

Students' opinions about their preparation for clinical fixed prosthodontics practice at a Dental School

Mubarak Khalid¹, Samah Saker²

¹ School of Dentistry, Taibah University, Madinah, Saudi Arabia.

*² Fixed Prosthodontics Department, Faculty of Dentistry, Mansoura University, Mansoura, Egypt.

ABSTRACT

PURPOSE: This cross-sectional study aimed to assess teaching staff and their students' perceptions regarding the students' competency for clinical performance following the preclinical fixed prosthodontics course and their suggestion regarding alternative methods to improve the preclinical training.

METHODS: Fourth- and fifth-year dental students and their teaching staff participated in a survey about the difficulty that faced the student during transitional period from preclinical fixed prosthodontic training to clinical context at Taibah Dental School. A well-constructed Questionnaire, designed to evaluate the students' perceptions regarding the students' competency for clinical performance following the preclinical fixed prosthodontics course and their suggestion regarding alternative methods to improve the preclinical training. The response to the questionnaire was based on the five-point Likert scale. Medians, frequencies were used to assess their perception on preclinical training and suggestion.

RESULTS: A total of 78 students from 90 respond. The survey response was 87%; and 100% for the staff members (9 participants). 46% of the students thought that the four-handed dentistry system is not improving their quality of work and 46% felt that the academic staff were cooperative in helping them. 56% of the academic staff members believed that the duration of the preclinical training is sufficient. 78% thought that the theoretical part is closely related to the preclinical training sessions.

CONCLUSIONS: The feeling of confidence to start clinical phase felt students and their teaching staff members should be kept and reinforced by improving the positives aspects of the results and to resolve the negativities assigned.

KEYWORDS: Dental education; Prosthodontics; clinical; students; staff members.

INTRODUCTION

Most students in dental schools have no difficulty with the didactic part of their dental education as it is familiar to them from their earlier educational experiences. However, the practical exercises that will prepare them to treat patients clinically are a new experience for most students. From reproducing teeth in three dimensions on a wax block to forming a provisional restoration, these exercises require hand-to-eye skill development.¹⁻³ Manual

skills development occurs initially with simple preclinical bench-top typodont procedures and progresses to mannequin exercises before students enter clinics. These skills are easier to acquire for those with good three-dimensional perception, hand and eye coordination, and some artistry. 4 Prior to starting patients treatments, it is highly important for students to develop some degree of automaticity with particular clinical skills (patient positioning, positioning the dental mirror, familiarity with infection control practices manipulating the dental handpiece, ,, etc.). In this respect, students can focus on the more non-ideal, complex variables presented clinically.

During the translation stage between preclinical and clinical stage, dental students are more likely to be exposed to stressful and difficult situations, including many factors ranging from the patient management to cementation of the final prosthesis.⁵⁻⁸

This study was designed to determine if the preclinical training of fixed prosthodontics for the students in school of dentistry, Taibah University is positively effective to overcome the difficulty and ease the translation into the clinical stage by the points of view of both academic staff members and the students. Also, receiving the suggestions regarding to their point of views about alternative methods to improve the preclinical training.

MATERIALS AND METHODS

SUBJECTS

Preclinical fixed partial denture courses at school of dentistry; Taibah University has two credit hour lectures and three credit hours practical sessions to impart knowledge and simulation training on the bench-top manikins to develop the skill. As part of their normal requirements, all students completed a required number of typodont tooth preparations before examination. The examination is designed to measure the student's knowledge and psychomotor skill; it will help in identifying whether the student is competent enough to be progressed to clinical courses. Fifth and fourth year students (n= 90) and all academic staff member of substitutive dental science department at school of dentistry, Taibah University were proposed for inclusion in this investigation.

QUESTIONNAIRE

The 25 items questionnaire that is graded with a scale of 5 (1= Strongly agree , 2= Agree , 3= Neutral , 4= disagree , 5= Strongly disagree) was developed by the researchers after a lengthy interaction with the students, and it was divided into three segments. The first part included 7 questions on the change of environment found during a transition period from a preclinical to clinical setup. The second part of the questionnaire had 18 questions on tooth preparation maneuvers found difficult during a transition period. The third part of the questionnaire includes two open questions regarding suggestions to facilitate better transition to clinical setup.

