



## Knowledge, Awareness and Attitude towards Prosthodontic Rehabilitation among the General Population in Bengaluru City. A Cross-Sectional Survey

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### Abstract

**Background:** The prosthodontic health status and prosthodontic rehabilitation of Bengaluru city's local population were not well documented. As prosthodontists, it is important to know how much concerned the people are towards oral health and what are their attitude, how aware are they about the various available treatments and how much knowledge do they have about its importance in order to give them oral health education, create awareness and help develop the practice guidelines. Hence, the aim of the survey was to assess the Knowledge, Awareness and Attitude of the general population in Bengaluru city towards prosthodontic rehabilitation.

**Material and Methods:** We divided Bengaluru city (total area of about 286 sq. miles) arbitrarily into four zones, namely, North zone, South zone, East zone and West zone. A total of 2516 subjects belonging to the age group of 35 to 74 years from all the four zones were surveyed with a questionnaire which was either in English or in Kannada (local language) with sixteen closed-ended questions. The statistical analysis of the data collected through the questionnaire was done using SPSS(V-22) software.

**Results:** The age of the subjects who participated in the survey ranged from thirty-five to seventy-four years. Among the 2516 subjects, 1283 were male subjects and 1233 were female subjects. It was found that most of the subjects (77.2%) visited the oral health care provider only when they had any dental problems. About 54.4% of the subjects who participated in the survey had not got their missing teeth replaced. About 74.9% of the subjects had restrained themselves from getting the treatment done thinking that the prosthetic treatment is expensive.

**Conclusion:** On summarizing the data obtained from the survey, it was understood that there is a strong requirement to create awareness among people about the prosthodontic rehabilitation of missing teeth. Even though there are many government programs and schemes that offer the essential dental treatments for free of cost, due to lack of awareness and knowledge regarding the same, the general public is still not approaching for the improvement of their oral health status and ignoring their dental problems thinking that the treatment is too expensive. Therefore, it is of utmost importance for the dentists to reach out to the general public and create awareness about the importance of oral health and various facilities available from the government for the dental treatments and extend the treatment hoping to improve their future quality of life through dental camps and prosthodontic outreach programs.

**Keywords:** Knowledge; Attitude; Awareness; Prosthodontic Rehabilitation

### Introduction

Edentulism remains a major form of disease worldwide leading to functional limitation and also physical, psychological and social disability. Various prosthetic treatment modalities are available for the patients to replace their missing teeth that includes removable

partial denture or fixed partial dentures, complete dentures, implants etc [1,2]. Understanding the mind-set of the general population for the replacement of the missing teeth, further acknowledgment and attending to the needs, play an important role in their acceptance to the prosthetic rehabilitation [3]. Involvement of a

broader range of individuals in the evaluation of prosthodontic rehabilitation is very important and hence the attitude of not just patients visiting the dental practitioners but the entire general population is required. An analysis of the attitude towards prosthodontic rehabilitation of the entire community provides us the valuable insights that are not ordinarily gained in dental practice, and also, such a study tells us what people know about certain things, how they feel and how they behave towards it [4-9]. Literature search reveals that there is no documented evidence regarding the prosthodontic health status and needs for the prosthetic rehabilitation of the Bengaluru general population [10]. Hence the present survey was undertaken to explore the Knowledge, Awareness and Attitude towards Prosthodontic Rehabilitation among the General Population in Bengaluru City.

**Methods**

**Sample size calculation**

$N = (4Pq / L^2) D$  WHERE,

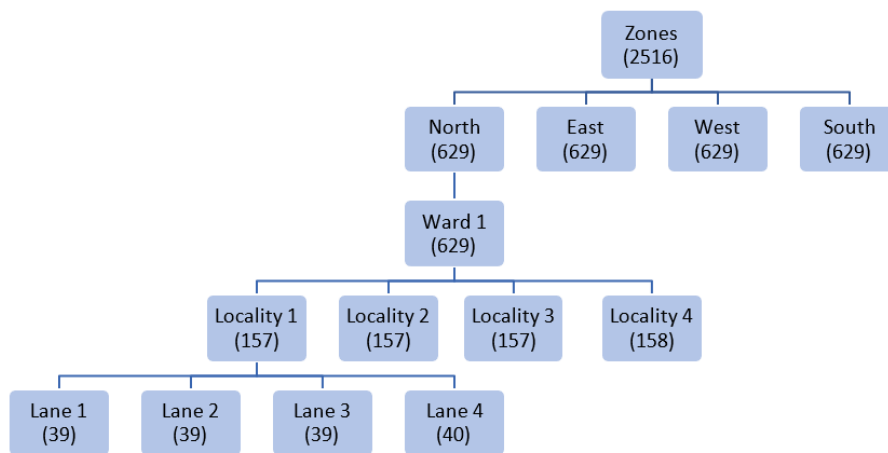
P = prevalence value = 55.7% (17)

