

Knowledge, Attitude, and Practice of Mouthwash Use Among Dental Students in the Konkan Region: A Cross-Sectional Survey

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Abstract: Oral health is a vital component of overall well-being, and preventive practices such as the use of mouthwash play an important role in maintaining oral hygiene. This study aimed to assess the knowledge, attitude, and practices (KAP) regarding mouthwash use among undergraduate dental students in the Konkan region. A descriptive cross-sectional survey was

conducted among 200 students at a dental college in Maharashtra using a structured questionnaire. The results showed that 98.3% of participants were aware of mouthwash, and 78.5% correctly identified that it does not replace toothbrushing. About 51.4% were aware of potential side effects, while knowledge of active ingredients varied. Most students (78.5%) agreed that mouthwash is important for oral hygiene, and 76.3% believed it could improve overall health. In terms of practice, 46.6% reported current use of mouthwash, with 51.7% indicating that it should ideally be used twice daily. A majority (77.9%) expressed willingness to recommend mouthwash to others. The study concludes that dental students possess adequate knowledge and a positive attitude toward mouthwash use, though actual usage practices vary. Enhanced awareness and education may further promote its appropriate use as an adjunct to routine oral hygiene.

Keywords: *Dental education, Mouthwash, Oral hygiene, Students, Knowledge*

Introduction:

Oral health is an integral component of overall health and well-being. Dental health cannot be separated from general health, as many systemic diseases manifest their early signs and symptoms in the oral cavity. Therefore, knowledge of oral tissues and oral conditions is essential for healthcare professionals. Furthermore, the behavior and attitudes of oral health providers toward oral health significantly influence their ability to deliver effective oral healthcare, which in turn can impact the oral health status of their patients.[1] Mouthwash use, in particular, has not gained the same level of popularity in daily oral hygiene routines as toothbrushing. Factors such as cost, lack of awareness, casual attitudes toward its benefits, and concerns about possible side effects may limit its regular use among individuals. Moreover, there is no universal consensus within the medical and dental community regarding the routine use of mouthwash for all individuals. While some professionals advocate its regular use as an adjunct to mechanical plaque control, others suggest that it should be used selectively based on individual oral health needs.[2] Inhibition of dental plaque formation through the use of mouthwash may help reduce gingival inflammation and subsequently prevent the progression to periodontitis. Mouthwashes are formulated to reduce or eliminate bacterial plaque, which is a primary etiological factor in periodontal diseases, dental caries, and halitosis. Many mouth rinses contain antimicrobial agents

that target oral microorganisms, while anti-cavity mouth rinses commonly include fluoride to enhance enamel resistance and protect against tooth decay. Despite these benefits, mouthwash should be considered an adjunct to routine oral hygiene practices rather than a substitute. It is widely accepted that the use of mouthwash does not replace the essential mechanical plaque control achieved through regular toothbrushing and flossing.[3] The common method of using mouthwash involves rinsing the mouth with approximately 10–15 ml of mouthwash twice daily after brushing, once in the morning and once at night, for optimal results. The solution is typically swished around the mouth or gargled for about 30 seconds and then spat out. This practice helps in reducing bacterial plaque, controlling bad breath, and maintaining overall oral hygiene when used alongside regular toothbrushing and flossing.[4] Mouthwashes are commonly used as an adjunct to routine oral hygiene; however, they may produce certain side effects in some individuals. A frequently reported side effect is a burning sensation in the cheeks, teeth, and gums, which is often associated with the alcohol content or strong antiseptic agents present in some formulations. In addition, children may accidentally swallow mouthwash during use, which can potentially result in alcohol poisoning or fluoride overdose, particularly when alcohol-based or fluoride-containing mouth rinses are used in excessive amounts. Therefore, mouthwash use in children should be carefully supervised, and alcohol-free formulations are generally recommended to minimize potential risks.[5] Mouthwashes are commonly used as an adjunct to routine oral hygiene; however, they may produce certain side effects in some individuals. A frequently reported side effect is a burning sensation in the cheeks, teeth, and gums, which is often associated with the alcohol content or strong antiseptic agents present in some formulations. In addition, children may accidentally swallow mouthwash during use, which can potentially result in alcohol poisoning or fluoride overdose, particularly when alcohol-based or fluoride-containing mouth rinses are used in excessive amounts. Therefore, mouthwash use in children should be carefully supervised, and alcohol-free formulations are generally recommended to minimize potential risks.[6]

