



## Evaluation of Oral Health Care Practice and Awareness Among Health Care Students Towards Patients in Lucknow

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### KEYWORDS

Oral health, healthcare education, interdisciplinary collaboration, awareness, barriers, integration.

### ABSTRACT:

**Introduction:** The integration of oral health into healthcare education and practice is crucial for comprehensive patient care and promoting overall health and well-being. However, there are often disparities in oral health awareness and education among students across different healthcare courses.

**Objectives:** To assess oral health awareness, beliefs, and barriers among students in BDS, MBBS, and nursing programs, and to identify disparities in oral health education across these healthcare courses. The study aims to provide insights for enhancing oral health integration in healthcare education.

**Method:** A questionnaire-based study was conducted to assess oral health awareness, beliefs, and barriers among students enrolled in BDS, MBBS, and nursing programs. The survey collected demographic data along with responses on oral health knowledge and perceptions. Quantitative data were analyzed using descriptive statistics and chi-squared tests to explore differences among the groups. This method aimed to identify disparities in oral health education across healthcare courses.

**Results:** The study surveyed students from MBBS (41.4%), Nursing (32.8%), and BDS (25.8%) courses, with a majority aged 20-25 and a balanced gender distribution (47.6% male, 52.4% female). Findings reveal that BDS students show the highest awareness (95.7%) of the link between oral and overall health, significantly higher than MBBS and Nursing students ( $p < 0.001$ ). BDS students also demonstrate deeper understanding of oral health's connection to systemic diseases like diabetes (89.7%) and heart disease (79.5%). They are more proactive in updating knowledge, referring patients, and advocating for interdisciplinary collaboration. These differences highlight the importance of targeted oral health education across medical disciplines.

**Conclusion:** Enhancing oral health integration within healthcare education and practice is essential for improving patient care and promoting overall health. Recommendations include curriculum enhancements, promoting interdisciplinary collaboration, and advocating for policy changes to support oral health initiatives.



## 1. Introduction

A healthy mouth is like a valuable treasure that we all should have. [1] It is a well-known fact that oral health issues are closely linked to other health problems in the body, such as diabetes, digestive issues, stroke, heart diseases, and more. [2-5] A good oral health means having a mouth free from problems, which not only aids in facial aesthetics but also helps our oral cavity function the correct way. [6] On the flip side, existing health problems in the body can also lead to oral issues. [7-8]. But despite how important oral health is for overall well-being, people often don't pay enough attention to their oral health. [9-10]. In recent years, the healthcare landscape has increasingly recognized the undeniable connection between oral health and general health. Health professionals are often viewed as role models for maintaining good health practices, including oral care. Nurses, bridge the gap between patients and doctors, providing routine care, including oral hygiene and dietary needs. Hence, it's vital for healthcare professionals, including nursing students, to grasp basic oral care principles. In India, recognizing oral care's importance in nursing practice can enhance patient outcomes and student professionalism. Medical and nursing students, frequently interacting with underserved populations, play a key role in promoting oral health awareness [11]. Their understanding ensures timely education and referrals to dental professionals. This comprehensive approach benefits overall health outcomes. Recognizing the link between oral and general health, the present study assessed oral hygiene practices and awareness among medical, dental, and nursing students, highlighting the importance of integrating oral health education into medical and nursing curricula. Hence, this study aimed to assess the oral hygiene practices and awareness among medical, dental and nursing students.

**2. Objectives:** The primary objective of this study was to assess and compare the knowledge, awareness, and practices regarding oral health among students from three different healthcare courses: MBBS, BDS, and Nursing. The study aimed to evaluate disparities in oral health education and understanding across these disciplines, specifically focusing on the link between oral health and overall systemic health

conditions such as diabetes, heart disease, stroke, and digestive issues. Additionally, the research sought to identify barriers to oral health awareness and practice, including the frequency of knowledge updating, referral practices to dental professionals, and the belief in the significance of interdisciplinary collaboration in promoting comprehensive patient care. By highlighting these disparities, the study aimed to emphasize the need for integrating oral health education more effectively into medical and nursing curricula, advocating for policy changes, and promoting continuous learning and interdisciplinary collaboration to improve overall healthcare outcomes.

