



ASSESSMENT OF KNOWLEDGE AND CLINICAL PRACTICES REGARDING PERIODONTAL HEALTH IN CHILDREN AMONG UNDERGRADUATE DENTAL STUDENTS

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ABSTRACT

Objective: To assess the level of knowledge and clinical practices related to periodontal health in children among undergraduate dental students.

Methodology: A descriptive cross-sectional study was conducted among undergraduate dental students. Data were collected using a structured, self-administered questionnaire consisting of three sections: demographic characteristics, knowledge regarding pediatric periodontal health, and clinical practices related to periodontal examination and management in children. Knowledge and practice scores were categorized as poor, fair, and good based on predetermined scoring criteria. Data were analyzed using descriptive statistics, and associations between academic year and knowledge/practice levels were evaluated.

Results: A total of 200 undergraduate dental students participated in the study. Overall, 58.5% of students demonstrated good knowledge regarding periodontal health in children, while 27.0% had fair knowledge and 14.5% had poor knowledge. Good clinical practices were observed in 46.0% of participants, whereas 34.0% and 20.0% showed fair and poor practices, respectively. Final-year students exhibited significantly higher knowledge and better clinical practices compared to preclinical students.

Conclusion: Although undergraduate dental students demonstrated acceptable knowledge regarding pediatric periodontal health, gaps were identified in clinical practices. Early clinical exposure and reinforcement of pediatric periodontal training are recommended to improve practical competencies.

Keywords: Pediatric periodontology, dental students, periodontal knowledge, clinical practices, oral health

INTRODUCTION

Periodontal health in children plays a crucial role in establishing a foundation for lifelong oral health. Gingivitis is the most common periodontal condition observed in children and adolescents, primarily resulting from plaque accumulation due to inadequate oral hygiene practices.¹ If left unaddressed, early periodontal inflammation may progress and predispose individuals to more severe periodontal conditions later in life.² Dental students, as future oral healthcare providers, are expected to possess sound knowledge and appropriate clinical skills for the prevention, diagnosis, and management of periodontal diseases in paediatric patients. Paediatric periodontal care differs from adult periodontal management due to variations in anatomical structures, disease presentation, behavioral considerations, and treatment approaches.³

Despite the inclusion of paediatric dentistry and periodontology in undergraduate curricula, several studies have reported inconsistencies in students' confidence, diagnostic abilities, and clinical decision-making regarding periodontal conditions in children. Limited exposure to paediatric patients, insufficient hands-on training, and an emphasis on theoretical learning may contribute to these deficiencies.⁴ Several studies conducted across different regions have emphasized the importance of adequate undergraduate training in paediatric periodontal care.³⁻⁵ Research has consistently shown that gingival inflammation affects a large proportion of school-aged children, primarily due to ineffective plaque control and lack of professional preventive care. These findings highlight the responsibility of dental professionals to recognize early signs of periodontal disease and implement preventive strategies at a young age.⁶

Previous studies assessing dental students' knowledge have reported varying levels of awareness regarding periodontal diseases in children.⁷ While senior students often demonstrate improved understanding due to increased academic exposure, gaps remain in translating this knowledge into routine clinical practice.² Some investigations have indicated that undergraduate curricula tend to prioritize restorative and emergency care, resulting in relatively less emphasis on preventive periodontal assessment in paediatric patients. Furthermore, cultural perceptions that periodontal diseases are predominantly adult conditions may influence students' attitudes and practices.⁷ This misconception can lead to underdiagnosis of gingival conditions in children during routine dental visits. Therefore, evaluating undergraduate dental students' preparedness in this domain is essential for identifying educational shortcomings.

The present study aimed to assess the knowledge and clinical practices regarding periodontal health in children among undergraduate dental students and to compare these outcomes across different academic years.

METHODOLOGY

A descriptive cross-sectional study was conducted among undergraduate dental students enrolled in a dental college after obtaining the ethical approval vide # ER-ADS/19871. Students from first year to final year were included using a convenience sampling technique. Interns and postgraduate trainees were excluded from the study. Data were collected using a pre-validated, self-administered questionnaire. The questionnaire comprised three sections. The first section included demographic variables such as age, gender, and academic year. The second section assessed knowledge related to paediatric periodontal health, including etiology of gingivitis, signs and symptoms, role of plaque, importance of oral hygiene instruction, and preventive measures. The third section evaluated clinical practices, including frequency of periodontal examination in children, use of plaque indices, oral hygiene instructions, and referral practices. Each correct knowledge response was awarded one point, with a maximum possible score of 15. Knowledge scores were categorized as poor (≤ 5), fair (6–10), and good (11–15). Clinical practice scores ranged from 0 to 10 and were categorized as poor (≤ 3), fair (4–6), and good (7–10).

Data were entered and analyzed using statistical software. Descriptive statistics were calculated as frequencies and percentages. Associations between academic year and knowledge/practice levels were assessed using chi-square tests, with significance set at $p < 0.05$.