L = Allowable error = 5% of P value = 2.8 D = Design effect = 2, q = (1-P) = 44

Therefore,  $N = (4 \times 56 \times 44 \times 2) / (2.8 \times 2.8) = 2514$  Approximated to 2516.

A total of 2516 subjects gave their consent (Annexure1) and participated in the survey. A self-made questionnaire (Annexure-II) which was written either in English/Kannada language was given to the participants. The self-made questionnaire had two parts. Part 1 had the provision to collect the socio- demographic data while Part 2 had sixteen closed ended questions (out of which six were awareness based, five were knowledge based and five were attitude based) were recorded. Strategies for coding were developed and applied in the questionnaire for the purpose of statistical analysis.

The Bengaluru city was arbitrarily divided into four zones namely, North, South, East and West for administrative purposes. From each zone 629 participants selected using Multistage Random Sampling Technique.



The above diagram represents how the multi-stage random sampling was done in one zone and the same methodology was applied in all the four zones in order to arrive at the sample size of 2516.

- **Stage 1:** One Corporation Ward in each zone was randomly selected (From four zones we will have four corporate wards).
- **Stage-2:** From each ward Four localities were sampled randomly (Four localities from each ward amounts to Sixteen localities).
- **Stage-3:** Four lanes from each locality were randomly selected (Four lanes from each locality and sixteen localities out of four wards amounts to Sixty-Four lanes).
- **Stage-4:** Eligible participants in the households from one end of the lane to another end were surveyed.

**Selection criteria**

Inclusion criteria: Subjects belonging to the age group of 35-74 years, both male and female. Exclusion criteria:

- Participants with psychological disorders were excluded.
- Participants who were unable to comprehend and respond to the questions were excluded.
- The persons associated with dentistry were excluded from the study.

**Statistical analysis**

The responses from all the questionnaires containing 16 closed ended questions were analysed for descriptive statistics using SPSS software (Version-22). The level of significance was kept at 5%. The interpretation of the statistical analysis of the compiled data is as follows.

**Results**

Age	Frequency	Percentage
35-55	1768	70.3
55-74	748	29.7
Total	2516	100

**Table 1:** Distribution of study subjects according to Age.

Among 2516 subjects, 70.3% (1768) subjects belong to the age group 35 to 55 years and 29.7% (748) belong to the age group 55 to 74years.

Gender	Frequency	Percentage
Male	1283	51.0
Female	1233	49.0
Total	2516	100

**Table 2:** Distribution of study subjects according to Gender.

Among 2516 subjects, 51% were male and 49% were female participants.

Response	Frequency	Percentage
Once in 6 Months	291	11.6
Once in 12 Months	282	11.2
Only when there is a problem	1943	77.2
Total	2516	100

**Table 3:** Distribution of study subjects according to Q1: How often do you visit a dentist?

Among the 2516 subjects, 11.6% visited the dentists once in 6 months, 11.2% visited once in 12 months and 77.2% visited only when there was a problem.

Response	Frequency	Percentage
Yes	744	45.5
No	889	54.4
Total	1633	100

**Table 4:** Distribution of study subjects according to Q2: Have you got your missing teeth replaced?

45.5% of subjects had got their missing teeth replaced, 54.4% had not got their missing teeth replaced. 71.3% of subjects were aware that the missing teeth had to be replaced, whereas 28.7% were unaware of it.

Response	Frequency	Percentage
Yes	1975	78.5
No	387	15.4
Don't know	154	6.1
Total	2516	100

**Table 5:** Distribution of study subjects according to Q3: Do you let your Dentist to decide with regards to your prosthetic treatment?

