

CLINICAL DENTAL LEARNING ENVIRONMENT: EXPLORING CHALLENGES AND STRATEGIES FOR IMPROVEMENT

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INTRODUCTION

Dental education worldwide is transforming, shifting towards an integrated curriculum that emphasizes broad perspectives and seamlessly blends classroom learning with real-world experiences.¹ Dentistry is an efficient field, and the quality of dental education plays a crucial role in shaping the level of treatment delivered by dental professionals. Traditional pedagogical methods often fall short of effectively integrating theoretical knowledge with practical application, leaving students with limited clinical experience and potentially ill-equipped for patient interaction.³ This gap is particularly concerning given the crucial role of clinical teaching in developing essential technical skills and

providing a foundation for lifelong learning in dentistry.⁴ In modern dental education, effective clinical teaching constitutes a major focus on ongoing challenges for dental health faculties. The acquisition of competent technical skills is fundamental for students to achieve clinical proficiency and excellence. The dental teaching clinic serves as a dynamic hub where teachers, students, and patients converge, offering invaluable opportunities for students to learn from experienced clinicians. This interaction transcends mere healthcare delivery, functioning as a critical training ground for aspiring dental professionals.⁵ An effective education system empowers teachers to adapt to diverse learner needs and employ a variety of instructional approaches. Teachers are essential in developing and

ABSTRACT

OBJECTIVES

This study aimed to explore the challenges and strategies for improvement in Undergraduate Clinical Dental Education.

METHODOLOGY

A qualitative exploratory study was conducted at Peshawar Dental College, Peshawar, from October to December 2023. The participants included students (third-year and final-year) and clinical faculty in dentistry. For data collection, a semi-structured interview guide with open-ended questions was used. The interviews and focus group discussions were organized at a scheduled time. One-on-one interviews with the clinical faculty and a focus group discussion were conducted with the students. The focus group and interviews were audio-recorded, transcribed, and analyzed using Braun and Clarke's thematic content analysis.

RESULTS

Eight students participated in the student focus group discussion, and six interviews were conducted with faculty members. All the participants belonged to the same institute. The identified themes were: 1. Approaching Teaching and Learning in a Clinical Environment, 2. Challenges in Teaching and Learning, 3. Solutions to Challenges, and 4. Mentoring and Support.

CONCLUSION

The findings of this study provided valuable insights into the multifaceted nature of clinical dental education. Challenges such as student apathy, harsh criticism from teachers, logistical limitations, and infrastructural constraints were significant obstacles to effective teaching and learning. The study highlights the vital role of mentorship and constructive feedback in fostering student growth and development. The institute should provide logistics, a planned curriculum, and simulated environments for skill development, and the assessment should be structured with remediation strategies.

KEYWORDS: Workplace-based Learning, Undergraduate, Integration, Challenges, Dentistry

networking concepts, which necessitates their active involvement in classroom instruction and clinical guidance. The clinical teacher may help students identify the necessary information for patient care.⁶ Workplace-based learning (WBL) is successful when it effectively places students in environments where they can apply their knowledge and skills, aligning with the desired learning outcomes. Successful WBL facilitates a deeper understanding of knowledge application within real-world professional contexts.⁷ The key challenge lies in optimizing the connection between these two settings to enhance the transfer of learning.¹ To fully benefit from clinical learning, it is essential to identify and manage these challenges from both the student's and teacher's point of view. Increasing curricular focus on applied medical science and interprofessional collaborative care might seem incompatible with expanding and earlier introduction of clinical hours dedicated to traditional dental care, alongside greater immersion in new dental technologies.⁸ The study's objective was to explore the challenges and strategies for improvement in Undergraduate Clinical Dental Education.

METHODOLOGY

The exploratory qualitative study was conducted in Peshawar Dental College, Peshawar, from October to December 2023. Purposive sampling was employed to collect the data. Students of the Third-Year BDS, Final-Year BDS, and Clinical teaching Faculty with a Teaching experience of at least 10 years were included. Teachers who had not completed CHPE/MHPE and were unwilling to participate were excluded. The sample size was calculated based on data saturation. The saturation in the study was determined to be when participants' interviews started to yield similar answers, and no new insights, patterns, or themes could be generated. Details are added in the methodology section.⁹ A semi-structured interview questionnaire was designed after a literature search to explore challenges in the clinical dental learning environment. It was approved by three experts in the field of Medical Education (Director of the Department of Medical Education, HOD Department of Dental Education, and HPE Ph.D. (Scholar). The questionnaire was piloted with two potential participants not part of the original study. Upon obtaining ethical approval (Prime/IRB/2023-1058) from the Institutional Review Board (IRB) of Peshawar Medical College, data collection commenced by contacting the students and faculty and acquiring their written consent.¹⁰ The interview guide was used for one-on-one interviews with the six expert faculty members in the Clinical field and Focus Group Discussions with the eight third-year and final-year BDS Students. Interviews are crucial

because they provide an in-depth exploration of people's perceptions and views.¹¹ The duration of the interviews was 20-25 minutes, and the focus group discussion lasted 50 minutes. The data collection process was continued to achieve data saturation.¹² The questions were centred on students' and instructors' perceptions of in-field clinical education challenges. The interview questions are presented in Table I.

