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Original Article

AWARENESS, ATTITUDES, NEED AND DEMAND FOR MISSING TEETH REPLACEMENT AMONG PARTIALLY DENTATE PATIENTS

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ABSTRACT

Objectives: *This study was conducted to determine the awareness, attitude, need, and demand for missing teeth replacement among partially dentate patients in tertiary care settings.*

Materials and Methods: *This cross-sectional study was carried out at HITEC- institute of dentistry Taxila and included partially dentate patients aged 18–60 years from December 2022 to September 2023. All participants completed a pre-tested and validated questionnaire. Demographic information (age, gender, and educational status) was recorded. The second section of the questionnaire assessed awareness, attitude, need, and demand for the replacement of missing teeth. Clinical evaluation was performed to determine treatment needs and to identify suitable prosthetic options for each arch based on Kennedy's Classification. Data were analysed using the chi-square test in SPSS version 26, with $p < 0.05$ considered statistically significant.*

Results: *A total of 99% of the patients were aware of their missing teeth; however, only 73.5% expressed willingness to replace them. Among the 26.5% with a negative attitude toward replacement, the most common reason was the perception of no need for treatment. Regarding treatment options, 96% were aware of tooth-supported fixed prostheses, while 94% and 52% were aware of removable and implant-supported prostheses, respectively. Nearly all participants agreed that replacing both anterior and posterior teeth is equally important. Patients with Kennedy's Class I, II, III, and IV showed greater interest in fixed prostheses compared to removable options.*

Conclusion: *Most partially dentate patients desire replacement of missing teeth to improve mastication and exhibit good awareness of available removable and implant-supported prosthetic options. Patients with Kennedy's Class I and II show particularly high demand for prosthetic replacement.*

Key words: *Attitude, Awareness, Demand, Missing Teeth, Partially Dentate, Treatment Options.*

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INTRODUCTION

Maintenance of oral health is essential, as it significantly affects an individual's quality of life. The benefits of good dental health have been extensively studied and include economic, social, psychological, and physical aspects[1]. With advancements in dental technology and understanding, the prevalence of edentulism has changed; however, tooth loss remains a significant problem in low-income countries[2]. The replacement of missing teeth with dental prostheses depends on multiple factors, including patient knowl-

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edge and awareness[2].

Although several prosthodontic options are available for replacing missing teeth, research has shown that patients' understanding and acceptance of these options are influenced by their education, economic status, cultural background, and age[3]. Partial edentulism presents both clinical challenges and lifestyle compromises. Consequences of tooth loss, such as drifting and tilting of adjacent teeth, supra-eruption of opposing teeth, compromised esthetics, alterations in speech, temporomandibular joint problems, and continued alveolar bone loss, pose challenges during prosthetic rehabilitation[4]. In addition, partial tooth loss has substantial social, psychological, and emotional effects, negatively impacting self-image, self-esteem, and overall quality of life[5].

Previous studies have reported varying levels of awareness regarding prosthetic options: 45% of patients were aware of fixed prostheses, 26% knew about acrylic removable partial dentures, and knowledge of cast partial dentures and implant-supported prostheses was only 10% and 4%, respectively[6,7].

The present study aims to evaluate the awareness, attitudes, need, and demand for missing teeth replacement among partially dentate patients attending tertiary care hospitals. We hypothesize that awareness and demand for prosthetic rehabilitation are influenced by patient demographics, and that a significant proportion of patients remain unaware of available prosthetic options.

MATERIALS AND METHODS

This cross-sectional study was conducted on 414 participants at the Prosthodontics Department of HITEC institute of dentistry Taxila. Ethical approval was obtained from the Institutional Ethics Review Committee (Reference No. Dental/HITEC/IRB/15/4). The sample was selected using consecutive sampling. Sample size was calculated using Cochran's formula:

$$n=(Z \cdot P(1-P))/d^2$$

where nwas the required sample size, Zwas the confidence level (95%, 1.96), Pwas 0.1, and dwas the margin of error (0.05).

Inclusion criteria comprised partially dentate patients aged 18–60 years. Exclusion criteria included patients who were mentally or physically impaired, employed in dentistry, or completely edentulous.

All participants were provided with an information sheet, and written informed consent was obtained prior to participation. A pre-tested and validated questionnaire was administered to record demographic information (age, gender, educational status) and to assess awareness, attitude, need, and demand for missing tooth replacement.

A clinical examination was performed based on Kennedy's Classification to determine treatment needs and to identify appropriate prosthetic options for each arch. The evaluated prosthetic options included removable partial dentures, tooth-supported fixed partial dentures, and implant-supported prostheses.

Data were analyzed using SPSS version 26.0 (IBM Corp., Armonk, NY). Associations between demographic variables (age, gender, educational level, and monthly income) and awareness of tooth replacement were assessed using the chi-square test, with a p-value < 0.05 considered statistically significant.

