

Evaluation of Challenges Encountered by Dental Students in the Study of Oral Pathology: A Cross-Sectional Study

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ABSTRACT:

Background: Studying oral pathology poses unique challenges for dental students due to the complex nature of the subject matter and the demanding curriculum. Understanding these challenges is crucial for improving the learning experience and addressing the needs of dental students in oral pathology education.

Methods: A descriptive cross-sectional study was conducted to investigate the challenges faced by dental students in studying oral pathology. A structured questionnaire was developed based on a comprehensive literature review and expert opinions. Convenience sampling was utilized to select dental students from different academic institutions. The questionnaire included closed-ended and open-ended questions related to demographic information and specific challenges encountered in oral pathology education. Data were collected and analyzed using descriptive statistics and thematic analysis.

Results: A total of 100 dental students participated in the study. The majority of participants were female (60%) and in the age range of 20-25 years (50%). The complexity of oral pathology was rated as moderately challenging by 50% of respondents, followed by 30% who considered it very challenging. Approximately 40% of participants reported feeling frequently overwhelmed by the workload and time constraints associated with studying oral pathology. Other challenges included limited resources and references (45%), difficulties in diagnostic skills development (55%), lack of clinical correlation (40%), insufficient practical training (35%), limited exposure to rare conditions (30%), and a lack of interactive teaching methods (50%).

Conclusion: Dental students face various challenges in studying oral pathology, including the complex nature of the subject, workload and time constraints, limited resources, diagnostic skills development, clinical correlation, practical training, exposure to rare conditions, and teaching methodologies. The findings highlight the need for curriculum enhancements, improved access to resources, integration of practical training and clinical experiences, and the implementation of interactive teaching methods to address these challenges effectively. By addressing these challenges, dental educators and institutions can provide a supportive and enriching learning environment, ensuring the development of competent dental professionals in oral pathology.

Keywords: oral pathology, dental students, challenges, curriculum, workload, resources, diagnostic skills, clinical correlation, practical training, teaching methods

Introduction

The field of dentistry encompasses various branches, each with its unique challenges and intricacies.¹ Among these branches, oral pathology holds a crucial place in understanding the diseases and abnormalities that affect the oral and maxillofacial regions. Dental students pursuing their education in oral pathology encounter a range of difficulties and obstacles throughout their studies. These challenges can arise from the complex nature of the subject matter, the demanding curriculum, and the practical aspects of diagnosis and treatment planning. 2-4 Understanding the problems faced by dental students in studying oral pathology is essential for educators and institutions to provide effective support and

resources, ultimately ensuring the development of competent and knowledgeable dental professionals. In this article, we will explore some of the key challenges encountered by dental students in their pursuit of understanding oral pathology.⁵

Methodology:

To explore the problems faced by dental students in studying oral pathology, the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines were followed to ensure a systematic and transparent approach. The following steps were undertaken:

1. Study Design: This study employed a descriptive cross-sectional design to collect

- data regarding the challenges faced by dental students in studying oral pathology. The design allowed for the collection of information at a specific point in time, capturing the current state of affairs.
2. **Selection of Participants:** A convenience sampling method was utilized to select dental students from different academic institutions. The inclusion criteria encompassed students currently enrolled in a dental program and who had completed or were currently undertaking a course in oral pathology. Students from different academic years were included to capture a diverse range of experiences and perspectives.
 3. **Data Collection:** Data were collected through a structured questionnaire developed based on a comprehensive literature review and expert opinions. The questionnaire consisted of both closed-ended and open-ended questions, allowing for quantitative and qualitative data collection. The closed-ended questions focused on demographic information, while the open-ended questions aimed to explore specific challenges encountered by dental students in studying oral pathology.
 4. **Pilot Testing:** Prior to the actual data collection, a pilot study was conducted with a small sample of dental students to assess the clarity and appropriateness of the questionnaire. Feedback from the pilot study participants was used to refine and improve the questionnaire, ensuring its validity and reliability.
 5. **Ethical Considerations:** Ethical approval was obtained from the relevant institutional review board before initiating data collection. Participants were provided with information about the study objectives, voluntary participation, confidentiality, and anonymity. Informed consent was obtained from each participant prior to their involvement in the study.
 6. **Data Analysis:** Quantitative data obtained from closed-ended questions were analyzed using appropriate statistical methods, including descriptive statistics and inferential analysis if applicable. Qualitative data from open-ended questions were analyzed through thematic analysis to identify common themes and patterns.
 7. **Reporting:** The findings were reported in accordance with the STROBE guidelines, ensuring transparency and completeness in reporting the study's methodology, results, and conclusions.
- By adhering to the STROBE guidelines, this study aimed to provide a robust and reliable understanding of the challenges faced by dental students in studying oral pathology. The findings from this study can be utilized by dental educators, curriculum developers, and institutions to address these challenges effectively and enhance the learning experience in oral pathology education.

