

**Factors Influencing Selection of Oral Hygiene Aids Among Young Dentists-A Comparative Study**

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**Abstract**

**Aim:** The aim of the present study was to assess factors influencing selection of oral hygiene aids in young dentists.

**Materials and Methods:** It was a questionnaire based study in which a self made questionnaire comprising of 14 questions about assessment of factors influencing selection of oral hygiene aids distributed among dental interns and first year BDS students.

**Results:** The results concluded that majority of interns were mainly influenced by several factors like taste, advertisement etc even after acquiring knowledge about the hygiene aids. The questionnaire distributed among dental interns as well as first year BDS students was same and frequency of distribution was also same. There were no significant differences found in factors influencing the selection of oral hygiene aids by both the groups.

**Conclusion:** Our study showed that selection of oral hygiene aids among dental students was influenced by various factors. Irrespective of the knowledge about the aids, the advertisements, taste, previous experiences and

comfort played significant role in selection of the oral hygiene aids.

**Keywords:** Advertisement, Aids, Oral Hygiene, dentists

**Introduction**

Oral hygiene is the practice of maintaining a clean mouth to prevent dental problems, such as dental cavities, gingivitis, periodontitis, and halitosis. Plaque and calculus are the main causes of gingival disease and dental caries. Proper oral hygiene is not only about teeth and fresh breath but it is also one of the best ways to help maintain good overall health<sup>[1]</sup>. Oral health is considered to be the mirror of general health.

As future oral health care leaders, dental students have a major role in patient education and oral health promotion. It is expected that dental students will become exemplaries in their own oral health attitudes and behaviors, and these may reflect the manner in which their future roles in oral health promotion and education are pleased<sup>[2]</sup>. Therefore, acquiring knowledge and attitudes related to dental health and the prevention of oral diseases is very important during training period<sup>[3]</sup>. One of the main objectives of dental education is to train students who can encourage

general population to adopt good oral hygiene. They are more likely to be able to do this if they themselves are well educated & motivated<sup>[4]</sup>.

Dentists' attitudes toward their oral health have been anticipated to affect the quality of care delivered to patients. To provide the general population with a proper knowledge of oral health, general dental practitioners must take positive approaches to their own oral health so that they can effectively teach what they believe<sup>[5]</sup>.

Most people's choice of oral hygiene aids is based on taste, advertisement, or cost and not on the oral benefits, it provides. Some of the factors which influence the choice of oral hygiene aids from the customer's point of view are perceived performance, brand awareness, product attribute, taste and cost of the product, credibility of the company, availability of the product and ingredients.

Hence, this study was designed with an aim to assess the factors influencing selection of oral hygiene aids in young budding dentists and dental students.

## Materials and Methods

A questionnaire based, cross sectional type of study was conducted in department of Oral Medicine & Radiology, Yenepoya dental college, Mangalore Karnataka. The study was aimed to assess the factors influencing selection of oral hygiene aids in young dentists. A self made

questionnaire, comprising of 11 questions about assessment of factors influencing selection of oral hygiene aids in young dentists was formulated. The questionnaire was approved by Scientific Review Board and Ethical committee of the institution. The questionnaire was also validated by two professors for relevance of the questions to be asked. Dental interns undergoing internship training and First year students of Yenepoya dental college, during the period when study was being conducted were included in the study while as all second year third year and final year dental students were excluded. On the basis of convenience sampling method, a minimum sample size of 100 was found to be statistically significant using G\* software. After taking proper informed consent from the participants, the questionnaire was distributed among 50 interns and 50 first BDS students, they were given required time to mark the appropriate answers. All the participants marked all the questions and returned the questionnaire form. After collection, the data was entered in Excel sheets and was subject to statistical analysis. Descriptive statistics was used to calculate frequency and percentages using SPSS Software version 22.

