Available online at https://www.mmpubl.com/

International Journal of Social Rehabilitation

Original Article

Experience of the Students after Transition from Preclinical Fixed Prosthodontic Training to Clinical Phase Survey

N M Pravina[1], Arun Chella Samraj[2]

Department of OMFS, Priyadarshini Dental College and Hospital, Pandur[1], Department of OMFS, Sri Muthukmaran Medical College and Hospital, Chennai, Tamil Nadu, India[2]

How to cite: *N M Pravina et al. Experience of the students after transition from preclinical fixed prosthodontic training to clinical phase survey. Int J Soc Rehab 2023; 8 (1) :10 – 17. doi: https://doi.org/10.56501/intjsocrehab.v8i1.788*

Received: 30-12-2022 *Accepted: 08-01-2023* *Web Published:25-01-2023*

Abstract

Introduction: Accurate preclinical prosthodontics training is a part of curriculum monitored so that the preclinical students perform the operation with much attention and care enabling the educators to improve the preclinical training. The aim of the study is to assess the students' preclinical knowledge and skills of fixed prosthodontic training after transition to clinical training. **Materials and Methods**: A questionnaire survey is conducted among the students involved in clinical practice of the fixed partial dentures**. Results:** All 100% of the students were aware of the importance of the abutment evaluation before tooth preparation. Hundred percent of the students performed radiograph evaluation of the tooth and 47% of them expressed difficulty in correlating pulp size and position of the tooth radiographically. The majority of the students (84, 84%) thought that there is much difference in the tactile sense between natural teeth and typodont teeth. Pulp health preservation is vital for all restorative procedures; hence, this response from the students should be considered more carefully. More than half of the respondents, 74 students (74%), thought that clinical variation of tooth position is a difficult challenge during the transition stage. Tooth position variations such as supra-eruption, tilting, and drifting are common in the clinical situation which cannot be simulated in the preclinical training. However, most of the students feel that it was a formidable challenge in the initial stage of clinical training**. Conclusion**: Preclinical training is the most challenging for the educationist. Managing the transition for students from preclinical learning to providing patient care in the clinic is an important issue for oral health-care educators

Keywords: Clinical phase, confidence, fixed partial denture, mastication, preclinical

Address for Correspondence:
Dr. N M Pravina
Department of Oral and Maxillofacial Surgery, Priyadharshini Dental College and Hospitals,
Pandur, Tamil Nadu, India
E-mail: nmpraveena5@gmail.com

© 2023 Published by MM Publishers.

INTRODUCTION

Traditional lectures and PowerPoint presentations are routinely employed as a means of transmitting knowledge and skills are learned by demonstration of procedure to small groups. Teaching prosthodontics to first- and second-year dental students to make it interesting and boost learning has been a challenge. Preclinical prosthodontics in undergraduate dental curriculum aims to impart theoretical knowledge to the student and enable them to develop skills involved in complete denture fabrication without any patient contact. Academic dentistry must better prepare future dentists to succeed in the new health-care environment by providing them with the scientific and technical knowledge required to understand and assess risk and prevent errors. Dental curriculum is developed to improve the knowledge, skill, attitude, and professional values before beginning the career as a practicing dentist.[1]

The preclinical training provides a learner-centered education without clinical responsibilities. We believe that task-based preclinical training more similar to clinical practice will help the students to overcome the stress during initial clinical practice. Effective fixed prosthodontic preclinical training is extremely important for patient safety. Fixed prosthodontics is the area of prosthodontics focused on permanently attached dental prostheses. Preclinical fixed partial denture training comprises lectures to impart knowledge and simulation training of tooth preparation on bench-top manikins to develop the skill.

The students should complete the required number of typodont tooth preparations before entering the clinical phase. Hence, this study was conducted to know the individual steps involved in the fixed prosthodontics preclinical training different. Identifying poorly correlated tasks makes it easy to address them with appropriate corrective measures. Dental curriculum is continually developed to improve the knowledge, skill, attitude, and professional values before beginning the career as a practicing dentist. This development is possible only from the feedback from beneficiary students regarding the perception and evaluation of the courses. Development of fine motor skills is as important as knowledge gain in dental education.

Psychomotor skill development is usually achieved by incremental training in preclinical courses before declaring the student competent for clinical training. Effective preclinical training is also ethical and extremely important for patient safety. Tooth preparation procedures are irreversible in nature, once a wrongly prepared tooth can never be repaired. Simulators are used in dental education to develop the skills among the students in prosthodontic, endodontic, operative, and pedodontic dentistry preclinical courses. There are varieties of simulation equipments in modular, bench, or chair configurations; the main intention is to mimic the real patient condition. Better preclinical training helps the students for a smooth transition from preclinical to clinical conditions.

