



Knowledge and Awareness of Precision Attachments Among Dental Students

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ABSTRACT

Significant reconstruction of damaged teeth requires a great deal of new and traditional treatment methods, and the design of attachment retained removable partial dentures is one such therapeutic approach in prosthodontics. Customized semi-precision fittings with partial dentures provide strength and enhanced aesthetics in situations with limited space. The objective of the study was to determine the knowledge and understanding of precision attachments amongst dental students. A descriptive survey was conducted among undergraduate and postgraduate dental students using a structured questionnaire. The questionnaire gathered information on the respondent's knowledge regarding the use of precision attachments among dental practitioners in dentistry. Out of the 100 students, 60% of them believed that based on the geometric configuration and design of the attachment precision attachments can be classified as the key lock, 20% believed that they were classified as latch type attachments and the rest 20% believed that they were classified as ball and socket attachment. Out of the 100 students who took the survey, 80% believed that the advantages of using precision attachments were all except increasing the stress to abutment and 20% believed that the advantages were all except decreasing torsional forces. All the students who had taken part in the survey had moderate knowledge about the use of precision attachments in dentistry. More intensive educational and awareness initiatives should be undertaken to increase the awareness levels about precision attachments among dental students.

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INTRODUCTION

Successful rehabilitation of damaged teeth requires a great deal of new and traditional treatment

methods, and the design of attachment retained removable partial dentures is one such therapeutic approach in prosthodontics. Restricted space for extra coronal attachments is a significant weakness in the design and construction of the Removable Partial Denture (RPD) precision attachment. Customized semi-precision fittings with partial dentures provide strength and enhanced aesthetics in situations with limited space. This article presents the use of precision fittings among dental students. The need to balance functional integrity and aesthetic appeal in partial dentures has contributed to the production of precision fittings in dentistry.

The design of precision dentures may not involve an exceptional degree of expertise and is within the domain of the specialist who will prepare teeth to

obtain full crowns and install fixed bridges (Souza et al., 2011; Tylman and Malone, 1978). Precision attachment typically consists of a strong metal receptacle (a matrix) and a closely aligned component (patrix) (Souza et al., 2011). The patrix is normally the male part, and the matrix slot is the female part.

Compliance with the concept of the wide distribution of stress and the implementation of an appropriate protection factor through the use of multiple dental splints guarantees consistent results (Ma and Brudvik, 2008). The distribution of stress in removable partial dentures is a rather significant factor in the fabrication of the prosthesis. Precision attachments used in prosthetic dental care are typically made of plastic, metal or a mixture of both. Technological changes influencing the design of appliances are being made on an ongoing basis. The installation of the device directly on the master by means of an electrical welder, accompanied by the freehand welding of the male attachments, removed a tireless and unpredictable process. This research was carried out with the intention of assessing the knowledge and understanding of precision attachments among dental students.

MATERIALS AND METHODS

A descriptive survey was conducted among undergraduate and postgraduate dental students using a structured questionnaire. The questionnaire gathered information on the respondents' knowledge regarding the use of precision attachments among dental practitioners in dentistry. The study included 100 students and a questionnaire consisting of 7 questions that were provided to each student. All the questionnaires were evaluated, and the collected data was analyzed.

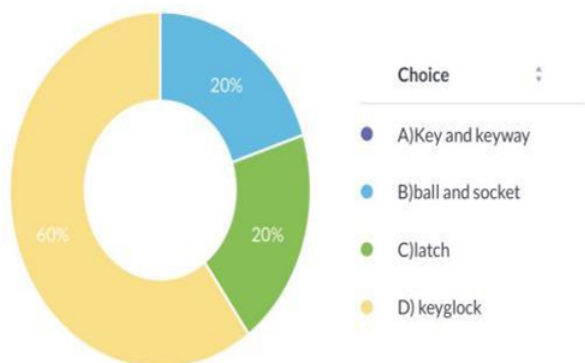


Figure 1: Classification of precision attachment.

