




Pattern of Toothbrushing among College Students in Puducherry: A Questionnaire Survey

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ABSTRACT

The aim of the study is to determine the toothbrushing behavior and pattern among college students of Puducherry. Thus creating awareness and approach through a questionnaire form has been done. Data was collected using a structured, validated, standard, self-administered questionnaire in which participants were asked to provide details on their toothbrushing habits. The questionnaire was sent to undergraduate students of all disciplines and compared with dental students. Students were contacted through known contacts, and the questionnaire was sent through an online Google Form. The responses were recorded and displayed as a percentage of the means. Based on the results we conclude by stating that community-based oral health campaigns should be established. Promoting the use of fluoridated toothpaste, proper brushing technique, and additional self-care activities. Periodontal health can be impacted by irregular brushing practices.

Keywords: Behavior guidance, Cervical abrasion, Fluoridated, Gingival recession.

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INTRODUCTION

Dental plaque is nothing more than a bacterial biofilm that forms on the surface of teeth and is made up of a complex community of microbial species.¹ Bacterial plaque is the key player or etiology of periodontal disease.²

Both commensal and pathogenic species can be found in the microbial community of dental plaque.³ These bacteria are known to generate a substance that can start a chain of host reactions that, when unchecked, can both protect and destroy tissue. Therefore, if plaque accumulation is not addressed, it may cause inflammation that eventually results in gingivitis and periodontitis.⁴ Plaque deposits accrue on the tooth surfaces on regular basis and hence its removal is considered a primary preventive measure for gingival and periodontal diseases.⁵

Plaque control can be achieved by mechanical methods, chemical methods, or a combination of both.⁵ The current recommendation given by the American Dental Association (ADA) recommends toothbrush soft bristles one has to brush twice a day (morning and night) and clean between the teeth (interdental area) with any interdental cleaner once a day (preferably at night).

Patterns of toothbrushing techniques are vertical, horizontal, a combination of both vertical and horizontal, or rotational. Improper/aggressive toothbrushing technique with a hard-bristle toothbrush can be detrimental to oral health and lead to cervical abrasion and gingival recession.² Studies have proved that onset of disease progression can be prevented by regular plaque removal-primary prevention (Axelsson and Lindhe 1978, Garmyn et al. 1998). More amount of plaque is removed when brushing time is increased from 1–4 minutes (Huber et al. 1985). Studies have proven that complete removal of supragingival bacterial plaque in 24–48 hours is sufficient to prevent gingivitis (Lang et al. 1973, Kelner et al. 1974).⁶

The awareness regarding oral health among people is very less.⁷ Thus, the aim of the study is to determine the toothbrushing behavior and pattern among college students of Puducherry. Thus in creating awareness was approached through a questionnaire form has been done.

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MATERIALS AND METHODS

Data was collected using a structured, validated, standard, self-administered questionnaire in which participants were asked to provide details on their toothbrushing habits. The questionnaire was sent to undergraduate students of all disciplines and compared with dental students. Students were contacted through known contacts, and the questionnaire was sent through an online Google form. The responses were recorded and displayed as a percentage of the means. The questionnaire comprises 11 questions. The question includes age, gender, year of study, frequency, the occasion of toothbrushing, type of tooth-brush, type of bristle, time spent for brushing, method of toothbrushing, the interval for change of toothbrush, and use of toothpaste.

RESULTS

Age and Gender

A total of 175 responses from non-dental and dental participants were collected. In non-dental participants, 39.8 and 60.2% of male

and female students participated and the mean values age of 21.8 was observed. In dental participants, 26.1 and 73.9% of male and female participants participated and a mean age value of 23.78 was observed (Table 1).

Frequency of Toothbrushing

Comparing the frequency of toothbrush use between dental and non-dental students, it was found that 49% of dental students brush once daily and 56.6% brush twice daily, 51% of non-dental students brush once daily, and 43.4% brush twice daily as shown in Figure 1.

Type of Tooth Brush Used

The majority of students in both groups (94.3% of non-dental students and 97.4% of dental students) use manual toothbrushes. Dental and non-dental students, respectively, use electronic toothbrushes at rates of 1.1 and 0.7%. Both non-dental and dental students, respectively 3.8 and 1.3%, use manual and electronic toothbrushes as shown in Figure 2.

Both group of students predominantly use manual toothbrushes. When compared between dental and non-dental students, the percentage of dental students who use electronic toothbrushes was higher whereas non-dental students preferred manual toothbrushes over the percentage of non-dental students who use a manual toothbrushes.