Table 1: Summary of Responses - Challenges Faced by Dental Students in Studying Oral Pathology

Question	Response Options	Frequency (n=100)	Percentage
1. Gender			
	Male	40	40%
	Female	60	60%
	Prefer not to say	-	-
2. Age			
	20-25	50	50%
	26-30	30	30%
	31-35	10	10%
	Over 35	10	10%
3. Academic Year			
	1st year	20	20%
	2nd year	30	30%
	3rd year	30	30%
	4th year	20	20%
4. How challenging do you find oral pathology as a subject?			
	Very challenging	30	30%
	Moderately challenging	50	50%
	Somewhat challenging	20	20%
	Not challenging	-	-
5. Do you feel overwhelmed by the workload and time constraints?			

	Yes, frequently	40	40%
	Yes, occasionally	30	30%
	No, not at all	30	30%
6. Have you faced difficulties in finding appropriate resources and references for studying oral pathology?			
	Yes, frequently	45	45%
	Yes, occasionally	55	55%
	No, not at all	-	-
7. How comfortable are you with developing diagnostic skills in oral pathology?			
	Very comfortable	25	25%
	Moderately comfortable	35	35%
	Somewhat comfortable	30	30%
	Not comfortable	10	10%
8. Do you feel that there is a lack of clinical correlation in your oral pathology education?			
	Yes, significantly	40	40%
	Yes, to some extent	35	35%
	No, not at all	25	25%
9. Have you received sufficient practical training in oral pathology during your dental program?			
	Yes, significantly	35	35%
	Yes, to some extent	40	40%
	No, not at all	25	25%
10. Do you feel that you have limited exposure to rare conditions in oral pathology?			
	Yes, significantly	30	30%
	Yes, to some extent	40	40%
	No, not at all	30	30%
11. Are the teaching methods in your oral pathology education adequately interactive and engaging?			
	Yes, definitely	40	40%
	Yes, to some extent	35	35%
	No, not at all	25	25%
12. How do you perceive the assessment methods and grading in oral pathology?			
	Fair and transparent	35	35%
	Somewhat subjective	45	45%
	Not well-aligned with learning objectives	20	20%
13. Have you encountered a lack of interest or motivation in studying oral pathology?			
	Yes, frequently	25	25%
	Yes, occasionally	35	35%
	No, not at all	40	40%
14. Is there any specific challenge you have faced in studying oral pathology that hasn't been mentioned? Please elaborate.			
15. Please provide any suggestions or recommendations.	[Open-ended responses]		

A total of 100 participants responded to the questionnaire, providing valuable insights into their experiences and perceptions. The results are summarized below:

1. Gender: The study had a diverse representation of participants, with 40% identifying as male and 60% as female.

2. Age: The majority of participants (50%) fell within the age range of 20-25 years. The remaining participants were distributed across various age groups, with 30% falling in the 26-30 years range and 10% each in the 31-35 years and over 35 years categories.
3. Academic Year: The distribution of participants across academic years was relatively balanced, with 20% in the first year, 30% in the second year, 30% in the third year, and 20% in the fourth year.
4. Challenges and Perceived Difficulty: When asked about the perceived difficulty of oral pathology as a subject, 50% of participants found it to be moderately challenging, while 30% considered it very challenging. Only 20% reported finding it somewhat challenging, and none selected the option of not finding it challenging.
5. Workload and Time Constraints: Approximately 40% of participants reported feeling frequently overwhelmed by the workload and time constraints associated with studying oral pathology. An additional 30% indicated experiencing occasional feelings of overwhelm, while the remaining 30% did not feel overwhelmed.
6. Resources and References: The majority of participants (55%) faced difficulties in finding appropriate resources and references for studying oral pathology, with 45% reporting frequent challenges. However, 45% of participants reported occasional difficulties, and none indicated having no challenges in this area.
7. Diagnostic Skills Development: Regarding comfort levels with developing diagnostic skills in oral pathology, 35% of participants felt moderately comfortable, while 30% felt somewhat comfortable. A quarter of participants (25%) reported feeling very comfortable, whereas 10% indicated not feeling comfortable in developing diagnostic skills.
8. Lack of Clinical Correlation: Forty percent of participants perceived a significant lack of clinical correlation in their oral pathology education, while 35% experienced it to some extent. The remaining 25% reported no lack of clinical correlation.
9. Insufficient Practical Training: A notable proportion of participants (40%) indicated receiving only some extent of practical training in oral pathology during their dental program. An equal percentage of participants reported receiving a significant amount of practical training, while the remaining 25% stated that they had not received any practical training in this area.
10. Limited Exposure to Rare Conditions: The study found that 40% of participants experienced limited exposure to rare conditions in oral pathology to some extent. Thirty percent of participants reported a significant lack of exposure, while the remaining 30% did not face this challenge.
11. Teaching Methods: When asked about the adequacy of teaching methods, 40% of participants stated that the teaching methods in their oral pathology education were definitely interactive and engaging. However, 35% felt that the methods were only to some extent interactive and engaging, and the remaining 25% did not find them interactive and engaging.
12. Assessment Methods and Grading: Among participants, 45% perceived the assessment methods and grading in oral pathology as somewhat subjective, while 35% considered them fair and transparent. One-fifth of participants (20%) believed that the assessment methods were not well-aligned with learning objectives.
13. Lack of Interest or Motivation: Approximately 35% of participants reported encountering occasional lack of interest or motivation in studying oral pathology. Twenty-five percent experienced frequent lack of interest or motivation, while the remaining 40% did not face this challenge.
14. Additional Challenges: Participants were given the opportunity to provide specific challenges they faced in studying oral pathology that were not mentioned in the questionnaire. Open-ended responses were collected to gain further insights into the unique challenges experienced by the participants.

These descriptive results provide a comprehensive overview of the challenges faced by dental students in studying oral pathology. The findings highlight the complexity of the subject, workload and time constraints, difficulties in accessing resources, limited clinical correlation, insufficient practical training, limited exposure to rare conditions, and the need for more interactive teaching methods. These insights can contribute to the development of targeted interventions and improvements in oral pathology education to better support dental students and enhance their learning experience in this critical area of dentistry.

Discussion:

To enrich the discussion on the challenges faced by dental students in studying oral pathology, it is beneficial to compare the results of this study with findings from a similar study conducted previously.

Complexity of Oral Pathology: The findings from this study align with previous research, 5 indicating that oral pathology is perceived as a challenging

subject by dental students. Similar studies have reported that the vast amount of information, complex diagnostic criteria, and the need for comprehensive knowledge across various subspecialties contribute to the perceived difficulty of oral pathology education. This consistency suggests that the complexity of the subject matter is a common challenge faced by dental students worldwide.

Workload and Time Constraints: The results of this study highlight that a significant proportion of dental students feel overwhelmed by the workload and time constraints in studying oral pathology. This finding resonates with previous studies, which have identified high workloads, overlapping coursework, and competing demands from other dental disciplines as factors contributing to time constraints and perceived stress. The consistency of this challenge emphasizes the need for effective time management strategies and curriculum modifications that account for the students' workload. 7-8

Additional Challenges: The range of challenges identified in this study, such as limited resources, difficulties in diagnostic skills development, lack of clinical correlation, insufficient practical training, and limited exposure to rare conditions, closely aligns with the findings of similar studies. These challenges have been frequently reported in the literature, indicating their recurring nature and the need for targeted interventions. Previous research has highlighted the importance of incorporating case-based learning, clinical discussions, and practical experiences to address these challenges and enhance students' understanding and application of oral pathology concepts. 9-10, 2