RESULTS AND DISCUSSION

Out of the 100 students, 60% of them believed that based on the geometric configuration and design of the attachment precision attachments can be classified as key and lock, 20% believed that they were classified as latch type attachments and the rest 20% believed that they were classified as ball and socket attachment (Figure 1). Out of the 100 students who took the survey, 80% believed that the advantages of using precision attachments were all except increasing the stress to abutment and 20% believed that the advantages were all except decreasing torsional forces. (Figure 2)

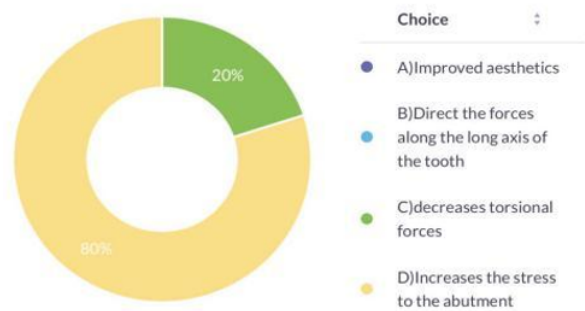


Figure 2: Advantages of attachments.

80% of the students believed that the disadvantages of using precision attachments are all except requiring lead tooth preparation and 20% say that they were all except minimum occluso-gingival height (Figure 3).

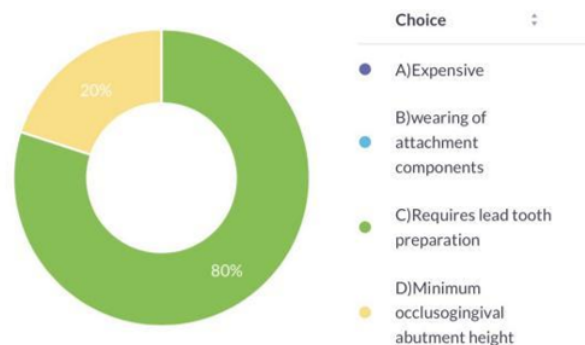


Figure 3: Disadvantages of attachments.

The most common application of precision attachments in prosthodontics was found to be its role as a stress breaker, periodontally weakened teeth, divergent abutment teeth with high survey lines. These were accepted by 100 per cent of the students who had taken up the survey (Figure 4). A majority (100%) of the students believed that the main contraindication of precision attachments are all except

good periodontal support (Figure 5). The attachment selector was believed by 80% of the students to be given by Dr.Mc.Mensor is 1973, whereas 20% of the students believed that the attachment selector was given by Dr Henry Page in 1973 (Figure 6). All of the students who had taken up the survey believed that the H shaped precision attachment was McCollum attachment (Figure 7).

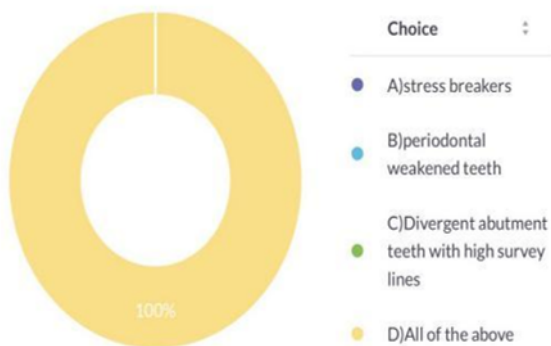


Figure 4: Common applications of attachments.

While there is an increasing rise in the use of a fixed dental prosthesis to maintain more teeth in older populations and a rise in the use of dental implants, removable dental prosthesis is still widespread. Visibility of anterior dental surfaces with lips at rest and during functioning is a significant factor in evaluating and deciding prosthodontic outcomes. Any fixed or reversible prosthetic procedure requiring their removal is deemed to be critical (Reynolds and Reynolds, 1985).

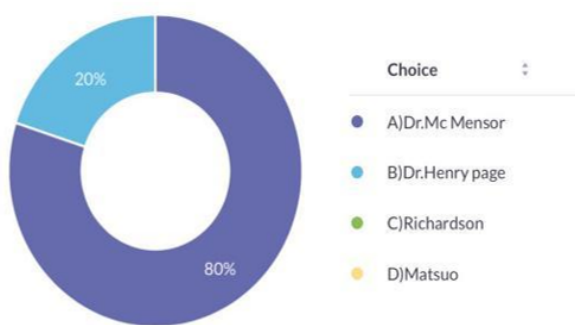


Figure 5: Attachment selectors

RPD with attachments, typically of an extra coronal form, is perceived to be more effective in preserving and restoring aesthetic function and aesthetics. Edentulism leads to a known loss of oral function in both esthetic and psychological changes. Based on clinical need and demand, restoration of the missing structure can be accomplished by the use of traditional methods (Bambara, 2012). The purpose of prosthetic reconstruction is to maintain and resurrect health, functionality and aesthetics.

