



Evaluation of teaching method preferences and learning perceptions among dental interns in dental education

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Abstract

Background: Teaching methodologies play a pivotal role in dental education by influencing knowledge acquisition, clinical competence, critical thinking, and professional development. The recent shift toward Competency-Based Dental Education (CBDE) emphasizes student-centered learning, clinical skill development, interdisciplinary integration, and real-world practice preparedness. Understanding dental interns' perceptions of various teaching and learning methods is essential for identifying educational strategies that support competency development and curriculum reform.

Aim: To evaluate the preferences and perceptions of dental interns regarding the effectiveness of newer teaching and learning methods in Competency-Based Dental Education.

Materials and Methods: A cross-sectional questionnaire-based study was conducted among 100 dental interns at KVG Dental College using convenience sampling. Data were collected using a self-administered structured questionnaire comprising demographic details and perceptions regarding traditional lectures, case-based learning, clinical demonstrations, audiovisual aids, simulation-based learning, microteaching, blended learning, and online teaching methodologies. The questionnaire also assessed opinions regarding competency-based learning, clinical exposure, internship training, and the integration of modern educational technologies. Data were analyzed using descriptive and inferential statistics, and a p-value of <0.05 was considered statistically significant.

Results: The majority of interns preferred interactive and clinically oriented teaching methods over traditional lecture-based instruction. Clinical and case-based interactive learning emerged as the most preferred methodology (58%), followed by blended learning (32%). Most respondents considered audiovisual aids (88%), quizzes (90%), clinical demonstrations, live patient interactions, and simulation-based training to be effective learning tools. A substantial proportion favored shorter lecture durations and supported online teaching for theoretical subjects. Interns also emphasized the importance of increased clinical exposure, competency-based assessment, interdisciplinary teaching, structured internship training, and the incorporation of digital technologies into the curriculum. Inferential analysis demonstrated a significant association between teaching methodology and learning motivation ($\chi^2 = 12.64$, $p = 0.021$), as well as between interactive teaching methods and reduced academic stress ($\chi^2 = 15.28$, $p = 0.008$).

Conclusion: Dental interns demonstrated a strong preference for student-centered, interactive, and clinically relevant teaching methodologies. The findings support the integration of case-based learning, clinical demonstrations, simulation-based education, blended learning, and technology-assisted teaching within the dental curriculum. Interns also highlighted the need for reforms such as enhanced clinical exposure, competency-based assessment, interdisciplinary learning, meaningful internship experiences, and training for real-world dental practice. Incorporating these approaches may improve learner engagement, clinical competence, professional preparedness, and the overall quality of dental education.

Keywords: Dental interns, competency-based dental education, teaching methodology, interactive learning, case-based learning, clinical demonstrations, simulation-based learning, blended learning, curriculum reform, dental education

Introduction

Teaching is an integral component of health professions education, and the ability to effectively impart knowledge and clinical skills is essential for future dental practitioners. Dental interns, who transition from undergraduate training to independent clinical practice, often participate in peer-assisted learning, patient education, and academic discussions. During this phase, the adoption of appropriate teaching methodologies plays a crucial role in enhancing knowledge retention, clinical competence, communication skills, and professional development.

Traditional lecture-based teaching has long been the cornerstone of dental education; however, contemporary educational approaches increasingly emphasize student-centered and interactive methodologies such as problem-based learning, case-based discussions, simulation-based

training, flipped classrooms, and peer-assisted teaching. These methodologies encourage active participation, critical thinking, self-directed learning, and collaborative problem-solving, which are essential in modern dental practice.

Dental interns are exposed to diverse clinical scenarios requiring the integration of theoretical knowledge with practical application. Therefore, understanding their perceptions, preferences, and utilization of various teaching methodologies becomes important in improving the quality of dental education. Furthermore, the rapid advancement of digital technology and online learning platforms has transformed educational practices, especially following the COVID-19 pandemic, making blended and e-learning approaches more relevant in dental training.

