

# Awareness of Oral Health and Preventive Measures among Undergraduate Medical Students

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## ABSTRACT

**Introduction:** Oral health enables an individual to smile, speak, eat, swallow, taste, smell, and socialise without active disease, discomfort, or embarrassment. Relationship of oral disease with systemic diseases of heart and lung, preterm low-birth-weight, and other diseases is well documented. Medical doctors are in a position to advocate oral health as part of general well-being. So, young medical students can play an important role in oral health promotion and prevention among their patients, family, and community.

**Objective:** To assess the awareness of oral health and preventive measures among medical students.

**Materials and Method:** A descriptive cross-sectional study was conducted from November to December 2020 among medical students of Kathmandu Medical College from first to fifth years after getting ethical clearance. Convenience sampling was used. A structured Google Forms questionnaire was sent to 450 participants via Viber (126 responded) which were analysed in Microsoft Excel for frequency, percentage, mean, and standard deviation.

**Result:** Findings show that 26 (20.64%) medical students had never visited a dentist. The most common reason for their visit was severe toothache (47, 37.31%). Of all, 117 (92.86%) knew proper brushing technique, but only 88 (69.84%) brushed twice-daily. Less than half (61, 48.41%) were aware that road traffic accident (RTA) injuries are treated by oral surgeons.

**Conclusion:** Most participants were unaware about various dental specialities; and that oral surgeons can treat RTA patients and play role in early management and aesthetics. Medical students must have better dental awareness so that they can impart role in oral health promotion.

**Keywords:** Awareness; medical students; oral health; undergraduate.

## INTRODUCTION

Oral health is the mirror of general health, it enables an individual to perform daily activities like smiling, speaking, eating, and socialising without active disease, discomfort, or embarrassment; and it also contributes to his/her general well-being as well.<sup>1</sup> The relationship between oral disease and systemic diseases like stroke, heart and lung

disease; preterm low-birth-weight infants; and other diseases is much reported.<sup>2</sup> Medical doctors

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can play vital role in promoting oral health care.<sup>3</sup> Hence, future doctors, the medical students, must know about various specialities in dentistry for the correct referral of patients with dental problems and in emergency, save crucial time by referring to specific dental specialists. However, studies done globally as well as in Nepal have shown that, not many medical students brush twice-daily.<sup>4</sup> Their knowledge regarding oral diseases, such as dental caries and gingival bleeding is incomplete.<sup>5-7</sup>

Medical students are expected to play an important role in health promotion and prevention of their patients, family, and the community they serve. Therefore, their oral health awareness sets an example to general population. Hence, this study was conducted with an aim to assess the awareness of undergraduate medical students regarding oral health and its preventive measures.

## MATERIALS AND METHOD

A descriptive cross-sectional study was conducted among the students enrolled in undergraduate medical program of Kathmandu Medical College (KMC) at Duwakot, Bhaktapur, Nepal and KMC teaching hospital (KMCTH) at Sinamangal, Kathmandu, Nepal. Data collection was done from 2020 November to 2020 December after getting ethical clearance (Ref. 1809202006) from institutional review committee (KMC-IRC). All the students from first year to fifth year were requested to participate in the study. The participation was voluntary and participants were recruited by convenience (non-probability) sampling method. A sample size of 126 was calculated using following formula:

$$\text{Sample Size} = \frac{\frac{Z^2 \times p(1-p)}{e^2}}{1 + \frac{Z^2 \times p(1-p)}{e^2 N}}$$

$$= 108.48$$

Where population size (N) = 450; confidence level (%) = 95; p (daily tooth brushing  $\geq$  twice) = 0.896 (89.6%).<sup>7</sup> with margin of error (e) = 0.05 (5%).

