

1 Assessment of Factors That Affect the Selection of a Dentifrice Among a Population of Arts
2 and Commerce Undergraduate Students in West Zone of Ahmedabad: A Questionnaire
3 Survey.

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5 ABSTRACT

6 OBJECTIVE: This study aimed to examine the factors influencing dentifrice selection and to
7 explore these considerations.

8 MATERIALS AND METHODS: This cross-sectional study was conducted on undergraduate
9 students of five Arts and commerce college present in west zone of Ahmedabad, Gujarat,
10 India. The IRB approved study was conducted through 17 validated questionnaires sent to the
11 participants through email after obtaining their informed consent. Results were tabulated and
12 presented in percentage (%).

13 RESULTS:

14 The most important factor which the study population consider were freshness, anti-decay,
15 calcium content, teeth-whitening agent and desensitizing agent. The least important factors
16 were celebrity influence, flavour, gel-based population, discount and packaging of the
17 dentifrice.

18 CONCLUSION: Seminars and webinars should be conducted which will enlighten the
19 population to select dentifrice according to their needs and impart them knowledge regarding
20 its content, benefits and potential side effects.

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31 INTRODUCTION

32 Periodontal diseases develop due to infection and inflammation of the gums and the bone
33 supporting the teeth. Despite being the most prevalent oral health issues, they are often
34 overlooked. The build-up of bacterial plaque is the main cause;(1) highlighting the
35 importance of preventing its accumulation as the foundation of oral hygiene practices.

36 Bacterial plaque is the main cause of periodontal disease, so preventing its accumulation is
37 crucial for oral hygiene.Using a toothbrush and toothpaste remains the primary and most
38 effective method for controlling plaque above the gum line. Toothpaste aids in reducing
39 plaque build-up;(2) preventing cavities;(3) removing stains;(4,5) whitening teeth;(6)
40 eliminating food particles, and refreshing the mouth (7). Despite the availability of various
41 toothpaste options, the rationale behind choosing a specific product is often unclear. Factors
42 such as increased awareness of oral hygiene, exposure to information, advertising,
43 recommendations, lifestyle, and financial status influence dentifrice selection. Studies
44 analyzing the brand preferences of Indian consumers for toothpaste have been conducted as
45 part of management research(8). However, there is limited literature on the factors
46 individuals consider when choosing a product. Therefore, the aim of this study was to assess
47 the factors individuals take into account when selecting a dentifrice.

48 Material and Methods:

49 Following approval from the Institutional Review Board at AMC Dental College,
50 Ahmedabad, a study was conducted via an online survey in March to June 2023. 452 students
51 from 5 Arts and Commerce colleges responded with informed consent. The online validated
52 questionnaire was distributed to students through social networking platforms. The results
53 were tabulated and presented as percentages.

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56 Questionnaire design

57 17 closed-ended questionnaires were prepared in English language. Apart from
58 demographics, questions regarding factors that affect the selection of dentifrices such as
59 flavour, colour, well-known/established brand, highest quantity/price ratio, packaging,
60 healthy to gums and teeth, freshness, anti-decay, teeth-whitening, fluoride content,
61 desensitizing, calcium content, herbal content, peer influence, discount, formulation and
62 purchase based on celebrity influence were asked. Along with the informed consent,
63 participant information sheet was prepared mentioning purpose of study. Collected data were
64 entered in computer software for analysis. Percentages were calculated individually for each
65 section to determine the frequency of the responses. Results were calculated and compared
66 for each section.

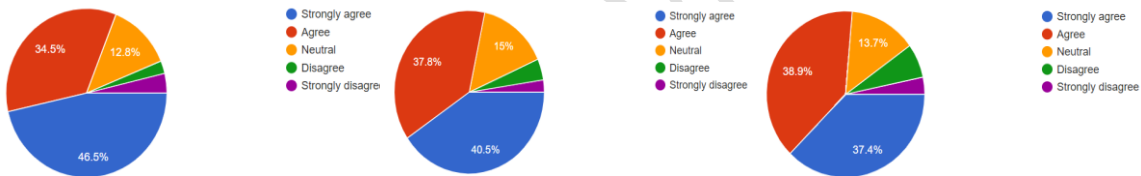
67 RESULTS:

68 All 452 responses were received in English language. Age of students were ranging from 18
69 to 24 years. Demographic data showed that majority of participants were female 284 (62.8%)

