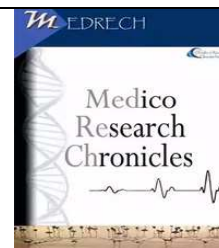




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OUTCOMES OF FIXED PARTIAL DENTURES FABRICATED IN AFHSR BEFORE 3 YEARS

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ABSTRACT

Objectives:

This study was done to determine the length of service of FPDs delivered to the patients with specific clinical, radiographic, and laboratory procedures.

Methods:

A total of 110 patients were examined 65 of the participants were females and 45 males, with a total of 175 prostheses. Patient was selected randomly, all of them having a single crown or fixed partial dentures done at the Dental Specialty Centre King Fahad Armed forced hospital Khamis Mushait KSA, between 2016 and 2019. Patients were informed and written consents were obtained. Age, gender and the duration of prosthesis placement were being recorded. Clinical and radiographic analysis was done.

Results:

Out of 200 patients participated satisfying the criteria for inclusion in this study were identified. 110 responded positively with a total of 175 prostheses (91 single crowns, 84 FPDs). The male patients were 45 and the female patients were 65, with age ranging from 25 to 65 years. The most frequent failure was due to debonding in both types of prosthesis.

Conclusion :

Within the limitation of this study, secondary caries and debonding of the single crowns and FPDs were the most frequent complication.

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INTRODUCTION

A crown has been described as an artificial replacement that restores missing tooth structure by surrounding part or all of the remaining natural tooth structure with a material. This material may be ceramic, cast metal or a combination of materials such as metal and ceramic.' Crowns may be utilized to

improve the appearance of discolored or malformed teeth. They are also utilized to confer protection and to restore form and function to teeth, which may be compromised due to loss of tooth structure. The loss of tooth structure may occur due to caries, endodontic procedures, erosion, abrasion, attrition or

trauma. Crowns are also indicated as retainers for fixed partial dentures.

A fixed partial denture (FPD) is a dental prosthesis that is luted to natural teeth or dental implant abutments for primary support. These prostheses are useful in replacement of missing teeth. Tooth loss most commonly occurs as a result of untreated dental caries and advanced periodontal disease. Trauma arising from road traffic accidents falls; sporting accidents and interpersonal violence may also result in tooth loss. Some patients may present with congenitally missing teeth. Most patients often require replacement of missing teeth to improve their appearance and/or their masticatory efficiency.

Ideally, treatment decisions for patients requiring crowns and fixed partial dentures should be based on sound scientific evidence, treatment needs and desire of the patient, clinical factors in the oral cavity, the patient's economic circumstances and expertise available. Sound scientific evidence can be acquired from an evaluation of treatment outcomes, which will reveal survival, successes, failures, and complications of various treatment modalities. Several complications may arise related to the crown and fixed partial denture work. These include biological, mechanical and aesthetic complications which if unattended may lead to the eventual loss of the prosthesis and the abutment teeth. Although crowns and fixed partial dentures (FPDs) have been provided to patients at the Dental Specialty Centre King Fahad Dental Centre Khamis Mushait KSA for many years, no critical evaluation of the outcomes of this treatment has been done. Such an evaluation is critical for quality control purposes and as part of the research that influences treatment planning and decision-making. The purpose of this study was to evaluate the crowns and tooth supported fixed partial dentures provided to patients over a period of three years at the center, with the aim of establishing their success rate, and other

factors that could have influenced their success.

OBJECTIVES

To evaluate crowns and conventional fixed partial dentures provided to patients Dental Specialty Centre King Fahad Dental Centre Khamis Mushait KSA.

1. To determine the success rate of crowns and conventional fixed partial dentures provided to patients at the Dental Specialty Centre King Fahad Dental Centre Khamis Mushait KSA
2. To determine factors associated with the success of crowns and conventional fixed partial dentures provided to patients at the Dental Specialty Centre King Fahad Dental Centre

Khamis Mushait KSA.

Variable Measurement

Socio-demographic variables

Age Years as at last birthday

Gender Male or female

Occupation Employed, unemployed, self-employed

Level of education Primary, secondary, tertiary

Independent variables

Age of crown/FPD Months

The span of FPD Number of units

Design of FPD Fixed-fixed, fixed-movable, cantilever, resin bonded Root canal status of abutment/crowned Presence/ absence of root filling the tooth

Presence of post Presence or absence of post

Position of crown/FPD Anterior/posterior

Brushing frequency Number of times per day

Visits to the dentist Number of times per year

Systemic illness Nature of systemic illness

Patient satisfaction Satisfied/ Dissatisfied

MATERIALS AND METHODS

Study Area

The study was conducted at the Dental Specialty Centre King Fahad Dental Centre Khamis Mushait KSA.

Study Population:

The study population comprised of patients who had received crowns and tooth supported fixed partial dentures at the Dental

Specialty Centre King Fahad Armed forced hospital Khamis Mushait KSA, between 2016 and 2019. This was influenced by the availability of records for crowns and fixed partial dentures provided to patients.

Sample size determination

Sample size determination was calculated using Fisher's method of sample size determinations" Based on a study evaluating the complications of fixed prosthodontics and the prevalence of complications associated with fixed partial dentures were very less"

Sampling method

Purposive sampling method was utilized from the patients who have been provided with crowns and FPDs at the Dental Specialty Centre King Fahad Armed Force Hospital Khamis Mushait KSA. The stated period was identified from the clinical work registration book and contacted by phone. All patients who responded and showed up for evaluation were included in the study upon satisfying the consenting procedures.

