



Evaluation of Oral Health Attitude and Behaviour among Dental Students in Chennai, India. A Cross-Sectional Study using Hiroshima University - Dental Behavioural Inventory (HU-DBI)

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ABSTRACT

Background: Oral health significantly impacts overall well-being. This study evaluates dental students' attitudes and behaviors regarding oral health.

Objectives: To assess the knowledge and practices related to oral hygiene among dental students in Chennai, India.

Methods: A cross-sectional study was conducted with a convenience sample of 200 dental students (mean age: 22.5 years) from a private dental college. Data were collected using Hiroshima University - Dental Behavioural Inventory (HU-DBI) administered via Google Forms, focusing on oral health attitudes and behaviors.

Results: While 68.5% of participants expressed concerns about their teeth worsening despite daily brushing, 60% sought dental care only when symptomatic. Misconceptions regarding oral hygiene practices, such as a preference for hard-bristled toothbrushes, were prevalent.

Conclusion: The study highlights the need for comprehensive oral hygiene education among dental students to foster preventive care and address existing misconceptions.

Keywords: Oral Health, Dental Students, HU-DBI, Attitudes, Behaviours, Hygiene Practices.

INTRODUCTION

Oral health plays a crucial role in overall health and well-being, influencing not only physical health but also quality of life, self-esteem, and social interactions. As future dental professionals, dental students' attitudes and behaviors toward oral health are of particular interest, given that these habits often reflect their future practices and influence their patient care.¹ In India, oral health issues like dental caries, gum diseases, and other preventable conditions are widespread, highlighting the need for greater awareness and proactive measures among healthcare professionals, especially those in training. The behavior and attitudes of oral health providers, particularly dentists, have a significant impact on their ability to deliver effective oral healthcare services.² Promotion methods that fail to bring about behavioral change, as seen in some developed countries, contribute to inadequate improvements in oral health practices. Poor oral hygiene maintenance is often due to a lack of knowledge or negligence. Individuals who receive and consistently apply proper oral hygiene instructions tend to show positive outcomes.³ Those who recognize the importance of personal responsibility in oral health are more likely to adopt self-care behaviors. An individual's attitude towards oral health significantly influences their self-care habits and affects their overall ability to care for their teeth⁴. Dental students are generally encouraged to

maintain a positive attitude toward their own health, which plays a critical role in shaping the oral health status of the wider community. Dental students, the dentists of tomorrow will have a dynamic role in oral health education and promotion. As future dental professionals, dental students' attitudes and behaviors toward oral health are of particular interest, given that these habits often reflect their future practices and influence their patient care.⁵ The evaluation of their oral health attitudes and practices is essential to understand how well they adhere to recommended oral hygiene standards and how prepared they are to promote these practices within the community.⁶ This cross-sectional study aims to evaluate the oral health attitudes and behaviors among dental students in a private dental college in Chennai, India.

MATERIALS AND METHODS

This study employed a cross-sectional design with a descriptive research approach to assess oral health attitudes and behaviors among dental students in Chennai. Conducted over three months, from August to October 2024, the research encompassed data collection and report preparation phases. The participants were dental students from a private dental college, with the Department of Public Health Dentistry providing necessary approvals and ethical clearance granted by the Institutional Review Board [NO: 508/2024/IEC/TMDCH]. A convenience sample of 200 students was selected, and demographic details were



recorded. A 20-question survey [Hiroshima University - Dental Behavioural Inventory] was administered via Google Forms, with informed consent obtained to ensure participant privacy and confidentiality. Participants were briefed on the survey questions to encourage accuracy and thoughtful responses. The collected data was organized in an Excel spreadsheet and analyzed using IBM SPSS Statistics for Windows, Version 26.0. Percentage Analysis was done to find out the percentage of each response for very question.

Table 1: Results [% Analysis for Each Question Hiroshima University - Dental Behavioural Inventory]

Question	Option	n	%
I don't worry much about visiting the dentist	Agree	137	68.5
	Disagree	63	31.5
My gums tend to bleed when I brush my teeth	Agree	60	30
	Disagree	140	70
I worry about the colour of my teeth	Agree	120	60
	Disagree	80	40
I have noticed some white sticky deposits on my teeth	Agree	101	50.5
	Disagree	99	49.5
I can use a child sized toothbrush	Agree	20	10
	Disagree	180	90
I think that I cannot help having false teeth when I be old	Agree	87	43.5
	Disagree	113	56.5
I am bothered by the colour of my gums	Agree	86	43
	Disagree	114	57
I think my teeth are getting worse despite my daily brushing	Agree	63	31.5
	Disagree	137	68.5
I brush each of my teeth carefully	Agree	142	71
	Disagree	58	29
I have never been taught professionally how to brush	Agree	68	34
	Disagree	132	66
I think I can clean my teeth well without using toothpaste	Agree	48	24
	Disagree	152	76
I often check my teeth in a mirror after brushing	Agree	154	77
	Disagree	46	23
I worry about having bad breath	Agree	109	54.5
	Disagree	91	45.5
It is impossible to prevent gum disease with tooth brushing alone	Agree	119	59.5
	Disagree	81	40.5
I put off going to the dentist until I have a toothache	Agree	119	60.7
	Disagree	77	39.3
I have used a dye to see how clean my teeth are	Agree	42	21
	Disagree	158	79
I use a toothbrush which has hard bristles	Agree	60	30
	Disagree	140	70
I don't feel I've brushed well unless I brush with strong strokes	Agree	85	42.5
	Disagree	115	57.5
I feel I sometimes take too much time to brush my teeth	Agree	88	44.2
	Disagree	111	55.8
I have had my dentist tell me that I brush very well	Agree	120	60
	Disagree	80	40