RESULT

The elaborated results are presented in tables 1-3. The mean age of the study population was 42.43 years. 64.5% were females and 35.4% were males in the sample.99% of the study population were aware of their partially edentulous state and it correlate significantly according to their level of education as well as gender as shown in table 1.

As summarized in Figure 1, participants displayed high levels of awareness regarding conventional prosthetic options but significantly lower knowledge regarding dental implants. Most participants were knowledgeable about tooth-supported fixed prostheses (96%) and removable prostheses (94%). In contrast, only slightly more than half of the participants (52%) reported being aware of implant-supported prostheses as a treatment modality.

As presented in Table 2, the majority of participants (n=305, 73.5%) demonstrated a positive attitude toward the replacement of missing teeth, while 109 participants (26.4%) expressed a negative attitude. Among those with a negative attitude, financial constraints were the most frequently cited barrier (n=53, 48.6%). Other reported reasons included a

lack of time (n=24, 21.6%), a lack of perceived need for replacement (n=21, 18.9%), and a lack of knowledge regarding treatment options (n=11, 10.8%).

Participants with positive attitude towards replacement claimed that aim of replacement is to improve masticatory ability. 68.2% of the patients were of the opinion that replacement of both anterior and posterior teeth are equally valuable. results were statistically significant when monthly income is considered. (Table 3)

An analysis of the demand for missing tooth replacement was stratified by the Kennedy's classification and the location of the edentulous arch (maxilla vs. mandible). The results, as summarized in Figure 2 and Figure 3 and detailed in the tables below, indicate a general patient preference for tooth-supported fixed prostheses (FPD) and implant-supported prostheses over removable partial dentures (RPD) across most classifications.

The sole exception to this trend was observed in the mandibular Class III classification (Figure 3), where the demand for RPD was highest.

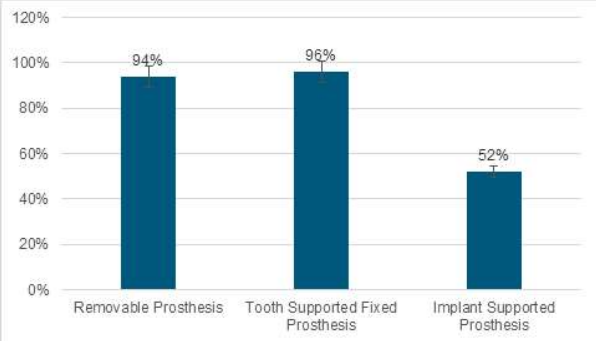

Fig 1: Participants awareness on different types of prosthesis

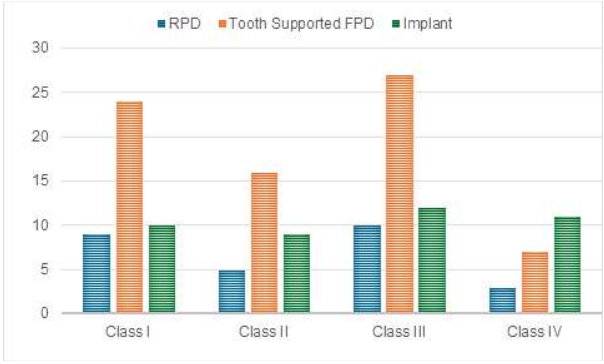

Fig 2: Demand for teeth replacement in accordance with saadle's position in the upper arch

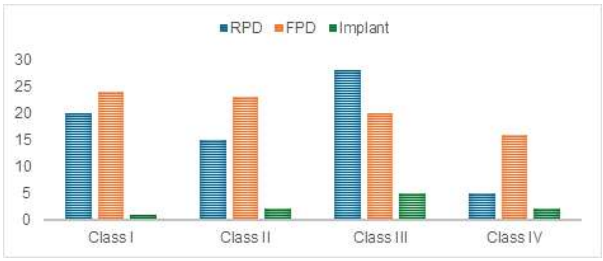

Fig 3: Demand for teeth replacement in accordance with saadle's position in the lower arch

Table 1: Attitude towards the replacemnt of missing teeth

Demographics	No (n=109)	Yes(n=305)	Total	P-value
Age Category				
18-28	41(37.6)	35(11.5)	414(100)	0.658
29-39	26(23.8)	63(20.7)		
40-50	25(22.9)	71(23.3)		
51-60	17(15.6)	136(44.5)		
Gender				
Male	65(59.7)	80(26.2)	414(100)	0.00
Female	44(40.4)	225(73.7)		
Educational status				
Primary education	35(32.1)	29(9.5)	414(100)	0.03
Upto grade 8	41(37.6)	47(15.4)		
O/L	21(19.3)	83(27.2)		
A/L	12(9.5)	146(47.9)		
Socioeconomic status				
Lower class	50(45.9)	122(40)	414(100)	0.05
Middle class	53(48.6)	47(15.5)		
Upper class	06(5.5)	136 (49.5)		

