International Journal of Community Medicine and Public Health
Vanga A et al. Int J Community Med Public Health. 2024 Jul;11(7):2667-2671
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20241821

Original Research Article

Assessment of oral health knowledge among the medical graduates of private and government colleges: a cross-sectional survey

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Received: 20 April 2024
Revised: 18 May 2024
Accepted: 20 May 2024

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ABSTRACT

Background: General health and oral health are interconnected, with oral health being a fundamental component. It is critical for life long human well-being. Oral health issues pose a significant concern for public health. Medical students should also have better knowledge of oral hygiene so that they can provide oral health education and guidance to their patients when requested. Many people seek medical care from their primary care provider for oral health problems. Therefore, doctors must have sufficient knowledge about oral health and play an important role in promoting oral health. This study aimed to assess the oral health knowledge of medical graduates from private and government colleges in Nellore, India.
Methods: A Cross-sectional study using a pre-designed survey consisting of 25 questions with Likert scale options. The study included medical graduates from all private and government colleges. Questions about oral health issues and their relationship to overall health. Data was collected, compiled, and analyzed using the chi-square test.
Results: Compared to government medical college students, 83.8% of private college students believe that dental caries and periodontal diseases are plaque-mediated diseases. 90.3% of government medical college students agree with the statement "tobacco is only the risk factor for oral cancer" compared to private college students.
Conclusions: Medical students lack awareness of oral health issues. Frequently, oral health concerns are neglected as they focus on classroom dynamics and students' behavior.

Keywords: Dental caries, Knowledge, Medical students, Oral health

INTRODUCTION

Oral health is an important part of an individual's overall health and well-being and has an impact on a person's cognitive ability and oral health. Neglecting oral care can lead to pain and inflammation, which can affect a person's quality of life.[1,2] This can affect a person's most basic needs, including the ability to eat, swallow, eat healthily, laugh, and communicate. Maintaining good oral health is widely acknowledged as a significant factor contributing to overall well-being. Oral health knowledge is required to monitor oral health.[3]

About 68.84% of the population accounts for only 10% of the human capital in rural areas, while the opposite is true in urban areas.[4] The dentist/population ratio is 1:10,000 in the province and 1:250,000 in the districts.[5] Treatment for most of the population in rural areas is provided by primary health centers, where most doctors are physicians. All healthcare professionals can promote oral health by promoting appropriate oral health knowledge, demonstrating oral health behaviors, encouraging appropriate visits to the dentist, and openly participating in oral activities appropriate to their role.

The dental knowledge of qualified doctors differs from that of the public. Even though they are qualified in the medical faculty by their knowledge of dental diseases, the relationship of oral health with systemic diseases and life-threatening dental diseases is limited or insufficient to the demand. Understanding oral diseases is crucial in medical practice for the following reasons (a) periodontal diseases are correlated with multiple systemic conditions. (b) Oral manifestations are common in various significant systemic diseases. (c) Many drugs are associated with oral adverse drug reactions and (d) most of the population approach medical practitioners about their oral health problems.[6] Given their role as primary health care providers for most patients, medical professionals are anticipated to contribute to the promotion of oral health. Therefore, medical students are expected to master optimal oral health knowledge to provide patients with necessary oral health instruction when needed.[7]

Hence, the main objective of the present study seeks to assess the oral health knowledge among the medical graduates of private and government colleges in Nellore City.

METHODS

A cross-sectional study was conducted through a questionnaire (Google Forms) among all the medical undergraduates of private and government colleges in Nellore City. The sample size of 1600 is estimated according to the seat allocation per year in both the government and private medical colleges.

The survey used a self-structured and pre-tested questionnaire. All the questions were closed-ended, and options were rated on a Likert scale. To check understanding, a pilot survey was conducted with 25 medical students. This study commenced in October 2023 and concluded in January 2024. The survey consists of 24 questions divided into 3 sections. The first section contains a consent form that specifies the purpose of the study, the necessity, and the willingness to participate in the research.

All undergraduate students who agreed to participate in the study and those who refused to participate were excluded from the study. The latter includes demographic information such as age, gender, college, and years of education. The third part contains 20 questions to assess students' oral health knowledge.

Collect, record, and analyze data using the chi-square test. All online responses were entered into an electronic database and analyzed using SPSS-27 (IRMI Inc, Armonk, NY, USA). When looking at a question in a survey, responses that agree are scored as "1", responses that disagree are scored as "2", and responses that neither agree nor disagree are scored as "3". Calculate the mean, standard deviation, and percentage of a frequency distribution.

RESULTS

The cross-sectional studies were conducted to assess the oral health knowledge of medical undergraduate students in private and government colleges in Nellore city. The total number of students who participated in our research was 1,568. Out of which 1,525 students' participants were willing to participate and complete the online survey. The demographic details are shown in table 1.

Table 1: Shows the demographic data of both the private and government colleges.