## Results & Observations

### Frequency Tables

Table 1 : Whether brand of tooth paste changed after joining Dentistry:

Group		Frequency	Percent	Valid Percent	Cumulative Percent
Interns	Yes	12	24.0	24.0	24.0
	No	10	20.0	20.0	44.0
	Not applicable	28	56.0	56.0	100.0
	Total	50	100.0	100.0	
1 <sup>st</sup>	Yes	8	16.0	16.0	16.0

BDS	No	42	84.0	84.0	100.0
	Total	50	100.0	100.0	

Table 2: Whether sticking to single brand of tooth paste:

Group			Frequency	Percent	Valid Percent	Cumulative Percent
Interns	Valid	Yes	12	24.0	24.0	24.0
		No	38	76.0	76.0	100.0
		Total	50	100.0	100.0	
1 <sup>st</sup> BDS	Valid	Yes	27	54.0	54.0	54.0
		No	23	46.0	46.0	100.0
		Total	50	100.0	100.0	

Table 3: Selection of tooth paste is based on

Group			Frequency	Percent	Valid Percent	Cumulative Percent
Interns	Valid	Advertisement	17	34.0	34.0	34.0
		Contents of paste	17	34.0	34.0	68.0
		Price of the paste	2	4.0	4.0	72.0
		Taste of the paste	14	28.0	28.0	100.0
		Total	50	100.0	100.0	
1 <sup>st</sup> BDS	Valid	Advertisement	8	16.0	16.0	16.0
		Contents of paste	24	48.0	48.0	64.0
		price of the paste	2	4.0	4.0	68.0
		Taste of the paste	16	32.0	32.0	100.0
		Total	50	100.0	100.0	

Table 4: Whether brand of tooth brush changed after joining dentistry:

Group			Frequency	Percent	Valid Percent	Cumulative Percent
Interns	Valid	Yes	29	58.0	58.0	58.0
		No	21	42.0	42.0	100.0
		Total	50	100.0	100.0	
1 <sup>st</sup> BDS	Valid	Yes	15	30.0	30.0	30.0
		No	35	70.0	70.0	100.0
		Total	50	100.0	100.0	

Table 5: Whether sticking to single brand of tooth brush:

Group			Frequency	Percent	Valid Percent	Cumulative Percent
Interns	Valid	Yes	12	24.0	24.0	24.0
		No	38	76.0	76.0	100.0
		Total	50	100.0	100.0	
1 <sup>st</sup> BDS	Valid	Yes	14	28.0	28.0	28.0
		No	36	72.0	72.0	100.0
		Total	50	100.0	100.0	

Table 6: Selection of tooth brush is based on;

Group			Frequency	Percent	Valid Percent	Cumulative Percent
Interns	Valid	Advertisement	7	14.0	14.0	14.0
		Bristles of the brush	40	80.0	80.0	94.0
		Longitivity of the brush	3	6.0	6.0	100.0
		Total	50	100.0	100.0	
1 <sup>st</sup> BDS	Valid	Advertisement	3	6.0	6.0	6.0
		Bristles of the brush	38	76.0	76.0	82.0
		Price of the brush	2	4.0	4.0	86.0
		Longitivity of the brush	7	14.0	14.0	100.0
		Total	50	100.0	100.0	

Table 7: Frequency of changing the tooth brush

Group			Frequency	Percent	Valid Percent	Cumulative Percent
Interns	Valid	Once in a month	9	18.0	18.0	18.0
		Once in 2 month	24	48.0	48.0	66.0
		Whenever I feel	11	22.0	22.0	88.0

1 <sup>st</sup> BDS Valid	When bristles flare out	6	12.0	12.0	100.0
	Total	50	100.0	100.0	
	Once in a month	9	18.0	18.0	18.0
	Once in 3 month	23	46.0	46.0	64.0
	Whenever I feel Bristles flare out	14	28.0	28.0	92.0
	Total	4	8.0	8.0	100.0
		50	100.0	100.0	

Table 8: Regular use of interdental cleansing agent:

Group			Frequency	Percent	Valid Percent	Cumulative Percent
Interns Valid	Yes		13	26.0	26.0	26.0
	No		37	74.0	74.0	100.0
	Total		50	100.0	100.0	
1 <sup>st</sup> BDS Valid	Yes		9	18.0	18.0	18.0
	No		41	82.0	82.0	100.0
	Total		50	100.0	100.0	

Table 9: Regular use tongue cleaner:

Group			Frequency	Percent	Valid Percent	Cumulative Percent
Interns Valid	Yes		16	32.0	32.0	32.0
	No		34	68.0	68.0	100.0
	Total		50	100.0	100.0	
1 <sup>st</sup> BDS Valid	Yes		24	48.0	48.0	48.0
	No		26	52.0	52.0	100.0
	Total		50	100.0	100.0	

Table 10: Regular use of mouth wash:

Group			Frequency	Percent	Valid Percent	Cumulative Percent
Interns Valid	Yes		14	28.0	28.0	28.0
	No		36	72.0	72.0	100.0
	Total		50	100.0	100.0	
1 <sup>st</sup> BDS Valid	Yes		20	40.0	40.0	40.0
	No		30	60.0	60.0	100.0
	Total		50	100.0	100.0	

Table 11: Reason for use of mouthwash:

Group			Frequency	Percent	Valid Percent	Cumulative Percent
Interns	Valid	Freshness	7	50.0	50.0	50.0
		Antibacterial property	5	35.7	35.7	85.7
		Friend's recommendation	1	7.1	7.1	92.9
		Because of content	1	7.1	7.1	100.0
		Total	14	100.0	100.0	
1 <sup>st</sup> BDS	Valid	Freshness	14	70.0	70.0	70.0
		Antibacterial property	6	30.0	30.0	100.0
		Total	20	100.0	100.0	

### Discussion

There are varieties of commercially and naturally available oral hygiene products such as toothpaste, tooth brush, mouthwashes, dental floss, inter-dental brush, tongue cleaner etc. However, the factors that influence the choice of these products vary among person to person, since the population is influenced by other factors such as taste, price, advertisement, contents etc. Knowledge about the oral hygiene products varies among the interns who have been graduated in dentistry and have educated about the products, contents and their use compared to students who have just joined dentistry. Hence, this survey focused on the factors that influence choice of the oral hygiene aid among first year students and the interns of dental college. The study begun with question whether they changed the brand after joining dentistry, to assess their knowledge about the product which might have made them change the product. When subjects were asked about this, among interns only 38% changed the brand and among 1<sup>st</sup> BDS students only 16% have changed the brand(table 1). A significant percentage of subjects have changed the brand of tooth paste among interns after knowing the contents

whereas 80% of 1st year students did not change the brand. This may be because they are yet to be familiar with the contents and their use.

When interns and first year students were asked whether they stick to single brand of tooth paste 24% and 54% respectively responded saying, they do stick to single brand. Among interns brand was not determining pattern for the selection oral hygiene products whereas first year students more than 50% stick to single brand.(table -2)

Further, subjects were asked about the selection criteria for their toothpaste, for which among interns, 34% of them chose their paste based on advertisement and contents of the paste, 28% chose based on the taste of the paste and 4% chose based on the price of the paste. And among 1<sup>st</sup> BDS 48% of them chose their paste based on content of the paste, 16% based on the advertisement, 32% chose based on the taste of the paste and 4% chose based on the price of the paste.(table 3) Majority of the participants chose their product based on contents of the paste, closely followed by advertisement of the product. Hence it contributes to the fact that irrespective of their knowledge, advertise plays a major role. In a study by

Anita logarajan et al, advertisements on television and radio channels were the main factor contributed for choosing particular brand of tooth paste in 59.1% population<sup>[6]</sup>. In a survey done by Vani et al., 200 respondents were included, in which, 45% of them were fascinated to toothpaste based on advertisements<sup>[7]</sup>. In a survey done by Archana et al., among the local population of Udaipur, 39.6% of them selected their tooth paste by getting information from the media, whereas in the study done by Dilip et al., magazines, television and radio were the major sources of information for liking of tooth paste<sup>[8-9]</sup>.

Our study also focused on taste of the paste, and revealed the a significant percentage of subject depends on taste of the paste or simply the previous experience which is accordance with the study done by Archana et al, where 31.7% of the respondents preferred flavour and taste<sup>[8]</sup> and price plays least importance among both the group which also can be closely relatable to the study done by Anitha et al where only 7.9% of them preferred the low cost of toothpaste.<sup>[6]</sup>

When asked about change in brand of tooth brush after joining dentistry, among interns 58% were found to have changed the brand and among 1<sup>st</sup> BDS students only 30% have changed the brand(table 4)Thus more than half of interns have changed the brand whereas among first year students, brand was not a determining factor.

