

ASSESSMENT OF AWARENESS ABOUT FIXED PARTIAL DENTURE AMONG UNDERGRADUATE DENTAL STUDENTS

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ABSTRACT

Objective: *Fundamentals of fixed prosthodontics are included in undergraduate curriculum in dental colleges. Due to rapid advancements and increased patient expectations, not only fundamentals but technical and laboratory skills and use of current developments of dental materials is also of vital importance. The aim of this study is to assess awareness about fixed partial dentures among undergraduate dental students and to compare the knowledge about fixed partial denture among different undergraduate classes.*

Methodology: *A descriptive cross sectional survey was conducted among dental students of watim dental college Rawalpindi in 2022. Using a pre-structured questionnaire data was collected from 264 students of different academic years. The questionnaire consisted of 10 questions about the components, indications, advantages, types and cleaning methods for fixed partial dentures. The responses recorded were tabulated and analyzed using SPSS version 17 with descriptive statistics. Difference with $P < 0.05$ was considered statistically significant.*

Results: *Out of 264 students, 211(79.9%) were females and 53(20.1%) were males. 75.8% of students were aware about use, 82.2% about type of prosthesis. 65.5% of students were aware of components of fixed partial dentures.*

Conclusion: *It can be concluded that the dental students displayed an acceptable level of knowledge in FPDs. However, there was lack of knowledge about the detailed design features. In order to further enhance the knowledge and awareness about fixed prosthesis, there should be better clinical exposure to all the academic years.*

Keywords: *Awareness, Fixed partial denture, Dental students*

This article may be cited as: Khalil A, Ejaz F, Sabir W, Jabbar S, Riaz S, Mahmmod K. Assessment of awareness about Fixed Partial Denture among undergraduate dental students. Pak Oral Dent J 2024; 44(1):78-82.

INTRODUCTION

Healthy teeth not only play a significant role in maintaining esthetics and function, but they also immensely improve the quality of life of an individual.¹

Tooth loss has a number of negative effects on oral and consequently general health, therefore restoring the existing edentulous spaces becomes necessary.² There are different forms of Prosthodontic treatment options such as removable partial dentures, fixed partial dentures or implant supported prostheses for restoration of missing teeth.³

Fixed partial denture (FPD) remains the most quest-ed option after dental implants.⁴ They are cemented or screwed on abutments (prepared teeth/implants) and are fixed. Fixed partial dentures provide good esthetic, functional and psychological advantages to the patients.⁵ Fixed partial dentures, also known as bridges can be used to restore single or multiple teeth, mostly with short span.⁶ The materials used for the fabrication of these restorations are all-metal, all-ceramic or combination of metal-ceramic. The design of fabricated prosthesis depends on the esthetics, clinical and functional requirement of the patient.⁷ Social pressure and

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Received for Publication: Sept 5, 2023

Revised: Jan 30, 2024

Approved: Feb 14, 2024

the interests of the dental profession emphasizes on increased esthetic demands. In past, partial coverage crowns and veneers were considered to be of great esthetic value. However, at the present time esthetic restoration usually refers to ceramic restorations and in particular to porcelain restorations without any metal component.⁸ Fixed partial dentures are contraindicated in young teeth with large pulp chambers, in periodontally compromised teeth, in long edentulous spans and bilateral edentulous spaces.⁹ A large number of abutment related or prosthesis related complications can arise post cementation of fixed partial dentures.¹⁰

Fundamentals of fixed prosthodontics are included in undergraduate curriculum in dental schools. In this age of rapid advancements and increased patient expectations, not only fundamentals but technical and laboratory skills and keeping up with the current developments of dental materials is also of vital importance.^{11,12} Several studies have been done in this regard. Angari et al found a positive correlation between preclinical and clinical performances. Maximizing the efforts invested in preclinical years positively enhanced competence in clinical practice.^{8,13} Students are required to make connections between the basic theoretical knowledge acquired during the preclinical years and critical thinking and problem solving skills in the clinical experience period. It is imperious that they successfully navigate their transitioning from preclinical to clinical training.¹⁴ In order to prepare the undergraduate students to provide treatment for patients with fixed prosthodontics needs, it is of immense importance to improve the teaching in laboratory procedures and adopt problem-solving methods of teaching in institutes.¹⁵ An acceptable level of knowledge was found in fixed prosthodontic practices among dental practitioners in Qassim. However, to further enhance the proficiency, efforts should be made to encourage the practitioners to be aware of the advances in fixed prosthodontic practice through state-of-the-art continuous education programs¹⁶. Another study was done to assess the awareness about fixed partial dentures in students of Saveetha dental college. They found the knowledge and awareness on the fixed prosthodontics is moderate among the dental students as a whole and particularly the second year undergraduates had a higher knowledge on the fundamentals of fixed prosthodontics¹⁷. The aim of this study is to assess awareness about fixed partial dentures among undergraduate dental students and to compare the knowledge about fixed partial denture among different undergraduate classes.