Table 2: Attitude of participants toward replacement of missing teeth and reasons for negative attitude

Attitude / Reason for Negative Attitude	n	%
Positive attitude (in favor of replacement)	305	73.5
Negative attitude (not in favor of replacement)	109	26.4
Did not perceive need for replacement	21	18.9
Financial constraints	53	48.6
Lack of time	24	21.6
Lack of knowledge about treatment options	11	10.8

DISCUSSION

Teeth loss can prompt patients to seek therapy for functional reasons, as they experience an undesirable decrease in function, with each patient's threshold for unsatisfactory function varying. Tooth loss can also have a substantial aesthetic impact, which may be more important to a patient than its functional consequences. Patients' perspectives and demands about the restoration of lost teeth may differ from those of dental experts[8,9]. As a result, it is of significant importance to evaluate the awareness, need, and desire for prosthodontic treatment choices in the population. Various research on tooth loss mainly focusses on cross-sectional studies, with Brown[11] revealing comprehensive statistics of tooth loss in the US and Dolan et al[12] studying risk factors in middle-aged and older individuals.

Among 414 participants, 99% of the study population were aware of their missing teeth. This is in line with prior findings that showed a high degree of awareness (95.93%)[13-15]. Our survey also found that awareness about implant prostheses is 52%, which is comparable with the study conducted by Bhatia[16].

When the participants' views regarding tooth replacement were evaluated, 73.6% of the sample indicated positive attitudes, which is nearly double the number reported by Reddy et al. in Saudi Arabia in 2016[17].

The data indicates a significant gender difference in awareness, with a p-value of 0.00. Females (73.7%) were more aware of their edentulous condition compared to males (26.2%). This heightened awareness among females may be attributed to a greater concern for oral health and aesthetics, which is comparable with existing literature[15] suggesting that women are generally more proactive about health-related issues. Age-based categorisation reveals that older patients aged 51–60 years were more inclined towards missing teeth replacement, probably to improve their masticatory performance, which is in line with the previous investigation[15].

Table 3: statistically significant when monthly income is considered.

Independent Variable	P-value
Age	0.73
Gender	0.62
Educational levels	0.58
Socioeconomic status	0.001

Educational status also showed a significant correlation with awareness of the edentulous state, with a p-value of 0.03. Participants with higher levels of education, particularly those who had completed their Advanced Levels (A/L), demonstrated greater awareness compared to those with primary education or lower educational attainment. This trend underscores the role of education in enhancing health literacy and awareness about dental conditions and their potential solutions.

While the correlation between socioeconomic status and awareness was not as strong (p-value of 0.21), there was still a notable trend. Participants from upper socioeconomic classes had more awareness about tooth replacement compared to those from lower socioeconomic classes. This may reflect better access to dental care and health information among higher socioeconomic groups.

In order to determine the most appropriate type of prosthesis for patients attending dental clinics, it is necessary to assess demand for various forms of prostheses depending on the location of the edentulous area[20]. Participants showed a greater inclination towards replacing missing teeth in both the maxilla and mandible across all Kennedy's classes. Our study claims that participants are more inclined towards a restoration with a fixed prosthesis, both tooth and implant-supported. Participants with Kennedy Class I and II favour fixed restorations, probably due to masticatory difficulty and discomfort with free-end saddle arches[17,19]. Research in Saudi Arabia found that 50% of the sample chose removable prostheses, 25% selected tooth-supported fixed prostheses, and none preferred implants[17]. Because our results were favourably related to participants' educational level,

the difference in our outcome might be explained by the country's greater level of awareness and the general public's use of newer mass media.

LIMITATIONS

First the sample size, although sufficient for the scope of this study, may not be large enough to generalize the findings to the broader population. Secondly, the study relies heavily on self-reported data, which can be subject to biases such as social desirability bias, recall bias, and inaccurate self-assessment. Participants might overestimate their awareness or underreport their attitudes towards dental health due to perceived social norms or personal perceptions. Another limitation is that the study does not evaluate the impact of previous dental health education interventions on participants' awareness and attitudes. Understanding the role of such interventions could provide more context to the findings and help in designing more effective educational programs. Attitudes and awareness towards dental health can change over time due to advancements in dental technology, changes in public health policies, or increased public health campaigns. The study provides a snapshot in time and may not capture these dynamic changes.

CONCLUSION

Most partially dentate patients desire replacement of missing teeth to improve mastication and exhibit good awareness of available removable and implant-supported prosthetic options. Patients with Kennedy's Class I and II show particularly high demand for prosthetic replacement.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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None declared.

AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	SSZ, AR, AN, SQ, KT, UR
Acquisition, Analysis or Interpretation of Data:	SSZ, AR, AN, SQ, KT, UR
Manuscript Writing & Approval:	SSZ, AR, AN, SQ, KT, UR

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.