



## Factors Influencing the Selection of Toothpaste and Toothbrush among Outpatients of Sri Sankara Dental College, Trivandrum

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Submitted: 01-02-2023

Accepted: 10-02-2023

### ABSTRACT

**AIM:** To assess the extend to which some factors influenced the choice of toothpastes and toothbrushes among the outpatients of sri sankara dental college varkala.

**METHODOLOGY:** A cross sectional questionnaire based study was conducted among outpatients of oral medicine and radiology department of sri sankara dental college varkala . Descriptive statistics and chi square tests were used to analyze the collected data.

**RESULT:** The study was completed with 200 responses, of which 58.8% of adolescents , 60.7% of young adults , 50.6% adults , and 45% senior citizens are selecting their toothpaste based on brand factor. In our study majority of respondents from first 3 educational groups that is, nursery - SSLC(50%), SSLC - higher secondary(60.3%), and bachelors degree(39.7%) are less concerned about ingredients in toothpaste, however majority of people holding masters degree(38.5%) are selecting toothpaste based on antibacterial agents. While assessing the result we found that majority of the students(49%) , unskilled(30%), skilled(38%) are switching to another brand due to unavailability of current brand, whereas professional(50%) , unemployed(36.4%) are not changing current brand.

**CONCLUSION:** The study showed that majority of the participants selected their toothpaste based on the commercial brand available and toothbrush on design. Switching to another brand was made only when there is non availability of current brand as it suggest that as for as long as the respondents are satisfied with a particular brand, they will stick to it.

**KEYWORDS:** Toothpaste, Toothbrush, Advertisement, Brand, Ingredients

### I. INTRODUCTION

Toothbrush and toothpaste remain the mainstay of oral health measure. There are numerous factors that influence the choice of consumers to trade their toothbrush and toothpaste. (1) some of the factors that had been implicated in determining choice of dentifrice include socioeconomic factors , design or packaging and advertisement. Some other factors that had been considered as important in the choice of toothpaste brand include the smell of the paste, perceived performance, awareness by the consumers and some other attributes of the paste. (2)

Oral health is closely associated with health, and poor oral health can have a detrimental effect on general health. (3) Oral health varies based on socioeconomic inequalities globally and depends on factors such as occupation, social -class , Income, and education.(4) While the brand reveals attributes, benefits, values, status and distinction, market positioning aims to improve consumers perception of a product, positively influencing the position that the brand occupies in the consumers mind.(5)

The selection of appropriate oral health care products can play critical role in improving oral health and also in preventing dental diseases for the most common problem faced by the people is the selection of right oral care product. Hence, a personalized approach should be used by the people to identify the best formulation of oral care that fits into the requirement of the people and scheduled repetition of oral care hygiene procedures are a must to obtain the desired result as achieving a healthy mouth takes a lifetime of care.(6)



## II. MATERIALS AND METHODOLOGY

This is a cross sectional study conducted between October 2022 to November 2022. Participants were selected using convenience sampling.

### INCLUSION CRITERIA

Study was conducted among outpatients in oral medicine and radiology department of Sri Sankara dental college , Varkala ,Thiruvananthapuram, Out of which 200 people participated ,from whom written consent were obtained.

### EXCLUSION CRITERIA

Patients who did not consent to the survey were excluded from the survey .

## III. METHODOLOGY

A cross sectional survey was conducted among outpatients of Oral medicine and Radiology department of Sri Sankara Dental college, Varkala , Thiruvananthapuram. “FACTORS INFLUENCING THE SELECTION OF TOOTH PASTE AND TOOTH BRUSH AMONG OUT PATIENTS OF SRI SANKARA DENTAL COLLEGE ,TRIVANDRUM”. We prepared a

questionnaire consisting of a total of 20 questions, Including the demographic details as well as the questions pertaining to factors influencing the selection of toothpaste and toothbrush. The questionnaire was distributed among the participants by means of printed form. Informed consent was taken from all the participants at the beginning of the survey. The participants were asked to choose an appropriate response to each question from the set of options provided under each question. Data was collected from the recorded responses.