METHODOLOGY

This descriptive cross-sectional study was done among undergraduate dental college students (first year to fourth year BDS) of Watim dental college Rawalpindi.

Ethical approval was taken from institutional ethical review board (ERB) Watim medical and dental college Rawalpindi on 26th September 2022 Ltr no. 10ERB/ sept 2022. Data was collected from 1st October 2022 to 31st January 2023. Sample size was calculated using WHO calculator. Total 264 students were selected randomly from all academic years. Out of 264 students, 211 (79.9%) were females and 53 (20.1%) were males.

Self-administered questionnaires of closed ended 10 questions were prepared in English language¹⁸. It consisted of two parts. The first part measured gender and level of education. The second part evaluated the knowledge of fundamentals of fixed partial dentures such as use, components, types, synonyms, cleaning, preparation of abutments and coverage of clinical crowns (Table 1). All the respondents were informed about the aims and objectives of the study. After eliciting their consent in participation, the questionnaires were distributed. All dental students who were willing to participate were included. The students who were not willing to participate were excluded from the study. The response of the students was recorded, analyzed for flaws, checked for completeness and was taken up for assessment. Data was analysed by using software SPSS_17 with descriptive statistics. All statistical analyses were carried out at a significance level of $P < 0.05$. Chi square test was used to analyses and compare the year of study of the dental students and awareness of fundamentals of fixed prosthodontics.

RESULTS

This survey was conducted for a total of 264 students, out of which 211 (79.9%) were females and 53 (20.1%) were males. 32 students from first year, 49 students from second year, 60 students from third year and 123 students from final year BDS participated in the study (figure 1). 72.3% of the students belonged to the age group 21 to 25 years and 26.1% of students were of age group 16 to 20 years. In response to the question regarding the use of FPD, 75.8% of students have answered it correctly while 24.2% of students replied incorrect (Figure 2). In response to the question about type of prosthesis, 82.2% of students have answered correctly while 17.8% replied incorrectly. 56.8% of students replied that FPDs are more preferred type of prosthesis by the patients while 43.2% of students replied that RPDs are more preferred (table 2). 82.2% of students answered correctly to the question about synonym that they are also called bridge. 13.3% of students replied incorrectly stating, they are called retainers. 62.5% of students reply correctly, stating that RPD require more meticulous cleaning and 37.5% of students were of the opinion that FPD needs more cleaning (figure 3). Figure 4 shows the result of the question about component of FPD replacing the missing

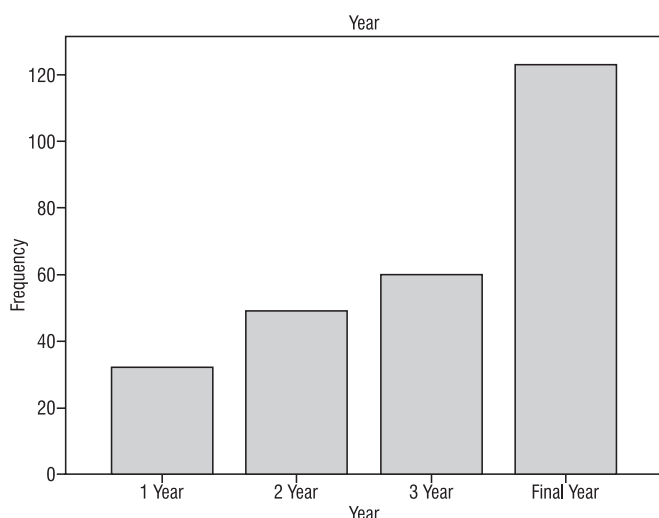


Fig 1: (Students participating in study)

