

# Determination of Aetiology for Delaying Replacement of Teeth in Partially Edentulous Arches Prosthodontically

Aetiology for Delay Replacement of Missing Teeth with Prosthesis

Muhammad Sartaj Khan, Bushra Ubaid, Lubna Hashim, Afshan Alam and Muhammad Raza

## ABSTRACT

**Objective:** To determine the aetiology for which patient delay replacement of missing teeth with prosthesis.

**Study Design:** Cross sectional survey

**Place and Duration of Study:** This study was conducted at the Department of Prosthodontics, Peshawar Dental College Peshawar from October 2022 to January 2023.

**Materials and Methods:** The study had a sample of 200 patients representing both genders having 20 to 70 years range. The inclusion criteria had patients with partially edentulous arches in either maxilla or mandible. Patients with missing third molars and having craniofacial deformities were excluded from the study. A self structured questionnaire was used to collect demographic data and to find frequency for the variables belonging to missing teeth location in arch, side, and time passed without prostheses, reasons for extraction, Kennedy Class and reasons for not replacing missing teeth well in time.

**Results:** The females (61%) were more than males (39%) with 01.6 ratios. Most of partially edentulous arches were found in maxilla (48%) with posterior teeth missing (75%) belonging to Kennedy Class III (81%). Most of patients (84%) lost their teeth due to caries, 62% remained without prostheses for more than 1 year time and 64% were having no knowledge of non-replacement consequences of missing teeth. Along with other minor reasons, mainly delaying tooth replacement was attributed to lack of awareness (36%), felt no need (23%), economic (29%) and unavailability of prosthodontics services (8%).

**Conclusion:** Females had more partially edentulous arches and most of patient had Kennedy Class III arches in posterior segments. Lack of awareness, feeling no need for tooth replacement and economic conditions of patients were reported as main reasons for delaying replacement of missing teeth.

**Key Words:** Missing teeth, Partial edentulous arch, Dental awareness, Dental fear

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## INTRODUCTION

Teeth are lost for a variety of reasons including caries, trauma and poor periodontal health status which has a substantial impact on social and psychological well being of patients. Consequences of non-replacement of teeth such as caries, drifting and rotation of adjacent teeth further cause difficulties in teeth replacement therapy which can be prevented through awareness and timely replacement of teeth.<sup>1</sup>

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Literature has revealed various barriers and reasons for delaying acquiring replacement prosthesis. In this regard lack of education makes it difficult for the patient to take an appropriate decision for teeth replacement option.<sup>2,3</sup> Dental treatments are considered expensive and costly around the world. The impact of per income capita in underdeveloped countries, high inflation rate coupled with low socioeconomic status, and disparity in rural/urban areas health facilities are the major barriers for seeking dental treatments. Delaying of replacement therapies has been associated with fear/anxiety for seeking dental treatment which has been termed as dentophobia, a demotivating factor regarding dental treatments. Equally important is the previous dental history and experience of an individual in this regard. This coupled with anxiety form a barrier for accessibility of dental treatments.<sup>4,5</sup>

Disproportionate availability and accessibility to dental health care facilities coupled with health care programmes below the benchmark affect restoration of teeth.<sup>6</sup> Dental health care facilities in primary and secondary health units are very limited especially regarding the prosthodontics replacement treatments

modalities. The current study aims to identify such delaying reasons for seeking prosthodontics rehabilitation of partially edentulous arches in local circumstances.

**MATERIALS AND METHODS**

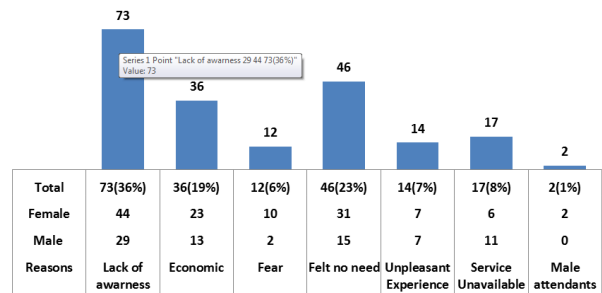
This cross sectional study was carried out in prosthodontics outpatient department of Peshawar Dental College and Hospital, Peshawar, Khyber Pakthunkhwa. After obtaining an ethical approval certificate from Institutional Review Board, the study was completed in four months (October, 2022 to January, 2023). A non-probability consecutive sampling technique was used. With a 33% assumed prevalence of patients delaying replacement of teeth, sample size of 200 patients was selected with 5% margin of error at 95% confidence level. The study included patients of both genders having one or more than one missing tooth (but not all) and patients of age 20 to 70 years. Exclusion criteria included patients with existing dentures, missing third molars, patients with craniofacial deformities. An informed verbal consent was obtained from each participant before filling the questionnaire. The questionnaire was filled by practitioner through a face-to-face interview at time of examination at dental chair. Data was collected through a self-structured questionnaire which included demographic data of patients in the first part and the second part comprised of questions related to identification of reasons which possibly were the factors that played a role in delaying treatment prosthesis. Patients’ responses were recorded for reasons of tooth loss, practitioner’s advice for replacement after extractions, oral functions most affected by loss of teeth. The reasons for non replacement of teeth were categorized as lack of awareness, economic, fear associated with dental treatment, no need for replacement, non accessibility to dental services and etc. Statistical analysis was performed by using SPSS version 23. Chi square test was applied for comparison between male and female patients. Frequencies and percentages were calculated for reasons of non replacement. Mean and standard variations were calculated for age of patients.