The literature clearly suggests that the transition period from preclinical to clinical situation is highly stressful. Stress during the transitional stage is the result of multiple factors such as a large difference between learning environment, applying their knowledge and skills to real patient problems, and the need to adopt different learning strategies as well as meet the performance expectation. Adequately preparing the students for smooth clinical transition still poses a great challenge for educators. The preclinical training provides a learner-centered education without clinical responsibilities, sometimes far away from the situation it wants to imitate. We believe that task-based preclinical training more similar to clinical practice will help the students to overcome the stress during initial clinical practice.

Hence, it was decided to know the individual steps involved in the fixed prosthodontics preclinical training different from clinical settings, in which such procedures will be performed. Identifying poorly correlated tasks makes it easy to address them with appropriate corrective measures. Beneficiary students' feedback is an important tool to identify them and their opinion on alternative improved methods of training is vital in curriculum development.

The purpose of the present study was to determine the fixed prosthodontics skills difficult to perform in a transition period due to poor correlation between preclinical and clinical training. The study included the focus group study on the student's perception and their suggestion regarding alternative methods to improve the preclinical training. Beneficiary students' feedback is an important tool to identify them and their opinion on alternative improved methods of training is vital in curriculum development. The purpose of the present study was to assess the difficulties experienced by the students in their transition period between the preclinical and clinical phases.[2-4]

MATERIALS AND METHODS

Subjects

Pre clinical and Hospitals, preclinical fixed partial denture training comprises lectures to impart knowledge and simulation training to develop the skill. The courses are requirement-based curriculum where the students should complete the required number of typodont tooth preparations.[5-7] Apart from the usual teaching method, the college also includes activity-based learning, video demonstration of the tooth preparation (FPD), and students' interaction on the lecture topics in preclinical training curriculum. All the students above second year are a beneficiary from preclinical training.

Questionnaire

A questionnaire survey is conducted among the students undergoing transition from preclinical to clinical setup. A 26-item survey was developed after interaction with the students, and it was divided into two segments [Appendix 1]. The first segment included 5 questions on diagnosis and treatment planning, 11 questions on tooth preparation, and 3 questions on temporization. The second segment included 7 questions about suggestions regarding the improvement in existing preclinical training.

Procedure

A total of 100 students 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 who participated in the study. The responses to a questionnaire were computed and the statistics was done.

RESULTS

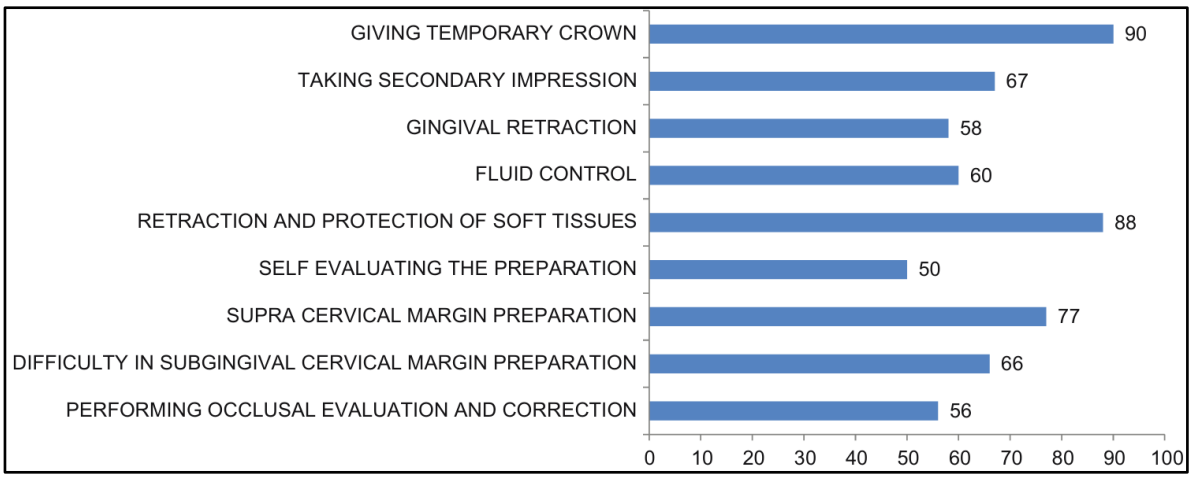
All the 100 students returned the survey forms. Responses from the students were analyzed using absolute numbers and percentages. The descriptive statistics of students' feedback on the skills found difficult to incorporate in the clinical environment. All 100% of the students were aware of the importance of the abutment