Adding 15% to the non-response rate, sample size of  $124.75 \approx 126$  was calculated. A structured questionnaire consisting of 20 closed-end questions were framed in three sections using the questions from similar published studies.<sup>3-9</sup> In the first part, the participants had to give their informed consent for voluntary participation. The second section had three questions on general demographic information like age, sex, and year of study; and in the third part 17 structured questionnaires were included. The entire questionnaire was prepared on “Google Form” and data were collected electronically by distributing through Viber. Google Forms is a tool, that is part of Google Drive for creating surveys, tests, or web input forms. The information is then collected and can be automatically transferred to a spreadsheet where results can be tracked on the web without having to know complicated programming and analysis. Links to the forms were shared with all the participants from the sampling frame. As stated before, the questionnaire consisted of three parts: i) informed consent, ii) demographic details, and iii) questions. Informed consent was mandatory before proceeding to the questionnaire section. Only after they had read and clicked “Yes” on the informed consent page, were they allowed access to the demographics page. It took about seven minutes to fill the questionnaire. The questionnaire was sent to 450 participants. The participants were asked to respond to the questionnaire within 15 days. The participants were requested not to discuss among their friends while marking the responses, as the objective of the study was to know the individual responses. The data from Google forms were opened with Microsoft Excel and analysed. The descriptive statistics have been presented as frequency, percentage, mean, and standard deviation.

## RESULT

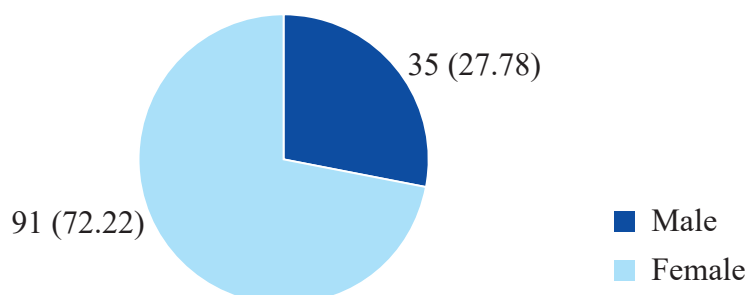
Of all 126 participants, 100 (79.36%) had visited the dentist before (Table 1). Regarding tooth brushing frequency, only 88 (69.84%) brushed twice-daily (Table 2). About demographic information, the mean age of the participants was  $21.16 \pm 1.764$  years (minimum = 18 years; maximum = 29 years; SEM = 0.157). In total there were 91 (72.22%) females (Figure 1) and most of the participants (49, 38.89%) were second year medical students (Figure 2).

**Table 1: Binary responses to questions on awareness of oral health and preventive measures.**

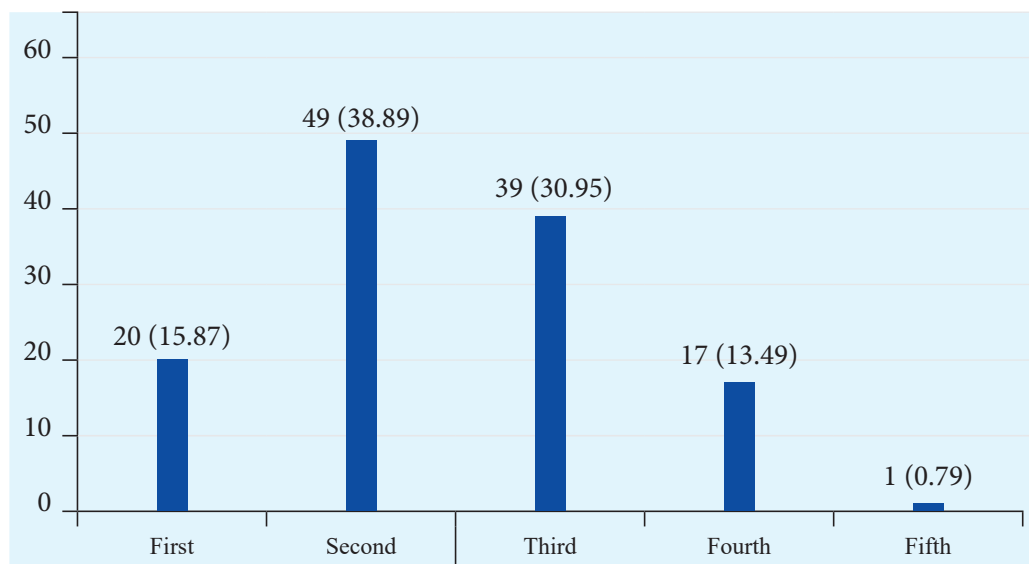
Q.N.	Questions	Yes n (%)	No n (%)
1	Have you ever visited a dentist?	100 (79.36)	26 (20.64)
3	Do you know proper brushing techniques?	117 (92.86)	9 (7.14)
5	Do you know the consequences if you ignore the dental problems?	117 (92.86)	9 (7.14)
6	Do you know that there are nine branches in dentistry?	44 (34.92)	82 (65.08)
7	Are you aware of aetiology of dental caries?	108 (85.71)	18 (14.29)
8	Do you know about effect of excess intake of fluoride on teeth?	98 (77.78)	28 (22.22)
9	Do you know that aesthetics can be improved by the dentist?	93 (73.81)	33 (26.19)
10	You know that there is specialist for root canal treatment?	93 (73.81)	33 (26.19)
11	Do you know that there is specialist for irregularly arranged teeth?	105 (83.33)	21 (16.67)
12	Do you know about preventive dentist?	61 (48.41)	65 (51.59)
13	Do you know that road traffic accident cases are treated by the oral surgeons?	61 (48.41)	65 (51.59)
14	Are you aware of temporomandibular disorders (TMJ) associated with dental problems?	70 (55.56)	56 (44.44)
15	Do you know that negligence of not treating dental caries can lead to facial infections?	99 (78.57)	27 (21.43)
16	Do you know about systemic diseases related to dental problems?	85 (67.46)	41 (32.54)
17	Do you know about signs and symptoms of medical diseases that are manifested in oral cavity?	97 (76.98)	29 (23.02)