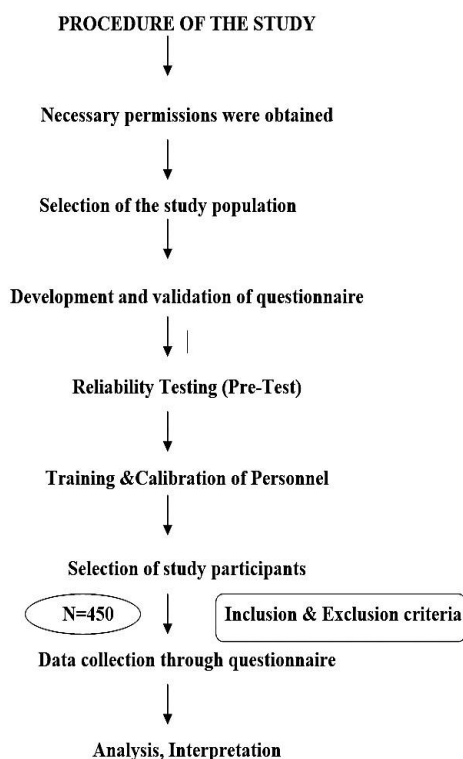
## 3. Material and Methods

A cross-sectional questionnaire study was carried out after obtaining approval from the institutional review board and permission from the ethics committee. It aimed to assess the knowledge, awareness, and practices about oral health among MBBS students, Dental Interns, and final-year Nursing students in Lucknow, Uttar Pradesh. The questionnaire was consisted of 13 questions and had four sections: Section A consisted of questions describing the sociodemographic characteristics of the respondents; Section B contained information on dental knowledge about dentistry; Section C evaluated respondent's attitudes about dental specialties and insight into dentistry; Section D evaluated the referral practices of the respondents. The pilot study on 30 subjects revealed a strong questionnaire tool for the research, with an Intra-Class Correlation Coefficient (ICCI) of 81, indicating strong validation, and a Cronbach's alpha of 0.8, signifying high reliability.

Participants included willing students who comprehended the questionnaire. The study sought to determine if students recognize the importance of oral health and if their educational curriculum sufficiently addresses it. Participants were queried on various aspects, including their understanding of the link between oral and overall health and their attitudes towards oral health education. Additionally, the survey explored whether students received training on providing basic oral care and if their coursework included oral health components. Insights were also gathered on referral practices to dental professionals



and the frequency of patient inquiries about oral health. The procedure of the study is shown in **FIGURE 1:**



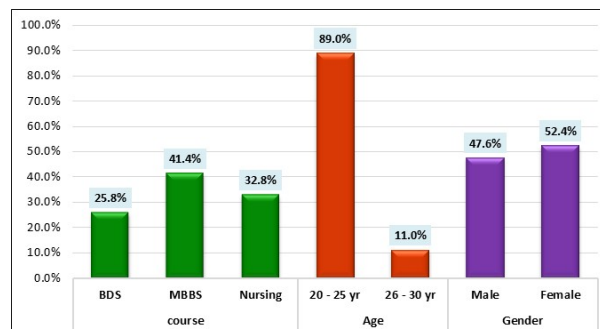
Minimum Sample size for the study was calculated to be 384 with 95% confidence interval and 5% absolute precision, whereas we included 450 subjects using convenient sampling.

The statistical analysis was done applying the Chi-square test. For the test, the confidence interval and the p value were set at 95% and  $\leq 0.05$ , respectively.