RESULTS

A total of 200 undergraduate dental students participated in the study. The majority were female (62.0%), while males accounted for 38.0%. Distribution across academic years was relatively even (Table 1)

Table 1: Demographic Characteristics of Participants (n = 200)

Variable	Frequency	Percentage (%)
Gender		
Male	76	38.0
Female	124	62.0
Academic Year		
First Year	45	22.5
Second Year	50	25.0
Third Year	52	26.0
Final Year	53	26.5

Overall, 117 students (58.5%) demonstrated good knowledge, 54 (27.0%) had fair knowledge, and 29 (14.5%) had poor knowledge. Final-year students showed the highest proportion of good knowledge (75.5%), while first-year students had the highest proportion of poor knowledge (28.9%) (Table 2).

Table 2: Knowledge Levels by Academic Year

Academic Year	Poor n (%)	Fair n (%)	Good n (%)
First Year	13 (28.9)	20 (44.4)	12 (26.7)
Second Year	8 (16.0)	17 (34.0)	25 (50.0)
Third Year	5 (9.6)	10 (19.2)	37 (71.2)
Final Year	3 (5.7)	7 (13.2)	43 (81.1)

Good clinical practices were observed in 92 students (46.0%), while 68 (34.0%) exhibited fair practices and 40 (20.0%) demonstrated poor practices. Only 48.5% of students reported routinely performing periodontal examinations in paediatric patients, and 42.0% regularly used plaque-disclosing agents (Table 3). Final-year students demonstrated significantly better clinical practices compared to preclinical students ($p < 0.05$). A statistically significant association was observed between academic level and clinical practice scores. Clinical-year students demonstrated significantly better periodontal clinical practices compared to preclinical students ($\chi^2 = 26.84$, $p = 0.001$), with a substantially higher proportion exhibiting good practice levels (Table 4).

Table 3: Clinical Practice Levels Among Participants

Practice Level	Frequency	Percentage (%)
Poor	40	20.0
Fair	68	34.0
Good	92	46.0

Table 4: Comparison of Clinical Practice Levels Between Preclinical and Clinical-Year Students

Academic Level	Poor n (%)	Fair n (%)	Good n (%)	Total (n)	p-value
Preclinical Students (1st–2nd Year)	32 (33.7)	41 (43.1)	22 (23.2)	95	
Clinical Students (3rd–Final Year)	8 (7.6)	27 (25.7)	70 (66.7)	105	0.001*
Total	40 (20.0)	68 (34.0)	92 (46.0)	200	

DISCUSSION

The present study assessed knowledge and clinical practices regarding periodontal health in children among undergraduate dental students and revealed encouraging yet improvable outcomes. More than half of the participants demonstrated good knowledge, indicating adequate theoretical understanding of paediatric periodontal concepts.

Knowledge levels improved progressively with advancement in academic year, which may be attributed to increased exposure to clinical subjects and patient care. Similar trends have been reported in previous studies, where senior dental students consistently demonstrated superior periodontal knowledge compared to junior students.⁸ Despite satisfactory knowledge levels, clinical practices were comparatively weaker. Less than half of the participants reported routinely performing comprehensive periodontal examinations in children. This discrepancy between knowledge and practice highlights a common challenge in dental education, where theoretical learning does not always translate into clinical application.⁹ The findings of the present study are consistent with previous research that reported higher knowledge scores among senior dental students compared to those in preclinical years.¹⁰ This improvement is likely attributable to increased exposure to clinical training, patient interactions, and subject-specific teaching in later academic years. Similar trends have been documented in studies conducted in dental institutions across Asia and the Middle East. However, despite satisfactory knowledge levels, the relatively lower proportion of students demonstrating good clinical practices mirrors observations from earlier studies. Research by Alsharif et al (2020)¹¹ and Fraihat et al (2019)¹² has highlighted that dental students often possess adequate theoretical understanding of periodontal diseases but fail to consistently perform periodontal examinations or apply preventive measures in paediatric patients. This knowledge and practice gap may be due to limited clinical time, lack of confidence, or insufficient supervision during paediatric dental clinics.

Comparatively, studies that incorporated structured periodontal assessment protocols and hands-on workshops reported better clinical compliance among students. This suggests that targeted educational interventions can significantly enhance practical performance. The present study reinforces the need for curriculum modifications that emphasize early clinical exposure and preventive periodontal care in children. Aligning theoretical instruction with practical application may help bridge existing gaps and ensure that future dental graduates are better equipped to manage paediatric periodontal health effectively.¹³

The limited use of plaque-disclosing agents and periodontal indices suggests insufficient emphasis on preventive periodontal care in paediatric clinical settings. Comparable findings have been reported in earlier studies, emphasizing the need for enhanced practical training and supervision during paediatric clinical sessions.¹⁴ The findings of this study underscore the importance of integrating periodontal assessment protocols into paediatric dentistry clinics. Early reinforcement of clinical skills, simulation-based learning, and competency-based assessments may help bridge the gap between knowledge and practice.

CONCLUSION

Undergraduate dental students demonstrated satisfactory knowledge regarding periodontal health in children; however, notable deficiencies were observed in clinical practices. Academic year was significantly associated with improved knowledge and practices. Strengthening clinical training,

emphasizing preventive periodontal care, and increasing early paediatric exposure are recommended to enhance students' readiness to manage periodontal health in children effectively.

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