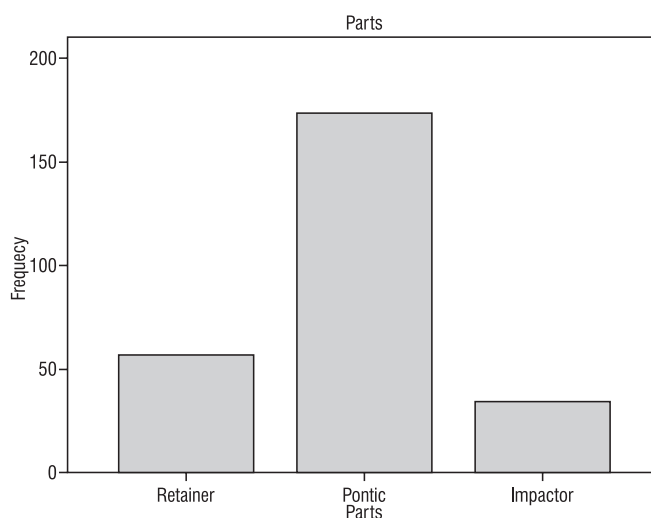


Fig 4: (component of FPD replacing missing teeth)

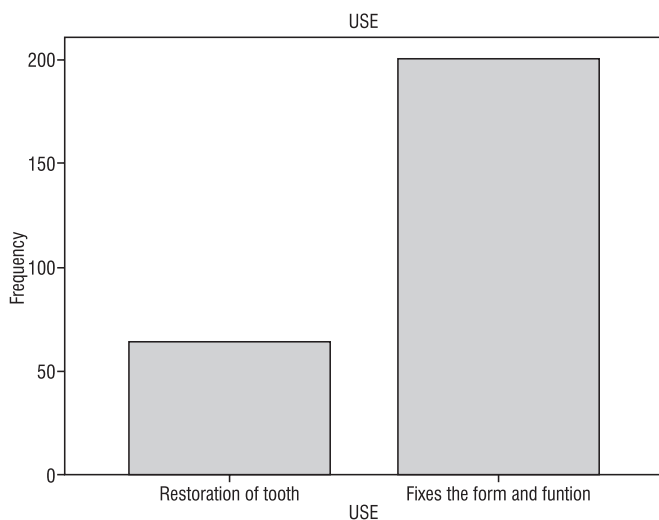


Fig 2: (Use of FPD)

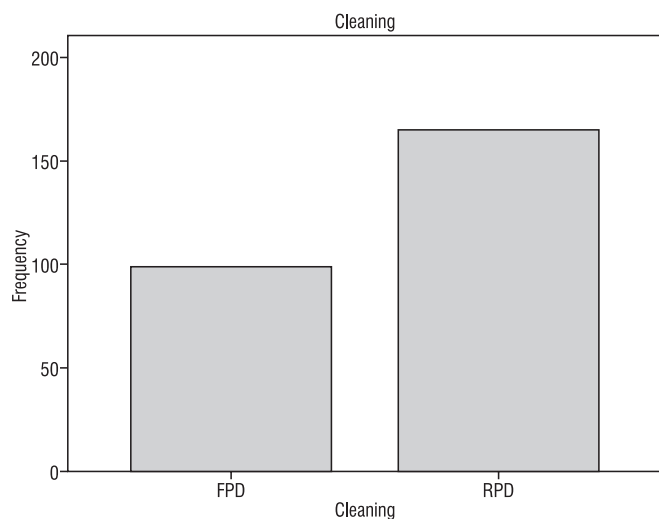


Fig 3: (Need for cleaning)

TABLE 1: DETAILS

Age:	
Gender:	
Undergraduate year:	
Q1. What is FPD used for?	a) for restoration of tooth b) fixes the form and function of lost and broken dentition
Q2. Is FPD removable or fixed?	a) Removable b) Fixed
Q3. What is the most preferred type of denture?	a) fixed partial denture b) removable partial denture
Q4. What is FPD is otherwise called?	a) retainer b) Bridge c) impactor
Q5. Which of the following denture require frequent cleaning to prevent decay of adjacent healthy teeth?	a) FPD b) RPD
Q6. The part in FPD which replaces the missing tooth is called?	a) retainer b) pontic c) impactor
Q7. In the FPD, to replace the missing tooth the adjacent teeth to it are also worked upon?	a) true b) false
Q8. The main advantage of FPD is to provide stability?	a) true b) false
Q9. FPD is attached with the help of clasps?	a) true b) false
Q10. 3/4th crown comes under complete coverage retainer or partial coverage retainer?	a) complete coverage b) partial coverage