When interns were asked whether they stick to single brand of tooth brush, 24% of them responded saying , they do stick to single brand ,Similarly among 1<sup>st</sup> BDS 28% do stick to single brand. Brand of the tooth brush was not contributing factor for both the group(table 5)

When subjects were asked about the selection criteria for their tooth brush, for which among interns,80% chose their brush based on bristles of the brush , 14% chose based on advertisement , 6% chose based on the

longitivity of the brush. Among 1<sup>st</sup> BDS students, 76% chose their brush based on bristles of the brush, 6% based on the advertisement, 14% chose based on the longitivity of the brush and 4% chose based on the price (table 6). Majority of the subjects among both the group were more influenced by the bristle thickness than any other factor. This is in agreement with some studies which reported that texture of the toothbrush bristles was the major influencing factor in the selection of toothbrush.<sup>[10&11]</sup>

When the interns were asked about the frequency of changing tooth brush, 18% changed it once in a month, 48% changed it once in three months, 22% changed it whenever they felt like and 12% changed it when bristles flared out. Similarly among 1<sup>st</sup> BDS students, 18% changed it once in a month, 46% changed it once in three months, 28% changed it whenever they felt like and 8% changed it when bristles flared out. (table 7). Majority of the subjects among both the groups changed it in three months. This result is closely related to the study done by Alok Nath Bandyopadhyay et al, in which approximately 60% of the subjects changed their toothbrush within 1 to 3 months.<sup>1</sup>

They were also asked about the use of inter-dental cleansing agents and tongue cleaner(table 8-9). Among interns, 26% and 32% used inter-dental cleansing agent and tongue cleaner respectively and among 1<sup>st</sup> BDS 18% and 48% used inter-dental cleansing agent and tongue cleaner respectively. Significant number of subjects used tongue cleaner in both the groups as compared to inter-dental cleansing agent. More number of interns using inter-dental cleansing agents compared to first year students signifies that interns are well aware of importance of using inter-dental cleansing agents. In a study by Al Shammari (2007) et al use of dental floss was by 11.8% participants<sup>[12]</sup>. Zhu et al (2005) in their study showed use of dental floss by 4.1% of subjects<sup>[13]</sup>. Bauroth et al and

Bellamy et al studies have shown the usefulness of regular dental flossing for removal of inter dental plaque and <sup>[14-15]</sup>. Nevertheless, many studies showed that use of dental floss was not very popular. <sup>[16,17-18]</sup>

When subjects were asked about use of mouth washes 28% of interns were found to be using mouth washes (table 9). In 50% of them, mouth wash was used for freshness, 35.7% used it because of the antimicrobial property, 7.1 % of them used because friends had recommended it and 7.1% used as they knew the content of the mouthwash and its indication. . Similarly among first BDS students 40% of them used mouth washes, out of which 70% of them used it for freshness, 30% used it for their antimicrobial property. Use of mouthwash for freshness was the major determining factor among both the groups, closely followed by antibacterial activity of mouthwash. (table 11)

### Conclusion

The present study was carried out for a comparative assessment of knowledge & practices of oral hygiene aids in two groups who belonged to different hierarchical levels of dental knowledge. The study revealed that there is no significant difference in selection of oral hygiene aids. It was also inferred from the study that the factors that are supposed to influence the decision of choice for subjects at two different levels, are not making any significant difference. It was found that irrespective of the scientific knowledge about the aids, the advertisement, taste, previous experience and comfort played significant role in selection of the product.

### Recommendations

- Students at all the levels of dental education should be provided scientific, evidence based knowledge about the factors that influence the choice of oral hygiene aids.
- CDE programs & workshops should be conducted in this regard for awareness of students and they should

also be taught to give oral hygiene instructions to general population.

### Limitation of the Study

- This study relied upon students providing honest responses. Because anonymity was assured, the validity of responses was assumed
- This study is based on structured questionnaire; the response may not be accurate or true or may include response bias associated with self-reported data
- Individuals may give different interpretation to the questions asked and the responses may have been influenced by the social acceptability of their responses
- convenience sampling and small sample size used in the study; this might limit the generalization of the results

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