**4. RESULTS**

The study included participants from diverse courses, with 41.4% in MBBS, 32.8% in Nursing, and 25.8% in BDS. Most participants (89.0%) are in the age range of 20-25, while 47.6% are male and 52.4% female, ensuring a balanced gender distribution for comprehensive analysis of outcomes

**FIGURE 2:**



The survey findings highlight varying levels of awareness among different student groups regarding the connection between oral health and overall well-being. Regarding this, BDS students demonstrate a strikingly high awareness rate, with 95.7% acknowledging this link, while only 2.6% expressed a lack of awareness, and 1.7% were uncertain. This is significantly higher than the same of other courses [TABLE 1].

The significant chi-square value and the very low p-value ( $p < 0.001$ ) emphasize that the type of medical course pursued does have a substantial impact on individuals' awareness of the association between oral health and overall health.

Among BDS students, there is a noteworthy depth of understanding of various systemic health conditions intertwined with poor oral health. A notable 89.7% of participants exhibit awareness of the link between diabetes and oral health, exhibiting a strong understanding. Knowledge about the link to heart disease is high at 79.5%, while awareness decreases for stroke (45.3%) and digestive issues (53.0%). However, MBBS and nursing students generally display lower awareness levels across these health associations, with MBBS at 33.0% for diabetes, 45.7% for heart disease, 20.7% for stroke, and 38.3% for digestive issues, and nursing at 26.2%, 22.8%, 14.1%, and 53.7%, respectively. [TABLE 2]

**Table – 1: Association of Course with Awareness about connection between oral health and overall health**

Variable	BDS		MBBS		Nursing	
	No.	%	No.	%	No.	%
Yes	112	95.7%	126	67.0%	101	67.8%



Aware of connection between oral health and overall health	No	3	2.6%	47	25.0%	22	14.8%
	Not Sure	2	1.7%	15	8.0%	26	17.4%
	Significance	chi sq=50.32, <b>p&lt;0.001</b>					

**Table-2: Association of Course with Knowledge on common systemic health conditions associated with poor oral health**

Knowledge on common systemic health conditions associated with poor oral health	BDS		MBBS		Nursing		Significance
	No.	%	No.	%	No.	%	
Diabetes	105	89.7%	62	33.0%	39	26.2%	chi sq=126.7, <b>p&lt;0.001</b>
Heart Disease	93	79.5%	86	45.7%	34	22.8%	chi sq=84.7, <b>p&lt;0.001</b>
Stroke	53	45.3%	39	20.7%	21	14.1%	chi sq=37.1, <b>p&lt;0.001</b>
Digestive issues	62	53.0%	72	38.3%	80	53.7%	chi sq=10.1, <b>p=0.006</b>

**Table - 3: Association of Course with Knowledge Update & Training related to Oral Health**

Knowledge Update & Training related to Oral Health		BDS		MBBS		Nursing	
		No.	%	No.	%	No.	%
Update knowledge regarding oral health and impact on overall health	Frequently	76	65.0%	32	17.0%	36	24.2%
	Occasionally	34	29.1%	100	53.2%	69	46.3%
	Rarely	6	5.1%	45	23.9%	44	29.5%
	Never	1	.9%	11	5.9%	0	0.0%
	Significance	chi sq=98.5, <b>p&lt;0.001</b>					

**Table- 4: Perspectives on Oral Health Integration, Refer and Interdisciplinary Collaboration**

Knowledge & Awareness related to Oral Health		BDS		MBBS		Nursing	
		No.	%	No.	%	No.	%
Believe that oral health is integral part of overall healthcare	Strongly agree	92	78.6%	81	43.1%	39	26.2%
	Agree	22	18.8%	55	29.3%	82	55.0%
	Neutral	3	2.6%	26	13.8%	24	16.1%
	Disagree	0	0.0%	22	11.7%	4	2.7%