PROCEDURE

Approval from the Ethics Research Committee, school of dentistry, Taibah University, was obtained for the study. A total of 90 students and all academic staff member of substitutive dental science department were included in the cross-sectional study; a self-administered anonymous questionnaire was distributed to the students during their clinical training period. Before the questionnaires were distributed, students were given information about the study, and written informed consent was obtained from all the students participated in the study.

STATISTICAL ANALYSIS

Medians, frequencies were used to assess the perception on preclinical training and suggestion. The statistical analysis was conducted with SPSS for Windows 20.0 (SPSS, Chicago, IL, USA) and Microsoft Excel (Microsoft, Redmond, WA).

RESULTS

The survey response was 87%; 78 students returned the completed survey forms out of the 90 forms distributed. Responses from the students were analyzed using absolute numbers, median, percentages, and frequencies.

RESULTS OF THE STAFF MEMBERS QUESTIONNAIRE

ENVIRONMENTAL SECTION

More than half of the academic staff members (56%) believed that the duration of the preclinical training is sufficient to train and prepare the students to the next stage (Fig. 1). The majority of them (78%) thought that the theoretical part is closely related to the preclinical training sessions. Almost two thirds (67%) felt that the number of the supervisors is not enough.

TOOTH PREPARATION SECTION

Also, the staff members thought that fluid control, chair-patient position, soft tissue retraction are obstacles to the students (56%, 67% and 67%, respectively).

RESULTS OF THE STUDENTS' QUESTIONNAIRE

ENVIRONMENTAL SECTION

Almost half of the students (46%) thought that the four-handed dentistry system is not improving their work or making it easier (Fig. 1). And 46% felt that the academic staff members were cooperative in helping them in both preclinical and clinical stages (Table 1).

TOOTH PREPARATION SECTION

More than a third of the students (40%) thought that they are well prepared to start treating patients (Fig. 3). While, third of the students (35%) had difficulty in practicing proper chair-patient position. While, students identified the clinical diagnosis and administration of local anesthesia as smooth procedures and aren't obstacles (44% and 65%, respectively). The vitality of the teeth to be prepared seemed to be an obstacle to the students (45%). And the access into the oral cavity and the indirect vision turned out to be the most obstacle among the students (51%) (Fig. 4). The students felt that they are well of knowledge of selecting the proper shade of the prosthesis and proper cementation technique (42% and 49%, respectively) (Table 1).

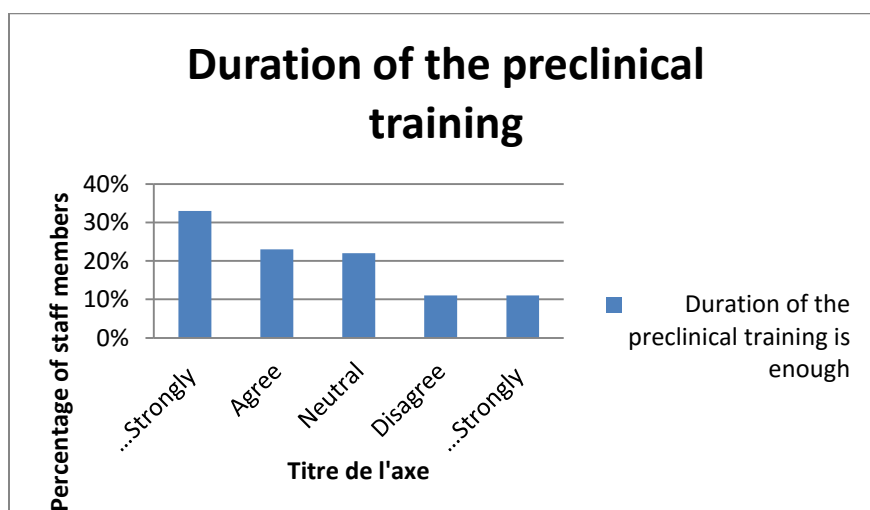
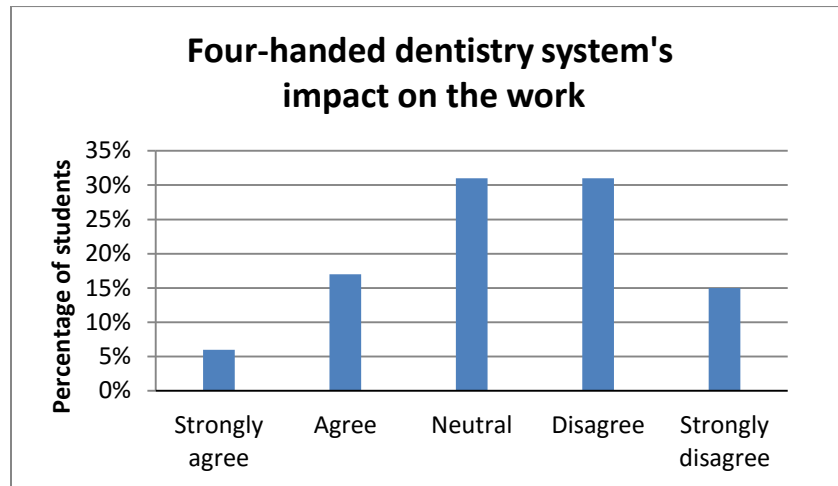