78.5% of subjects left it to their respective dentists to decide regarding their prosthetic treatment, 15.4% would decide themselves regarding their prosthetic treatment, 6.1% of the subjects did not know.

Response	Frequency	Percentage
Yes	1846	73.4
No	135	5.4
Don't know	535	21.3
Total	2516	100

**Table 6:** Distribution of study subjects according to Q4: Do you think your quality of life will improve after prosthetic treatment?

After the prosthetic treatment 73.4% thought that quality of life will improve, 5.4% thought it will not improve and 21.3% did not know if there would be any changes in their general wellbeing.

Response	Frequency	Percentage
Yes	1884	74.9
No	562	22.3
Don't know	70	2.8
Total	2516	100

**Table 7:** Distribution of study subjects according to Q5: Do you consider dental prosthetic treatment to be expensive?

74.9% of subjects thought that the cost of prosthesis is expensive, 23.3% thought that it was not expensive, 2.8% did not know if the prosthetic treatment is expensive or not.

Response	Frequency	Percentage
Yes	1633	64.9
No	883	35.1
Total	2516	100

**Table 8:** Distribution of study subjects according to Q6: Do you have any Missing teeth?

64.9% of the participants had missing teeth and 35.1% of them had all the teeth present.

Response	Frequency	Percentage
0-6 Months	562	22.3
6-12 Months	335	13.3
More than a year	736	29.3
Not Applicable	883	35.1
Total	2516	100

**Table 9:** Distribution of study subjects according to Q7: How long have the teeth been missing?

22.3% of subjects were edentulous for a duration of 0-6 months, 13.3% were edentulous for a duration of 6-12 months and 29.3% were edentulous for more than a year.

Response	Frequency	Percentage
Yes	1794	71.3
No	722	28.7
Total	2516	100

**Table 10:** Distribution of study subjects according to Q8: Are you aware that missing teeth have to be replaced?

71.3% of the participants were aware that the missing teeth have to be replaced while the remaining 28.7% were not aware of the same.

Response	Frequency	Percentage
Speech	292	11.6
Function	1221	48.5
Appearance	255	10.1
All of the above	487	19.4
None of the above	261	10.4
Total	2516	100

**Table 11:** Distribution of study subjects according to Q9: What is your prime concern for replacement?

The prime concerns or expectations from prosthetic treatment in 11.6% subjects was speech, in 48.5% for functional purpose and about 10.1% for appearance. 19.4% were concerned about speech, function and appearance, 10.4% were not interested in any of it.

Response	Frequency	Percentage
Fear of swallowing	206	8.2
Fear of prosthesis coming out	196	7.8
Fear of gagging	293	11.6
Fear of discomfort	317	12.6
Fear of allergic reaction	239	9.5
None of the above	1265	50.3
Total	2516	100

**Table 12:** Distribution of study subjects according to Q10: What is the reason for not getting the prosthetic treatment done?

8.2% of the subjects did not get the prosthetic treatment done with the fear of swallowing the prosthesis, 7.8% had a fear of dislodgement of prosthesis, 11.6% had a fear of gagging, 12.6% had a fear of discomfort, 9.5% had a fear of allergic reaction, 50.3% subjects did not respond as to why they did not take prosthetic treatment.

59.8% subjects felt that the artificial teeth do help in reducing the problems caused by the missing teeth, 7.8% felt that the artificial teeth do not help and 32.4% did not know if the artificial teeth will help improve their oral function.

Response	Frequency	Percentage
Yes	1504	59.8
No	197	7.8
Don't know	815	32.4
Total	2516	100

**Table 13:** Distribution of study subjects according to Q11: Do you think artificial teeth help in reducing the problem caused by missing teeth?

Response	Frequency	Percentage
Dental clinic	1495	59.4
Government hospital	737	29.3
Dental college	256	10.2
Others	28	1.1
Total	2516	100

**Table 14:** Distribution of study subjects according to Q12: where would you like to go for replacement of missing teeth?

59.4% would prefer to go to dental clinics for replacing their missing teeth, 29.3% would prefer to go to government hospitals, 10.2% prefer to go to dental colleges and 1.1% prefer other optional places for replacing their missing teeth.