		Private college (%)		Government college (%)	
Age in yrs.		**Male**	**Female**	**Male**	**Female**
	18-22	24.16	25.90	18.58	19.35
	23-26	26.04	23.89	28.84	33.20
Year of study	First	48.61	51.38	48.07	51.92
	Second	48.70	51.29	50.00	50.00
	Third	50.00	50.00	53.33	46.66
	Final	53.84	46.15	48.38	51.61
	CRRI	50.56	49.43	39.10	60.89

Details of the student population of private and government medical undergraduate students are given, with male students aged 23-26 years from private medical college (26.04%) and female students (33.20%) from government medical college actively participated in the study. The most participants were final year male students (53.84%) from private colleges and CRRI female students (60.89%) from Government Colleges played an active participation (Table 1).

Table 2: Participant's answers to the oral health knowledge.

Questions	Private college students (%)		Government college students (%)	
	Agree	**Disagree**	**Agree**	**Disagree**
Q1. Oral health is an integral part of general health	100	0	100	0
Q2. Oral health influences the overall quality of life	61.4	38.5	48.0	51.9
Q3. Oral diseases imply certain systemic diseases/conditions like cardiovascular diseases, pregnancy, low birth weight babies, etc.	62.4	37.5	48.0	51.9
Q4. Health education has an important role to play in creating awareness about oral health among the public	44.2	55.7	71.1	28.8

Continued.

Questions	Private college students (%)		Government college students (%)	
	Agree	Disagree	Agree	Disagree
Q5. Proper maintenance of deciduous dentition is as important as the permanent dentition	58.7	41.2	48.0	51.9
Q6. Saliva can be used in the diagnosis of oral as well as certain systemic diseases	34.8	65.1	68.8	31.1
Q7. Frequent consumption of sugar-containing food is more detrimental to the quantity of sugar consumed.	35.5	64.4	80.7	19.2
Q8. Dental caries is a complex disease but can be prevented by adopting healthy oral health behaviors	56.0	53.9	50.3	49.6
Q9. Microorganisms that cause dental caries are transmitted mainly from the mother to the child.	52.7	47.2	63.7	37.5
Q10. Dental caries and periodontal disease are plaque-mediated diseases	83.8	16.1	61.5	38.4
Q11. Proper brushing of teeth and flossing will enable to prevent both dental caries and gingival diseases	46.0	53.9	68.8	31.1
Q12. Fluorides have a protective role against dental caries	46.0	53.9	61.7	38.0
Q13. Tobacco is the only risk factor for oral cancer	52.7	47.2	90.3	9.6
Q14. All precancerous lesions of the oral cavity invariably lead to oral cancer even if the predisposing factors are removed.	46.0	53.9	90.3	9.6
Q15. Para-functional habits like thumb sucking, lip biting, lip sucking, and nail-biting are very common among children. These habits need to be curbed as they affect oro-facial structures.	46.0	53.9	90.3	9.6
Q16. Alignment of teeth is done both for functional as well as aesthetic purposes	30.8	69.1	72.8	27.1
Q17. Loss of teeth during old age is a natural phenomenon. Neither the dentist nor the patient can prevent tooth loss	21.4	78.5	59.6	40.3
Q18. Artificial teeth can perfectly replace the function of natural teeth. Hence, too much care for natural teeth is unwanted	21.4	78.5	62.5	37.4
Q19. Soft drinks can cause erosion of dental enamel which is the hardest tissue in the human body.	24.1	78.5	61.7	38.2
Q20. Mouth guards are useful in preventing sport-related injuries/ trauma.	39.5	60.5	60.1	39.8

Table 2 shows the oral health knowledge distribution of the participants. Most participants (both private and medical college students) had some knowledge about oral health and agreed that oral health is an integral part of general health. Among the participants, approximately 71.1% of government college medical students believed that health education can play an important role in improving public health oral health knowledge compared to students in private medical college students.

Compared to government medical college students, 83.8% of private college students believe that dental caries and periodontal diseases are plaque-mediated diseases. 90.3% of government medical college students agree with the statement "tobacco is only the risk factor for oral cancer" compared to private college students. About 78.5% of private medical college students disagree that loss of teeth during old age is a natural phenomenon. Neither the dentist nor the patient can prevent tooth loss. Dentists and patients can't prevent tooth decay, according to government medical college students.

DISCUSSION

A cross-sectional study was undertaken to evaluate the oral health knowledge among both private and government medical undergraduate students. As future healthcare professionals, medical students are expected to possess accurate knowledge of oral health. Out of the 1,568 participants, 1,525 actively participated in the study. The findings indicated that medical students from both private and government colleges exhibited poor knowledge regarding oral health, aligning with previous research by Baseer et al which highlighted the lack of oral health knowledge among doctors and health professionals.[8] Potential reasons for this deficiency include the focus on classroom activities and student behavior, which may divert attention from oral health issues. Recognizing the significance of oral health, it's crucial to address these issues.