Table 1: Interview Questions

1. How do you approach teaching and learning in a clinical environment? (Prompt: Most effective teaching and learning strategy)
2. What are the challenges that you have encountered when teaching and learning in a clinical environment?
3. How can we improve teaching and learning in a clinical environment?
4. In your opinion, what role does mentorship play in clinical learning experience? (Prompt: Fostering mentor/mentee relationship)
5. How do you perceive the role of feedback in your clinical environment? (Prompt: Feedback for the teacher; Feedback to students)
6. What are the challenges in assessment in a clinical environment? (Prompt: Ideal assessment)

Following Braun and Clark's six-step approach to thematic analysis, themes were generated.¹³ The transcriptions were carefully read and underwent inductive coding. Two coding techniques, "descriptive coding" and "in-vivo coding", were employed. In the first coding cycle, the codes were 94, and in the second coding cycle, the codes were 24. After completing the second cycle, the identified sub-themes and themes were thoroughly reviewed. An independent observer counter-checked the data analysis process. See Figure 1.

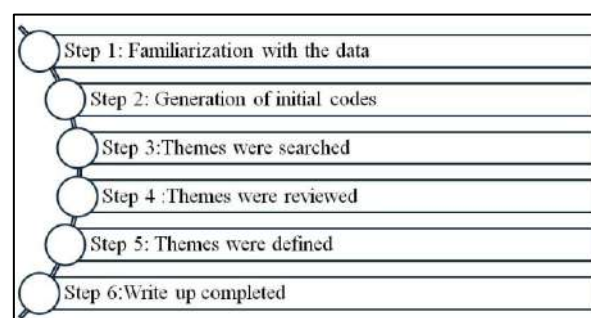


Figure 1: Braun and Clark's Six-Step Thematic Analysis

RESULTS

A total of six clinical faculty members (mean age: 45 Years) had a work experience of at least 10-15 years, and Students in the Final Year of BDS (mean age: 21 Years) participated in the study. From the thematic analysis, four main themes, eight subthemes, and twenty-four categories were identified. See Table 2,

Table 2: Participant Information

Clinical Instructors	n	
Professors	02	29% male
Associate Professors	02	
Assistant Professors	01	71% Female
Lecturer	01	
Students (third year & Final year)	08	

The details of themes, sub-themes, codes, and representative quotes are presented in Table 3.

Table 3: Themes, Subthemes and Categories

Theme	Sub-theme	Category
Theme 1: Approaching Teaching and Learning in Clinical Environment	Stepwise Teaching	Observation before performing Knowledge of the procedure Organized Learning
	Performing Procedures	Skill Lab Recent Procedures
Theme 2: Challenges in teaching and learning	Issues in behaviour	Teacher's Issues Learner's Issues Patient's Issues
	Learning Environment	Challenges in assessment Infrastructure and resources Teaching Environment Time Management
Theme-3: Solution to challenges	Planning and development	Planning curriculum Infrastructure and resources Continued Professional Development
	The solution to challenges in assessment	WPBA Remediation Structured Assessment
Theme-4: Mentoring and Support	Mentoring	Attributes of mentor Benefits of mentor Fostering mentor-mentee relationship
	Feedback	Role of Feedback Challenges of feedback Feedback structure

Theme 1: Approaching Teaching and Learning in Clinical Environment

The first theme that emerged from the data analysis was the observation that performing before an audience is an essential step in any procedure, as it helps identify

potential risks. Similarly, knowing the process beforehand is crucial for accurate performance. Students recognized that organized learning and skill lab sessions can help alleviate self-doubt and anxiety. Recent procedures must be taught to students to help them keep pace with the fast-changing world of technology.

"Most important, in my opinion, is observation, observing. They should observe before they have ample knowledge, and then they observe it that will help them in performing the procedure." (F-4, Faculty)

"If we could first perform on dummies in the OMFS and other Departments, that would boost our confidence level" (Student-1, FGD)

Theme 2: Challenges in teaching and learning

The respondent teachers and students identified multiple challenges. The teachers mentioned the learners' non-serious attitude as an impediment to effective learning. Similarly, students recognized that hostile and harsh teacher comments lead to increased self-doubt and stress in students. Additionally, the lack of patient cooperation and discomfort in the learning environment, resulting from inadequate logistics and infrastructure, hinders students from reaching their full potential.

"... They start commenting negatively in front of the patients; if we do anything wrong, we get more confused." (Student-4, FGD)

"We lacked space, we can't just perform the OSCEs properly as per the requirement." (F-1)

Theme-3: Solution to challenges

The participants mentioned that the institute should provide logistics and resources to support learning in the clinical environment. The curriculum should be well-planned, and assessments should be structured. Remediation strategies should be regularly arranged for students.