evaluation before tooth preparation. Hundred percent of the students performed radiograph evaluation of the tooth and 47% of them expressed difficulty in correlating pulp size and position of the tooth radio graphically. Graph 1 shows the majority of the students (84, 84%) thought that there is much difference in the tactile sense between natural teeth and typodont teeth.

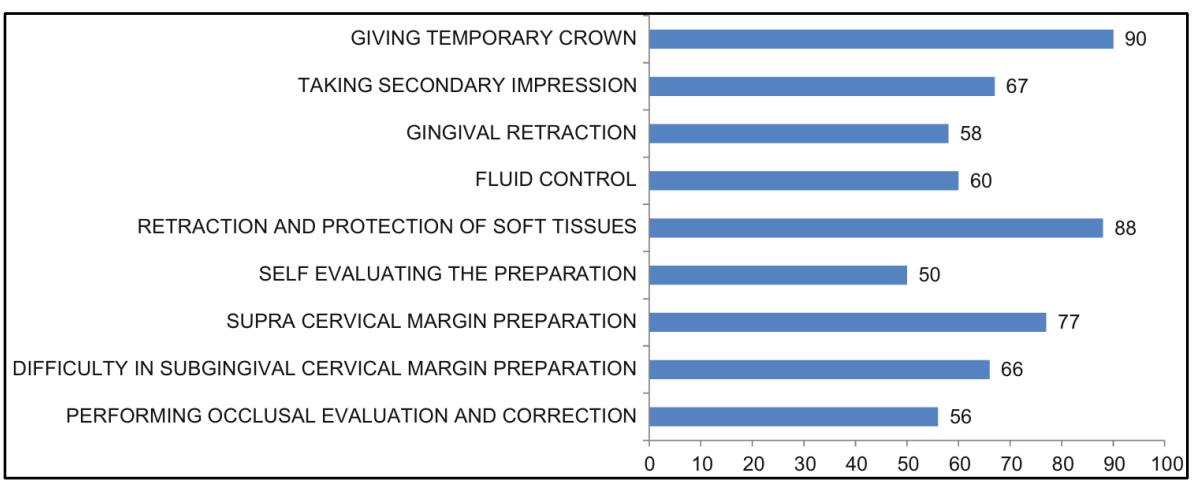
Pulp health preservation is vital for all restorative procedures; hence, this response from the students should be considered more carefully. More than half of the respondents, 74 students (74%), thought that clinical variation of tooth position is a difficult challenge during the transition stage. Tooth position variations such as supra-eruption, tilting, and drifting are common in clinical situation which cannot be simulated in the preclinical training. However, most of the students feel that it was a formidable challenge in the initial stage of clinical training. Some students, 49 students (49%), felt that teeth shade selection procedure taught at the preclinical teaching was inadequate for clinical practice.

Only 30 students (30%) of the students are able to perform occlusal evaluation and correction, other (70%) 70 students of the student found it difficult. After preclinical skill training, Graph 2 shows that 61 students (61%) felt difficulty in preparing subgingival cervical finish line and only 44% in supragingival margins preparation. Hundred percent of the students aware of the necessity of the self-evaluation of prepared tooth, 85 students (85%) of the students are able to do self-evaluation. All the students equally felt gingival retraction, fluid control, and protection of surrounding soft tissues 50% easy and 50% difficult. Only 39 students (39%) of the students felt difficulty in impression making. Most of the students insert temporary f ixed prostheses after tooth preparation, but the majority of them felt difficultly in fabrication. Ninety-eight students (98%) check the temporary fixed prosthesis for proper marginal fit, occlusion, and proximal contour.