Materials and Methods:

This cross-sectional study was conducted at Yogita Dental College and Hospital, Khed, Ratnagiri, Maharashtra. The study included undergraduate dental students. A stratified random sampling method was employed to select the participants. A structured questionnaire was

developed by the investigators to assess the knowledge, attitude, and practices (KAP) of undergraduate students regarding mouthwash use. The study was carried out after obtaining approval from the Institutional Ethics Committee. The collected data were analyzed using SPSS Version 20 and Microsoft Excel. The results were presented using charts, graphs, tables, and descriptive text.

Results:

Table 1: Knowledge of 200 participants which were surveyed

Sr. no	Questions	Responses (%)
1.	Have you heard about mouthwash?	
	a. Yes	98.3
	b. No	1.7
2.	c. Does mouthwash replace toothbrushing?	
	a. Yes	11.6
	b. No	78.5
	c. Don't Know	9.9
3.	Can excessively use of mouthwash cause side effects?	
	a. Yes	51.4
	b. No	9.8
	c. Don't Know	38.7
4.	Which ingredient in mouthwash helps to kill bacteria?	
	a. Fluoride	25.3
	b. Chlorhexidine	30.5
	c. Alcohol	6.8
	d. Don't Know	37.4

Table 2: Attitude of 200 participants which were surveyed

Sr. no	Questions	Responses (%)
1.	Do you think mouthwash is important for maintaining oral hygiene?	
	a. Strongly agree	23.8
	b. Agree	54.7
	c. Neutral	20.3
2.	Can mouthwash use improve overall health?	
	a. Strongly agree	17.9
	b. Agree	58.4

	c. Neutral	22
	d. Disagree	1.7
3.	I believe mouthwash use is only necessary when advised by dentist.	
	a. Strongly agree	11.5
	b. Agree	25.3
	c. Neutral	35.6
	d. Disagree	26.4
4.	Who recommended mouthwash use to you?	
	a. Dentist	35.3
	b. Doctor	10.2
	c. Pharmacist	3.5
	d. Friends	13.7
	e. Self-Decision	37.3
5.	Side effects experienced during mouthwash	
	a. Burning Sensation	8.8
	b. Dry Mouth	10.6
	c. Tooth Staining	7.1
	d. Altered Taste	17.7

Table 3: Practice of 200 participants which were surveyed

Sr. no	Questions	Responses (%)
1.	How often should mouthwash ideally be used?	
	a. Once daily	28.2
	b. Twice daily	51.7
	c. Occasionally	9.8
	d. Only when prescribed	10.3
2.	I would recommend mouthwash use to others	
	a. Strongly agree	18
	b. Agree	59.9
	c. Neutral	20.9
3.	Do you currently use mouthwash?	
	a. Yes	46.6
	b. No	53.4
4.	How often do you use mouthwash?	
	a. Daily	23.6
	b. Twice daily	18.8
	c. Occasionally	23.6
	d. Rarely	34
5.	What type of mouthwash do you use?	
	a. Alcohol based	8.8

	b. Non-alcohol based	10.6
	c. Herbal	7.1
	d. Not sure	17.7

Discussion:

Out of the 180 respondents, 81.6% were females and 18.4% were males, indicating a higher representation of female dental students in the study. This disparity may be attributed to the greater number of female students enrolled in dental colleges. The proportion of respondents currently using mouthwash was notably high at 98.3%, compared to only 1.7% non-users, demonstrating a significantly higher prevalence of mouthwash use among the participants.