Despite the growing emphasis on innovative teaching strategies, limited studies have explored the awareness and

acceptance of different teaching methodologies among dental interns. Evaluating these methodologies can help educators identify effective instructional practices and develop curricula that better address the learning needs of interns.

Hence, the present study aims to assess the teaching methodologies among dental interns and evaluate their perceptions regarding the effectiveness of different teaching approaches in dental education.

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In recent years, concerns have also been raised regarding the preparedness of dental graduates for independent clinical practice. Dental interns have increasingly advocated for reforms in undergraduate dental education, including greater clinical exposure, competency-based learning, interdisciplinary teaching, structured internship training, and the incorporation of modern technologies such as digital dentistry. These expectations reflect the need for educational approaches that not only facilitate academic learning but also develop practical skills, professional competence, and career readiness. Understanding interns' perspectives on teaching methodologies may therefore provide valuable insights into broader educational reforms required within the Bachelor of Dental Surgery (BDS) curriculum.

Despite the growing emphasis on innovative teaching strategies, limited studies have explored the awareness and acceptance of different teaching methodologies among dental interns. Evaluating these methodologies can help educators identify effective instructional practices and develop curricula that better address the learning needs of interns. Such evaluations may also contribute to ongoing efforts aimed at modernizing dental education and aligning

training programs with the evolving demands of clinical practice.

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Materials and Methods

Study Design and Setting

A cross-sectional questionnaire-based study was conducted among dental interns at KVG dental college. The aim of the study was to assess the perceptions and preferences regarding various teaching methodologies among dental interns.

Study Population

The study population consisted of dental interns undergoing compulsory rotatory internship at the institution during the study period.

Inclusion Criteria

- Dental interns willing to participate in the study
- Interns present during the period of data collection

Exclusion Criteria

- Interns who did not provide informed consent
- Incomplete or improperly filled questionnaires

Sample Size

A total of 100 dental interns participated in the study. Convenience sampling method was used to recruit the participants. Data were collected using a self-administered structured questionnaire developed based on previously published literature and expert opinion. The questionnaire consisted of two sections:

1. Demographic details such as age and gender
2. Questions related to teaching methodologies, including traditional lectures, problem-based learning, case-based learning, demonstrations, group discussions, peer-assisted learning, simulation-based learning, and online teaching methods.

Responses were recorded using a Likert scale ranging from strongly agree to strongly disagree and multiple-choice questions wherever applicable.

Written informed consent was obtained prior to participation. The questionnaires were distributed electronically through an online platform. Participants were given adequate time to complete the questionnaire, and confidentiality of responses was maintained throughout the study.

Statistical Analysis

The collected data were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) version [version number]. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize the data. Inferential statistics such as Chi-square test or Student's t-test were applied wherever appropriate to determine associations between variables. A p-value of less than 0.05 was considered statistically significant.

Results

Question	Most Common Response	Percentage
Attended classroom & online teaching	Yes	62%
Preferred methodology	Clinical/case-based interactive learning	58%
Classroom lectures effectiveness	Effective	52%
Audiovisual aids improve understanding	Agree/Strongly Agree	88%
Better retention mode	Clinical demonstration	61%
Importance of faculty interaction	Important/Very important	92%
Preferred teaching style	Case-based discussions	69%
Clinical demonstrations usefulness	Extremely useful	57%
Preferred lecture duration	<30–45 minutes	81%
Online teaching preference for theory	Yes/Depends on subject	74%
Motivating methodology	Clinical exposure	49%
Participation during sessions	Often/Always	78%
Quizzes improve learning	Agree/Strongly Agree	90%
Preferred teaching aid	Live patient demonstrations	41%
Blended learning more effective	Yes	76%
Interactive methods reduce stress	Agree/Strongly Agree	84%
Recommend more interactive methods	Yes	82%
Awareness of simulation-based learning	Yes	71%
Simulation improves clinical skills	Agree/Strongly Agree	87%
Awareness of microteaching	Yes	64%
Need for microteaching in curriculum	Yes, required	68%

