



ORIGINAL RESEARCH PAPER

Public Health

PEOPLE'S VIEW IN SELECTING A TOOTHPASTE – A QUESTIONNAIRE STUDY

KEY WORDS: Toothpaste, Self-Applied Topical Fluorides, Oral Hygiene.

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ABSTRACT

Introduction Common oral diseases like dental caries and periodontal diseases can be prevented by maintaining proper oral hygiene. Selecting the right toothbrush and toothpaste as well as brushing techniques by an individual is essential for oral hygiene maintenance. This study is conducted to analyse people's view on toothpaste selection. **Materials and Methods** A cross sectional study was conducted among 100 Out-Patients attending a dental college in Melmaruvathur during the month of February 2023. The questionnaire had 11 closed- end questions regarding demographic details and preferences in selecting toothpaste. Descriptive statistics and chi-square analysis was performed. **Results** The present study included 55% males and 45% females. Around 60% of them were graduates and 37% were less than 20 years. Around 60% of them select toothpaste based on the suggestion of their family and dentist. Colgate was the commonly used toothpaste brand (42%). Three-fourths of the study population (75%) did not change their toothpaste brand frequently. Many study participants reported that their toothpaste contains fluoride (45%), prevents dental caries (49%), whitens teeth (36%), prevent tartar built-up (50%) and freshens breath (66%). No significant association was found between age, gender, socio-economic status and toothpaste selection. **Conclusion** The present study conclude that majority of the participants selected their toothpaste based on family members' suggestion. The preference is not based on the fluoride content / specific categories. General population should be educated about the use of fluoridated toothpastes.

INTRODUCTION

Oral diseases continue to be a global public health issue, particularly dental caries and periodontal diseases. These illness account for a sizable percentage of the expenses of health systems and are one of the leading causes of oral pain, tooth loss, and decreased quality of life [1]. Effective oral hygiene plays a significant role in avoiding dental caries and removing plaque and calculus [2]. When it comes to maintaining the health of your mouth and gums, knowing how to choose a toothbrush and toothpaste is crucial. An essential component of proper oral hygiene is brushing, and the quality of each brushing session depends on the toothbrush and toothpaste being used [3]. It is simpler to eliminate food residue and plaque from teeth when using a toothbrush and toothpaste with proper brushing techniques [4].

Most toothpaste have a number of components that contain fluoride to keep tooth enamel strong and healthy and to prevent decay, detergents to make foam, making it simpler to remove food particles and plaque, and an abrasive to clean stains [5]. Additionally, there are other toothpastes available that are made to address particular problems like sensitive teeth and gingivitis. Since there are numerous toothpaste varieties on the market, choosing the best one might be challenging [6]. The right toothpaste should be chosen based on the individual's personal needs and the ingredients in the toothpaste. The aim of this study is to analyse the people's view of how they are selecting their toothpaste.

MATERIALS AND METHODS

A cross sectional study was conducted among outpatients in a dental college at Melmaruvathur during the month of February 2023. A self administered closed ended questionnaire consisting of demographic details and 11 questions related to the tooth paste choice was framed. A pilot study was conducted to assess the questionnaire in terms of clarity, difficulty to understand among the out patients of the dental college. Modifications were done in two questions one

on the choice of the tooth paste and another in the tooth paste brand used by them.

To confirm the reliability the questionnaire was also tested and validated. The sample size was estimated to be 98 and was rounded off to 100 based on the prevalence of tooth brush and tooth paste used for the oral hygiene maintenance among the population in the pilot survey. Patients were briefed about the study and informed consent was obtained.

All the responses were collected from the out patients and data was entered in Microsoft excel. Descriptive statistics and chi square analysis was performed to find the association between toothpaste choices with age.