RESULTS

In a study of 200 dental students with a mean age of 22.5 years, participants ranged from 18 to 28 years old, with 78.5% being female and 21.5% male. The sample included 28.5% interns, 17.5% first-year students, and approximately 18% in each of the remaining years. A significant 68.5% did not worry much about dentist visits, yet 68.5% expressed concerns about their teeth worsening despite daily brushing. Oral health habits revealed that 30% experienced gum bleeding while brushing, 60% were conscious of tooth color, and 50.5% noticed white deposits on their teeth. Interestingly, 90% avoided using a child's toothbrush, while 56.5% foresaw needing false teeth as they aged, and 57% were concerned about gum color. In brushing habits, 71% brushed carefully, though 66% had not received professional brushing guidance, 76% believed they could brush effectively without toothpaste, and 77% inspected their teeth post-brushing. Oral health concerns showed that 54.5% worried about bad breath, 59.5% thought brushing alone could not prevent gum disease, and 60% delayed dental visits until they were in pain. Additionally, 79% had never used dye to check for plaque. For brushing techniques, 30% preferred hard-bristled brushes, 42.5% felt unsatisfied without strong strokes, and 44.2% admitted to brushing for extended periods. Feedback from dentists indicated that 60% were told they brushed well.

DISCUSSION

Our study provides a comprehensive overview of oral health perceptions, habits, and concerns among a sample of dental students. It highlights key areas where awareness and behavior are aligned with good oral health practices and areas where there is room for improvement, even among future dental professionals. Our study reveals that while dental students possess a basic awareness of oral health, they often lack certain proactive behaviors, such as using dyes to check oral cleanliness. This differs from findings in the Hiroshima University-Dental Behavioral Inventory (HU-DBI) study, where students demonstrated a higher level of engagement in such practices, indicating that the students in our study may benefit from adopting similar proactive assessment tools to improve self-awareness of oral hygiene status.⁷ The research by Rouijel & Sakout et al. shows that more advanced students tend to adopt proactive oral health behaviors compared to preclinical students, aligning with our findings that show interns generally exhibit more consistent and positive oral health habits.⁸ This pattern, also echoed in the studies by Al-wesabi et al. and Kumar et al., suggests that dental education plays a significant role in enhancing students' oral health knowledge and behaviors.^{9,10} Our study similarly reflects a positive trend among interns, suggesting that as students progress, they become more aware of oral health maintenance, though gaps in certain areas, such as professional guidance on brushing, remain. In contrast, the study by Louise Brearley et al. reports that dental students have well-established and favorable oral hygiene attitudes and behaviors that develop within dental school.¹¹



While our study demonstrates some favorable attitudes, it also highlights misconceptions and inconsistent practices, such as the use of hard-bristled brushes and lack of professional brushing guidance, suggesting that the positive effects of dental education may vary and need reinforcement in specific areas. The study comparing Chinese and British students, as reported by Jananni Muthu et al., highlights interesting cultural differences that resonate with our findings. Similar to Chinese students, a notable portion of students in our study anticipate wearing dentures in old age (56.5%), which may reflect underlying doubts about long-term oral health maintenance. Additionally, 68.5% of our participants, like the Chinese students, seek dental care only when symptoms arise, indicating a symptomatic rather than preventive approach to dental care. The focus on cosmetic concerns, such as teeth and gum appearance, is also prevalent in our participants, with 60% concerned about tooth color and 57% about gum color, paralleling the Chinese students' concerns.¹² Gender differences in oral health practices observed by Jananni Muthu et al. also appear in our study, though indirectly. While we did not specifically assess gender-based preferences in toothbrush type, a substantial portion (30%) of our participants, like the male students in Muthu's study, favored hard-bristled toothbrushes, often associated with strong brushing preferences (42.5%).¹³ Concerns about bad breath were also prevalent (54.5%), consistent with findings that male students worry more about halitosis. Overall, while our study aligns with other research in recognizing the generally positive impact of dental education, it also highlights unique regional and demographic factors, such as cosmetic concerns and symptomatic care-seeking behavior, that persist among students.^{14,15}

CONCLUSION

In Conclusion, the study indicates that while dental students are more engaged in oral health practices than the general population, misconceptions persist. There is a need to reinforce comprehensive oral hygiene education that translates into personal habits. Addressing these gaps can better equip future dentists not only to model optimal oral hygiene for their patients but also to emphasize preventive care and accurate knowledge in their future practices. Aspiring dentists can shape the oral health behaviors of their loved ones and social circles. It's imperative to instill a positive oral health outlook early on. By examining diverse cultural contexts, we can identify potential differences in economic conditions, dental care accessibility, and attitudes towards oral health.