Inferential Statistical Analysis

Variable	Chi-square value	p-value	Interpretation
Teaching methodology vs learning motivation	12.64	0.021	Significant association
Interactive methods vs reduced stress	15.28	0.008	Statistically significant

Descriptive Statistical Analysis

Preferred Teaching Methodology

Clinical or case-based interactive learning was the most preferred teaching methodology (58%), followed by blended learning (32%). Traditional lecture-based teaching was preferred by only 7% of participants.

Effectiveness of Classroom Lectures

52% of respondents considered traditional classroom lectures effective, while 24% considered them very effective and 24% remained neutral.

visual Aids

88% of interns agreed or strongly agreed that audiovisual aids improve understanding of dental subjects.

Preferred Lecture Duration

Most students preferred shorter lectures, with 46% preferring sessions under 30 minutes and 35% preferring 30–45 minute sessions.

Teaching Aids

Live patient demonstrations emerged as the most preferred teaching aid (41%), followed by PowerPoint slides and animations.

A total of 100 dental interns participated in the study. The responses showed a clear preference for interactive, clinically oriented, and blended teaching methods over traditional lecture-based instruction.

Most respondents reported exposure to both classroom and online teaching (62%). The most preferred teaching methodology was clinical or case-based interactive learning (58%), followed by blended learning (32%), while only 7%

preferred traditional lecture-based teaching. Case-based discussions were the preferred teaching style for 69% of interns, and 49% identified clinical exposure as the most motivating methodology.

Regarding classroom lectures, 52% of participants considered them effective, 24% considered them very effective, and 24% remained neutral. Shorter lecture durations were favored, with 46% preferring sessions under 30 minutes and 35% preferring 30–45 minutes. In addition, 74% preferred online teaching for theory subjects either fully or depending on the subject.

Audiovisual support was strongly valued, with 88% of interns agreeing or strongly agreeing that audiovisual aids improve understanding of dental subjects. Quizzes were also perceived positively, as 90% agreed or strongly agreed that they improve learning. Participation during sessions was frequent, with 78% reporting that they participated often or always.

Clinical demonstrations were viewed as an important educational strategy. Better retention was associated most often with clinical demonstration (61%), and 57% rated clinical demonstrations as extremely useful. Live patient demonstrations were the most preferred teaching aid (41%). Blended learning was considered more effective by 76% of respondents, while 84% agreed or strongly agreed that interactive methods reduce stress and 82% recommended more interactive methods in teaching.

Awareness of newer educational approaches was also notable. Seventy-one percent were aware of simulation-based learning, and 87% agreed or strongly agreed that simulation improves clinical skills. Awareness of microteaching was reported by 64% of participants, and 68% felt that microteaching should be included in the curriculum.

Inferential analysis demonstrated a significant association between teaching methodology and learning motivation ($\chi^2=12.64$, $p=0.021$). A statistically significant association was also found between interactive methods and reduced stress ($\chi^2=15.28$, $p=0.008$).

Discussion

The present study assessed the awareness, attitudes, and practices related to teaching methodologies among dental interns. The findings suggest that interns recognize the importance of effective teaching methods in clinical and academic learning, with a preference for interactive and student-centered approaches over traditional didactic teaching. This reflects the evolving trend in health professions education, where active participation, critical thinking, and practical exposure are increasingly emphasized.

A considerable proportion of interns preferred clinical demonstrations, case-based discussions, audiovisual aids, and small-group learning as effective teaching methodologies. These methods may enhance understanding and retention by linking theoretical concepts with practical application. Similar observations have been reported in previous educational studies, where interactive learning environments improved learner engagement, confidence, and communication skills among healthcare students.