## IV. STATISTICAL ANALYSIS

The collected data was analyzed using SPSS software 25.0 .The data was analyzed using descriptive statistics and association among the variables were done using Chi square test.

## V. RESULTS

The study was completed with 200 responses,of which 17% of respondents were in the age group of 0-18 years,30.5% of people belong to 19-30 years,42.5% belong to 31-60 years,and 10% belong to 61-90 years group.

FIGURE 1: FREQUENCY OF AGE DISTRIBUTION

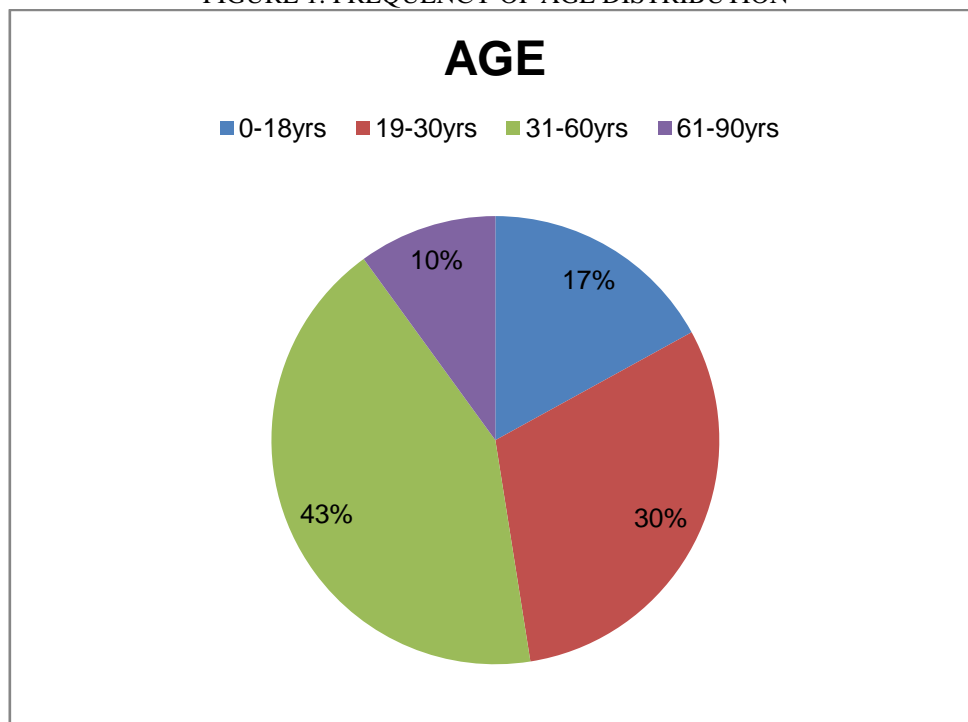




FIGURE 2:FREQUENCY OF SEX DISTRIBUTION

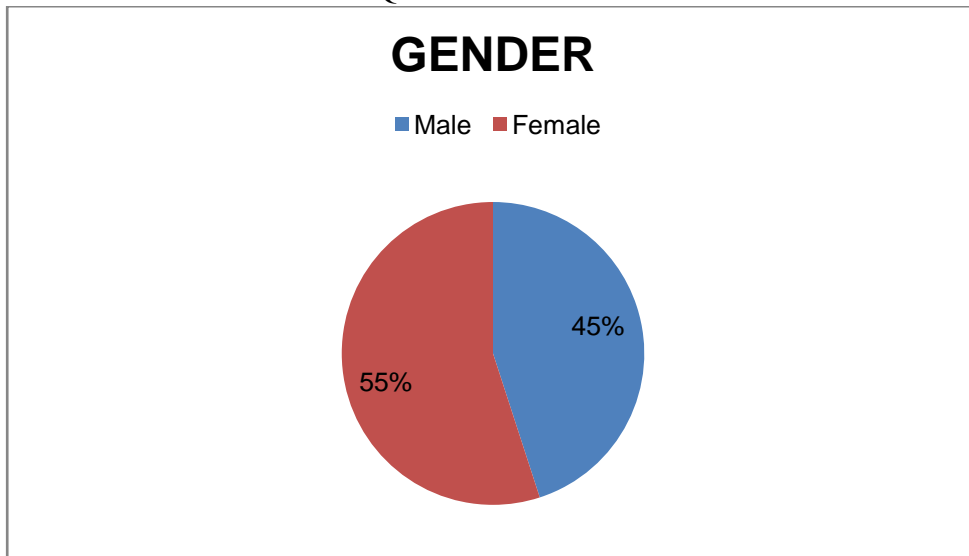


Figure 2 shows that 55% of the respondents were females and 45% were males.

FIGURE 3: FREQUENCY OF OCCUPATION DISTRIBUTION

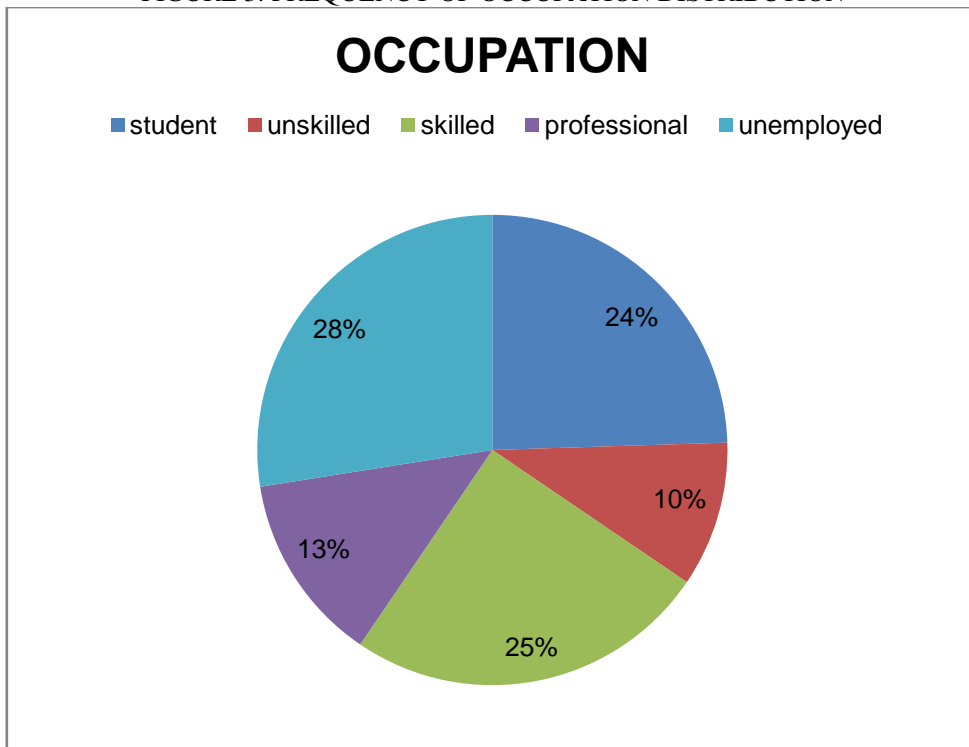


Figure 3 shows 28% of respondents were unemployed , 25% of respondents were skilled, 24% Of respondents were students , 13% were professionals , and 10% were unskilled.