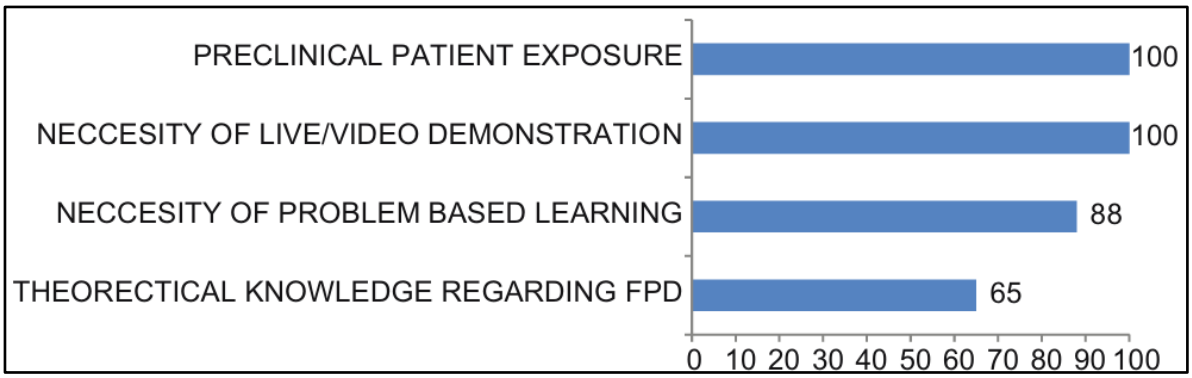
The students' feedback was surveyed for improving the existing preclinical training. They were asked about their opinion on inclusion in problem-based learning (PBL), expert live demonstration, preclinical patient exposure, peer evaluation, and better simulation methods for improvement of curricula Graph 3 shows the students who participated in the study were strongly in favor of including PBL (90%), expert live video demonstration (96%), preclinical patient exposure (99%), peer evaluation (85%), and better simulation methods to improve preclinical training (81%)



Graph 1 : Difficulties faced by the students while evaluating the fixed partial denture case



Graph 2 : Feedback of difficulties faced by the students during fixed partial denture preparation



Graph 3 : Students feedback regarding further improvement in clinical training

DISCUSSION

Preclinical training is helpful in the development of competency, confidence, and expertise before the students are to perform on real patients. This training is mandatory to identify those students who should not be proceeding to the clinical training. Tooth preparation is an irreversible procedure; hence, it will be highly unethical to allow the students with less proficiency to learn on live human patients. It is obligatory on the part of instructors to continuously evolve the course to make the students ready to practice safely and effectively on the patients. Students who performed well in preclinical courses may not excel at clinical procedures due to multiple factors involved. Although it is well established that students are under extreme stress during the initial clinical rotation, it is imperative on the part of the educators to identify the steps students feel difficult/unsure during this period. Feedback from the beneficiary students in the study regarding learned skills showed a major gap between the preclinical and clinical phases.[8,9]

This feedback is an important tool for educators to improve preclinical training. Student's preclinical training is helpful in the development of competency, confidence, and expertise before performing in the patients clinically. This training is mandatory to identify difficulties of the students proceeding to the clinical training. Hence, it is the part of instructors to continuously evolve the course to make the students ready to practice safely and confidently on the patients. Feedback from the beneficiary students in the study regarding learned skills showed a major gap between the preclinical and clinical phases.

This feedback is an important tool for educators to improve preclinical training.[10,11] Preclinical courses are taught on the manikin jaws, in which teeth are set in the normal, perfect manner. Preparation is mostly learned on the teeth positioned normally. In clinical situations, in most probability, teeth are not in perfect position. Individual variations such as supra-eruption, tilting, and drifting are common due to loss of arch integrity. Students are not trained on these commonly found above-mentioned clinical situations. An important observation of the study, in the opinion of the author, is that these commonly found clinical variations should be included in preclinical training. Students are not trained according to the expected clinical variations, and

they generally feel stressful and anxious at initial stages.

Moreover, 67.1% of the students found that saliva-fluid control is difficult to master from existing preclinical training. Saliva varies in its amount and consistency in patients. There is an increase in salivary flow during stressful dental procedures. Learning effective communication skill is important for active patient co-operation for this procedure. Preclinical patient exposure can be helpful in overcoming this difficulty. The literature clearly suggests that the transition period from preclinical to clinical training is highly stressful due to multiple factors such as a large difference between learning environment, applying their knowledge and skill to real patient problems, and need to adopt different learning strategies as well as meet the performance expectation.[12,13] In clinical situations, variations in the tooth position such as supra-eruption, tilting, and drifting are common. Students are not trained on such clinical situations.