70 compared to male 168 (37.2%).48 students (10.6%) was of age 18-19 years,76 students
 71 (16.8%) were of age 19-20 years, 103 students (22.8%) was of age 20-21 years,74 students
 72 (61.4%) was of age 21-22 years,79 students (17.5%) was of age 22-23 years,72 students
 73 (15.9%) were of age 23-24 years. The factors which under-graduate students consider before
 74 purchasing dentifrice is mentioned in the pie-chart. Majority of students were considering
 75 freshness (81%) as the important factor in their toothpaste. It was followed by anti-decay
 76 property (78.3%), calcium content (76.3%), teeth whitening properties (76.1%) and
 77 desensitizing agent (75.9%). 74.8% believes that their dentifrice should be healthy to gums
 78 and teeth whereas 73.4% purchases dentifrice which is of fairly well known or established
 79 brand rather than unheard brand. 73% and 69.7% believes that their dentifrice should contain
 80 fluoride and herbal content. Highest quantity/ price ratio was important to 67% of study
 81 population whereas 66.6% of population purchases dentifrices under influence of their family
 82 and friends. Colour and packaging of dentifrices was important to 65.5% and 65.3%. 65% of
 83 study population opt to buy dentifrice which is on discount. Gel-based formulation and
 84 flavour of dentifrices was important to 61.7% and lastly, 55.4% of study population
 85 purchases dentifrice based on celebrity influence.

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CHART 1
 CONSIDER FRESHNESS
 OF TOOTHPASTE.

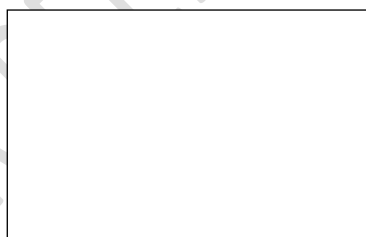
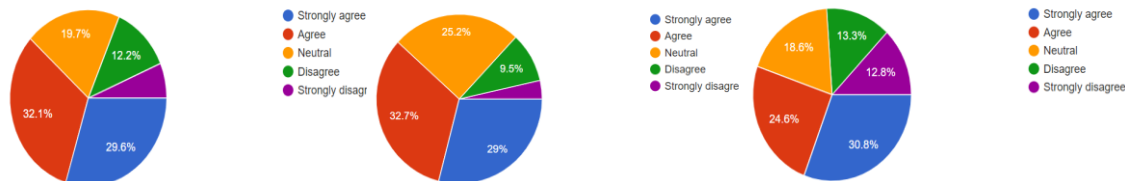


CHART 3
 LOOKING FOR
 CALCIUM OF
 TOOTHPASTE.

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CHART 4
 CONSIDER GEL
 BASED
 FORMULATION.

CHART 5
 LOOKING FOR
 FLAVOUR OF
 TOOTHPASTE.

CHART 6
 PURCHASE IS BASED ON
 CELEBRITY
 ADVERTISEMENT.

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101 DISCUSSION: Dentifrices are substances used with a toothbrush to clean and polish natural
102 teeth. They come in various forms, including paste, powder, gel, and liquid. Among these,
103 toothpaste is the most commonly recommended by dentists and is typically paired with a
104 toothbrush for effective oral hygiene.[9]

105 The recognition that mechanical tooth cleaning with a dentifrice is an essential part of daily
106 routines underscores its importance as a regularly purchased item. Our curiosity about
107 people's mindsets and the factors influencing their choice of dentifrice prompted us to
108 undertake this study. This findings of this study were similar to that conducted in
109 Mangalore[10] in which the participants were more influenced by branding, highest
110 price/quantity ratio, flavour, packaging and celebrity advertisements. The findings in the
111 present study were in contrast with the study done in Lagos teaching hospital, where the least
112 consideration were given to cost, fluoride, anti-decay and peer influence[11]. This study had
113 included young generation which influences people of all the ages. Also, the students were
114 not related to dentistry so this study had given insight regarding the factors which were
115 important for general population. Individuals in the health-care sector are already aware
116 about the factors which they should consider before purchasing the dentifrice. However,
117 awareness and knowledge is still required for general population. Based on the data, we have
118 found that more than 50% of population still purchases dentifrices under peer and celebrity
119 influence rather than knowing the content of dentifrice and their actual need. Also, more
120 emphasis were given on colour, flavour and packaging of the toothpaste which should not be
121 there.

122 CONCLUSION: Every individual should know that they have different needs and selection
123 should be done which is advisable for them and not to fall for marketing gimmick. Also, this
124 study will be beneficial for the dentifrices manufacturer, it will give idea regarding the
125 requirements and need of the population. Seminars and webinars should be conducted which
126 will enlighten the population to select dentifrice according to their needs and impart them
127 knowledge regarding its content, benefits and potential side effects.

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