The respondents reported multiple reasons for using mouthwash. A majority 81.5% used mouthwash to improve breath, prevent dental caries, and reduce gum disease.(Fig 1) Regarding frequency of use, 51.7% of respondents reported using mouthwash twice daily, while 28.2% used it once daily.(Fig 2) These findings indicate a higher frequency of use compared to other studies, where only 36.9% of participants reported using mouthwash once daily and 10% reported twice-daily use.[7] Among the participants who practiced the use of mouthwash, 56.6% reported using it after brushing, which is higher compared to findings from another study.[8] Additionally, 15.9% used mouthwash before brushing, 17.9% used it only at night, and 9.7% used it at any time during the day Which is comparatively less than other study.[9]

Regarding the type of mouthwash used, 24.8% of participants preferred herbal formulations, while 20.8% used non-alcohol-based mouthwash. This proportion is lower compared to another study, where 46.6% of users preferred alcohol-free mouthwash. Furthermore, 12.1% of participants reported using alcohol-based mouthwash.(Fig 3) Among the participants, 8.8% experienced a burning sensation following mouthwash use, which is considerably lower than another study that reported a prevalence of 54.3% for burning sensation.[8] (Fig 4)The people who did not use mouthwash gave varied explanations like they were not aware of its importance, it was not necessary, it had side effects, they kill good bacteria and other reasons.[9] Around 35% of the students used mouthwash with the recommendation. There is a paucity of accurate data in India regarding mouthwash use, but various estimates put the prevalence around 15% - 20% of the dentist in our study this is in contrast with Benjamin SN, et. al 30% of students where

recommended by dentist.[10] It is of great importance that future dental surgeons, whose role is to motivate patients and provide essential instructions for achieving adequate oral hygiene, should themselves be highly aware of the pathological consequences of poor oral hygiene and actively recommend the use of mouthwash.

Conclusion:

The analysis of the present survey provides valuable insights into disparities associated with gender and income, as well as the practical aspects of mouthwash use within the population. Enhancing oral hygiene awareness and promoting health education on the importance and proper use of mouthwash may facilitate its optimal utilization and contribute to improved public oral health outcomes. Furthermore, given the respondents' awareness of the potential side effects of mouthwash and their impact on the oral microbiome, there appears to be a receptiveness toward newer formulations with fewer adverse effects. Public perception and feedback in this context may act as a catalyst for future research and development in this field.

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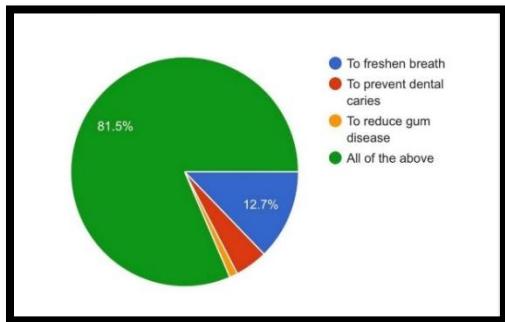


Figure 1. Purpose of Mouthwash

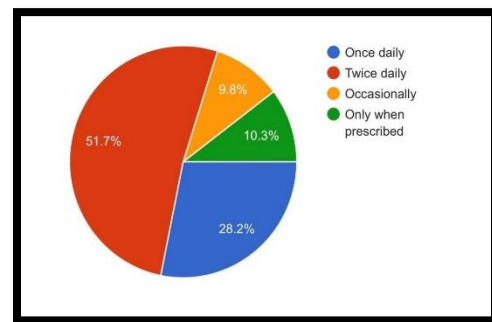


Figure 2. Frequency of usage of Mouthwash

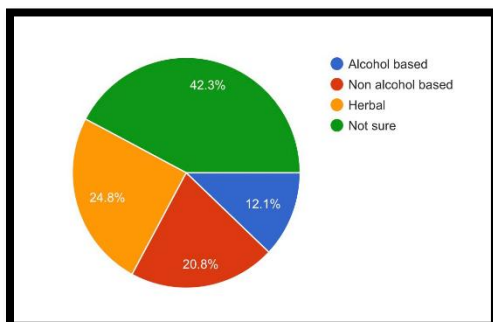


Figure 3. Content of Mouthwash

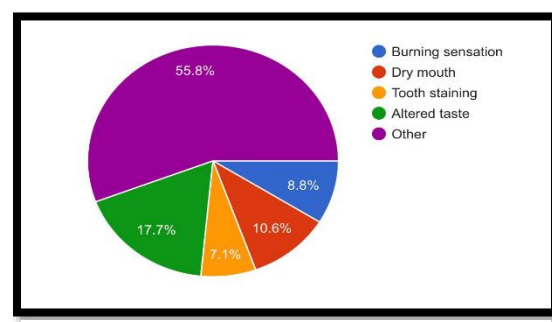


Figure 4. Side effects of mouthwash