"We have to provide a comfortable environment, friendly atmosphere in which our attendant, our staff, and our student are cooperative with the patient, and the patient also cooperates." (F-3)

"If the student is weak in any topic, so we will give a task or assignment to them to make a PowerPoint presentation, Infrastructure and resources...." (F-2)

Theme-4: Mentoring and Support

The respondents mentioned that to improve teaching and learning in the clinical environment. Students and faculty members appreciated a mentor's positive role as a guide. Understanding attitude, being knowledgeable, and acting as a guide were identified as attributes. The participants mentioned that contact with mentors through social media apps and regular mentoring sessions are essential to foster mentor-mentee relationships.

"A mentor would be a great guidance for us because

we don't know our path." (Student 3, FGD)

"Benefits of mentor Fostering mentor-mentee relationship, Role of feedback, Challenges of feedback structure, If we get feedback, we will be able to identify our shortcomings; what we lack" (F-4 Faculty).

DISCUSSION

The findings from the interviews and focus group discussions conducted with faculty members and students reveal critical insights into the dynamics of teaching and learning in the clinical dental environment. The identified themes included approaches to teaching and learning, challenges in teaching and learning, solutions to these challenges, and the role of mentoring and support, providing a comprehensive overview of the current state of clinical education and highlighting areas for improvement. Effective clinical education necessitates a strong emphasis on observation and pre-procedural knowledge acquisition. Students consistently highlighted the importance of observing experienced clinicians perform procedures before attempting them themselves, recognizing this as a crucial step in identifying potential risks and building confidence. Simulated environments, such as skill labs and practice on models (e.g., dummies in Oral and Maxillofacial Surgery), were identified as valuable tools to bridge the gap between theoretical knowledge and practical application, mitigating anxiety and enhancing a sense of preparedness. The results were consistent with the study by Chukwuka Elendu, who considers simulation technology, including high-fidelity mannequins, virtual reality (VR) environments, standardized patients, and hybrid simulations, important for clinical learning.¹⁴ Furthermore, the rapid advancements in dental technology underscore the need for continuous curricular updates to ensure students are equipped with the latest knowledge and skills to excel in their future careers. Subha Rahmani's study is consistent with the current research, which emphasises faculty training in clinical skills and teaching methods. Several significant challenges were identified in the clinical learning environment. From the faculty's perspective, student apathy and a lack of seriousness in their approach to learning were perceived as major obstacles to effective teaching. Conversely, students expressed concerns about the negative impact of harsh criticism and hostile comments from instructors, which can erode self-confidence and increase stress levels. The study of Ramani aligns and emphasizes acknowledging and celebrating accomplishments while providing constructive feedback and guidance to address areas for improvement in knowledge, skills, or attitudes¹⁵. Furthermore, both groups acknowledged the detrimental effects of logistical and infrastructural

shortcomings, such as inadequate space and limited resources, on the quality of clinical training. These limitations, coupled with the challenges posed by uncooperative patients, can significantly hinder student learning and prevent them from reaching their full potential. Participants strongly emphasized the value of mentorship in enhancing the clinical learning experience. Students and faculty alike recognized the positive impact of mentors who possess qualities such as understanding, knowledge, and the ability to provide effective guidance. The results of the Hagrass et al., study are aligned and emphasized the role of training programs for effective mentorship.¹⁶ Mentors play a crucial role in navigating the complexities of clinical practice and enhancing professional growth. The study by Nora M. Kilcullen is consistent with the present study and emphasises the importance of providing a conducive learning environment.¹⁷ Effective mentor-mentee relationships can be cultivated through regular mentoring sessions and accessible communication channels, such as social media platforms. The study of Aysha et al. is consistent for the accessibility of different modes of communication like email.¹⁸ Feedback constitutes a cornerstone of effective mentorship. Constructive feedback is essential for student growth and development. The challenges such as the delivery of feedback in a supportive and constructive manner and the development of effective feedback structures need to be addressed. The results are aligned with Heather Schopper's study.¹⁹ Students acknowledged the importance of feedback in identifying their shortcomings and areas for improvement, highlighting the need for clear and actionable feedback that facilitates skill development and enhances overall learning.²⁰ The results are aligned with Andrew William's study. Future research with more extensive and diverse samples, including both genders and multiple institutions, is necessary to gain a comprehensive understanding of the topic.

LIMITATIONS

A small sample size from only one institute in the Khyber Pakhtunkhwa province was selected for data collection.

CONCLUSIONS

The findings of this study provided valuable insights into the multifaceted nature of clinical dental education. Challenges such as student apathy, harsh criticism from teachers, logistical limitations, and infrastructural constraints were significant obstacles to effective teaching and learning. The study highlights the vital role of mentorship and constructive feedback in

fostering student growth and development. The institute should provide logistics, a planned curriculum, and simulated environments for skill development, and the assessment should be structured with remediation strategies.

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Munazza Baseer - Concept & Design; Data Acquisition; Data Analysis/Interpretation; Drafting Manuscript; Critical Revision; Supervision; Final Approval

Amara Hayat Awan - Concept & Design; Data Acquisition; Data Analysis/Interpretation; Drafting Manuscript; Final Approval

The authors accept responsibility for all aspects of the work and will ensure that any concerns regarding the accuracy or integrity of any part are properly investigated and resolved.



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