**Table 2: Responses to purpose of dental visit and frequency of tooth brushing.**

Q.N.	Questions	n (%)
2	What was your purpose of visiting a dentist?	
	Severe pain in tooth	47 (37.31)
	Impaction	9 (7.14)
	Correction of irregular teeth	18 (14.29)
	Dental Caries/Restoration	15 (11.29)
	Dental Check up	5 (3.97)
	Scaling/Gum Problem	6 (4.76)
	You know that there is specialist for root canal treatment?	33 (26.19)
4	How many times do you brush daily?	
	Once-daily	37 (29.37)
	Sometimes once/ sometimes twice	1 (0.79)
	Twice-daily	88 (69.84)



**Figure 1: Sex distribution of the participating medical students, n%.**



**Figure 2: Year of study of the participants, n (%).**

## DISCUSSION

Poor oral conditions may adversely affect general health and certain medical conditions may have a negative impact on oral health.<sup>2</sup> Oral status can reveal signs of nutritional deficiency or general infection. Systemic diseases, those that affect the entire body, may first become apparent in mouth lesions or other oral problems. Hence, the compartmentalisation involved in viewing the mouth separately from the rest of the body must cease, as physician's play a pivotal role in oral public health.<sup>8</sup> The relationship between oral and general health has been increasingly recognised during the past two decades So, adequate level of understanding and co-operation is needed between medical and dental health teams. Hence, the present cross-sectional study, designed to determine the awareness regarding oral health and the preventive measures among medical students of KMC becomes relevant, as findings from this study is expected to throw more light into the importance of maintaining close interrelationship between medical and dental health care providers.

The decreased awareness in this study may be due to the fact that the study was done among medical students who have very less exposure to various oral diseases. This is similar to that reported by Sujatha et al. which showed that only 25% of the medical students had good oral health awareness.<sup>9</sup> This is not unexpected since the students are in training. Factors leading to at

least this level of dental awareness and attitude of the medical students towards oral disease and oral manifestations of systemic diseases, could be due to the continuing dental education (CDE) programs being conducted by the various dental colleges and dental product manufacturers, where even general medical practitioners are invited.<sup>10, 11</sup> It is of prime importance to mention that undergraduate medical curriculum in Nepal includes a one to two weeks dental posting in which they have an exposure to certain dental health aspects which improves their understanding towards dentistry.

Bashiru et al. noted that 71.6% of the 360 undergraduate students in southern Nigeria never visited a dentist before.<sup>12</sup> Only 69% of the students visited the dental clinic, whereas 78 (38%) participants had visited the dentist for dental check-up or treatment. Similarly, Shekar et al. reported that 68.7% of the students visited the dental clinic and 31.3% did not.<sup>13</sup> In the present study 100 (79.36%) students had visited the dental clinic where as rest 26 (20.64%) students had never visited a dentist. It can be said that dental awareness is little higher than those reported by previous studies.