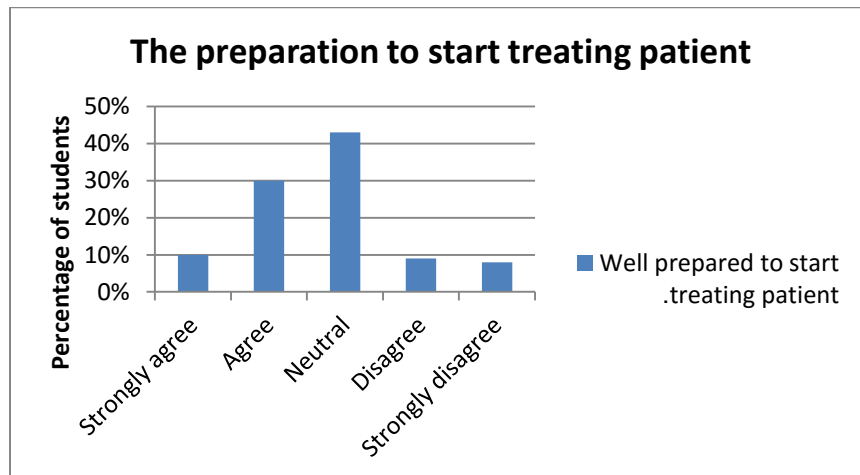
Figure.1. Staff members' opinions regarding the duration of preclinical training.

Table 1. Number and percentage of students expressing their opinions about the translation into the clinical fixed prosthodontics phase.