This can be rectified by training them with video demonstrations. Training the students to select the shade among students will improve the color matching knowledge between restoration and adjacent teeth. It is suggested by researchers, transition is easy for the students in a PBL curriculum.[14-16] PBL inculcates the ethics of teamwork and encourages self-directed learning. It will help the student to gain the required psychomotor skills in addition to the skill of critical thinking and decision-making, which are important for clinical practice. The study showed that 85% of the respondents strongly suggested the importance of self-peer evaluation similar because it will help the students develop critical thinking and enable them to identify the tooth preparation limitations.[17,18]

CONCLUSION

Preclinical training is the most challenging for the educationist. Managing the transition for students from preclinical learning to providing patient care in the clinic is an important issue for oral health-care educators. The students are able to perform without any difficulty in understanding of the procedure and are able to render results. The participant's response on difficult steps during the transition stage to clinical phase indicates the demand for further development of curriculum. The feedback will help in needed development and implementation of different curricula innovations. A recent trend in many dental schools across the world is to introduce virtual reality computer-assisted simulation.[19,20]

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Jones ML, Hobson RS, Plasschaert AJ, Gundersen S, Dummer P, Roger-Leroi V, et al. Quality assurance and benchmarking: An approach for European dental schools. Eur J Dent Educ 2007;11:137-43.
2. Hauser AM, Bowen DM. Primer on preclinical instruction and evaluation. J Dent Educ 2009;73:390-8.
3. Markley MR. Restorations of silver amalgam. J Am Dent Assoc 1951;43:133-46.
4. Radcliffe C, Lester H. Perceived stress during undergraduate medical training: A qualitative study. Med Educ 2003;37:32-8.
5. Norman GR, Schmidt HG. The psychological basis of problem-based learning: A review of the evidence. Acad Med 1992;67:557-65.

6. Prince KJ, Van De Wiel M, Scherpbier AJ, Can Der Vleuten CP, Boshuizen HP. A qualitative analysis of the transition from theory to practice in undergraduate training in a PBL-Medical School. Adv Health Sci Educ Theory Pract 2000;5:105-16.
7. Rees C, Shepherd M. Students' and assessors' attitudes towards students' self-assessment of their personal and professional behaviours. Med Educ 2005;39:30-9.
8. Musolino GM. Fostering reflective practice: Self-assessment abilities of physical therapy students and entry-level graduates. J Allied Health 2006;35:30-42.
9. Clancy JM, Lindquist TJ, Palik JF, Johnson LA. A comparison of student performance in a simulation clinic and a traditional laboratory environment: Three-year results. J Dent Educ 2002;66:1331-7.
10. Gagne RM. Training devices and simulators: Some research issues. Am Psychol 1954;9:95-107.
11. Wolfe, J. The teaching effectiveness of games in collegiate business courses. A 1973 to 1983 update. Simulation and Games 1985;16:251-88.
12. Schneider W. Training high-performance skills: Fallacies and guidelines. Hum Factors 1985;27:285-300.
13. Curtis DA, Lind SL, Brear S, Finzen FC. The correlation of student performance in preclinical and clinical prosthodontic assessments. J Dent Educ 2007;71:365-72.
14. Rich SK, Keim RG, Shuler CF. Problem-based learning versus a traditional educational methodology: A comparison of preclinical and clinical periodontics performance. J Dent Educ 2005;69:649-62.
15. Bellanti ND, Mayberry WE, Tira DE. Relation between selected predictor variables and grades in fixed prosthodontics laboratory. J Dent Educ 1972;36:16-21.
16. Alessi SM, Trollip SR. Multimedia for Learning: Methods and Development. 3rd ed. Boston: Allyn & Bacon; 2000.
17. Chan DC, Frazier KB, Caughman WF. Simulation with preclinical operative dentistry course: Three year retrospective results. J Dent Educ 2000;64:190-9.
18. Clancy JM, Lindquist TJ, Palik JF, Lynn A. Johnson. A comparison of student performance in a simulation clinic and a traditional laboratory environment: Three-year results. J Dent Educ 2002;35:30-42.
19. Faiz N, Bennis MA, Dhanraj M. Knowledge and attitude of dental students' preparedness in performing clinical procedures after a fixed prosthodontics course. Int J Curr Res 2017;9:50432-4.
20. Chouhan S, Ashok S, Dhanraj M. Knowledge and awareness regarding dental implant therapy in semi urban area. Int J Rec Sci Res 2017;8:16563-4.

Published by MM Publishers
https://www.mmpubl.com/ijsr

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.
To view a copy of this license, visit http://creativecommons.org/licenses/by-nc/4.0/ or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

Copyright © 2023 N M Pravina, Arun Chella Samraj