Response	Frequency	Percentage
Complete denture	961	38.2
Removable partial denture	376	14.9
Fixed partial denture	377	15.0
Implant	287	11.4
None of the above	511	20.3
All of the above	4	0.2
Total	2516	100

**Table 15:** Distribution of study subjects according to Q13: What type of treatment do you know among the following?

38.2% knew about complete denture treatment, 14.9% knew about removable partial denture treatment, 15% knew about fixed partial denture, 11.4% knew about Implants, 20.3% knew none of the treatments available and 0.2% knew all the treatments available for rehabilitation.

Response	Frequency	Percentage
Fixed prosthesis	1595	63.4
Removable prosthesis	614	24.4
Don't know	307	12.2
Total	2516	100

**Table 16:** Distribution of study subjects according to Q14: What would you choose between fixed and removable prosthesis?

63.4% of subjects chose fixed prosthesis, 24.4% chose removable prosthesis and 12.2% did not know what type of prosthesis to choose.

Response	Frequency	Percentage
Yes	878	34.9
No	307	12.2
Don't know	1331	52.9
Total	2516	100

**Table 17:** Distribution of study subjects according to Q15: Do you think implant is better mode of replacement of missing teeth?

34.9% of subjects thought Implant is the best mode of treatment, 12.2% thought implant is not a better mode of treatment and 52.9% did not know if implant is better mode of treatment for replacing the missing teeth.

Response	Frequency	Percentage
Yes	2069	82.2
No	180	7.2
Don't know	267	10.6
Total	2516	100

**Table 18:** Distribution of study subjects according to Q16: Do you think that prosthesis need oral hygiene maintenance as natural teeth?

82.2% of subjects thought that the prosthesis needed for oral hygiene maintenance, 7.2% thought that the prosthesis did not require oral hygiene maintenance and 10.6% did not know if the prosthesis required oral hygiene maintenance.

## Discussion

Analysing the responses of the subjects in Bengaluru city, it was found that restoring the function was the predominant reason to

get prosthetic treatment which is the same as in Jordan city [11]. This is because most of the people surveyed belong to middle aged group (35 to 55) and they wanted better function of their teeth to eat the foods of their choice.

Only 11.9% population in Bengaluru knew about dental implants because most of the subjects only go to the dentists when they have pain or otherwise they are not bothered to know more about the dental treatments, this also shows that it is important to conduct awareness programmes. Also in entire South India its about 17.8% population that have knowledge about implants [12].

82.2% of the population in Bengaluru thinks that oral hygiene maintenance of artificial prosthesis is a must whereas in Jabalpur city it was 74.8% of population (Gupta S., et al.). This shows that most of the subjects believe that artificial prosthesis is as good as and as same as natural teeth and can restore the oral health.

60% had a good knowledge about the fixed prosthesis, compared to 47.5% about removable partial dentures and 57% for the dental implant in a study done by Al Quaran FA and his colleagues whereas in Bengaluru 38.2% knew about complete denture treatment, 14.9% knew about removable partial denture treatment, 15% knew about fixed partial denture, 11.4% knew about Implants, 20.3% knew none of the treatments available and 0.2% knew all the treatments available for rehabilitation, however the study by Al Quaran had only 200 participants [13].

83.5% chose fixed partial denture (Al Quaran FA and his colleagues) 63.4% of subjects chose fixed prosthesis in Bengaluru city [13]. This is because they think that maintenance is less for fpd and there is no fear of the prosthesis coming out of the mouth during functioning.

27.5% of people of Aseer region, Saudi Arabia were not aware that missing teeth has to be replaced whereas in Bengaluru 28.7% were not aware of the same which is almost similar in both regions [14]. As this might be due to most of them among these people had very less education or have not been to school due to poverty.

45.5% of the Bengaluru population had got their missing teeth replaced whereas in Riyadh, Saudi Arabia, it's about 53.1% of people have got their missing teeth replaced [15-21].

## Conclusion

Hence from the analysis, we can conclude that the knowledge, awareness and attitude levels can vary among the people due to various factors like age, gender, education, place etc. However, the

subjects have a positive attitude towards prosthetic treatment as it can restore normal function. It is hence important to develop practice guidelines and provide education and create awareness among the population for a better and healthier society.

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