**RESULTS**

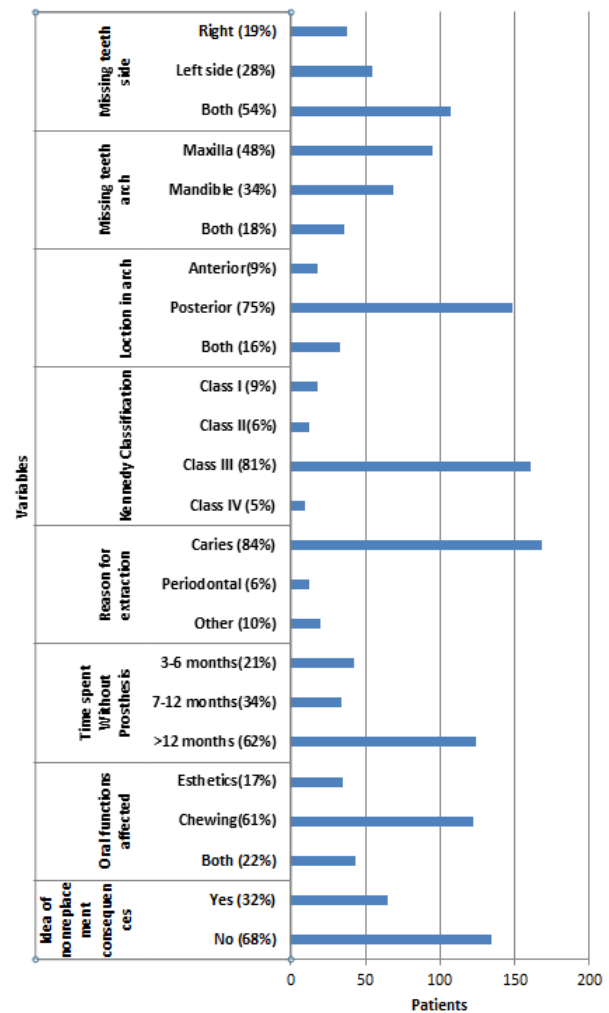
The study included a total of 200 patients attending the outpatient department of prosthodontics at Peshawar Dental College of Peshawar.

**Table No. 1: Statistics for age and gender of patients**

Age (years)		Gender (n=200)		
Minimum	Maximum	Female	Male	Female/Male Ratio
23	70	123	77	
Mean=44	S.D=11.8	(61%)	(39%)	1.6



**Figure No. 1: Statistics for non-replacement reasons in both genders. (p= 0.114)**



**Figure No.2: Statistics for different variables**

Out of these 123 were female and 77 were male with a female to male ratio of 1.6. The observed maximum age limit of the study population was 70 years and minimum limit of 23 years with a mean age of 44 years and standard deviation of ± 11.8. Demographic results of the sample are given in Table-1.

In a descending order of percentages, majority of patients stated that they were not able to replace teeth due to lack of awareness (36%), felt no need (23%), economic reasons (19%) and unavailability of dental services (8%). Comparison of different reasons for non-

replacement in male and female was not statistically significant ( $p=0.114$ ). This has been depicted along with other reasons in Figure-1.

Posterior teeth were found to be the most missing teeth (75%) and amongst Kennedy Classes majority of cases were Class III (81%) as given in Figure-2. When compared to mandible (34%), maxillary arch were having the maximum number of missing teeth (48%). Left side of the arches were having more number of missing units (28%) as compared to the right side (19%), however, 54% of cases were having edentulous spaces both on the right and left side at the same time. Caries was the major cause of tooth loss in 84% of cases and chewing was recorded as the main feature affected by loss of teeth (61%). More than 2/3<sup>rd</sup> of patients revealed that they were lacking sufficient knowledge and had no idea about the consequences of not restoring teeth well in time, as depicted in Figure-2. It was also observed that 62% of patients remained partially edentulous for more than one year time after losing their teeth. In the same category a total of 34% were in the range of 7-12 months time.

