in 46-60 years of age group is more than that of above 60 age.(12) In this study, age group between 46-60 years had reported higher treatment needs. Lesser treatment needs in the age group above 60 may be attributed to less population size of this group. Prosthodontic treatment needs met was maximum in 46-60 years age group as this age group is more socially active and financially sound. Percentage of treatment needs met were low between 30-45 years of age corresponding with their less requirements because of high awareness of oral health and sound dento-alveolar complex in young people. In older aged people, prosthodontic requirements fulfilled were low due to several factors such as multiple chronic diseases, side effects of medications and psychological factors as depression and isolation (because of loss of spouse, friends and feeling of being unwanted by family) leading to neglect of personal and oral hygiene.(13)

Recent studies on self-perception of prosthodontic needs indicate that gender plays a major role.(14) In the present study, females have higher percentage of treatment needs as compared to males because of obvious physiological reasons (15) Though similar observation was found in other studies (16,17,18), few studies have shown male predominance (19,20,21) and also no difference in tooth loss (22,23). Also, our study reported that prosthodontic treatment need met was more in females. This may be due to the inherent nature of females to look beautiful, fear psychosis that losing teeth is a sign of ageing and the negative impact of bleeding gums and halitosis - that might affect their personality and socialization.

In this study, people with intermediate level of education have high treatment needs as compared to illiterate because of high literacy rate of 79.27% in Varanasi(12),

which may be towards higher side in urban area. This lead to the increase in number of respondent with Prosthodontic need in this group. People with higher levels of education have less Prosthodontic treatment needs. This result extends the finding of previous researches documenting that lower literacy level is associated with higher number of missing teeth (24,25,26,27) Well educated people are more knowledgeable, understand the importance of maintaining a healthy oral cavity; can be motivated easily and generally comply with the instructions given to them by the dentist in order to maintain good oral hygiene.

The socio-economic status encompass the ease or difficulty of performing a particular behaviour taking into account aspects such as time availability, management of financial cost and access to health care services. Higher social class people (Govt./ Corporate job and Businessman/ Professional Self employed) showed less prevalence of Prosthodontic needs which was similarly reported in other studies also (28,29,30,31). This may be attributed to the fact that they are more conscious regarding their oral health, visit the dentist regularly for check-ups and utilize more of preventive services. People of lower social classes (Non-working, Unskilled worker and Semi-skilled worker) give little or no importance for preservation of their teeth for the entire life time and prefer extraction over restoration (32) and thus has higher percentage of prosthodontic needs. Among lower social class semi-skilled worker had highest prosthetic needs.

The low level of utilization of dental services suggest that people tend to overestimate their dental health and underestimate their need for care and those who underestimate their own dental care needs utilize the services less frequently. The individual patients must be made aware of the importance and significant advantages of prosthodontic care in particular and oral health in general.

## CONCLUSION

Within the limitations of the study, all of aforementioned aspects are important predictors of prosthodontic treatment related behaviour for specific population groups. Further studies will be appropriate and necessary to obtain a clear understanding of this complex relationship. Media and government should work in collaboration to bridge the gap in different groups.

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