	Strongly disagree	0	0.0%	4	2.1%	0	0.0%
	Significance	chi sq=105.2, <b>p&lt;0.001</b>					
Think oral health education is important for healthcare professionals	Very important	97	82.9%	58	30.9%	62	41.6%
	Important	19	16.2%	106	56.4%	66	44.3%
	Somewhat important	1	.9%	20	10.6%	20	13.4%
	Not important	0	0.0%	4	2.1%	1	.7%
	Significance	chi sq=86.3, <b>p&lt;0.001</b>					
In current practice, routinely refer patients to dental professionals	Always	93	79.5%	62	33.0%	44	29.5%
	Often	22	18.8%	86	45.7%	72	48.3%
	Rarely	2	1.7%	36	19.1%	33	22.1%
	Never	0	0.0%	4	2.1%	0	0.0%
	Significance	chi sq=89.0, <b>p&lt;0.001</b>					
Think there should be more interdisciplinary collaboration	Strongly agree	81	69.2%	41	21.8%	42	28.2%
	Agree	33	28.2%	103	54.8%	73	49.0%
	Neutral	1	.9%	43	22.9%	32	21.5%
	Disagree	2	1.7%	0	0.0%	2	1.3%
	Strongly disagree	0	0.0%	1	.5%	0	0.0%
	Significance	chi sq=88.5, <b>p&lt;0.001</b>					

Table –5: Patient Inquiries Regarding Oral Health

Knowledge & Awareness of Patient related to Oral Health	BDS		MBBS		Nursing		
	No.	%	No.	%	No.	%	
Patients ask questions related to oral health	Frequently	79	67.5%	35	18.6%	37	24.8%
	Occasionally	37	31.6%	112	59.6%	76	51.0%
	Rarely	1	.9%	29	15.4%	33	22.1%
	Never	0	0.0%	12	6.4%	3	2.0%
	Significance	chi sq=100.0, <b>p&lt;0.001</b>					

A substantial 65.0% of BDS students frequently update their knowledge about oral health's impact on overall health. In contrast, only 17.0% of MBBS students frequently update their knowledge, with 53.2% doing so occasionally. Among nursing

students, 24.2% update their knowledge frequently, and 46.3% do so occasionally [TABLE 3].

BDS students exhibit the highest belief in oral health's significance, with 78.6% strongly agreeing and 18.8%



agreeing, while MBBS and nursing students show comparatively lower rates. Similarly, BDS students place greater emphasis on oral health education for healthcare professionals, with 82.9% considering it very important, contrasting sharply with MBBS and nursing students. Moreover, BDS students are more proactive in referring patients to dental professionals, showing a significantly higher rate of always referring compared to MBBS and nursing counterparts. Interestingly, BDS students also express stronger advocacy for interdisciplinary collaboration, with a substantial 69.2% strongly agreeing, whereas MBBS and nursing students show lower rates [TABLE 4].

BDS students lead in patient inquiries on oral health, with 67.5% reporting frequent questions and 31.6% occasional ones. In contrast, MBBS students experience fewer inquiries, with only 18.6% reporting frequent and 59.6% occasional questions. Nursing students fall in between, with 24.8% citing frequent and 51.0% occasional inquiries [TABLE 5].

The survey results indicate that the majority of respondents routinely refer patients to dental professionals. Specifically, 43.8% of respondents reported that they "always" make such referrals, while 39.6% indicated that they "often" do so. A smaller percentage of respondents, 15.6%, stated that they "rarely" refer patients to dental professionals, and only 0.9% reported that they "never" make these referrals. This data suggests a strong tendency among the respondents to frequently engage with dental professionals for patient referrals.

## 5. DISCUSSION

The discussion section of this study delves into the nuanced perspectives and experiences of students across various healthcare courses concerning their awareness, education, and practice relating to oral health. These insights illuminate crucial facets of oral health integration within healthcare education and practice, ranging from awareness levels to beliefs, barriers, and the imperative of interdisciplinary collaboration.