Time Spent for Brushing

The majority of students, both dental and non-dental, spend 2–3 minutes brushing their teeth, and a small percentage of students in both group brush for 4–5 minutes.

In the group of non-dental students, 16% of the students spend 1–2 minutes brushing, 50% spend 2–3 minutes, 21.7% spend 3–4 minutes, and 12.3% spend 4–5 minutes. In the dental group

students, 37.3% spend 1–2 minutes, 44.4% spend 2–3 minutes, 14.4% spend 3–4 minutes and 3.9% spend 4–5 minutes as shown in Figure 3.

Type of Toothpaste Used

The majority of the dental and non-dental group participants use fluoridated toothpaste but the percentage of non-dental students was 33.3% and dental students were 79.5%.

In the group of non-dental students, 33.3% use fluoridated toothpaste, 28.6% use non-fluoridated toothpaste, and 38.1% don't know what type of toothpaste they are using. Fluoridated toothpaste is used by 79.5%, while non-fluoridated toothpaste is used by 20.5% of the dental group as shown in Figure 4.

Methods of Toothbrushing

The majority of the non-dental students follow irregular brushing technique whereas the dental students follow the methods advised by their dentist.

In the non-dental group, approximately 4.3% follow the horizontal brushing technique, 24.5% follow vertical stroke, 18.9% follow the method advised by their dentist and 19.8% follow the irregular toothbrushing technique. In the dental group, 20% follow

Table 1: Demographic data of the participants

	Non-dental	Dental
Number of responses	175	175
Male	39.8%	24.2%
Female	60.2%	75.8%
Mean age	19.8	20.5