FIGURE 4: FREQUENCY OF EDUCATION DISTRIBUTION

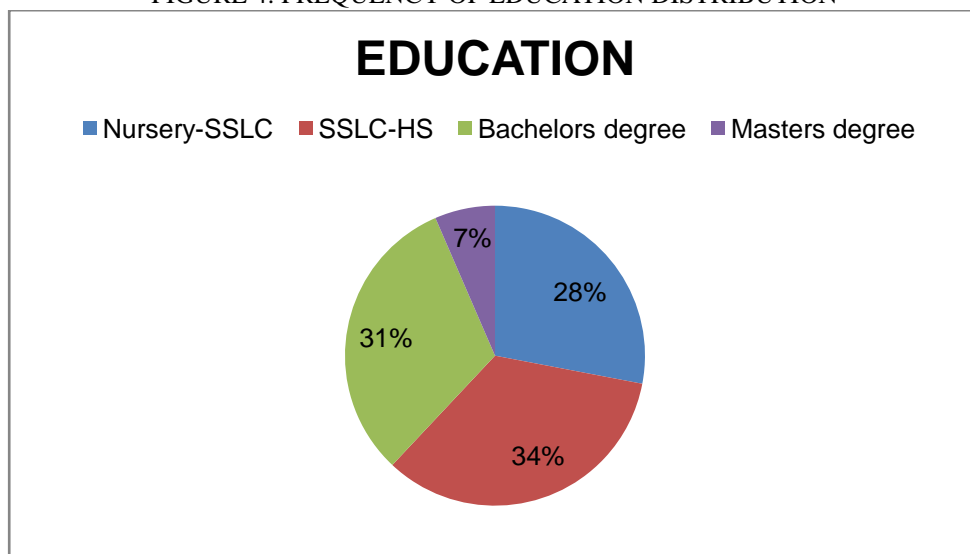


Figure4 shows 34% of respondents were with educational qualification between SSLC-HS, 32% of respondents were with bachelors degree, 28% were between nursery-SSLC , and 6% were with masters degree.

TABLE 1: FREQUENCIES

SLNO:			Frequency	Percentage (%)
1	Currently used toothpaste	Colgate	123	61.5
		Close up	33	16.5
		Sensodyne	13	6.5
		Pepsodent	10	5.0
		Herbal	21	10.5
		Others	0	0
2	Selection of toothpaste	Flavor	38	19.0
		Advertisement	25	12.5
		Cost	16	8.0
		Brand	109	54.5
		Dentist recommended	12	6.0



		Others	0	0
3	Switching to another brand	Advertisement	20	10.0
		Non availability of current brand	74	37.0
		Prise rise of current brand	11	5.5
		Better packing	3	1.5
		Dentist recommended	33	16.5
		No change	59	29.5
4	Preferences towards ingredients	Fluoride	14	7.0
		Antibacterial agent	36	18.0
		Abrasives	8	4.0
		Foaming agent	20	10.0
		Sweeteners and flavoring agent	25	12.5
		None	97	48.5
5	Steps taken to improve dental problem	Use of toothpaste recommended by dentist	33	16.5
		No dental problems	51	25.5
		Others	43	21.5
		No steps taken	73	36.5
6	Side effects on using particular toothpaste	Yes	7	3.5
		No	193	96.5
7	Type of toothpaste	Gel	44	22.0



		Normal	156	78.0
8	Currently using toothbrush	Manual	199	99.5
		Powered	1	0.5
		Sonic and ultrasonic	0	0
		Laser	0	0
9	Selection of toothbrush	Design	82	41.0
		Cost	43	21.5
		Brand	50	25.0
		Advertisement	11	5.5
		No preference	14	7.0
10	Type of bristles	Soft	87	43.5
		Medium	73	36.5
		Hard	31	15.5
		Others	9	4.5
11	Frequency of changing toothbrush	1 month	36	18.0
		3 month	91	45.5
		6 month	62	31.0
		1 yr	8	4.0
		More than 1 yr	3	1.5



12	Other oral hygiene practices	Dental floss	5	2.5
		Mouthwash	44	22.0
		Interdental cleansing devices	8	4.0
		Others	23	11.5
		Nil	120	60.0
13	Any traditional oral hygiene method	Tooth powder	27	13.5
		Charcoal	60	30.0
		Mango leaf	5	2.5
		Others	5	2.5
		Not using	103	51.5
14	Any orthodontic treatment	Yes	31	15.5
		No	169	84.5
15	If yes for the above question , type of brush using	Normal	6	3.0
			25	12.5
		Orthodontic brush	0	0
		No treatment	169	84.5
16	Any systemic disorders	Yes	37	18.5
		No	163	81.5