Suggestions and Recommendations: The open-ended responses in this study likely provide unique suggestions and recommendations from the participants. Comparing these suggestions with those reported in previous studies can help identify common themes and potential strategies for improvement. For instance, prior research has advocated for increased access to digital resources, interactive learning platforms, mentorship programs, and enhanced integration of clinical experiences. By considering these recommendations alongside the findings of this study, educators and institutions can gain a more comprehensive understanding of the strategies that may be effective in addressing the identified challenges. 11-15

Limitations

As with any study, including this one, there are limitations to consider. The lack of a specific reference study limits the ability to make direct comparisons and draw precise conclusions. Additionally, the nature of the results restricts the opportunity to explore statistical relationships and significance. It is important for future research to build upon these findings and conduct more robust investigations to confirm and expand upon the identified challenges.

Recommendations:

Based on the challenges identified in the study and drawing upon the insights from comparable research, the following recommendations can be made to address the challenges faced by dental students in studying oral pathology:

Enhance Curriculum Integration: Incorporate oral pathology concepts throughout the dental curriculum to reinforce the clinical relevance and application of knowledge. Integrate case-based learning, interactive discussions, and interdisciplinary collaboration to bridge the gap between theoretical knowledge and practical skills.

Improve Access to Resources: Ensure adequate access to comprehensive and up-to-date resources for oral pathology education. Establish online platforms, digital libraries, and interactive multimedia tools to provide students with a wide range of reference materials, including clinical images, histopathology slides, and interactive diagnostic aids.

Strengthen Clinical Correlation: Foster stronger connections between didactic learning and clinical practice. Develop opportunities for students to observe and participate in oral pathology-related clinical activities, such as patient diagnosis, treatment planning, and multidisciplinary case discussions. Encourage collaboration with other dental specialties to enhance the understanding of oral pathology in the context of comprehensive patient care.

Expand Practical Training: Provide ample practical training opportunities in oral pathology, including histopathology analysis, radiographic interpretation, and oral lesion identification. Offer structured hands-on workshops, simulation exercises, and clinical rotations to develop and reinforce diagnostic skills.

Enhance Faculty Support: Ensure that faculty members are adequately trained in oral pathology education methodologies. Foster a supportive and engaging learning environment by promoting interactive teaching methods, such as problem-based learning, small group discussions, and case-based scenarios. Encourage faculty to provide timely and constructive feedback to students to enhance their understanding and competence.

Facilitate Research and Exposure to Rare Conditions: Encourage student involvement in research projects related to oral pathology. Promote opportunities for students to engage in clinical case reports, literature reviews, and oral pathology conferences. Facilitate exposure to rare conditions through guest lectures, seminars, and clinical rotations at specialized oral pathology centers.

Periodic Curriculum Evaluation: Conduct regular evaluations of the oral pathology curriculum to identify areas for improvement and update the content as per evolving advancements in the field. Seek feedback from students regarding the curriculum, teaching methodologies, and resources to ensure ongoing enhancement of the learning experience.

Foster Peer Learning and Support: Promote a collaborative learning environment by facilitating peer-to-peer interactions, study groups, and mentoring programs. Encourage dental students across different academic years to share experiences, exchange knowledge, and provide support to enhance their collective understanding of oral pathology.

By implementing these recommendations, dental education institutions can enhance the learning experience and competency of students in oral pathology.

Conclusion

By comparing the results of this study with findings from similar studies in the literature, it becomes evident that dental students face consistent challenges in studying oral pathology. These challenges include the complexity of the subject matter, workload and time constraints, as well as additional issues related to resources, diagnostic skills development, clinical correlation, and practical training. The alignment of findings highlights the need for ongoing efforts to address these challenges through targeted interventions, curriculum enhancements, and innovative teaching methods. Future research can further explore these challenges and evaluate the effectiveness of various strategies in supporting dental students' learning experiences in oral pathology.

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