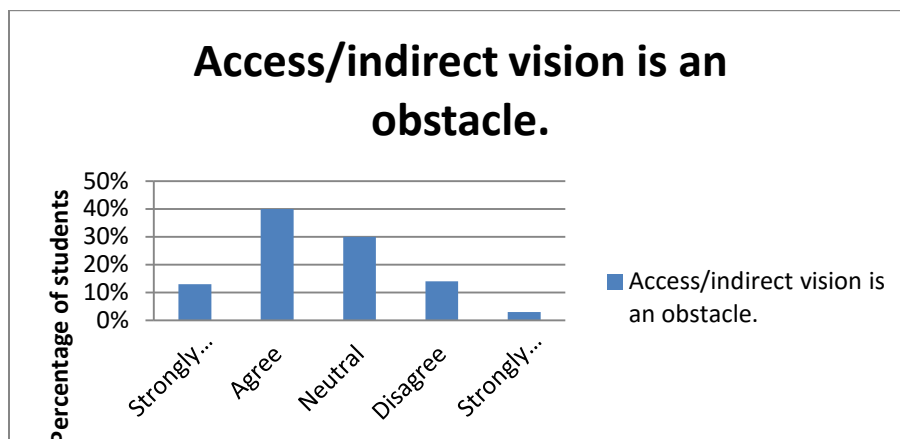
Questions	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1. The four-handed dentistry system that was newly applied this year improves and eases your work?	14 (17.9%)	15 (19.2%)	34 (43.6%)	11 (14.1%)	4 (5.1%)
2. The staff members were cooperative in helping/answering your questions?	10 (12.8%)	6 (7.7%)	43 (55.1%)	12 (15.4%)	7 (9%)
3. You are well prepared to start treating patient in need of fixed prosthesis?	8 (10.3%)	23 (29.5%)	34 (43.6%)	7 (9%)	6 (7.7%)
4. The students have well knowledge about Chair-Patient position?	9 (11.5%)	19 (24.4%)	28 (35.9%)	16 (20.5%)	6 (7.7%)
5. The clinical diagnosis and making the necessary radiographic images is an obstacle?	6 (7.7%)	17 (21.8%)	21 (26.9%)	28 (35.9%)	6 (7.7%)
6. The students have well knowledge about administration of local anesthesia?	2 (2.6%)	12 (15.4%)	13 (16.7%)	29 (37.2%)	22 (28.2%)
7. The students have well knowledge about retraction of soft tissues (tongue, cheek, ...)?	2 (2.6%)	17 (21.8%)	33 (42.3%)	22 (28.2%)	4 (5.1%)
8. The access into the oral cavity/indirect vision is an obstacle?	10 (12.8%)	31 (39.7%)	23 (29.5%)	11 (14.1%)	3 (3.8%)
9. The vitality (presence of pulp chamber) is an obstacle?	10 (12.8%)	25 (32.1%)	20 (25.6%)	12 (15.4%)	11 (14.1%)
10. You are well of knowledge of selecting of the proper shade of the final restoration?	7 (9%)	26 (33.3%)	29 (37.2%)	10 (12.8%)	6 (7.7%)



Figures.2. Students opinions regarding the impact of four-handed dentistry system.



Figures.3 Students ' opinions regarding their opinions about being well prepared for clinical fixed prosthodontics practice.



Figures.4: Students' opinions regarding the difficulty of access/indirect vision.

DISCUSSION

As a key participant in any learning environment, students' voices are a crucial component when reviewing the quality of our educational approaches. The current study used students' voices to identify student feedback about the preclinical training in fixed prosthodontics course and however this training were effective or ineffective for smooth transition to clinical context.⁹⁻¹¹

With technological advancements in the area of medical and dental training, the safety and rights of patients used for these purposes have come under close scrutiny by educators.¹² Because of the need for well developed procedural skills prior to students working directly with their own patients, all dental schools have preclinical simulation laboratories which have become quite advanced and more closely approximate live patient care than at any previous time in history. Indeed, simulation training is safe (eliminates risk to patients), well controlled (a prescribed set of conditions is easily created), and uniform for all students using the same system.¹³⁻¹⁵

The results of this study showed that most of the academic staff thought that the preclinical training duration is enough for smooth translation into the clinical stage especially at the end of their preclinical course, when the majority of the students felt confidence enough to start treating patients by their own.

Almost half of the students agree with the academic staff members in their opinion regarding their confidence in knowledge about many aspects and steps of fixed dental prosthesis fabrication (proper shade selection, proper cementation, administration of LA, ..). This again identifies that the harmony and flowability of the work of the staff members and students together. This good foundation of theoretical knowledge should be kept and improved since it helped the students clinically, theoretically and in many aspects.