Table 1 shows frequency of factors affecting selection of toothpaste and toothbrush among participants. Majority of participants, about 61.5% are currently using colgate toothpaste. About 54.5% of respondents are selecting toothpaste based on brand. Most of the participants(37%) are switching to another brand due to non availability of current brand.About 48.5% of participants are not concerned about ingredient.About 36.5% of people are not taking any steps to improve dental problems.96.5% of respondents doesn't experienced any side effects on using particular tooth paste. About 78% of respondents preferred normal tooth paste rather

than gel type.99.5% of participants are currently using manual toothbrush. Majority of participants of about 41%are selecting toothbrush based on design.About 43.5% respondents preferred soft bristles. 45.5% of respondents are changing their toothbrush in 3 months. About 60% of participants are not following any other oral hygiene practices. 51.5% of participants are not following any traditional oral hygiene method. About 84.5% of respondents had not undergone any orthodontic treatments.Of the people undergone orthodontic treatment 12.5% of people have changed to orthodontic brushes.About 81.5 % people are not having any systemic disorders

**TABLE :2**  
COMPARISON OF AGE WITH SELECTION OF TOOTHPASTE & TOOTHBRUSH

		AGE				P VALUE
		Adolescent	Young adults	adults	Senior citizens	
Criteria for selection of toothpaste	Flavor	29.4%	19.7%	15.3%	15.0%	0.003*
	advertisement	2.9%	11.5%	20.0%	0%	
	Cost	2.9%	6.6%	9.4%	15.0%	
	Brand	58.8%	60.7%	50.6%	45.0%	
	Dentist recommended	5.9%	1.6%	4.7%	25.0%	
	Others	0%	0%	0%	0%	
Steps taken to improve dental problems	Use of toothpaste recommended by dentist	11.8%	16.4%	21.2%	5%	0.001*
	No dental problems	38.2%	39.3%	11.8%	20%	
	Others	8.8%	24.6%	24.7%	20%	
	No steps taken	41.2%	19.7%	42.4%	55%	
Any systemic disorders	Yes	0.0%	13.1%	25.9%	35.0%	0.001*
	No	100%	86.9%	74.1%	65.0%	

Table 2 shows comparison between age with selection of tooth paste and tooth brush. In all age groups brand was the criteria for selection od tooth paste . this result was statistically significant . most of the adolescents (41.2%) reported that they doesn't took any steps to improve dental problems. Among 39.3% of young adults responded that they

doesn't had any dental problems. No steps were taken by 42.4% of adults and 55% of senior citizens. The result was statistically significant . While comparing age group with presence of any systemic disorder most of the age groups showed no systemic disorders.

**TABLE :3**  
COMPARISON OF OCCUPATION WITH SELECTION OF TOOTHPASTE AND TOOTHBRUSH

		OCCUPATION					P VALUE
		Student	Unskilled	Skilled	Professional	Unemployed	
Switching to another brand	Impact of advertisement	6.1%	20%	14%	3.8%	9.1%	0.012*
	Non availability of current brand	49%	30%	38%	23.1%	34.5%	





	Price rise of current brand	2%	20%	10%	0%	1.8%	
	Better packing	2%	5%	0%	3.8%	0%	
	Dentist recommended	10.2%	15%	20%	19.2%	18.2%	
	No change	30.6%	10%	18%	50%	36.4%	
Preference towards ingredients in toothpaste	Fluoride	10.2%	15%	0%	11.5%	5.5%	0.000*
	Antibacterial agent	12.2%	15%	14%	50%	12.7%	
	Abrasives	4.1%	0%	4%	7.7%	3.6%	
	Foaming agent	6.1%	5%	16%	7.7%	10.9%	
	Sweeteners and flavouring agent	24.5%	15%	6%	11.5%	7.3%	
	None	42.9%	50%	60%	11.5%	60%	
Any traditional oral hygiene method	Tooth powder	4.1%	20%	20%	11.5%	14.5%	0.024*
	Charcoal	30.6%	10%	44%	15.4%	30.9%	
	Mango leaf	0%	10%	0%	3.8%	3.6%	
	Others	4.1%	5%	0%	0%	3.6%	
	Not using	61.2%	55%	36%	69.2%	47.3%	
Any systemic disorder	Yes	2	45	14	11.5	30.9	0.000*
	No	98	55	86	88.5	69.1	

Table 3 shows comparison of occupation with selection of toothpaste and toothbrush. Most of the students, unskilled and skilled participants responded that non availability of current brand was the reason for switching to another brand, while no change of current brand was made among 50% of professionals and 36.4% of unemployed.