The full-arch fixed prosthesis may be built and manufactured if appropriate, and correctly installed abutments remain, or a significant number of implants can be mounted. Nevertheless, both comprehensive fixed dental prosthesis and implant-supported prosthesis could cost-prohibitive for patients. Since patients were opposed to surgery, the implant-supported prosthesis may not have been considered. Retainer preference for removable dental prosthesis depends significantly on the residual dental structure, intra-and inter-maxillary jaw relation, aesthetics and economic implications (Zitzmann et al., 2007).

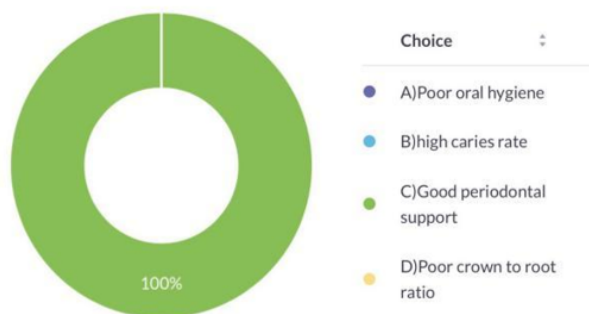


Figure 6: Contraindications of attachments

Although the clasps theoretically interfere with the aesthetic requirements of the anterior region, the attachments are almost invisible in the labial region. These attachments are intended to be mounted intracoronal or extracorporeally. These fulfil the same function as clasps, i.e. maintaining and securing a fixed partial denture or RPD to tooth structure. Weaknesses of intracoronal attachments are: (1) further tooth reduction; and (2) at least 3 mm of height are required (Meşe and Özdemir, 2008; Munot et al., 2017).

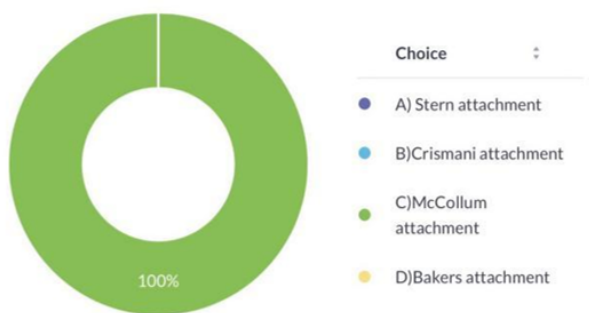


Figure 7: H shaped attachment

If extra coronal durable attachments are used for RPD, there is sometimes a lack of attachment space so that a denture tooth cannot be positioned over that. Also, the tiny commercial attachments available on the market use a great deal of edentulous

space behind the abutment tooth. In this case, the Personalized Precision Attachment (CPA) usually consists of male and female extra coronal parts. The guide plane was inserted into the matrix and the rest into the attachment matrix. Housing has a rest and guidance aircraft as essential components of the RPD. Such tailored attachments address the drawbacks associated with the use of intracoronal attachments, which are (1) unnecessary tooth reduction; (2) weak embrasures; and (3) low aesthetic appeal. Specific advantages include ease of use and a wide choice of alloys (Cho and Suh, 2017; Kumar, 2014).

A clinical report explains the method of removing metal show on the labial surface of anterior maxillary teeth used as abutments for partial denture through the use of a Cast Ceka Precision Attachment (CPA). A systematic assessment, a multidisciplinary approach and a coordinated treatment plan, designed in conjunction with the patient's medical needs and expectations are necessary for long term positive outcome. CPA is the most restrictive care choice and offers excellent patient affirmation. The effectiveness in clinical application renders it as one of the popular designs of RPD (Goto and Brudvik, 2002; Pissiotis and Michalakis, 1998). It will not restrict the patient's option to even have implant-supported prosthesis whenever mentally and financially equipped.

CONCLUSION

All the students who had taken part in the survey had moderate knowledge about the use of precision attachments in dentistry. More intensive educational and awareness initiatives should be undertaken to increase the awareness levels about precision attachments among dental students.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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