In this study, the majority of participants, consisting of private and government medical college students,

believed that oral health is integral to overall health. Specifically, 61.4% of students from private medical colleges emphasized the significance of oral health in overall quality of life compared to their counterparts from government medical colleges. About 62.4% of private medical college students believe that oral diseases can be caused by conditions like heart disease and pregnancy, indicating an association with certain diseases. Conversely, compared to private medical college students, 68.8% of government medical college students believe that saliva can serve as a diagnostic tool for oral diseases and certain systemic diseases. Among government college students, 80.7% acknowledge that frequent consumption of sugar-containing food poses a greater risk in terms of sugar intake. Additionally, 62% of these students exhibit heightened awareness regarding the impact of soft drinks on dental health. However, this awareness level is lower compared to the findings of Ansari et al, who reported a higher awareness percentage of 93.8% in their study.[9]

Meanwhile, 71.1% of government medical college students perceive health education as crucial in enhancing public awareness of oral health, a sentiment shared by private medical college students as well. Approximately 56% of private medical college students perceive dental diseases as serious conditions that can be prevented through the adoption of healthy oral habits. In contrast, the majority of government medical college students (63.7%) share the belief that dental diseases are serious but can be prevented through the acquisition of healthy oral and dental health habits, a viewpoint less prevalent among private medical college students.

Compared to government medical college students, approximately 58.7% of private medical college students regard deciduous dentition as equally important as permanent dentition. Nearly 83.8% of private medical college students concurred that dental caries and periodontal diseases stem from plaque, a sentiment not widely shared among government medical college students. Conversely, compared to their counterparts in private institutions, only 68.8% of government medical college students believe that adequate brushing and flossing can prevent tooth decay and gum disease. This finding contrasts with a study by Kumar et al, where only 16% of their students reported daily flossing, indicating a lack of awareness among students regarding the benefits of flossing.

Approximately 61.7% of government medical college students believe that fluoride offers protection against dental caries, a viewpoint that aligns closely with the findings reported by Ceberi et al, where 79% of students shared a similar belief.[10] This contrasts with private medical students, where the perception may differ. Most government medical college students (90.3%) perceive tobacco as the sole cause of oral cancer, a perspective that contrasts with that of private medical college students. Additionally, compared to private medical students, most government medical college students (90.3%) believe that all precancerous oral diseases will progress to oral cancer, even after the removal of predisposing factors. Nearly all government medical college students (90.3%) recognize unhealthy behaviors and habits like thumb sucking, lip biting, lip sucking, and nail biting as common among children. They consider these habits to be related to orofacial structure and believe they should be treated. This perception differs from that of private medical college students.

More than half (72.8%) of government medical college students believe that teeth alignment serves both functional and aesthetic purposes, a viewpoint that may differ from that of private medical college students. Conversely, about 78.5% of private medical college students disagree that tooth loss in old age is a common phenomenon that cannot be prevented by dentists and patients. Furthermore, the majority of private medical college students (78.5%) do not believe that artificial dentures can fully replace the function of natural teeth. Consequently, medical college students may not perceive a significant concern regarding the maintenance of natural teeth. Approximately 60.5% of private medical college students disagreed that mouth guards are effective in preventing sports-related injury/concussion compared to government medical college students.

The scope of this study was limited to government and private colleges in Nellore, Andhra Pradesh. However, expanding our research to include all medical colleges across the state is likely to yield a more comprehensive understanding of oral health knowledge among graduating medical students. This broader approach promises to capture a diverse range of perspectives and practices, offering deeper insights into the overall awareness levels within the medical community regarding oral health.

CONCLUSION

The study revealed a significant deficiency in oral health awareness among medical students, who often overlook these issues due to their focus on classroom activities and their behavior. This research advances knowledge in the field by highlighting the need for enhanced oral health education and awareness programs within medical curricula to ensure future healthcare professionals are better equipped to address and prioritize oral health issues. By identifying specific gaps in knowledge and misconceptions about oral health, the study provides a foundation for developing targeted educational interventions. Moreover, it underscores the importance of integrating practical oral health training into medical education, which can lead to improved patient care outcomes. The findings also encourage further research into the effectiveness of different educational strategies in increasing oral health awareness among medical students, ultimately contributing to a more holistic approach to healthcare education.

Recommendations

In future, assessing oral health knowledge among medical graduates from private and government colleges could involve interdisciplinary approaches, technological innovations for learning and assessment, and collaborative initiations to promote oral health literacy efficiently. In addition, future assessments may explore the integration of practical clinical experiences and simulations into dental education modules within medical curricula, providing hands-on exposure to oral health scenarios and enhancing competency development among medical graduates.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Vanga A, Gomasani S. Assessment of oral health knowledge among the medical graduates of private and government colleges: a cross-sectional survey. Int J Community Med Public Health 2024;11:2667-71.