Except professionals, all the other occupational categories showed no preference towards ingredients in a toothpaste while 50% of

the professionals responded that antibacterial agent was the preferable ingredient.

Most of the categories excluding skilled participants responded that they are not using any traditional oral hygiene method. About 44% of the skilled participants used charcoal as a oral hygiene method.

Among all the occupational categories responded that they don't have any systemic disorders. This result was statistically significant.

**TABLE :4**  
COMPARISON BETWEEN EDUCATION WITH SELECTION OF TOOTHPASTE & TOOTHBRUSH

		EDUCATION				P VALUE
		Nursery -SSLC	SSLC-Higher secondary	Bachelors degree	Masters degree	
Preferences towards ingredients in toothpaste	Fluoride content	7.1%	2.9%	9.5%	15.4%	0.004*
	Antibacterial agent	10.7%	11.8%	27%	38.5%	
	Abrasives	1.8%	1.5%	6.3%	15.4%	
	Foaming agent	10.7%	16.2%	4.8%	0%	
	Sweeteners & flavouring agents	19.6%	7.4%	12.7%	7.7%	



	None	50%	60.3%	39.7%	23.1%	
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Table 4 shows comparison between education with selection of tooth paste and toothbrush. About 38.5% of people holding masters degree shows preference towards antibacterial agent while selecting toothpaste. The other 3 groups that is; 50% of people with educational qualification in between nursery to SSLC, 60.3% of people with educational qualification in between SSLC to higher secondary, and 39.7% of people holding bachelors degree shows no preference towards any particular ingredient of toothpaste. There is significant relation noted ( $p < 0.004$ )

### VI DISCUSSION

This study was conducted from 22 October 2022-5 November 2022 for assessing the factors influencing the selection of toothpaste and toothbrush among the outpatients of Sri Sankara dental college, Varkala, Trivandrum. The included age groups are 0-18 yrs, 19-30 yrs, 31-60 yrs, 61-90 yrs, among them 55% were females and 45% males.

From the analysis of the results yielded from our study we decoded following facts and information:

In our study we found that majority of the participants that is, 58.8% of adolescents, 60.7% young adults, 50.6% adults, and 45% senior citizens are selecting their toothpaste based on brand factor. Similar results were seen in study done by Sivadasan V et al [7], were 53% of their study participants selected tooth paste based on the brand. This result was also in accordance with study conducted by Dani et al found that major parameter for selection of toothpaste was brand name among 28% of participants [8]. Dentist recommendation was found as a significant factor in the study done by Lalithambigai G et al with 69.6% study participants opting so [9] which is in converse with our study.

While assessing the result we found that majority of adolescents (41.2%), adults (42.4%), senior citizens (55%) took no steps to improve dental problem while 39.3% young adults doesn't have any dental problem.

Also in our study majority of our participants (almost all adolescents, 86.9% of young adults, 74.1% adults and 65.0% of senior citizens) have no systemic disorders.

In our study majority of respondents from first 3 educational groups that is, nursery - SSLC (50%), SSLC - higher secondary (60.3%), and bachelors degree (39.7%) are less concerned about

ingredients in toothpaste, however majority of people holding masters degree (38.5%) are selecting toothpaste based on antibacterial agents. This is in converse to the study conducted by J Kittu et al, were majority (82%) of them are using fluoridated toothpaste [10]. Even though majority of children are less concerned about ingredients, 19.6% of children are selecting toothpaste based on presence of sweeteners and flavouring agents. Similar results were reported in a study conducted by Choudhari S et al, were most of the children (41%) opted for fruity, followed by sweet (23%), minty (18%), fragrant (16%), no child would like to use toothpaste with bitter taste or medicated smell [11,12,13].