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REFERENCES

1. Neamatollahi H, Ebrahimi M, Talebi M, Ardabili MH, Kondori K. Major differences in oral health knowledge and behavior in a group of Iranian pre-university students: A cross-sectional study. *J Oral Sci.* 2011;53(2):177–84. doi: 10.2334/josnurd.53.177.
2. Baseer MA, Rahman G. Oral health attitudes and behaviour among a group of female Saudi dental students. *Saudi J Oral Sci.* 2014;1(1):25–9.
3. Seenivasan M, Kumar KJ, Uma MM, Parthasarathy N, Shanmuganathan N, Anand KV. To evaluate self-reported oral health attitudes, behavior and to compare the oral health attitudes among students of different years of a dental school in South India. *Biomed Pharmacol J.* 2018;11(3). doi: 10.13005/BPJ/1534.
4. Dagli RJ, Tadakamadla SK, Dhanni C, Duraiswamy P, Kulkarni S. Self-reported dental health attitude and behavior of dental students in India. *J Oral Sci.* 2008;50(3):267–72. doi: 10.2334/JOSNUSD.50.267.
5. Shah AF, Naik CN, Dany SS, Satpathy AK, Rajput P, Jan SM. Oral hygiene attitude and behavior of dental students in a government college, India. *J Contemp Dent Pract.* 2017;18(3):221–6. doi: 10.5005/JP-JOURNALS-10052-0121.
6. Bakir B, Karaca M. Evaluation of oral health behavior, knowledge, and attitude among dental and nursing preclinical students. *Turk J Health Sci Life.* 2024; doi: 10.56150/tjhsl.1440953.
7. Vangipuram S, Rekha R, Radha G, Pallavi SK. Assessment of oral health attitudes and behavior among undergraduate dental students using Hiroshima University Dental Behavioral Inventory (HUBI). *J Indian Assoc Public Health Dent.* 2015;13(2):154–9. doi: 10.4103/2319-5932.153587.
8. Rouijel S, Sakout M. Knowledge, attitudes, and behaviors regarding oral hygiene among dental students. *Am J Educ Res.* 2023;11(1):3–7. doi: 10.12691/education-11-1-3.
9. Al-Wesabi AA, Abdelgawad F, Sasahara H, El Motayam K. Oral health knowledge, attitude, and behaviour of dental students in a private university. *J Oral Sci.* 2019;61(2):201–6. doi: 10.1038/S41405-019-0024-X.
10. Kumar SM, Jeyapalan K, Mani UM, Natarajan P, Natarajan S, Kumar VA. To evaluate self-reported oral health attitudes, behavior, and to compare the oral health attitudes among students of different years of a dental school in South India. *Biomed Pharmacol J.* 2018;11(3):1579–84.
11. Messer LB, Calache H. Oral health attitudes and behaviours of final-year dental students. *Eur J Dent Educ.* 2012;16(1):7–13. doi: 10.1111/j.1600-0579.2012.00738.x.



12. Muthu J, Priyadarshini G, Muthanandam S, Ravichandran S, Balu P. Evaluation of oral health attitude and behavior among a group of dental students in Puducherry, India: A preliminary cross-sectional study. *J Indian Soc Periodontol.* 2015;19(6):683–6. doi: 10.4103/0972-124X.164744.
13. Komabayashi T, Kwan S, Hu DY, Kajiwara K, Sasahara H, Kawamura M. A comparative study of oral health attitude and behavior using Hiroshima University-Dental Behavioral Inventory (HU-DBI) between dental students in Britain and China. *J Oral Sci.* 2005;47(1):1–7. doi: 10.2334/josnurd.47.1.
14. Kawamura M, Yip HK, Hu DY, Kobayashi T. A cross-cultural comparison of oral attitudes and behavior among freshman dental students in Japan, Hong Kong, and West China. *Int Dent J.* 2001;51(3):159–63.
15. Ahamed SM, Moyin S, Punathil S, Patil NA, Kale VT, Pawar G. Evaluation of the oral health knowledge, attitude, and behavior of the preclinical and clinical dental students. *J Int Oral Health.* 2015;7(6):65–70. PMID: PMC4479777.

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