RESULTS

A total of 100 participants from the outpatients were included in the study, in which 55 were male and 45 were female with a mean age of 28.97±11.968. Demographic information of the study including level of education, area of location and occupation were obtained. Approximately 64% of the participants live in semi-urban area. The majority of the participants (60%) were graduates. It was seen that 96% of the participants clean their oral cavity using tooth brush and tooth paste while the other participants used tooth powder and neem stick.

Table 1: Demographic details of the study population

Demographic Details		Number of participants
Gender	Male	55
	Female	45
Age Group	<20 years	37
	21 – 30 years	26
	31 – 40 years	18
	>40 years	19
Education	Illiterate	3
	Primary school	1

	Middle school	11
	High school	10
	Intermediate/diploma	13
	Graduate	60
	Profession/honors	2
Area of Residence	Rural	29
	Semi-urban	64
	Urban	7

Choice Of Tooth Paste:

On assessing how they selected their tooth paste 30% of the participants choose based on family influence (used same tooth paste as that of family members usage), 30% of the participants selected based on their dentist advice. While 17% of the participants selected based on flavour and 16% of the participants selected based on advertisement and only 3% of the participants selected based on cost.

Selection Of Tooth Paste For Children:

On assessing the awareness of how they selected the tooth paste for kids, 40% of the participants stated that they selected kids specific tooth paste for their children while 10% of the participants used the same tooth paste as that of ordinary toothpaste and 46% of the participants unaware of it. On assessing how they selected the toothpaste for their children, 66% of the participants said that they selected based on their dentist advice.

Tooth Paste Brand:

On evaluating whether they change their tooth paste brand frequently, only 20% of the participants changed their tooth paste brand regularly while 75% of the participants used the same brand of toothpaste for a long time. On assessing the knowledge of tooth paste ingredients, 45% of the participants addressed the availability of fluoride in their toothpaste while 33% of the participants unaware of it.

Based on the whitening capacity of their toothpaste, prevention of dental caries and tartar build up, 36% of the participants accepted that their teeth got whiten due to their regular usage of toothpaste and 49 - 50% of the participants agreed that daily usage of toothpaste prevents their dental caries and tartar build up.

Prevention of Halitosis:

66% of the population agreed that their tooth paste prevents bad breath and freshens their oral cavity for which they used the particular brand.

Table 2: Distribution Of The Study Population Based On Age Group:

Questions	Responses	Age group				Total	P-value
		<20 years	21-30 years	31-40 years	>40 years		
1. What kind of material do you use to clean your oral cavity?	A. Tooth brush and toothpaste	34	26	18	18	96	.527
	B. Others	3	0	0	1	4	
2. How do you select your toothpaste?	A. Based on flavor	5	9	1	2	17	.345
	B. Based on advertisement	7	4	4	1	16	
	C. Based on dentist advise	10	6	8	6	30	
	D. Based on cost	1	1	1	0	3	
	E. Based on family influence	12	6	3	9	30	
4. Do children have different kind of toothpaste?	A. Yes	12	12	9	7	40	.888
	B. No	4	3	2	1	10	
	C. Don't know	19	11	6	10	46	
5. If yes, how do you select your toothpaste for kids?	A. Based on flavor	0	7	0	0	7	.001
	B. Based on advertisement	2	0	3	3	8	
	C. Based on dentist advise	30	16	11	9	66	
	D. Based on cost	0	1	0	0	1	
	E. Based on familial generation	1	0	1	2	4	
6. Do you change your toothpaste brand frequently?	A. Yes	3	10	4	3	20	.151
	B. No	32	15	13	15	75	
	C. Don't know	0	1	0	0	1	
7. Do you think that your toothpaste Contain fluoride?	A. Yes	17	14	5	9	45	.449
	B. No	12	5	8	8	33	
	C. Don't know	6	7	4	1	18	

DISCUSSION

The dental caries formation was based on the susceptibility of host (tooth surface and composition of saliva), the bacterial agent present in the dental plaque and the fluoride supplement usage which increases the remineralization of the enamel and inhibits demineralization process^[7].