Many of the staff members believed that the fluid control, chair-patient position and soft tissue retraction are the most common challenges among the students. More demonstrations could help the students to pick up these skills in the following years. While, students in the other hands thought that the access into the oral cavity and the indirect vision are the most challenging step of the preparation of the teeth. This could be due to the fact that the preclinical

phantom units lacks the effective suction system or that students preferred to train without turning on the water system during preparation preclinically. Providing patients care are certainly more varied than dealing with a manikin heads in a the preclinical simulation laboratory. Limited opening, tongue habits, malocclusion, salivation, lack of anesthesia, and differing personalities and temperaments can all affect the outcome of a dental procedure. Student stress undoubtedly is also a factor when treating live patients versus a manikin. Ultimately, the lack of agreement seems genuine, whatever the influencing factors. Many students experience what is referred to as the 'shock of practice' when they enter the clinical training stage, as their role shifts from one of being taught to one of providing patient care

In the light of the results of the study, almost half of the students were displeased about working by the four-handed dentistry that was newly introduced this year. They thought that it delays and impairs their clinical progress.

CONCLUSION

The feeling of confidence to start clinical phase felt by students and their staff members should be kept and reinforced by improving the positives aspects of the results and to resolve the negativities assigned.

REFERENCES

- [1] Cho GC, Chee WW, Tan DT. Dental students' ability to evaluate themselves in fixed prosthodontics. *J Dent Educ.* 2010 Nov;74(11):1237-42.
- [2] Edwards WS, Morse PK, Mitchell RJ. A practical evaluation system for preclinical restorative dentistry. *J Dent Educ* 1982;46(12):693-6.
- [3] Hauser AM, Bowen DM. Bowen, Primer on preclinical instruction and evaluation. *J Dent Educ.* 2009;73:390-8.
- [4] Curtis DA, Lind SL, Brear S, Finzen FC. The correlation of student performance in preclinical and clinical prosthodontic assessments. *J Dent Educ.* 2007 Mar;71(3):365-72.
- [5] Nimmo A, Mitchell GS, Penfield RD, Hall A. Evaluation of dental students as instructors in preclinical prosthodontics and occlusion courses. *J Prosthodont.* 2007 Sep-Oct;16(5):400-5.
- [6] Aleisa K, Al-Dwairi ZN, Alwazzan K, Al-Moither M, Al-Shammari M, Lynch E. Convergence angles of clinical tooth preparations achieved by dental students at King Saud University, Saudi Arabia. *J Dent Educ.* 2013 Sep;77(9):1154-8.
- [7] Gigliotti R, Moreland EF. Student evaluation of self-instructional preclinical fixed partial prosthodontics course. *J Dent Educ.* 1973 Aug;37(8):46-8.
- [8] Lynch CD, Singhrao H, Addy LD, Gilmour AS. The teaching of fixed partial dentures in undergraduate dental schools in Ireland and the United Kingdom. *J Oral Rehabil.* 2010 Dec;37(12):908-15.
- [9] Suksudaj N, Lekkas D, Kaidonis J, Townsend GC, Winning TA. Features of an effective operative dentistry learning environment: students' perceptions and relationship with performance. *Eur J Dent Educ.* 2015 Feb;19(1):53-62.
- [10] Doshi D, Reddy BS, Karunakar P, Deshpande K. Evaluating Student's Perceptions of the Learning Environment in an Indian Dental School. *J Clin Diagn Res.* 2014 Nov;8(11):ZC39-42
- [11] Teich ST, Demko CA, Lang LA. Students' perception of peer-assessment in the context of a treatment planning course. *Eur J Dent Educ.* 2015 Feb;19(1):8-15.
- [12] Al-Ansari AA, El Tantawi MM. Predicting academic performance of dental students using perception of educational environment. *J Dent Educ.* 2015 Mar;79(3):337-44.
- [13] Prince KJAH, Boshuizen HPA, van der Vleuten CPM, Scherpbier AJJA. Students' opinions about their preparation for clinical practice. *Med Educ* 2005; Jul;39(7):704-12.
- [14] Haralur SB, Al-Malki AE. Student perception about efficacy of preclinical fixed prosthodontic training to facilitate smooth transition to clinical context. *J Educ Health Promot.* 2014 Jun 23;3:73.
- [15] Nunez DW, Taleghani M, Wathen WF, Abdellatif HM. Typodont versus live patient: predicting dental students' clinical performance. *J Dent Educ.* 2012 Apr;76(4):407-13.