Primarily, the research elucidates substantial disparities in oral health awareness among students pursuing distinct healthcare pathways. Notably, BDS students, immersed in a curriculum

specifically tailored to oral health, exhibit significantly higher levels of awareness compared to their counterparts in MBBS and nursing programs. Such discrepancies underscore a critical gap in oral health education within broader medical and nursing curricula, emphasizing the urgent need for comprehensive integration of oral health concepts to equip future healthcare professionals adequately.

These results highlight the varying levels of awareness and beliefs regarding oral health's significance among students pursuing different healthcare courses. BDS students, with a specific focus on oral health, demonstrate the highest levels of awareness and emphasize the importance of oral health in overall healthcare. In contrast, MBBS and nursing students could benefit from increased exposure to oral health education and interdisciplinary collaboration to enhance their knowledge and practice in this area. In this study, we observed a significant difference in mean knowledge among dental, medical, and nursing students. Dental students demonstrated higher oral awareness and practices compared to their medical and nursing counterparts. This aligns with findings from Yao et al., [12] supporting the notion that dental students generally possess superior knowledge.

Additionally, our results parallel the research conducted by Harish Kumar et al. and Sharma et al., [13] reinforcing the consistent trend of heightened oral health awareness and practices among dental students in comparison to medical and nursing students.

In the present study, the scores of knowledge's, attitude, and practice of dental students was compared with that of the medical students and nursing students, and it was noted that the mean knowledge score was significantly higher among dental students than medical students and nursing students, which is in agreement with the results of similar study by Rong WS et al., Al-Batayneh et al., Saran et al., and Al Kawas et al. [14- 18]

Moreover, the study accentuates the paramount importance of continuous education and training in oral health for healthcare practitioners. It reveals a notable discrepancy in the frequency of knowledge updating, with BDS students demonstrating a more proactive approach compared to MBBS and nursing



cohorts. This underscores the necessity of fostering a culture of lifelong learning within healthcare settings to ensure practitioners remain abreast of evolving oral health paradigms and best practices.

Furthermore, the research underscores variances in beliefs regarding the significance of oral health within the broader healthcare landscape among students from distinct courses. While a substantial proportion of BDS students firmly espouse the integration of oral health into overall healthcare, a smaller contingent of MBBS and nursing students share this conviction. This underscores the imperative of instilling a holistic understanding of oral health's systemic implications within medical and nursing education to cultivate a unified approach to patient care.

Additionally, the findings underscore the pivotal role of interdisciplinary collaboration in addressing oral health challenges within healthcare systems. BDS students exhibit a more robust belief in the necessity of interdisciplinary teamwork compared to their peers in MBBS and nursing programs. This underscores the critical need for fostering collaborative relationships between dental professionals and other healthcare providers to ensure comprehensive patient care and optimize oral health outcomes.

Moreover, the study sheds light on key barriers hindering the effective integration of oral health into clinical practice, notably including perceived time constraints and limited training opportunities. Addressing these barriers necessitates targeted interventions, such as curriculum enhancements and professional development initiatives, to equip healthcare professionals with the requisite knowledge and skills to prioritize oral health within patient care.

The significant associations between course type and knowledge levels for each systemic health condition underscore the importance of tailored educational interventions to bolster awareness across all student cohorts. These findings emphasize the role of education and training, particularly for MBBS students, in enhancing their awareness of the systemic health conditions linked to poor oral health. Increased knowledge in this area can lead to more comprehensive patient

care and a greater emphasis on the critical connection between oral health and overall health in medical practice.

The data reveals divergent perspectives among students from different healthcare disciplines regarding the integration of oral health into overall healthcare and the importance of interdisciplinary collaboration.

## 6. CONCLUSION

In conclusion, this study underscores the critical importance of integrating oral health education within healthcare curricula to address significant disparities in awareness regarding importance of oral health among students from various courses. It emphasizes the necessity of continuous education, interdisciplinary collaboration, and strategies to overcome barriers hindering effective oral health integration. By implementing recommendations such as curriculum enhancements and promoting interdisciplinary collaboration, healthcare systems can advance patient care and promote overall health and well-being through comprehensive oral health integration.

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