Inclusion criteria

Patients provided with crowns and tooth supported fixed partial dentures at the Dental Specialty Centre King Fahad Armed Force Hospital Khamis Mushait KSA between 2016 and 2019.

Exclusion criteria

- Patients whose treatment records were missing.
- Patients with prostheses provided outside the Dental Specialty Centre King Fahad Armed Forces Hospital Khamis Mushait KSA
- Patients not eligible for radiographic evaluation.

Data collection instruments and techniques

A list of patients who had been provided with crowns and fixed partial dentures between 2016 and 2019 was obtained

by searching the records manually. A total of 200 patients satisfying the criteria for inclusion in this study were identified. Their phone numbers were retrieved from these records and from Wipro and attempts were made to contact each of them. Thirty of these patients could not be reached as their numbers were out of service or had changed. Out of 170 patients who were contacted and invited for a review appointment, 110 responded positively, the rest were not able to avail themselves for review due to various reasons.

The patients were called for a review on specific days designated for the study. Each patient was given an appointment and allocated time for the process. On arrival the patient was awarded about the purpose of the study, risks and benefits were explained to the patient. The patient was then provided with the consent information document. A questionnaire was used to gather information on patient's socio-economical status, type of oral hygiene practice, pain or any other sign and symptom, and the satisfaction of the patient regarding its function and esthetic. The prosthodontic department of the dental center provided the questionnaire.

Clinical Examination

All the patients were examined in the dental clinic of the dental center. The intraoral examination was conducted with the help of a dental mirror, dental explorer and periodontal probe in the presence of both artificial and natural light. All the instruments used for the study were sterilized and packed at the CSSD of our CSSD department of King Fahad armed forces. Hospital to which the dental Centre is affiliated. Also, patients were supposed to go for Panoramic radiograph and in some cases also periapical radiographic view and occlusal view.

Table 1: Prosthesis distribution among the patients

Total	Single Crown	FPD's
175	91(52%)	84(48%)

Table 2: Demographic distribution of the patients

Gender	No. of Patients (%)
Male	45 (40.90%)
Female	65 (59.09%)
Total	110 (100%)

RESULTS

A total of 110 patients were examined. These patients had been provided with a total of 175 prostheses (91 single crowns, 84 FPDs). The age of the patient ranged from 25 to 65

years, averaging (44.65 +13.15) years. Forty-five (40.90%) were males and 65 (59.09%) were females. The average age of males was (44.26 + 12.8) years, however, the difference was not statistically significant.

Table 3: Education Level of the patients

Education	No. of Patients (%)
College Level	47 (42.72)
Secondary Level	30 (27.28)
Primary Level	15 (13.63)
Uneducated	18 (16.36)

47 (42.72%) participants had a college level of education while 30 (27.28%) and 15 (13.63%) had a secondary and primary level of education and 18 (16.36%) were uneducated. Thirty-five (31.81%) or were employed while 5 (9.09%) were self-employed 55 (50%) were unemployed (Housewife) and 15 (13.63%) were students.

DISCUSSION

Evaluation of treatment outcomes remains critical in the provision of scientific evidence, which informs treatment planning, and patient education for decision-making. Documentation of single crowns and secondary dental caries were the most common complication associated with a fixed partial denture. The success rate of the prosthesis was 81%. The success rate was due to the proper treatment planning, the level of the clinicians. Majority of the FPDs were three units and four units. Long span bridges were not preferred, done only in those cases where patients were not fit or ready for an implant. As long-span bridges are generally not preferred due to the complexity of preparation in these bridges and an insufficient number of abutments and difficulty in maintenance by the patients.

In this study, a total of 175 prostheses were provided to the patients among them 91 single crowns, 84 FPDs. The age of the patient ranged from 25 to 65 years, averaging (44.65 +13.15) years. Forty-five (40.90%) were males and 65 (59.09%) were females. The average age of males, (44.26 + 12.8) years, however, the difference was not statistically significant. 47 (42.72%) participants had a college level of education while 30 (27.28%) and 15 (13.63%) had a secondary and primary level of education and 18 (16.36%) were uneducated. Thirty-Five (31.81%) or were employed while 5 (9.09%) were self-employed and 55 (50%) were unemployed (Housewife) and 15 (13.63%) were students. The design of FPD was only fixed to fixed. This design is favored because forces that are applied to the pontic are disturbed equally to the abutment teeth. The movable FPDs design with the precision attachment was not used as this type of design is to be used in FPD with pier abutment. The movable joint acts as a stress breaker. The cantilever design accounted for 7 (6.36%) of the cases. This design may be utilized for conservation of tooth structure where preparation of one of the teeth adjacent to the edentulous space is

missing. This was confined to the anterior segment.

SUMMARY

The success rate for FPDs determined as 80.4% and the crowns determined, as 75.4% was lower than that reported in similar studies. The level of training of the clinician and length of service had an influence on the success rate of the crowns. Non-vital abutments and non-vital crowned teeth did not have a negative influence on the success rate of crowns and FPDs. Porcelain fracture, defective margins and loss of retention were not common complications, only documentation and secondary caries were the most common complications associated with both crowns and fixed partial dentures.

CONCLUSION

Fixed partial denture complications may increase the chances of failures. Most commonly seen complications were documentation of crowns and FPDs and those related to the design of the FPD.

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