## DISCUSSION

There are various reasons due to which patients delay replacement prostheses for their missing teeth. This study focused on these aspects and tried to find out the situations in prevailing local circumstances.

Tooth loss can be found in either gender but many studies have observed that partially edentulism is more prevalent in females than males. Our study found that about 60% of females were having more number of teeth missing as observed in a similar kind of study.<sup>7</sup> Socioeconomic conditions, low knowledge and financial dependency on male family members are a few reasons to mention in the local circumstances.

Due to early eruption time and broader occlusal surface coupled with neglected oral hygiene maintenance and treatment, make posterior teeth more susceptible to caries which subsequently leads to their early loss. Our study observed posterior teeth as commonly missing teeth (75%). This finding is in line with a study done earlier.<sup>8</sup>

A decline in prevalence in tooth loss has been observed. Untreated caries lead to extensive damage to tooth structure, decreasing the restorability index which often ends up in extraction of teeth. Caries along with periodontal problems and trauma are the leading causes for missing teeth.<sup>9</sup> In our current study caries was the most commonly observed reason for extraction (84%) followed by periodontal problems (9%). This observation is in agreement with studies done earlier.<sup>10</sup>

Unnecessary delaying of replacement can end up in superfluous consequences of non-replacement of edentulous sites affecting patients' budget, time and treatment morbidities.<sup>11</sup> Current study observed 62% of patients remained without any replacement prosthesis

more than one year time. This is quite discouraging because, as mentioned earlier, associated changes may be high. Our finding is closer to findings of an early study.<sup>12</sup>

More than 2/3<sup>rd</sup> of participants (68%) were unaware of consequences of tooth non replacement. This finding is slightly higher than the study done early, reflecting a lack of sufficient knowledge and awareness on part of the patients.<sup>13</sup> Our finding is less when compared to Tulsani findings.<sup>14</sup> It also confirms our finding that around 56% of patient disclose that at time of extraction their practitioners did not informed them about replacement prosthesis. This finding is congruent to a local study early on the subject matter.<sup>15</sup> About 22% patient did not feel any need for teeth replacement. As our study did not take into account the status of the remaining teeth or shortened dental arch concept, therefore, we did not take into account the need assessment of patients.

Replacement of teeth is considered to be expensive with no cheap alternatives. Our study observed that 20% of patients could not replace teeth due to their economic conditions; this finding is matching as stated in UK study where patients deferred different dental treatments due to high cost.<sup>16</sup> A study by Natarajan concluded that economic condition of patients is the main reason for non replacement of teeth followed by lack of awareness.<sup>17</sup> Similar results have been reported by Vadavadagi et al.<sup>18</sup>

Unavailability of dental services played a role in delaying replacement prosthesis, as revealed by 12% of patients. This relatively small percentage may be due to the fact that the present study was conducted at tertiary care hospital with good facilities. In rural areas the situation might be not better than urban areas. Dental anxiety and fear are well documented factors that affect seeking dental treatment by patients. Keeping in mind a small sample size of current study, nevertheless, 7% of patients stated this as a factor which played a role in delaying replacement prosthesis. This value is less than the value reported in an earlier study.<sup>19</sup> The low score in our study may be due to the non surgical type of replacement prosthesis. Pashto speaking areas are considered more conservative part of the society where females are accompanied by their male family members for outside home activities. It was hypothesized that non availability of male family members for various reasons, such as busy schedule, could affect paying visits to the dentist. However, contrary to this, a negligible amount of female patients (01%) revealed that seeking dental treatment is affected by non-availability of male family members for escorting to dental centres.

## CONCLUSION

Within the limitation of the current study it can be concluded that more number of females had non-

restored partially edentulous spaces. The most commonly occurring partial edentulous arches belonged to Kennedy Class III. Lack of sufficient knowledge, feeling no need for treatment and financial constraints were major factors for delaying prosthodontics replacement of missing teeth. More patients remained without replacement prostheses for more than one year time. The assessment of associated changes with such prolonged non-restored arches was beyond the scope of the current study.

#### Author's Contribution:

Concept & Design of Study: Muhammad Sartaj Khan  
 Drafting: Bushra Ubaid, Lubna Hashim  
 Data Analysis: Afshan Alam, Muhammad Raza  
 Revisiting Critically: Muhammad Sartaj Khan, Bushra Ubaid  
 Final Approval of version: Muhammad Sartaj Khan

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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