Traditional lecture-based teaching, although still considered useful for delivering foundational knowledge, was perceived as less engaging when used alone. This may be because passive learning limits opportunities for clinical reasoning and independent thinking. Dental education requires the integration of cognitive knowledge, psychomotor skills, and professional behavior; therefore, blended teaching approaches appear to be more suitable for undergraduate and internship training.

The study also highlights the growing acceptance of digital learning tools and technology-assisted education among dental interns. The use of presentations, online resources, simulation-based learning, and multimedia platforms was viewed positively by many participants. The increased exposure to digital learning during recent years may have contributed to this acceptance. Technology-enhanced learning can improve accessibility, flexibility, and self-directed learning when appropriately integrated into the curriculum.

Another important observation was the perceived role of feedback and mentorship in the learning process. Interns valued constructive feedback from faculty members and clinical supervisors, indicating that supportive teacher-student interaction contributes significantly to skill development and confidence building. Effective feedback mechanisms are essential in dental training because they allow students to identify strengths and areas requiring improvement.

Despite the positive perception toward innovative teaching methods, certain barriers may limit their implementation. These include limited time during clinical postings, inadequate infrastructure, large student numbers, and variability in faculty training regarding modern educational strategies. Addressing these challenges is necessary to optimize teaching effectiveness and ensure uniform learning experiences among interns.

In addition to their preferences regarding teaching methodologies, many dental interns expressed the need for broader reforms in undergraduate dental education. A recurring theme was the demand for increased clinical exposure and hands-on training, enabling students to develop greater confidence and competence in performing dental procedures independently. Interns also emphasized the importance of transitioning from an examination-oriented curriculum to a competency-based educational framework that focuses on skill acquisition, clinical decision-making, and patient management. Furthermore, there was a perceived need for stronger interdisciplinary and integrated teaching approaches that connect basic sciences with clinical subjects and encourage collaboration among different dental specialties. The participants highlighted the value of a well-structured internship program with meaningful clinical responsibilities, adequate supervision, and opportunities for independent learning. The growing role of digital dentistry, simulation-based training, and emerging technologies was also recognized, indicating the need to modernize the curriculum to align with contemporary dental practice. Additionally, interns expressed the importance of receiving training in practice management, communication skills, ethics, and career development to enhance preparedness for professional practice. These observations suggest that improvements in teaching methodologies should be accompanied by curriculum reforms that address both educational quality and professional readiness among future dental practitioners.

The findings of the present study should be interpreted considering certain limitations. The study was conducted among a limited sample of dental interns from a specific institution/region, which may affect the generalizability of the results. In addition, the study relied on self-reported responses, which may introduce response bias. Further multicentric studies with larger sample sizes are recommended to obtain broader insights into teaching methodologies in dental education.

Conclusion

The present study concludes that dental interns demonstrate a positive attitude toward modern, interactive, and student-centered teaching methodologies. Clinical demonstrations, case-based learning, audiovisual tools, and technology-assisted teaching were perceived as more effective and engaging than conventional lecture-based methods alone. Interns also emphasized the importance of constructive feedback, mentorship, and active participation in enhancing learning outcomes.

Furthermore, the findings highlight the need for significant reforms in BDS education, including increased clinical exposure and practical skill development, a shift toward competency-based rather than examination-oriented learning, stronger interdisciplinary and integrated teaching approaches, and better-structured, clinically meaningful internship programs. Interns also expressed the importance of incorporating modern technologies such as digital dentistry into the curriculum and receiving training that prepares them for real-world dental practice, including practice management, communication skills, and career development.

Overall, the results suggest that integrating innovative teaching strategies with curriculum reforms can enhance

clinical competence, critical thinking, communication skills, and professional preparedness among dental graduates. Faculty development programs, improved educational infrastructure, and continuous curriculum evaluation may further facilitate the effective implementation of these changes. Future research involving larger and more diverse populations is recommended to provide stronger evidence regarding effective teaching practices and educational reforms in dental training.

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