While assessing the result we found that majority of the students (49%), unskilled (30%), skilled (38%) are switching to another brand due to unavailability of current brand, whereas professional (50%), unemployed (36.4%) are not changing current brand this is in accordance with a study by Sivadasan V et al of the total study subjects 50% of them were using their current tooth paste brand for more than 2 yrs. [7] In our study advertisement has an impact on switching to another toothpaste brand, which is in accordance with study done by Shrivasthava A et al. results revealed that consumers considered advertisement as a reliable source of knowledge as compared to others ( friends, neighbors, reference group ) opinions [14].

In our study 42.9% of students are mostly not concerned about ingredients in a toothpaste and 10.2% of students are least concerned about fluoride content in a toothpaste which is in converse with a study done by Lalithambigai et al that 98.1% and 92.6% of government and private school Parents respectively use fluoride toothpaste [9,15]

Most of the students, unskilled, professional and unemployed participants are not using any traditional oral hygiene methods while about 44% of skilled participants use charcoal. While considering the usage of other traditional oral hygiene methods less number of participants are using the same.

Of the 200 study participants, most of students (98%), unskilled (55%), skilled (86%), professional (88.5%) and unemployed (69.1%) are not having any systemic disorders.

### VII. CONCLUSION

The study showed that majority of the participants selected their toothpaste based on the



commercial brand available and toothbrush on design. Advertisements had less effect on the respondents in their choice of either toothpaste or toothbrush. However dentist recommendation had only least influence compared to brand factor. Switching to another brand was made only when there is non availability of current brand as it suggest that as for as long as the respondents are satisfied with a particular brand, they will stick to it. People need to be educated on the significance of maintaining oral hygiene, right selection , and methods of using oral hygiene products because there appears to be a general lack of knowledge and awareness about how to choose a toothbrush and toothpaste.

#### REFERENCE

- [1]. Balasubramaniam A et al. Factors influencing selection of manual toothbrush among an urban population in Chennai city, India
- [2]. O I Opeodu et al. Factors influencing choice of oral hygiene products by dental patients in a Nigerian teaching hospital
- [3]. Shahi A K et al. Oral health behavior and factors influencing the selection of oral hygiene products among the adolescent tobacco consumers in jharkhand
- [4]. Awais F et al. Factors influencing consumer's choice of oral hygiene products
- [5]. Deison Alencar Lucietto, Sidimar Meira Sagaz, Caroline Muneron Reque, Ediane Casani, Mayla Prass Mathias, Gabrielly Vargas. Factors Involved in the Choice of Oral Hygiene Products by Students in the Health Area
- [6]. Agrawal A et al. Exploring the factors influencing the choice of oral care products
- [7]. Dr. Visakha Sivadasan, Dr. Manjunath C, Dr. Archana Krishna Murthy, Dr. Shilpashree KB, Dr. Divya BM and Dr. Keerthy S. Factors influencing choice of oral hygiene products used among the outpatients attending a dental college in Bangalore
- [8]. Dani V. Buying behavior of toothpaste in urban India: A study on Pune city. Pac Bus Rev Int 2013
- [9]. Lalithambigai G, Rao A, Rajesh G, Shenoy R, Pai MB. Dental health behavior pertaining to fluoridated toothpaste usage among the parents of private and government school students in Mangalore, South India. J Indian Assoc Public Health Dent 2019
- [10]. J Kittu and V Aditi , Knowledge , attitude and behavior concerning fluoridated toothpaste among Indian adolescents
- [11]. Sahil Choudhari, Deepa Gurunathan, AC Kanthaswamy .children's perspective on color, smell, flavor of toothpaste
- [12]. Divard R, Urien B .The consumer lives in a colored world .
- [13]. Roedder DL .age differences in childrens responses to television advertising. An information processing approach.
- [14]. Shrivasthava A (2014) Do advertisements work? A study on change in consumers purchasing behavior due to advertisements
- [15]. Chesters RK , Huntington E , Burchell CK , Stephen KW. Effect of oral care habits on caries in adolescents.