Tooth brushing with fluoridated toothpaste was found to be a cost effective caries control measure and a major reason for decline in caries prevalence among many countries^[7]. The fluoride concentration in toothpaste ranges at various levels from 1000 to 1500 parts per million (ppm) depending on the fluoride availability from other sources.

In the present study 96% of the participants use tooth brush and tooth paste as an oral hygiene aid which was similar to the study conducted by Khanal et al^[8] (99%) and Anusha V R et al^[9] where 98% of the parents preferred tooth brush and tooth paste as a oral hygiene material for their children.

A study based on Uma et al^[10], Khanal S^[8] (56.1%) and Opedu OI^[11] (50%) said that flavour was considered as the predominant factor for the choice of toothpaste were as only 17% of our study participant agree in this regard . Most participants have only been using the current brand of toothpaste for the many years.

Most preferred brand of toothpaste was discovered to be Colgate in study conducted by Kavitha et al, Khanal S et al^[8,12]. Whereas 30% of the study participants selected the tooth paste in our study based on dentist advice and family influence which was 11% and 48% in study conducted by Rahim, et al^[13].

The majority of participants don't use any other oral hygiene aids other than tooth brush and tooth paste for maintaining their oral hygiene in our study whereas study by Paul et al., said that only 8% of customer used and aware about mouthwash^[14].

Participants in our study were aware that there are specific toothpastes for children, but they don't use them frequently. In a study by Jensen et al., states similarly that the young participants had a high level of knowledge about fluoride in toothpaste and its importance for preventing caries where the older age group had less awareness about fluoride^[15].

Certain numbers of participants (36%) think that toothpaste

8. Do you think that your toothpaste whitens your teeth?	A. Yes	18	8	4	6	36	.263
	B. No	5	5	4	0	14	
	C. Don't know	12	13	9	12	26	
9. Do you think that your toothpaste prevent tooth decay?	A. Yes	19	12	6	12	49	.660
	B. No	13	12	10	4	39	
	C. Don't know	3	2	1	2	8	
10. Do you think that your toothpaste reduce tartar build up?	A. Yes	22	13	7	8	50	.861
	B. No	9	9	7	6	31	
	C. Don't know	4	4	3	4	15	
11. Do you think that your toothpaste freshens your breath?	A. Yes	24	16	13	13	66	.960
	B. No	6	6	3	3	18	
	C. Don't know	5	4	1	2	12	

whitens their teeth. Though pastes containing hydrogen peroxide and carbamide peroxide are proven to be safe, along with their hazards, it is mentioned that not all whitening toothpastes are healthy^[19].

Nearly half of the study participants revealed their reduction in dental caries and tartar build up. Study conducted by Twetman et al, showed that there is greater caries reduction in supervised tooth brushing than those with unsupervised brushing^[17].

More than half of the participants (66%) in this study revealed their positive attitude towards their freshness in breath due to regular usage of toothpaste. Toothpaste may contain flavourings to mask the odour of bad breath, but other chemicals have been added to neutralise the volatile sulphur compounds were reported in Sheen S et al study^[18].

Although fluoride is the primary anticaries agent in toothpastes, there's a lot more to it. A number of co-adjutant anti-caries agents have been tested and made available in toothpaste formulations, with evidence of efficacy. Triclosan formulations have been shown to significantly reduce gingival inflammation and the progression of gingivitis to periodontitis, calculus, and halitosis. Stannous fluoride toothpastes were also shown to have a significant effect on gingivitis and biofilm reduction^[19,20].

CONCLUSION

Even though numerous brands of oral hygiene products are available in the market what is important to them and the way they use it like different brushing techniques or appropriate amount of paste to apply can lead to their oral health. Though participants are aware of children's toothpaste, they don't put in practice which requires further motivation to take action. Most people think that brushing their teeth as part of their day to day activity but the actual reality how it prevents the common oral diseases to be educated to the people.

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