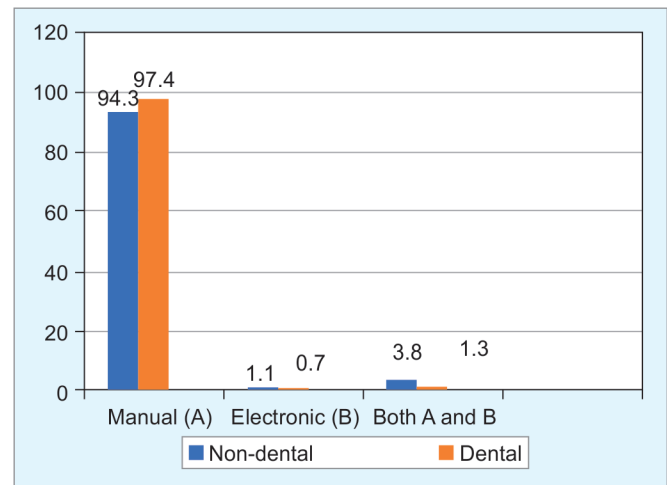


Fig. 2: Number of students using manual tooth brushes

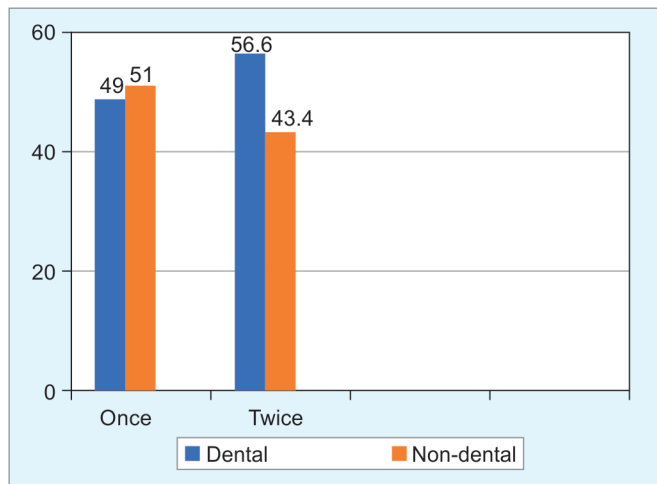


Fig.1: Dental students brushing frequency daily

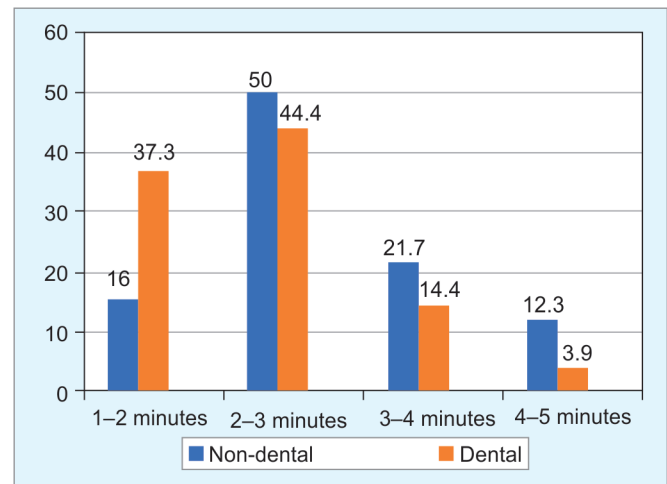


Fig. 3: Group of non-dental students brushing time

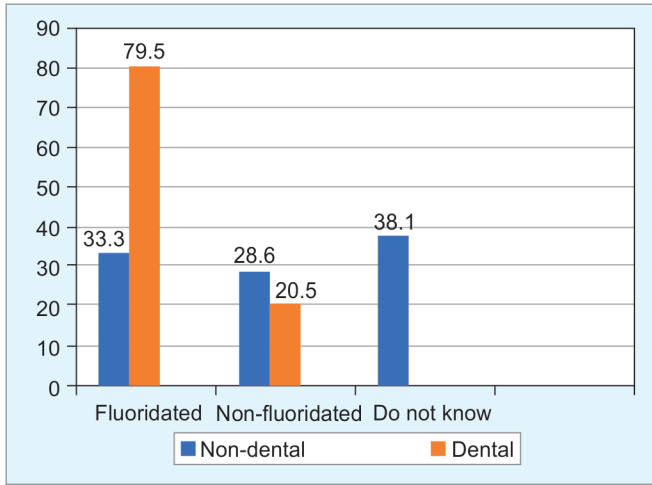


Fig. 4: Types of toothpaste used by dental group

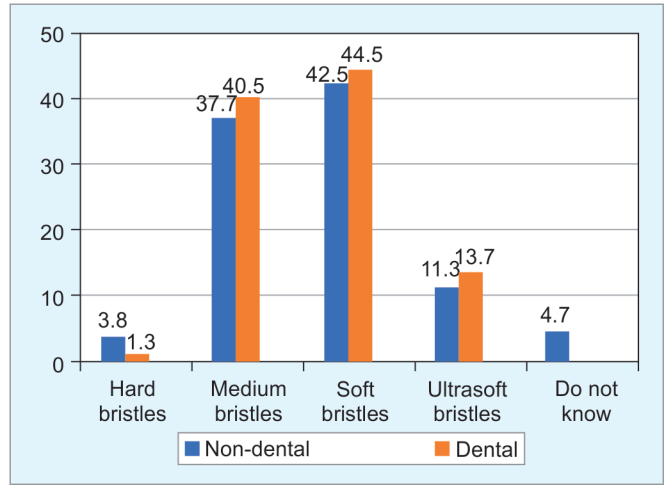


Fig. 6: Non-dental group types of brushes

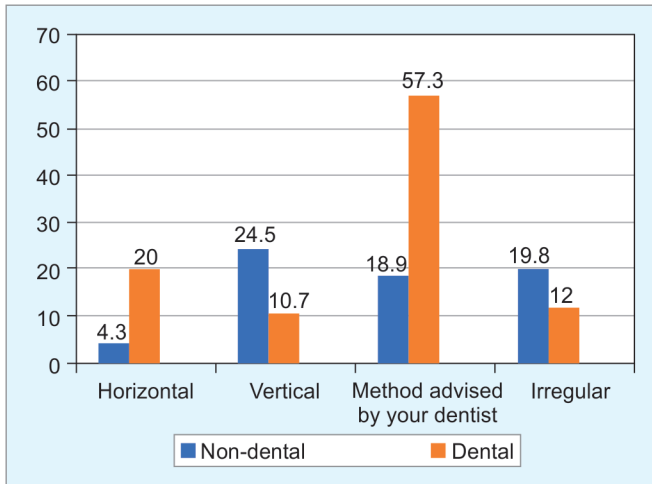


Fig. 5: Dental group brushing technique

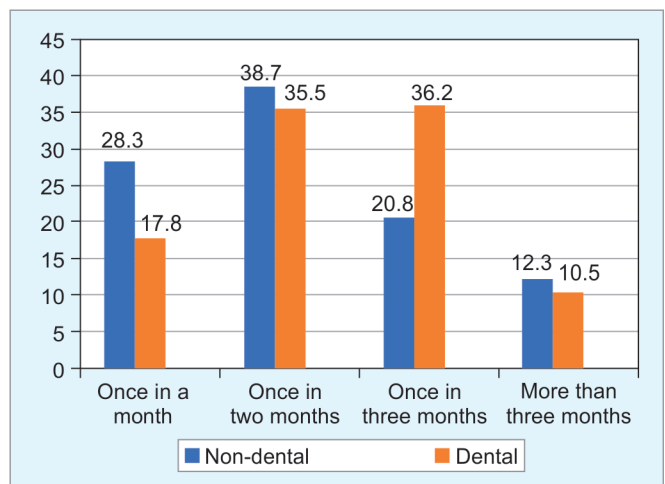


Fig. 7: Non-dental group brush change time

the horizontal brushing technique, 10.7% follow vertical motion, 57.3% follow the method advised by their dentist and 12% follow the irregular brushing technique as shown in Figure 5.

Type of Tooth Bristles Used

In the non-dental group, 42.5% use soft bristles majorly, whereas in the dental group students, medium and soft brushes were used predominantly.

In the non-dental group, 3.8% use hard bristles, 37.7% use medium bristles, 42.5% use soft bristles, 11.3% use ultrasoft bristles, and 4.7% are unsure of the bristle type they are using. In the dental group, hard bristles are used by 1.3%, medium bristles by 40.5%, soft bristles by 44.5%, and ultrasoft bristles by 13.7% as shown in Figure 6.

Frequency of Changing Toothbrush

The frequency of changing toothbrush in a non-dental group takes around 2 months and in the dental group students change every 3 months.

In the non-dental group, 28.3% change their toothbrush once per month, 38.7% once every 2 months, 20.8% once every 3 months, and 12.3% take more than 3 months to change the toothbrush. In

the dental group, 17.8% of students change their toothbrushes once a month, 35.5% once every 2 months, 36.2% once every 3 months, and 10.5% take more than 3 months to change the toothbrush as shown in Figure 7.

DISCUSSION

Historically, diverse methods and aids have been employed in maintaining oral health. The relationship between tooth surface integrity and methods of teeth cleaning has been reported in scientific literature. While the aids employed in tooth cleaning can vary between socioeconomic classes.⁸ The pattern of brushing is important for maintaining oral health. The present study is a part of the first Union territory oral health survey. However, in this study, we evaluated the knowledge and attitude of the college students in and around Puducherry.