The reason for visiting the dental clinic as reported by Shekar et al. was 23.6% due to severe pain in the tooth.<sup>13</sup> The study done by Al-Beirut in 1997 showed that 69.5% of the participants visited a dentist for various reasons.<sup>14</sup> Similarly, the main reason for dental visit was reported to be toothache in a study by Doshi et al.<sup>15</sup> In the present study, 47

(37.31%) students visited the dentist for toothache, 18 (14.29%) for correction of irregular teeth and 9 (7.14%) for impacted teeth. Hence, it is important for medical students to know more about the various orofacial pains, impaction of third molars, toothache, and referred pain for tooth ache and its consequences, so that they will let their patients know about the same and help increase the oral health awareness as well as oral health status of the population.

Dhanasekaran et al. in their study presented that only 8.6% of those above the age of 30 years brushed their teeth twice-daily while 40% brushed once-daily.<sup>16</sup> Similar studies by Asif et al.<sup>17</sup> and Azodo et.al.<sup>5</sup> in the scientific literature show that most people brush only once-daily. In the present study, 117 (92.86%) of the participants knew proper brushing technique while 9 (7.14%) did not know the proper brushing method. Among all the participants, 37 (29.37%) participants brushed once-daily, only 88 (69.84%) of them brushed twice-daily. This shows that basic dental awareness about proper brushing is lacking among the medical students. Lack of proper tooth brushing leads to gingivitis, periodontitis, and sometimes systemic consequences. Hence, medical students should be taught during their undergraduate curriculum about the basic dental awareness so that they can follow the same and convey that to their family members and their patients during their routine practice when they examine their patients. The present study showed that 117 (92.86%) of the participants knew the consequences of ignoring the dental problems and about one-third (41, 32.54%) of the participants are unaware of systemic diseases related to dental problem.

In total, 82 (65.08%) participants were unaware of the fact that there are nine branches in dentistry. Furthermore, most participants did not know various specialities of dentistry that treat dental caries, dental abscess, fluoride application, and facial infections (Table 1). Among all participating students, 65 (51.59%) did not know that there is a speciality that treats facial fractures during road traffic accident cases. This indicates that they have inadequate knowledge about specialities of dentistry. Dental knowledge helps the medical doctors and students for correct and proper

referral in times of need for their parents. It is strange that 18 (14.29%) of the respondents did not know the aetiology of dental caries. It shows that they should be taught about the basic dental awareness and knowledge about aetiology of dental caries, periodontal problems, and about how to maintain proper oral hygiene. Incorporating basic information about oral health and diseases in their academic curriculum, by conducting various interdisciplinary workshops, CDE programs and conferences, increasing the clinical exposure of the students to oral findings as many systemic diseases manifest in the oral cavity, special study modules or electives in oral health and disease should be created by involving the dental faculty, emphasising the importance of oral health. Majority of the medical students are aware of the dental profession but their knowledge and attitude to dentistry is still poor. Oral health education programs for both undergraduate and postgraduate will increase knowledge, understanding, and practices that will improve their oral health. Universities and colleges may include oral health motivation programme as a component in their academic curriculum so that the future generation of professionals are motivated to maintain proper oral health practices. This may be the promising solution to this awareness gap between the medical and dental professionals, thereby increasing the knowledge and awareness of dentistry among medical students which in turn will lead to maintaining good systemic and oral relationship. As most of the general physicians are the group of providers who have an opportunity to encourage oral health and to make a significant difference because of their access to family as family physicians. It is also incumbent upon medical practitioners to keep their knowledge updated with time and get actively involved in oral health, as mouth has often been considered a mirror for systemic conditions.

## CONCLUSION

Many participants still do not know about proper brushing techniques and the various branches of the dentistry despite few lectures and clinical posting in the curriculum of undergraduate medical students. They were also not much aware about preventive dentistry and lacked knowledge oral surgeons role

in road traffic accident injuries. Medical doctors can play an important role in promoting oral health care, as there is a relationship between the systemic and oral health. Hence, the medical students must know about various specialties in dentistry for correct referral of the patient with dental problems and in emergency situations referral to the correct dental specialist.

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**Conflict of Interest:** None.



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