TABLE 2: (PREFERENCE)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fixed Partial Denture	150	56.8	56.8	56.8
	Removable Partial Denture	114	43.2	43.2	100.0
	Total	264	100.0	100.0	

teeth. 65.5% of students replied that its called pontic while 21.6% replied as retainer. Next question in the study was about the need for preparation of abutments adjacent to the missing teeth. 79.5% of students were aware about this fact while 20.1% of the students thought its not necessary. In the question about need for clasps in FPD, 59.8% of students replied that they are not required for FPDs while 40.2% of students were of the opinion otherwise. The last question was about 3/4th coverage crowns. 59.8% of students replied with incorrect answer while 40.2% of students replied correctly.

DISCUSSION

Teeth are required for functions like speech, mastication and structural balance. Loss of teeth can cause chewing difficulties because each tooth in the arch is uniquely designed.¹³ Fixed prosthodontics treatment modality has proven to provide exceptional satisfaction for both the patients as well as the dental practitioners. Not only it greatly improves aesthetics, it can also transform an unhealthy, unattractive dentition with poor function into a comfortable, healthy occlusion capable of years of further service.^{16,19,20} This study on awareness and knowledge of FPDs among dental students show that fourth year students have better knowledge about fixed partial dentures as compared to the rest of academic years. This is due to the fact that they have more clinical exposure and experience. This is similar to Gurru et al and Barrero et al.^{15,21} Students in this study were able to answer most of the questions correctly. 75.8% of students replied correctly about the use of FPD that they are used to replace missing teeth. Fahmida ABD and ASK Kumaran et al had similar results with 93% and 77.78% of students answering correctly to similar question regarding FPDs.^{17,22} 82.2% students replied to the question regarding nature of FPDs that they are fixed in nature. VS et al also found similar results with 66% students replying correctly to same question.²³

56.8% of students were of the opinion that fixed partial dentures are preferred type of prostheses for partial dentate patients. Prabhu et al conducted a similar study and found that 83% of dental students agreed that fixed partial denture is most aesthetically

preferred type of prosthesis.²³ 82.2% of students were aware of the synonym bridge for FPDs. 62.5% of the students replied correctly that FPD require less frequent cleaning as compared to RPD. 65.5% of the students stated that pontic is the component of FPD replacing missing tooth while 21.6% stated its retainer. In another study by Karthick AS 35.35% of the students answered that artificial tooth on fixed partial denture is pontics and 40.40% answered the artificial tooth on fixed partial denture is retainer.¹⁷ Debra et al also had similar findings.²⁴ 59.8% students answered incorrect that 3/4th crown comes under complete coverage retainer and 40.2% answered correctly that it comes under partial coverage. In another study by VS et al 58% have answered it correctly stating it's a partial coverage retainer.¹⁸

One inference to improve the teaching methods for preclinical fixed prosthodontics is to incorporate more lectures and demonstrations by the faculty in the laboratory and add dental laboratory technicians in the clinical program to fortify as well as supervise techniques that are arduous to replicate in the preclinical setup.¹⁵ The educational experience of students can be improved by using additional innovative teaching methods such as problem based learning (PBL), blended learning (in which a student can access materials in a classroom setting, online, or in a laboratory setting) and flipped classroom learning (in which students learn at home in an online class or text reading and perform homework problems/ scenarios in class with the instructor).^{15,25}

CONCLUSION

Within the limitation of the study it can be concluded that the dental students displayed an acceptable level of knowledge in fixed prosthodontic practice as far as the name, use, type, patients preference and need of cleaning was concerned. However, there was lack of knowledge about the need for abutment preparation and detailed design features like the type of the retainer. In order to further enhance the knowledge and awareness about fixed prosthesis, there should be better clinical exposure to all the academic years. Updating the preclinical curriculum and adding various innovative teaching methods will have tremendous effect on

students learning in treatments involving fixed partial dentures.

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