The questionnaire includes basic demographic data such as age, and gender and questions about frequency of toothbrushing, type of toothbrush, type of toothpaste, type of tooth bristles used, time spends for brushing, methods of toothbrushing, and frequency of changing toothbrush circulated in a google form for the college students of Puducherry and response were received.

Our study results are in accordance with another study done by Ibrahim et al. in 2021 where he stated that the most frequently used brushing technique was combined brushing (42.9%). The second most popular brushing method was the horizontal brushing method (32.6%), which was followed by the circular brushing method (15.2%) and the least technique was vertical (9.3%).⁹

Dagne B et al. gathered several knowledge and attitude questions in 2019 to assess student's attitudes toward oral hygiene maintenance. In his study, 219 people (53.7%) knew about oral hygiene. More than half of study participants (55.4%) had favorable attitudes toward oral hygiene. The vast majority (88.9%) of the study participants prefer to brush their teeth in the morning.¹⁰ Our findings are consistent with his study, as dental students have more knowledge about maintaining oral hygiene than non-dental students.

Another study by Younus et al. in 2016 in his questionnaire study stated that 72.8% of them had gone to the dentist before six months and 81% had undergone dental treatment. The majority of them (90%) used toothbrushes as a cleaning aid and (58.4%) combined it with interdental brushes and mode of brushing (24.1%) practiced horizontal brushing. In terms of toothpaste and brush usage, participants used sensitivity relief paste more predominantly (38.4%) when compared to whitening and cavity protection pastes, while medium-textured bristles were used by participants more predominantly (47.4%). while the majority of participants (51.3%) reported brushing twice daily. The majority of participants brush their teeth for an average of two minutes.¹¹

CONCLUSION

The majority of the non-dental students have toothbrushing patterns that differs significantly from the indicated norm, whereas the dental students are aware of the proper brushing technique. This pattern of brushing could be attributed to poor oral health. Irregular brushing can have an impact on periodontal health. As a result, it is important to teach the young population proper brushing technique, which is critical for maintaining their oral health.

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